



Ordinary Council Meeting

Agenda

15 April 2025



City of
Belmont

Notice of Meeting

An **Ordinary Council Meeting** will be held in the Council Chamber of the **City of Belmont Civic Centre**, 215 Wright Street, Cloverdale, on **Tuesday 15 April 2025**, commencing at 6:30pm.

John Christie
Chief Executive Officer

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CITY OF BELMONT

Ordinary Council Meeting

Agenda

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Alternative Formats

This document is available on the City of Belmont website and can be requested in alternative formats including electronic format by email, in hardcopy both in large and standard print and in other formats as requested. For further information please contact the Community Development team on (08) 9477 7219. For language assistance please contact TIS (Translating and Interpreting Service) on 131 450.

**Councillors are reminded to retain any
confidential papers for discussion with the minutes.**

1 Official Opening

The Presiding Member will read aloud the Acknowledgement of Country.

Acknowledgement of Country

Before I begin, I would like to acknowledge the Whadjuk Noongar people as the Traditional Owners of this land and pay my respects to Elders past, present and emerging.

I further acknowledge their cultural heritage, beliefs, connection and relationship with this land which continues today.

The Presiding Member will cause the Affirmation of Civic Duty and Responsibility to be read aloud by a Councillor.

Affirmation of Civic Duty and Responsibility

I make this affirmation in good faith and declare that I will duly, faithfully, honestly, and with integrity fulfil the duties of my office for all the people in the City of Belmont according to the best of my judgement and ability.

I will observe the City's Code of Conduct and Standing Orders to ensure efficient, effective and orderly decision making within this forum.

2 Apologies and leave of absence

Cr J Powell (leave of absence) South Ward

3 Declarations of interest that might cause a conflict

Councillors/Staff are reminded of the requirements of s5.65 of the *Local Government Act 1995 (WA)*, to disclose any interest during the meeting when the matter is discussed, and also of the requirement to disclose an interest affecting impartiality under the City's Code of Conduct for Council Members, Committee Members and Candidates and the Code of Conduct for Employees.

3.1 Financial Interests

A declaration under this section requires that the nature of the interest must be disclosed. Consequently, a member who has made a declaration must not preside, participate in, or be present during any discussion or decision-making procedure relating to the matter the subject of the declaration.

Other members may allow participation of the declarant if the member further discloses the extent of the interest and the other members decide that the interest is trivial or insignificant or is common to a significant number of electors or ratepayers.

Name	Item No and Title	Nature of Interest (and extent, where appropriate)

3.2 Disclosure of interest that may affect impartiality

Councillors and staff are required (Code of Conduct), in addition to declaring any financial interest, to declare any interest that might cause a conflict. The member/employee is also encouraged to disclose the nature of the interest. The member/employee must consider the nature and extent of the interest and whether it will affect their impartiality. If the member/employee declares that their impartiality will not be affected, then they may participate in the decision-making process.

Name	Item No and Title	Nature of Interest (and extent, where appropriate)

4 Announcements by the Presiding Member (without discussion) and declarations by Members

4.1 Announcements

4.2 Disclaimer

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4.3 Declarations by Members who have not given due consideration to all matters contained in the business papers presently before the meeting

5 Public question time

5.1 Responses to questions taken on notice

5.1.1 Ms L Hollands on behalf of Belmont Resident and Ratepayer Action Group

The following questions were taken on notice at the 25 March 2025 Ordinary Council Meeting. Ms Hollands was provided with a response on 3 April 2025. The response from the City is recorded accordingly:

2. In regard to the Oasis Recreation Centre, apart from any maintenance, for example fixing pool leaks, who pays for the day-to-day maintenance costs of the pool, such as chlorine, and,
 - i) If the City is paying, can I have a costing for the last 12 months for pool maintenance? and,
 - ii) In addition, a costing to the resident of the Oasis, such as gym equipment and any other spending that's not related to building maintenance?

Response

As the owner of the facility, the City is responsible for ensuring compliance with legislative requirements and the safety of the 3 pools and spa. Consequently, the City has engaged the services of a professional pool maintenance company.

- i) **Annual pool servicing costs amount to \$42,504. This covers the maintenance of all plant and equipment necessary to keep the pools operational. The contractor is responsible for supplying all chemicals required to maintain water quality at the centre.**
- ii) **Additionally, the City also pays for the lease of cardio equipment in the gym at a cost of \$70,878 per annum.**

3. At the start of the Ordinary Council Meetings, the Mayor refers to the rules on the back of the Public Question Time form. Why is the Mayor telling people that those are the Public Question Time rules, when they are not the Standing Orders?

Response

This matter has been addressed previously in correspondence with BRRAG.

Further to BRRAG's letter to the Mayor dated 10 December 2024, the Mayor provided a response to this question, and the City refers the questioner to the Mayor's response to BRRAG's question 3 in his letter of 19 December 2024.

5.1.2 Ms B Scharfenstein, Redcliffe

The following questions were taken on notice at the 25 March 2025 Ordinary Council Meeting. Ms Scharfenstein was provided with a response on 3 April 2025. The response from the City is recorded accordingly:

4. With reference to the link on page 33, 'Environment and Sustainability Strategy ', can you advise why the Belmont Foreshore Precinct Plan and the Urban Forest Strategy Canopy Plans have been removed from the 'Plans and Strategies' page on the City's Website?

Response

The web links to the Belmont Foreshore Precinct Plan and Canopy Plan were broken and these links have now been restored.

5. Can you please advise when the review of these environmental strategies will be complete?

Response

The review of the Urban Forest Strategy 2025-2035 is complete and will be presented to Council by July 2025. The development of the Foreshore Management Plan (Lower Swan Locality Plan) is in progress and should be in place for the 2026-27 budget cycle.

5.1.3 Ms D Ransome, Ascot

The following question was taken on notice at the 25 March 2025 Ordinary Council Meeting. Ms Ransome was provided with a response on 3 April 2025. The response from the City is recorded accordingly:

4. Can Council provide an example of the cost incurred to ratepayers for a small, medium and large development?

Response

Design Review Panel costs are approximately \$2,310 for a small to medium-sized project, and approximately \$4,330 for a large project.

5.1.4 Mr M Cardozo, Redcliffe

The following question was taken on notice at the 25 March 2025 Ordinary Council Meeting. Mr Cardozo was provided with a response on 3 April 2025. The response from the City is recorded accordingly:

3. At the October 2024 ABF, Cr Harris, as a member of the public at the time, attended and requested to make a submission and it was not recorded in the minutes. This is also the same for Ms Hollands who had her submission denied at the February 2025 ABF, can these please be checked?

Response

Both deputation requests were recorded in the minutes under the respective agenda item number of the relevant ABF, as were the Presiding Member's responses to the requests and reasons.

5.1.5 Mr M Cardozo on behalf of Belmont East Ward Connect

The following questions were taken on notice at the 25 March 2025 Ordinary Council Meeting. Mr Cardozo was provided with a response on 3 April 2025. The response from the City is recorded accordingly:

1. At the 10 December 2024 Ordinary Council Meeting, the City increased the Chief Executive Officer's delegation for accepting tenders for capital projects to \$500,000 by benchmarking against other local governments. When Electors at the 3 February 2025 Annual Electors' Meeting used benchmarking data on 8 adjacent local governments who support livestreaming for their ABF's, the City dismissed the benchmarking as an insufficient basis for change. Can the City clarify its criteria for when benchmarking is a valid justification for policy decisions, and,
 - i) Why was benchmarking used to support the Chief Executive Officer's

delegation increase, but rejected to be applied for the request to livestream ABF's?

Response

As noted by the Chief Executive Officer in his response to Mr Cardozo, comparison with neighbouring councils is not the only reason why a council should do or not do something.

Currently Council's Livestreaming Policy to livestream Council meetings complies with the requirements of the *Local Government Act 1995 (WA)*. Even though the State Government is aware that many local authorities hold agenda briefing forums, the State Government chose not to include any direction to local authorities to hold agenda briefing forums or to livestream them as part of the State's recent reforms for local government.

3. Standing Orders section 6.7(2) provides two pathways for determining whether a person may make a submission. One of the pathways is that the Chief Executive Officer may approve the request or refer it to Council for a decision. Can the Chief Executive Officer provide specific examples or circumstances under which a submission or deputation request might be referred to Council rather than being determined solely by the Presiding Member? And,

- ii) If no such examples exist, does this mean that in practice having these submissions referred to Council is never considered an option?

Response

Section 6.7 of the Standing Orders provides the CEO with the authority to approve a request to make a submission provided before a meeting. Any exercise of that authority by the CEO as per the Standing Orders is validly made. Section 6.7(2) of the Standing Orders, by the use of the word may, confers an absolute discretion to the CEO as to whether he refers a request to Council or not.

The CEO is fully aware of the discretion available to him under the Standing Orders to refer a request to Council.

5.1.6 Mr J Yarran, Kewdale

The following question was taken on notice at the 25 March 2025 Ordinary Council Meeting. Mr Yarran was provided with a response on 3 April 2025. The response from the City is recorded accordingly:

2. What is the City doing in regard to its indigenous employment strategies?

Response

Under 'Priority Area 3: Capacity Building' of the City's First Nations Strategy document, there is a specific strategy focused on employment and education:

"3.1 Develop capacity building pathways that specifically target the areas of education, employment and training, leveraging the City's business connections to increase the participation of First Nations peoples in economic development".

While principal responsibility for employment is held by the federal Department of Employment and Workplace Relations which funds employment support services, along with other federal and state agencies, the City plays a very active supporting role in impacting on employment.

Current initiatives include delivering jobs expos, the Employment Support Program assisting with resume writing, providing workshops on starting home-based or small businesses, youth training programs at The Base youth centre, and sponsoring the Indigenous Business of the Year award category in the annual Belmont and WA Small Business Awards.

5.1.7 Ms J Gee, Cloverdale

The following questions were taken on notice at the 25 March 2025 Ordinary Council Meeting. Ms Gee was provided with a response on 3 April 2025. The response from the City is recorded accordingly:

1. At the 25 February 2025 Ordinary Council Meeting, I asked questions that weren't taken on notice, but they are not recorded in this month's 25 March 2025 Ordinary Council Meeting agenda? Normally questions from the meeting are written up in here, but they're not, can I ask where they are?

Response

The questions asked by Ms Gee at the 25 February 2025 Ordinary Council Meeting were answered at the February 2025 OCM and no questions were taken on notice. The answers are in the minutes of the February 2025 OCM. A review of the livestream video on the Council's YouTube channel has confirmed the above.

2. What is the cost for holding an Annual Electors' Meeting? and;
 - i. What is the benefit to Councillors and in particular to residents, when no resident's motion has ever been supported?

Response

The direct costs incurred in holding an AEM are staff overtime costs for a number of the non-management team present at an AEM. The other direct cost is for the provision for meals of Elected Members and Officers.

The requirement to hold an AEM is mandated by the *Local Government Act 1995 (WA)* (the Act). The Residents motions adopted by the AEM are determined by the Elected Members when they consider them as required by the Act.

3. How much has been spent on meals for Councillors in the last 12 months? and;
 - i. What was the cost after returning to a full schedule of Council meetings after COVID?

Response

The cost of council meals for Elected Members for the 12 months to 31 March 2025 was \$19,005. The cost of council meals for Elected Members for the 12 months to 31 March 2023 was \$17,462 (immediately post-COVID).

5.2 Questions from members of the public

6 Confirmation of Minutes/receipt of Matrix

6.1 Matrix for the Agenda Briefing Forum held 8 April 2025

Officer Recommendation

That the Matrix of the Agenda Briefing Forum held on 8 April 2025, as printed and circulated to all Elected Members, be received and noted.

6.2 Ordinary Council Meeting held 25 March 2025

Officer Recommendation

That the Minutes of the Ordinary Council Meeting held on 25 March 2025, as printed and circulated to all Elected Members, be confirmed as a true and accurate record.

7 Questions by Members on which due notice has been given (without discussion)

8 Questions by members without notice

8.1 Responses to questions taken on notice

8.2 Questions by members without notice

9 New business of an urgent nature approved by the person presiding or by decision

10 Business adjourned from a previous meeting

11 Reports of committees

Nil.

12 Reports of administration

12.1 Ascot Racecourse Precinct Structure Plan

Voting Requirement	:	Simple Majority
Subject Index	:	128/019
Location/Property Index	:	Lots 1 (No. 88), 3 (No.96), 13, 50, and 9002 (No. 71) and Lot 452 (No. 70) Grandstand Road, Lot 7005 (No. 71) Matheson Road, and Lots 51 (No. 2) and 100 (No. 1) Raconteur Drive, Ascot
Application Index	:	N/A
Disclosure of any Interest	:	Nil
Previous Items	:	N/A
Applicant	:	Rowe Group
Owner	:	The Western Australian Turf Club Western Australian Planning Commission
Responsible Division	:	Development and Communities

Council role

Legislative	Includes adopting local laws, local planning schemes and policies.
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Purpose of report

For Council to consider the draft Ascot Racecourse Precinct Structure Plan following public advertising and make a recommendation to the Western Australian Planning Commission (WAPC).

Summary and key issues

- Rowe Group on behalf of Perth Racing has prepared the draft Ascot Racecourse Precinct Structure Plan (PSP) to guide the future use and development of the land in and around Ascot Racecourse.
- The draft PSP was advertised for 43 days between 24 October 2024 and 6 December 2024. At the close of the advertising period, a total of 103 submissions were received.
- The key matters raised in submissions relate to:
 - Concerns, including on the appropriateness of certain instances of Crown Land and Road Reserves being able to accommodate the proposed development.

- The clearing of trees.
- Safe crossing points to and from the Racecourse across Grandstand Road.
- The interface between future development on Lot 452 and the adjacent single houses.
- Amenity impacts of future stables development within Precinct C.
- Increased traffic congestion including concerns with increased movements within the 'Residential and Stables' zone.
- Concerns about the loss of parking bays due to commercial development in Precinct E and the potential for increased street parking.
- The amount of retail floor space proposed within the precinct.
- Several modifications to the draft PSP are proposed in response to the submissions and following an assessment of the document, with key changes relating to:
 - Aligning documentation with the latest draft Golden Gateway Local Structure Plan.
 - Providing further justification in the Transport Impact Assessment regarding parking availability, traffic impacts within the residential and stables area, and pedestrian crossings.
 - Updating the Retail Needs Assessment to include measures that justify the incremental expansion of retail development over time, tied to justified milestones and the associated provisions for this.
 - Updating land use permissibility.
 - Investigating and identifying trees for protection.
 - Adjusting the boundary of Precinct A to exclude development within the Crown Grant in Trust land.
 - Introducing additional development provisions to manage interfaces with Ascot Waters, Matheson Road, and the Central Belmont Main Drain.
- It is recommended that Council recommends the draft Ascot Racecourse PSP be approved by the WAPC, subject to modifications.

Officer Recommendation

That Council, pursuant to Schedule 2, Part 4, Clause 20 of the *Planning and Development (Local Planning Schemes) Regulations 2015*, recommends the draft Ascot Racecourse Precinct Structure Plan (Attachment 12.1.1) and supporting appendices (Attachments 12.1.2 through 12.1.8), incorporating the modifications detailed in Attachment 12.1.9, be approved by the Western Australian Planning Commission.

Location

The draft PSP encompasses 61.3ha of land bound by the Swan River, Ascot Waters Estate, Grandstand Road, Resolution Drive, the Residential and Stables zone, Hardey Road, Carbine Street and Matheson Road in Ascot (refer to Figure 1 below).

More specifically, the draft PSP applies to nine lots, eight of which are owned by Perth Racing. The remaining lot located within Precinct E (shaded yellow on Figure 1) adjacent to Grandstand Road is owned by the WAPC.

A further description of the land and tenure is included within the Report section.



Figure 1: Ascot Racecourse Precinct Structure Plan Area (outlined red)

Consultation

The draft Ascot Racecourse PSP was advertised between 24 October 2024 and 6 December 2024 by:

- Sending letters to relevant State agencies and landowners and occupiers of properties outlined on Figure 2;
- Publishing a public notice in the 24 October 2024 edition of the PerthNow newspaper; and
- Displaying a public notice and information on the City's website, Belmont Connect and at the Civic Centre.



Figure 2: Referral Area (outlined red)

At the close of the advertising period, a total of 103 submissions were received. A summary of the submissions received, and officer's responses are included in the Schedule of Submissions contained as Attachment 12.1.10 and Confidential Attachment 12.1.11.

The key matters raised in submissions relate to:

- Land tenure concerns, including a portion of Precinct E being Crown Land, another designated as Road Reserve, and a portion of Precinct A subject to a Crown Grant in Trust.

- The clearing of trees.
- Safe crossing points to and from the Racecourse across Grandstand Road.
- The interface between future development on Lot 452 and the adjacent single houses.
- Amenity impacts of future stables development within Precinct C.
- Increased traffic congestion including concerns with increased movements within the 'Residential and Stables' zone.
- Concerns about the loss of parking bays due to commercial development in Precinct E and the potential for increased street parking.
- The amount of retail floor space proposed within the precinct.

The above matters will be further discussed in the report section.

Strategic Community Plan implications

In accordance with the 2024–2034 Strategic Community Plan:

Key Performance Area: Place

Outcome: 6. Sustainable population growth with responsible urban planning.

Key Performance Area: Performance

Outcome: 11. A happy, well informed and engaged community.

Policy implications

There are no policy implications associated with this report.

Statutory environment

Strategic Planning Framework

Perth and Peel @ 3.5 Million

Perth and Peel @ 3.5 Million provides a strategic framework to guide development across the Perth and Peel regions, in response to a projected population of 3.5 million by 2050. The document divides the Perth metropolitan area into four sub-regions: Central, North-West, North-East, and South. The subject land is located within the Central Sub-region.

The strategy also outlines Urban Consolidation Principles and identifies corresponding precincts. Of particular relevance to this draft PSP are the 'Green Network', 'Urban Corridor' and 'Activity Centres' principles and precincts.

The racecourse is identified as part of the 'Green Network' that extends along the Swan River. The document highlights the importance of supporting population growth and higher-density living with a connected network of public and private open spaces.

Great Eastern Highway, located south of the subject land, is identified as an 'Urban Corridor', intended to accommodate higher-density residential development that leverages proximity to public transport while minimising impacts on surrounding areas and maintaining the efficiency of the regional transport network. Great Eastern Highway, Grandstand Road, and Resolution Drive are also identified as high-frequency public transit routes.

The document references State Planning Policy SPP 4.2 (SPP 4.2) and the hierarchy of centres based on the future importance of each centre from a network perspective. Additionally, the document identifies the important role that activity centres have in being a focal point for commercial and social activity and the importance of these areas being designed to be walkable and near public transport to support these means of access.

Local Planning Strategy

The City of Belmont Local Planning Strategy is the strategic planning document that broadly sets out the long-term planning direction for the City. The Strategy also informed the preparation of Local Planning Scheme No. 15 (LPS 15). The key objectives of the Local Planning Strategy and relevant sub-strategies for this precinct are as follows:

- To enhance the north-west entrance to the City.
- To encourage landmark development.
- Acknowledge that Ascot Racecourse and the Swan River are 'strategic tourism sites' of State significance to benefit future tourism development.

Activity Centre Planning Strategy

The Activity Centre Planning Strategy (ACPS) was prepared to guide the future planning and coordination of activity centres within the City of Belmont and was adopted by Council at the February 2024 Ordinary Council Meeting (OCM). The ACPS identifies a future local centre within the broader Golden Gateway precinct, which includes a portion of Perth Racing's land and outlines that it is to be 1,200m² in the first instance. The ACPS states that following further residential development within the Golden Gateway precinct, it may be

appropriate for this figure to be reviewed through a Needs Assessment or Net Benefit Test.

Statutory Planning Framework

Metropolitan Region Scheme

The subject land area is primarily zoned 'Private Recreation' under the Metropolitan Region Scheme (MRS), with the balance zoned 'Urban' and land abutting the Swan River reserved 'Parks and Recreation' (Figure 3).



Figure 3: MRS zones and reserves (subject site outlined red and proposed MRS Amendment area outlined yellow)

The draft PSP proposes rezoning the area shown in yellow in Figure 3 above to 'Mixed Use' under LPS 15. To facilitate this, Perth Racing is seeking an MRS amendment to apply an 'Urban' zone. However, this is subject to a separate planning process.

Planning and Development (Local Planning Schemes) Regulations 2015 (WA)

Part 4, Schedule 2 – Deemed Provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015 (WA)* (Regulations) outlines the

procedure for the preparation, advertising and consideration of a structure plan. The key requirements under Part 4 of the Regulations are as follows:

- The local government must advertise a structure plan for at least 42 days unless otherwise approved by the WAPC.
- Within 60 days (or an alternative date agreed to by Department of Planning, Lands and Heritage) from the last day for making submissions, the local government must consider all submissions made on the proposed structure plan and prepare a report for the WAPC. In this case, the WAPC has granted an extension until 25 April 2025. The report must include the following:
 - A list of the submissions considered by the local government;
 - Any comments by the local government in respect of those submissions;
 - A schedule of any proposed modifications to address issues raised in the submissions;
 - The local government's assessment of the proposal based on appropriate planning principles;
 - A recommendation by the local government on whether the proposed structure plan should be approved by the WAPC.
- If the WAPC is not given a report on a proposed structure plan they may make a decision on the proposed structure plan in the absence of a report. In making a decision, the WAPC may request technical advice or further information from the local government and if the local government fails to provide this, the WAPC may obtain the information themselves. If the WAPC incur any costs during this process, they may seek to recover these from the local government.
- On receipt of a report on a proposed structure plan from the local government, the WAPC must within 120 days, consider the plan and determine whether to approve the structure plan, require the structure plan to be modified or refuse the structure plan.
- The WAPC may direct the local government to readvertise the structure plan where it considers that major modifications have been made; however, it cannot direct the local government to readvertise the structure plan on more than one occasion.

Local Planning Scheme No. 15

The subject land is predominantly zoned 'Place of Public Assembly – Racecourse' under LPS 15. The southern portion of the subject land, abutting Resolution Drive, is zoned 'Mixed Use', and a separate portion of land adjacent

to Grandstand Road is not currently assigned a zone or reserve (refer to Figure 4).

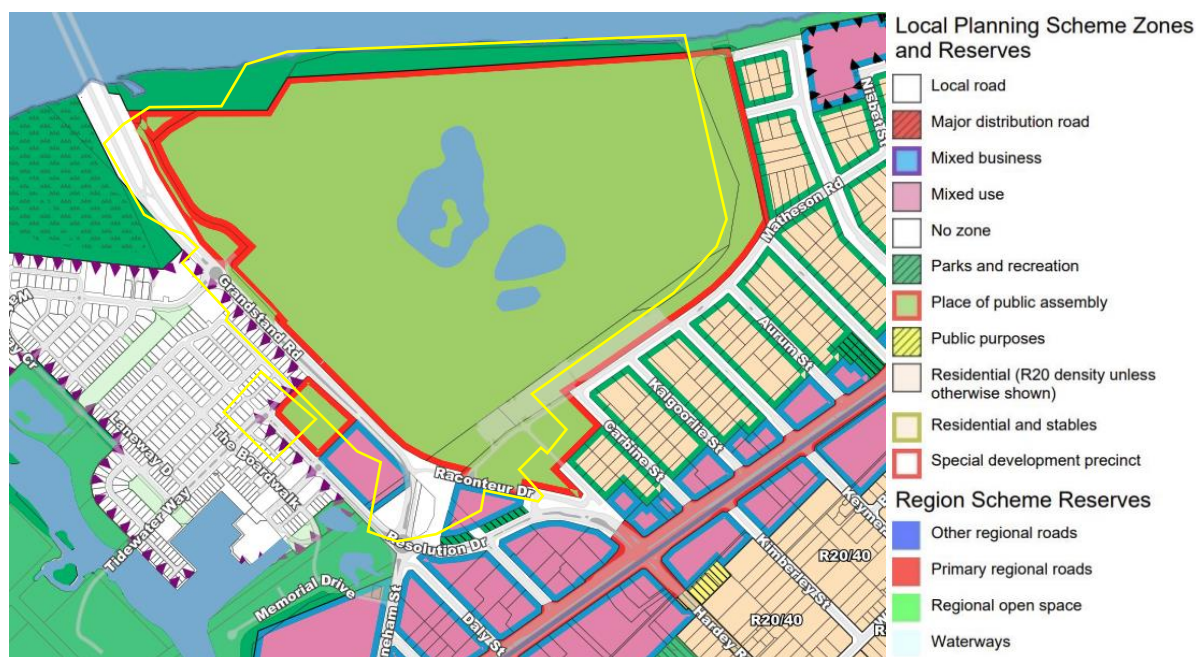


Figure 4: LPS 15 zones and reserves (*subject land outlined yellow*)

The draft PSP proposes to rezone land within Precincts A, D and E as detailed within the Report section. It is important to note that while the Structure Plan outlines the intended zoning, it does not itself rezone land. Instead, it provides the framework for a future scheme amendment to formally implement the proposed zoning changes.

Local Planning Scheme No. 15 includes objectives for the various zones. The objectives relevant to the draft PSP are as follows:

Commercial Zone:

"The Town Centre and Commercial Zones are intended to provide for the retail commercial function and entertainment."

Mixed Use Zone:

"The Mixed Use Zone is intended to allow for the development of a mix of varied but compatible land uses such as housing, offices, showrooms, amusement centres, eating establishments and appropriate industrial activities which do not generate nuisances detrimental to the amenity of the district or to the health, welfare and safety of its residents. Buildings should be of a high standard of architectural design set in pleasant garden surrounds with limited vehicular access from properties to primary roads."

Residential Zone:

"The purpose and intent of the Residential Zone is to increase the population base of the City of Belmont by permitting a mix of single housing and other housing types to reflect household composition and thereby increase the resident population."

Place of Public Assembly Zone:

"The 'Places of Public Assembly' zone is intended to allow for special places of assembly, such as halls, private schools, grounds for athletics, sports grounds with provision for spectators, racecourses, trotting track, stadia and/or showgrounds."

Residential and Stables Zone:

"The Residential and Stables Zone is intended to provide for compatible and environmentally responsible use of land in proximity to the Ascot Racecourse and the Swan River by residential accommodation and stables and ancillary functions of the horse racing industry."

As the zones proposed to be applied to Precincts A, D and E are inconsistent with the existing zonings under LPS 15, and because the list of 'additional uses' is proposed to be expanded and 'restricted uses' introduced, a scheme amendment will be required. This will occur separate to the structure planning process.

Regarding land use permissibility, Schedule 1 of LPS 15 includes land use definitions, while Table 1 – Zoning Table sets permissibility for these across the various zones. There are several uses defined within Schedule 1 which are not listed within the Zoning Table (e.g. 'Animal Establishment'). Such uses are to be treated as 'use not listed', must be publicly advertised, and generally submitted to Council for determination.

Clause 3.5 of LPS 15 addresses 'Additional Uses' and outlines that, regardless of the use class designation in the Zoning Table, land uses for areas specified in Schedule 2 can receive approval, subject to the specific conditions being met. Land zoned 'Place of Public Assembly – Racecourse' is currently assigned Additional Use 18 for 'Horse Sales' and 'Stables'. Further 'Additional Uses' are proposed by the draft PSP as discussed in the Report section.

Clause 3.6 of LPS 15 relates to 'Restricted Uses' and outlines that only the uses contained within Schedule 3 (Restricted Use Table) can be considered. The draft PSP proposes 'Restricted Uses' be applied to Precincts A, D and E. Further information on this is included within the Report section.

Draft Golden Gateway Local Structure Plan

The draft Golden Gateway Local Structure Plan (draft Golden Gateway LSP) has been prepared to coordinate future subdivision, zoning and development of land generally bound by Great Eastern Highway to the south, the Swan River to the west, the Ascot Waters precinct to the north, and the Ascot Racecourse/Residential and Stables precinct to the east (refer to Figure 5).

The draft Golden Gateway LSP originally proposed zoning changes and development provisions for part of the subject land. However, Perth Racing subsequently indicated its intent to pursue a separate planning framework for its landholdings. In response, the draft Golden Gateway LSP acknowledges that part of Perth Racing's land will be subject to a separate planning process. Retaining a portion of Perth Racing's land within the Golden Gateway precinct is considered appropriate to facilitate a coordinated and holistic approach to planning for both areas.

The Golden Gateway LSP indicates that a 1,200m² local centre may be appropriate within the precinct (including over Perth Racing's land). Further discussion on this is included within the Report section.

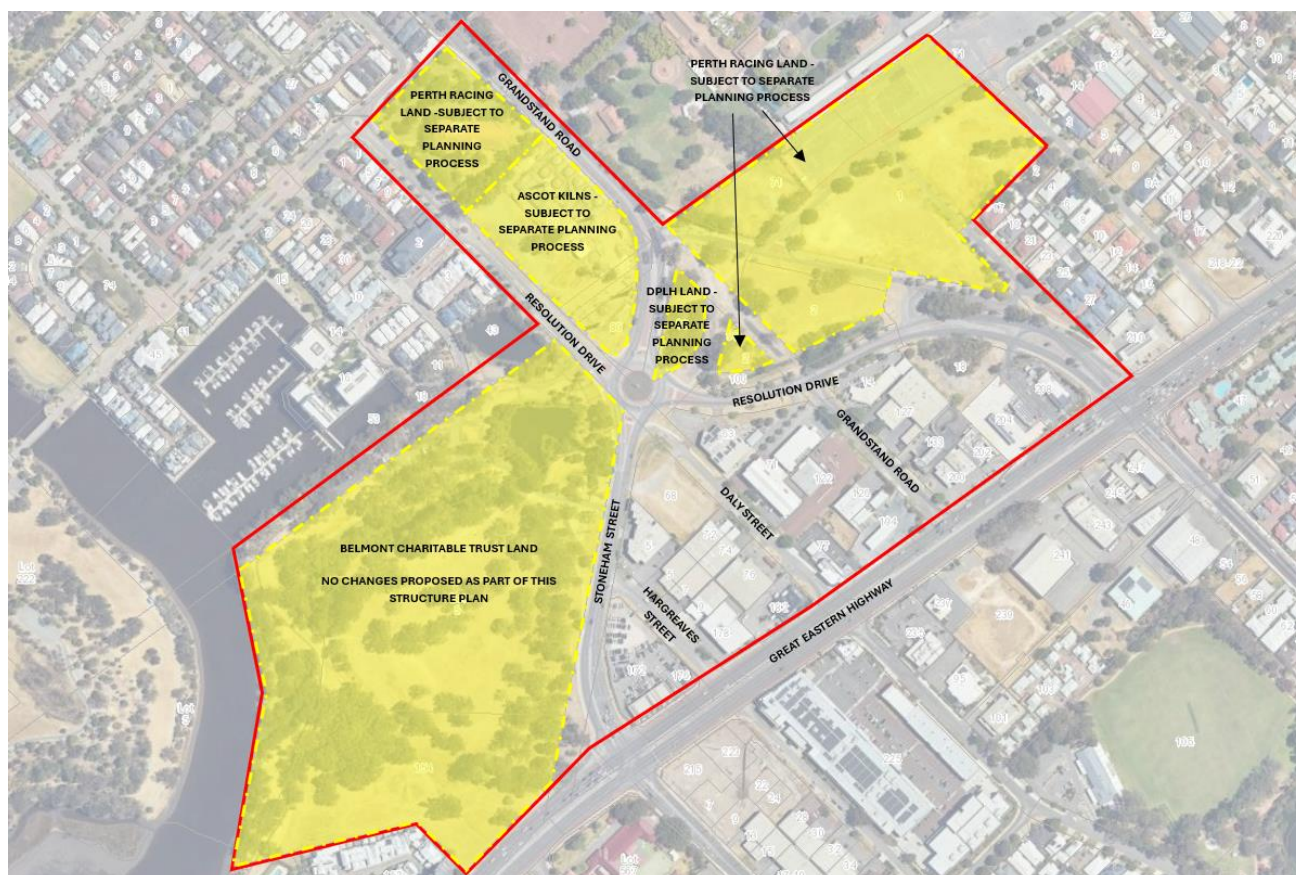


Figure 5: Draft Golden Gateway Local Structure Plan Area (outlined red)

The draft Golden Gateway Local Structure Plan was presented to Council at the 25 February 2025 OCM, where it was resolved to recommend that the WAPC approve the Structure Plan, subject to modifications. The document has been forwarded to the WAPC for their consideration.

State Planning Policy 3.0 – Urban Growth and Settlement

State Planning Policy 3.0 – Urban Growth and Settlement ('SPP 3.0') outlines key principles and considerations to guide sustainable urban growth and settlement across Western Australia. The objectives of SPP 3.0 are:

- To promote a sustainable and well-planned pattern of settlement across the State, with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.
- To build on existing communities with established local and regional economies, concentrate investment in the improvement of services and infrastructure, and enhance the quality of life in those communities.
- To manage the growth and development of urban areas in response to the social and economic needs of the community and in recognition of relevant climatic, environmental, heritage, and community values and constraints.
- To promote the development of a sustainable and liveable neighbourhood form which reduces energy, water, and travel demand, while ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing, and creates an identifiable sense of place for each community.
- To coordinate new development with the efficient, economic, and timely provision of infrastructure and services.

These matters have been considered through the assessment of the draft PSP and are further discussed in the Report section.

State Planning Policy 4.2 – Activity Centres

State Planning Policy 4.2 guides the planning and development of activity centres in the Perth and Peel region. The document emphasises the importance of activity centres having a compact urban form with pedestrian-focused streetscapes. The City's ACPS identifies a local centre within the Golden Gateway precinct, including part of Perth Racing's landholdings subject to the draft PSP. State Planning Policy 4.2 states that neighbourhood and local centres should cater to daily and weekly household shopping needs, provide community facilities, and offer a small range of

convenience services. Neighbourhood centres typically include a supermarket, personal services, and convenience shops, supported by small-scale offices. Local centres share these characteristics but operate on a smaller scale.

State Planning Policy 4.2 highlights that it is important to ensure that development of activity centre uses within an area generally comply with the floorspace need identified for specific activity centres in local planning strategies or structure plans. Where a proposal exceeds that floorspace need, the proposal is to demonstrate a net benefit to the community. A net benefit test is to be prepared in accordance with Section 7.8 of SPP 4.2 and address matters included in Section 5.3 of the Implementation Guidelines as follows:

- Is there a demand for additional floorspace, and how does the proposal meet this demand?
- How will the proposed development impact on the role of the activity centre and/or the viability and vibrancy of other activity centres in the hierarchy?
- What is the anticipated loss and/or gain of services to the community?
- What is the anticipated impact on access (distance, time, mode of travel) to services by the community?
- Will the proposal contribute to a net increase in employment? Does the proposal align with the objectives and outcomes of this policy and the planning framework?
- Are any potential impacts reduced over the longer term?

A Net Benefit Test has been prepared in support of the draft PSP. Further discussion on this is included in the Report section.

The draft PSP proposes part of Precinct E for 'showrooms.' State Planning Policy 4.2 states that these should be located in an Activity Centre Frame but notes that smaller centres may not have a frame. It also identifies bulky goods showrooms as a desired use within the frame of district centres but not for the frame of local or neighbourhood centres.

State Planning Policy 5.4 – Road and Rail Noise

State Planning Policy 5.4 – Road and Rail Noise ('SPP 5.4') applies to proposals for noise-sensitive land uses located near major transport and freight corridors. Under SPP 5.4, the proposed 'Mixed Use' zone within the draft PSP is partially situated within the noise buffer zone of Great Eastern Highway, a key freight and traffic route.

A Transportation Noise Assessment has been prepared in support of the draft PSP. The assessment found:

- The screening effect of existing buildings ensures that any ground-floor noise-sensitive uses would comply with the outdoor noise target.
- Noise-sensitive uses above the ground floor and within 200 metres of Great Eastern Highway would need to meet the requirements of Package A, including a notification on the title. Alternatives to the Deemed-to-Comply Package A may be considered if supported by a report from a qualified acoustical consultant (a member of the Association of Australasian Acoustical Consultants (AAAC)) once detailed plans are available.

The implementation of these requirements will be addressed as a condition of subdivision or development approval, as applicable.

State Planning Policy 7.2 – Precinct Design

State Planning Policy 7.2 – Precinct Design ('SPP 7.2') and the associated Precinct Design Guidelines provide direction on the design, planning, assessment, and implementation of precinct structure plans, local development plans, subdivisions, and developments within designated precinct areas.

State Planning Policy 7.2 identifies six precinct design elements that guide decision-makers in assessing such proposals: urban ecology, urban structure, public realm, movement, land use, and built form. These design elements have been addressed by the draft Ascot Racecourse PSP in the Design Response section of the document.

State Planning Policy 7.3 – Residential Design Codes

The Residential Design Codes (R-Codes) establish built form controls for all residential development within Western Australia and are used in the assessment of residential development and subdivision proposals. Volume 1 of the R-Codes establishes standards for single houses, grouped dwellings, and multiple dwellings up to R60. Volume 2 of the R-Codes specifically relates to multiple dwelling developments at the R80 code and above.

Background

Rowe Group prepared the draft Ascot Racecourse Precinct Structure Plan on behalf of Perth Racing, lodging it on 21 August 2024. The WAPC granted consent to prepare the Precinct Structure Plan on 19 September 2024. The draft PSP has been prepared to address the following:

- The proposed zoning, reservation and density coding of land within the precinct.
- The proposed permissibility of certain land uses.
- Built form controls including plot ratio, building heights, setbacks and car parking requirements.
- The road network and vehicle access arrangements.
- Strategies for the management and treatment of stormwater.
- The identification of infrastructure and servicing requirements to facilitate development within the precinct.

The following reports have been prepared in support of the draft PSP:

- Attachment 12.1.2 – Local Water Management Strategy
- Attachment 12.1.3 – Environmental Assessment Report
- Attachment 12.1.4 – Engineering Servicing Report
- Attachment 12.1.5 – Transport Impact Assessment
- Attachment 12.1.6 – Retail Assessment (Net Benefit Test)
- Attachment 12.1.7 – Transportation Noise Assessment
- Attachment 12.1.8 – Landscape Master Plan.

An assessment of the draft PSP is detailed in the Report section.

Separately from this structure planning process, Perth Racing submitted a development application for stables and related facilities in Precinct C, which the Metro Inner Development Assessment Panel approved on 13 March 2025. This approval does not render this aspect of the draft PSP redundant, as the structure plan provides a broader framework for future planning and coordination. Additionally, the approval is time limited and may not be acted upon, so the PSP will guide future development proposals.

Report

The draft Ascot Racecourse PSP was advertised between 24 October 2024 and 6 December 2024. Following a review of the submissions and an assessment of

the draft PSP, several modifications are proposed as detailed within the Schedule of Modifications (Attachment 12.1.10 and Confidential Attachment 12.1.11).

The draft PSP identifies five precinct areas, as shown in Figure 6 below.

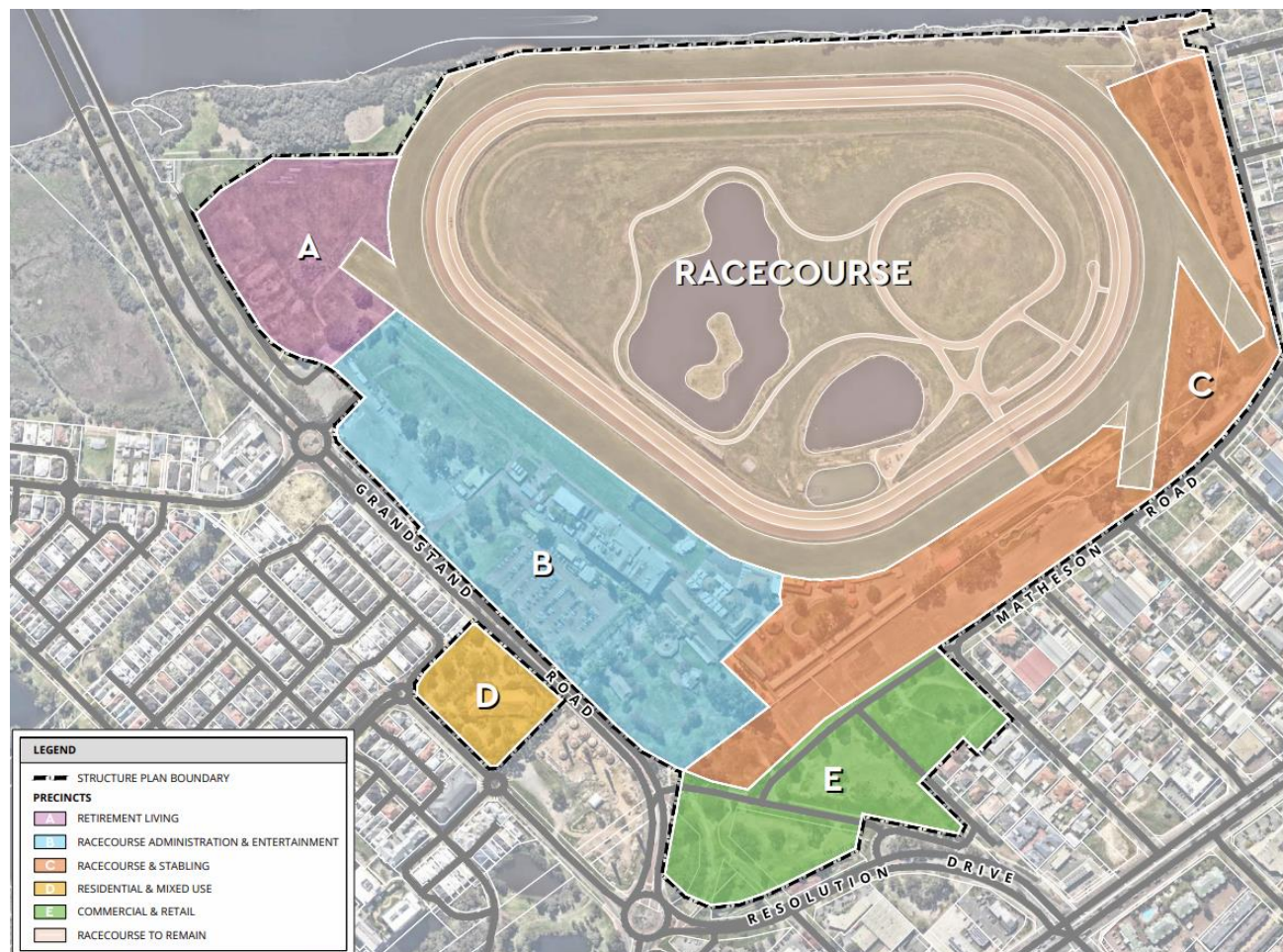


Figure 6: Structure Plan Precincts

An overview of the zoning, density and development provisions for Precinct A – E and the racecourse is outlined below.

Precinct wide matters relating to restricted use, the movement network, public open space, environment, heritage and general modification are also subsequently detailed.

Precinct A

Zoning

Land within Precinct A is currently zoned 'Place of Public Assembly' under the City's LPS 15. The draft Ascot Racecourse PSP proposes that a 'Mixed Use' zone be applied to this land. In considering the suitability of this zone, the following is noted:

- The Department of Planning, Lands and Heritage Land Use Management team has advised that a portion of Precinct A is held by the WA Turf Club as a conditional freehold tenure (Crown Grant in Trust). A key condition of this tenure is that the land must be used solely for activities relating to the running of a public racecourse under the *Land Administration Act 1997*.
- A plan showing the outline of the Crown Grant in Trust Land is shown in Figure 7.

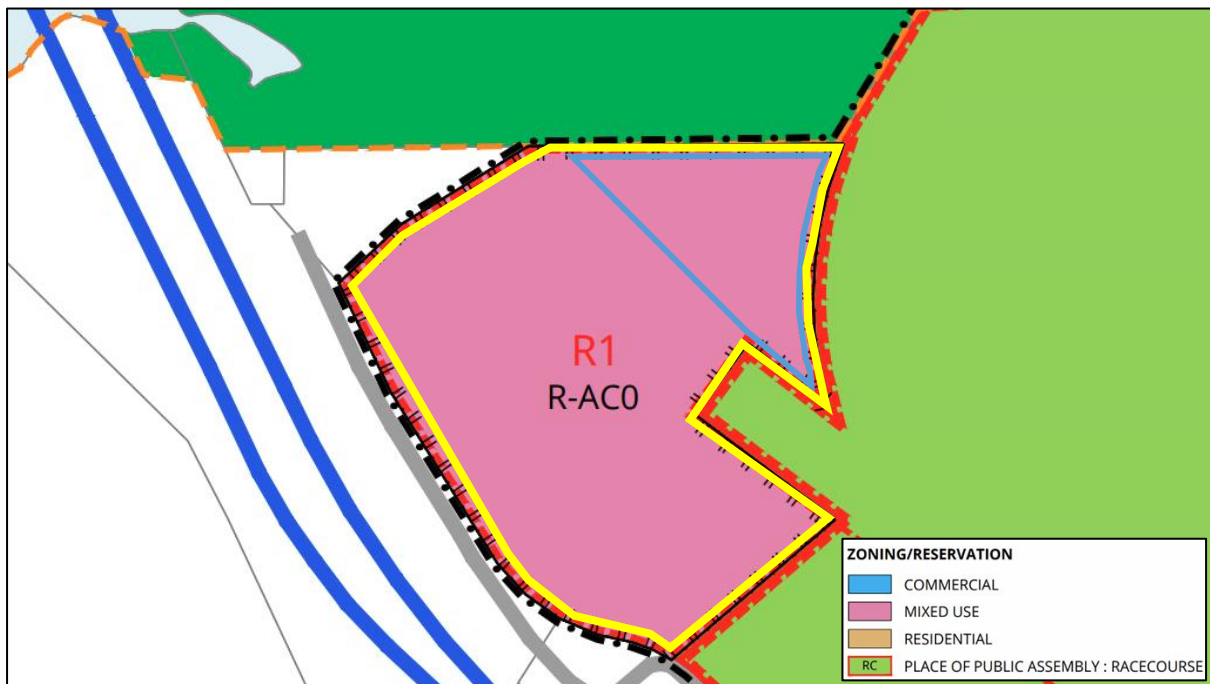


Figure 7: Precinct A and Crown Grant in Trust Identification (Precinct A outlined yellow and the area subject to the Crown Grant In Trust outlined blue)

- A 'Mixed Use' zoning of this land is not considered to align with the tenure requirements, particularly in relation to the 'Retirement Village' proposed in the development concept plan, as this land use does not directly relate to the operation of a public racecourse.

- Consequently, it is recommended that the draft Structure Plan be modified so that Precinct A does not encroach into the Crown Grant in Trust Land.
- Regarding the appropriateness of the 'Mixed Use' zone being applied to the balance of Precinct A the following is relevant:
 - It is not considered necessary for the land to be zoned 'Mixed Use' to facilitate the proposed 'Retirement Village' shown in the development concept, as this type of development can be appropriately accommodated within a 'Residential' zone. However, the 'Residential' zone does not ordinarily permit certain commercial uses that could enhance the function and amenity of the 'Retirement Village'.
 - To address this, it is considered appropriate for the land to be subject to a different set of restricted uses than those currently proposed by the draft Precinct Structure Plan. This approach would allow for greater flexibility to accommodate complementary uses, while still ensuring that commercial activity remains focused in closer proximity to Great Eastern Highway and does not expand into other areas.
 - Accordingly, it is recommended that a different set of restricted uses be applied to the land, including 'Nursing Home', 'Multiple Dwelling', and 'Restaurant/Café'. A modification is recommended to reflect this change.

Density and Proposed Development Provisions

An R-ACO density code is proposed for Precinct A which provides for development requirements to be prescribed by the draft PSP. A plot ratio of 2.5 and a building height of 15 storeys are proposed. In considering the appropriateness of this height and plot ratio the following is relevant:

- Based on the findings of a feasibility study, a plot ratio of 5.0 is proposed for 15 storeys within the Golden Gateway Precinct. Therefore, the proposed plot ratio of 2.5 may not be realistic for the proposed height, and unlikely to be applied without variation.
- Several submitters raised concerns that a 15-storey building is inconsistent with the scale of nearby development and that an entry statement into the City of Belmont is unnecessary. In response, it is not considered that a 15-storey development will negatively impact nearby residents in terms of visual privacy, noise, or overshadowing. It is considered that this is a distinct and separate site that is well separated from other residential areas, including Ascot Waters. Furthermore, Precinct A offers an opportunity for development to capitalise on its outlook over the Swan River and Ascot Racecourse. Any future proposal will still be subject to assessment at the development application stage,

where potential impacts will be considered against the specific plans lodged.

Based on these considerations, no changes to the proposed building height are recommended. However, a modification is proposed to further investigate the plot ratio and make necessary adjustments to the draft PSP.

Precinct B

Zoning

Land within Precinct B is currently zoned 'Place of Public Assembly' under LPS 15. No changes are proposed to the zoning of this land under the draft PSP (Figure 8).

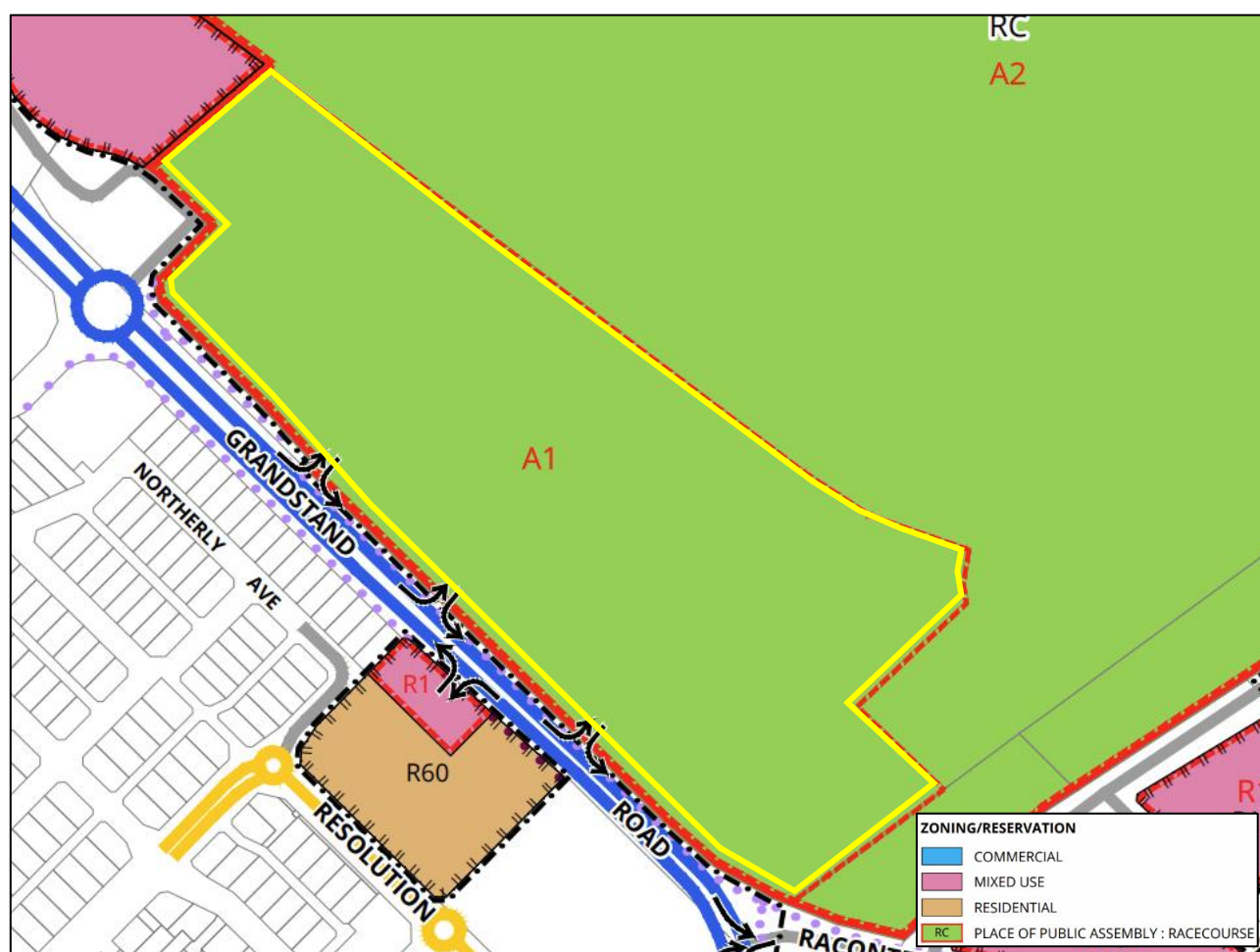


Figure 8: Precinct B zoning and Additional Use identification (Precinct B outlined yellow and Additional Use area outlined Red and notated A1)

The land within this precinct is currently subject to the 'Additional Uses' of 'Horse Sales' and 'Stables' under LPS 15. This allows these uses to be considered, regardless of the permissibility outlined for them in the Zoning

Table. Whilst this is the case, the draft PSP does not propose to continue to provide for these uses within Precinct B.

Instead, and to align with the objective of the precinct as a 'Racecourse Administration and Entertainment Precinct', the following 'Additional Uses' are proposed to be introduced:

- Office
- Hotel
- Reception Centre
- Restaurant
- Tavern.

It is considered that these additional uses are appropriate as they will support the continuation of racecourse entertainment functions and provide for Perth Racing's administrative functions.

Density and Proposed Development Provisions

No density code is proposed to be applied to land within Precinct B, as it is proposed to retain its existing 'Place of Public Assembly' zone. The draft PSP proposes to apply a building height of six storeys to Precinct B. This building height is considered acceptable noting that the precinct is well separated from any existing residential development by Grandstand Road.

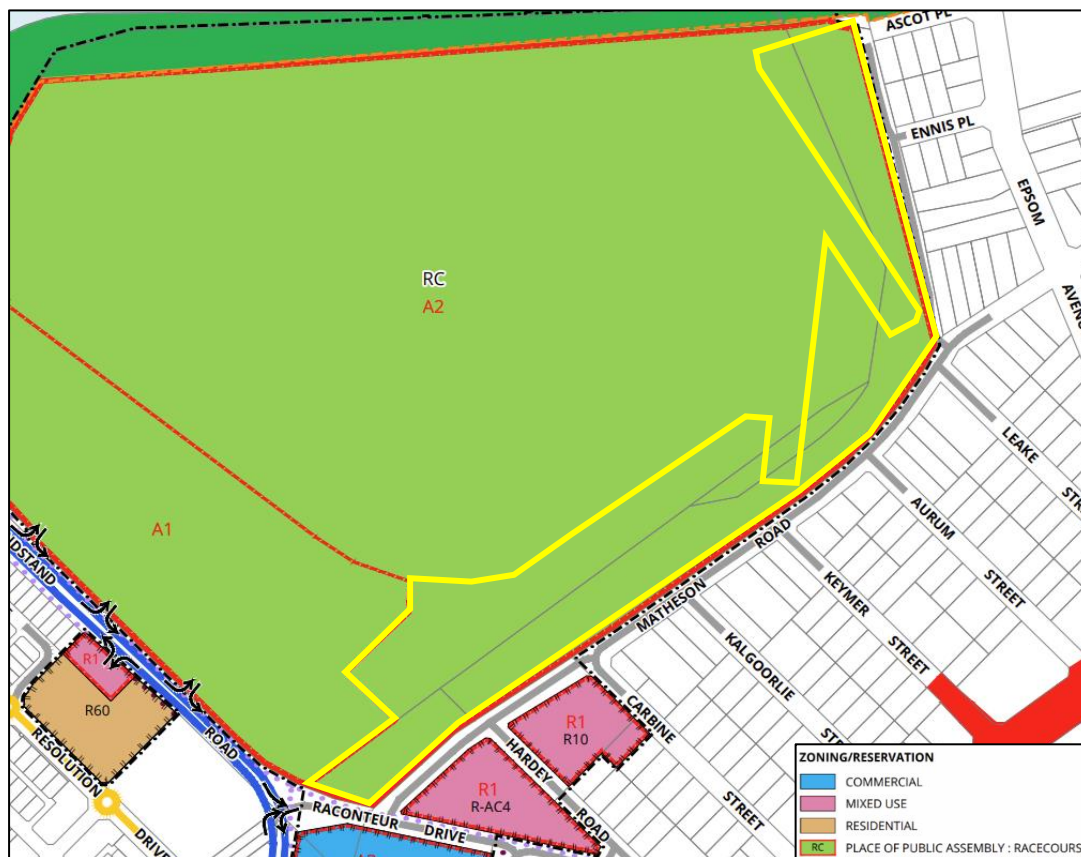
Precinct C

Zoning

Land within Precinct C is currently zoned 'Place of Public Assembly' under LPS 15, with no proposed changes to its zoning under the draft PSP (Figure 9).

9:

Figure



Precinct C zoning and Additional Use identification (Precinct C outlined yellow and Additional Use Notated A2)

Precinct C is currently subject to the 'Additional Uses' of 'Horse Sales' and 'Stables.' The draft PSP proposes the removal of 'Horse Sales,' which is deemed appropriate as it is not listed in Table 1 – Zoning Table of LPS 15. The draft PSP also recommends introducing 'Veterinary Centre' and 'Animal Establishment' as additional uses within Precinct C. The 'Veterinary Centre' is considered appropriate as an 'Additional Use' as it would support the function of the racecourse and stabling area.

In terms of 'Animal Establishment,' while this use is considered acceptable within the precinct, it should not be listed as an 'Additional Use'. This is because 'Animal Establishment' is not included in the Zoning Table of LPS 15. While it can still be considered in the precinct, it would need to be treated as a 'Use not Listed'.

Density and Proposed Development Provisions

Similar to Precinct B, no density code is proposed to be applied to land within Precinct C as it is proposed to retain its existing 'Place of Public Assembly' zone. In terms of other development controls, a building height of three storeys is proposed for Precinct C. This height is considered appropriate, as there are also provisions requiring future development to be setback a minimum of 10 metres from adjacent properties and 7.5 metres from Matheson Road.

To further facilitate an appropriate interface between development within this precinct, adjacent single houses and Matheson Road, it is considered appropriate to require a minimum landscaping width of 3 metres adjacent to these areas. While this arrangement is not reflected in the approved development plans relating to this precinct, that approval is time-limited and may not proceed. As such, it is appropriate to consider the Matheson Road interface independently of the approved development application.

Precinct D

Zoning

Land within Precinct D is currently zoned 'Place of Public Assembly' under LPS 15. The draft PSP proposes to apply a 'Residential' and 'Mixed Use' zone to this land as per Figure 10.

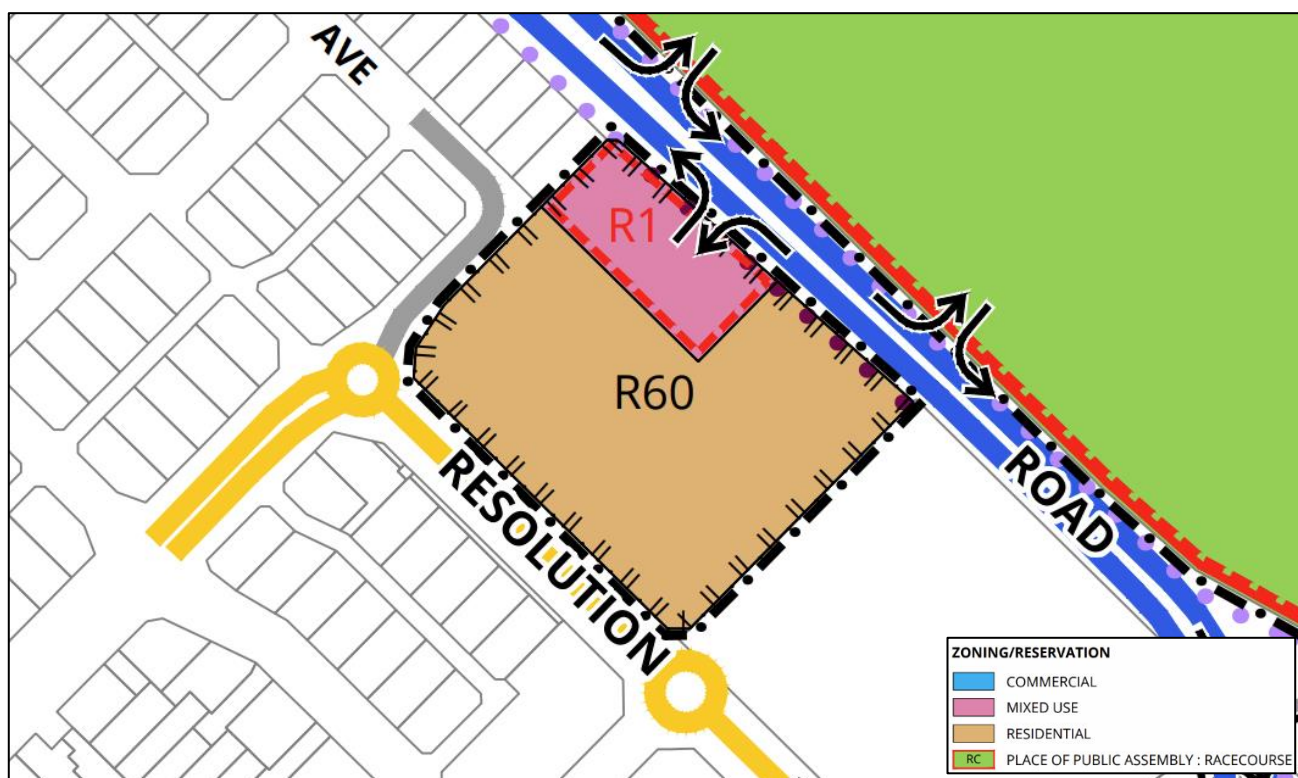


Figure 10: 'Residential' and 'Mixed Use' zone applied to Precinct D (outlined Black)

It is considered that the proposed 'Residential' zone is appropriate as it will largely provide for a residential interface to Ascot Waters.

Several submissions raised concerns with the proposed 'Mixed Use' zone due to it being located directly adjacent to existing residential development. Additionally, there was concern that this land may be used for more intensive uses such as shops, offices, showrooms and other uses.

In considering these submissions and the appropriateness of the proposed 'Mixed Use' zone the following is noted:

- The objective of the 'Mixed Use' zone is to enable the development of a mix of compatible land uses, such as housing, offices, restaurants, cafes, and high-quality designed buildings. This zone is considered appropriate for the location; however, due to the wide range of uses that can currently be considered within this zone, there is a need for a greater level of control to manage potential amenity impacts.
- The draft PSP proposes to restrict the permissibility of uses within this precinct to those generally allowed under the 'Mixed Use' zone, with the exception of 'Amusement Facility,' 'Amusement Parlour,' 'Auction Mart,' 'Garden Centre,' 'Industry – Light,' 'Industry – Service,' 'Motor Vehicle Repair,' and 'Warehouse.'
- Despite these restrictions, it is considered necessary to impose additional limitations on the uses that can occur in this precinct. This will be further discussed in the 'Restricted Uses' section.

Density and Proposed Development Provisions

The draft PSP proposes to apply an R60 density code to Precinct D and a height of three storeys. Several submitters have raised concerns about the proposed three-storey height for Precinct D and the potential for commercial development adjacent to residential areas within Ascot Waters. In response:

- The proposed three-storey building height is consistent with buildings within the Ascot Waters Estate which in this locality ranges between two and four storeys.
- Most of the interface with Ascot Waters consists of 'Residential' lots, with only one lot abutting the proposed 'Mixed Use' zoned lot.
- For the 'Mixed Use' zoned lot, the draft PSP applies side setback requirements for non-residential development in line with Volume 1 of the R-Codes. However, the R-Codes allow setbacks to be reduced to nil, which is not considered to provide an appropriate interface to the adjacent residential development.

To address this, a modification is proposed to require non-residential development in Precinct D to have a minimum 3 metre setback from adjoining residential properties, with this area to be landscaped. Additionally, a modification to the precinct objectives is also proposed to highlight the need for non-residential uses to be compatible with surrounding residential development.

With these modifications, future development in Precinct D is expected to provide an appropriate interface to Ascot Waters.

Precinct E

Zoning

Land within Precinct E is currently zoned 'Mixed Use', 'Place of Public Assembly', 'Residential and Stables' or is unzoned, as shown in Figure 12. The Central Belmont Main Drain directly abuts Precinct E and is reserved 'Parks and Recreation'. As the drain forms part of the precinct, a modification is proposed to update all PSP maps to extend the Precinct E boundary over the drain as shown in Figure 11 below. The drain should remain reserved 'Parks and Recreation'.

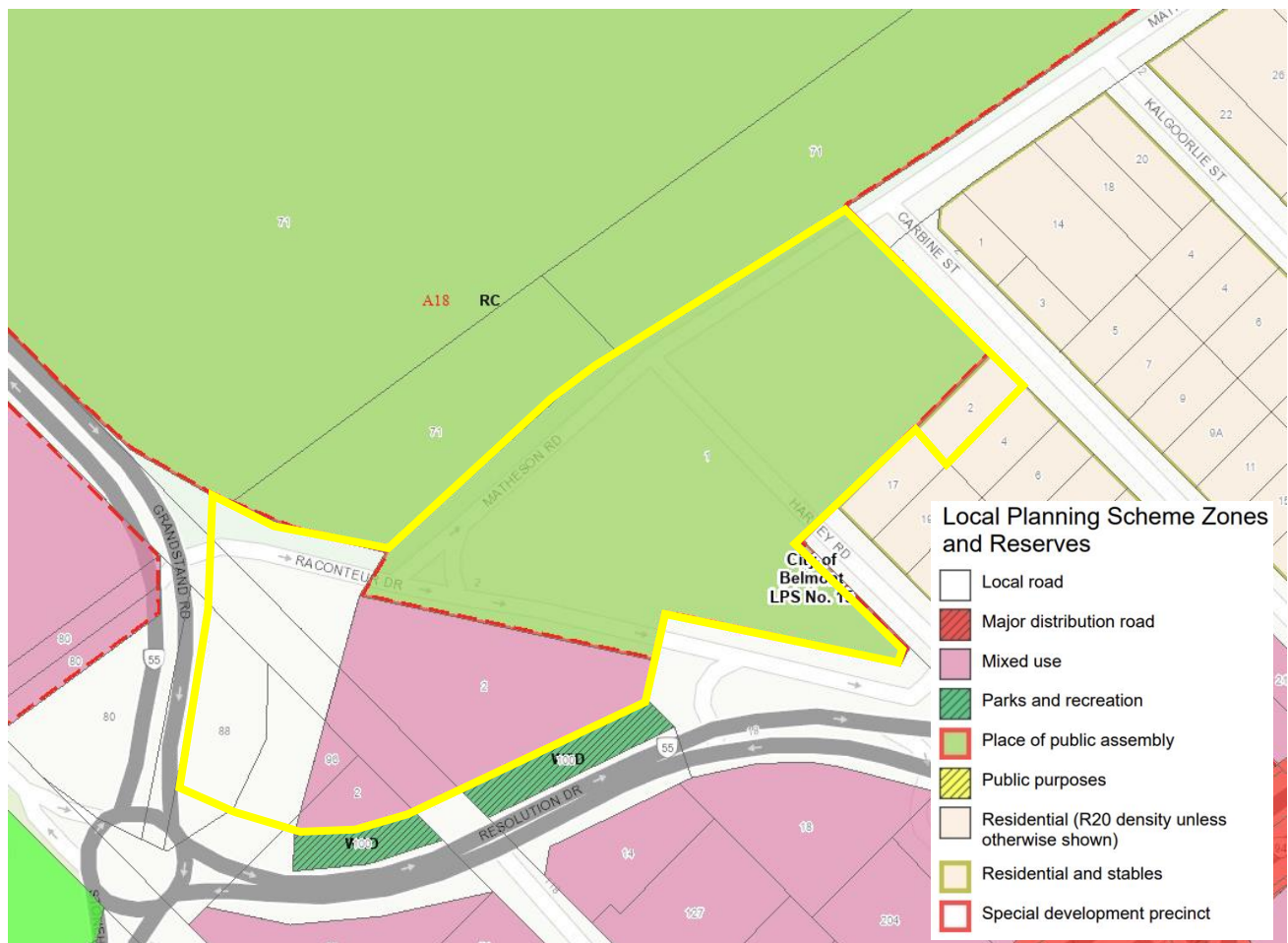


Figure 11: Existing Zoning Precinct E (existing precinct boundary outlined yellow)

The draft PSP proposes to apply a 'Commercial' zone over the portion of land that is currently zoned 'Mixed Use' and to land that is currently unzoned (white area) as per Figure 12. An 'Additional Use' of 'Health Centre' is also proposed over this portion of Precinct E which is considered an appropriate land use to locate within an activity centre.

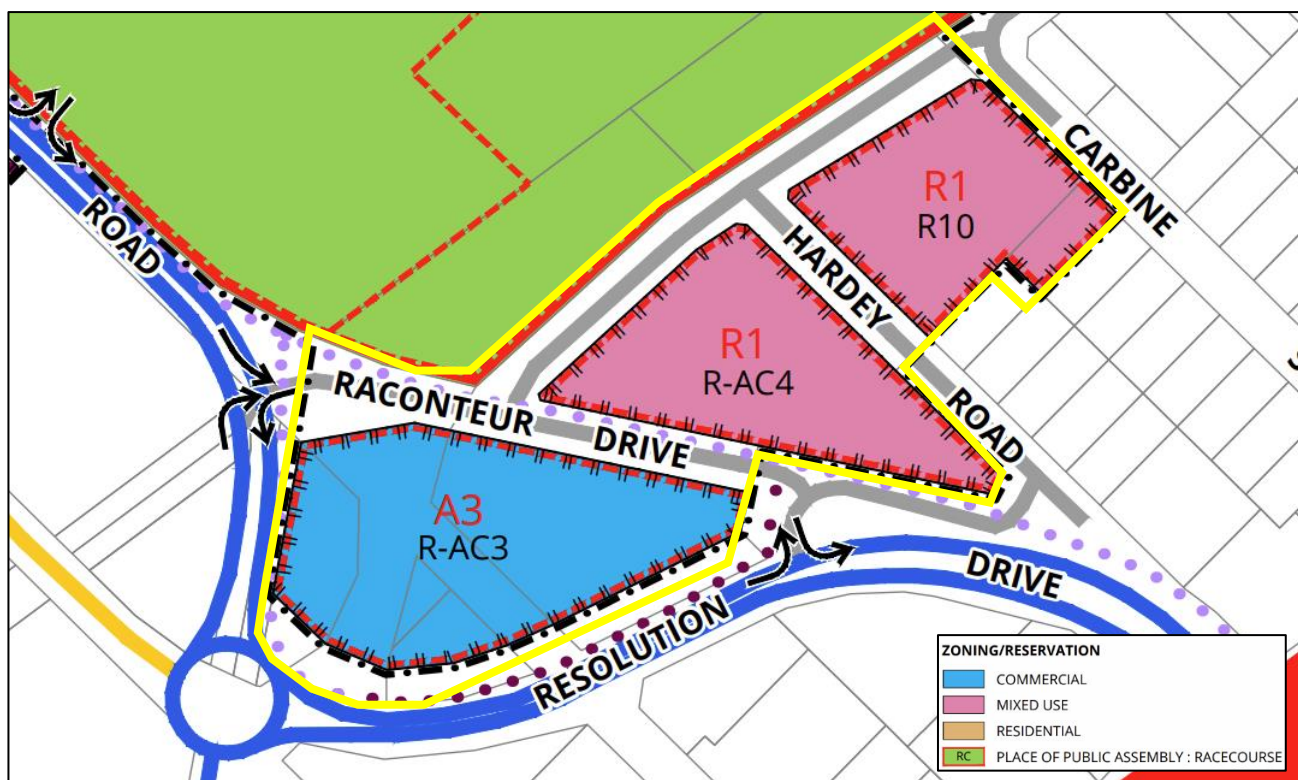


Figure 12: 'Commercial' and 'Mixed Use' zone applied to Precinct E (proposed boundary of Precinct E outlined yellow)

In considering the appropriateness of the 'Commercial' zone the following is noted:

- The draft Golden Gateway LSP and draft Ascot Racecourse PSP both support the development of a local centre within the precincts. The proposed 'Commercial' zone would facilitate this and is therefore considered appropriate.
- Land subject to the proposed 'Commercial' zone is fragmented. Part of the land is held in freehold ownership by the WAPC (highlighted blue on Figure 13), while the remainder is designated as road reserve (highlighted yellow on Figure 13).
- The Department of Planning, Lands and Heritage (DPLH) has raised concerns regarding the intended use of the land, noting that leases for Crown Land can only be granted if the proposed use aligns with the land's purpose (e.g. public use of the road). In response, the applicant has clarified that the road reserve is intended to be used for parking, and advice provided to the applicant from DPLH indicates this is possible. A modification to the draft PSP is proposed to reflect this arrangement. If Perth Racing wish to pursue changing the road reserve to zoned land, this would be subject to a separate process in the future.

- The 'Commercial' zoned portion of Precinct E also accommodates major water distribution mains owned and managed by the Water Corporation. While zoning applied to land does not automatically enable development without due consideration of existing infrastructure and assets, Water Corporation have opposed the rezoning of the land stating that the infrastructure cannot be moved or built on. However, the applicant has further engaged with Water Corporation who have now advised that car parking over the assets is possible. A modification is proposed to the draft PSP for this to be further detailed within the PSP documentation.



Figure 13: WAPC Freehold Land highlighted blue, and Road Reserve highlighted yellow

While the 'Commercial' zone is considered appropriate in light of the above points, concerns remain regarding the proposed level of retail floorspace within the precinct and the justification provided in the draft PSP. These concerns are further addressed in the Retail Floorspace section of the report.

Regarding the portions of Precinct E intended to be zoned 'Mixed Use', the following is relevant:

- Part of this land is adjacent to the 'Residential and Stables' zone. Given this proximity and the draft PSP concept plan designating the land for an Equine Welfare Centre and Jockey Services, officers inquired whether the applicant would consider applying the 'Residential and Stables' zone to this land. It is considered these uses align with the objectives of this zone.

- The applicant did not support this suggestion and advised that the draft PSP appropriately restricts certain uses. The applicant also advised that this zone offers flexibility and that development provisions could ensure a sympathetic built form interface with residential areas.
- Officers have considered the applicant's position and similar to the approach taken for Precinct D, consider that if a 'Mixed Use' zone were applied to this land, further land use controls would be necessary to manage potential land use conflicts or amenity impacts. These are further discussed in the 'Restricted Uses' section.
- If further land use controls are not applied, it would be more appropriate to apply a 'Residential and Stables' zoning to the land bound by Hardey Road, Matheson Road, Carbine Street and residential and stables properties.
- Regarding the other portion of Precinct E intended to be zoned 'Mixed Use' (bound by Raconteur Drive, Matheson Road and Hardey Road) the proposed zoning is considered appropriate. However, further land use controls are also considered necessary as detailed in subsequent sections of this Report.

Density and Proposed Development Provisions

The draft PSP proposes applying an R10 density code to the portion of Precinct E bound by Hardey Road, Matheson Road, Carbine Street, and 'Residential and Stables' zoned properties. This density is considered acceptable, as development within the adjoining 'Residential and Stables' zone is also assessed against the R10 development controls.

The draft PSP proposes a maximum building height of two storeys, along with setback provisions to Carbine Street and adjoining properties. The proposed setbacks in the draft PSP are as follows:

- Primary and secondary street setback to Carbine Street: Minimum 3.75 metres.
- Average Primary and secondary street setback to Carbine Street: 7.5 metres
- Side setback (as per R10 development requirements under the R-Codes):
 - Nil setback where the wall abuts an existing or simultaneously constructed boundary wall of equal or greater dimension.
 - Minimum 1 metre where no major opening is proposed.
 - Minimum 1.5 metres where a major opening is proposed.

It is considered that these provisions ensure that new developments align with the scale of residential buildings within the residential stables area and create a suitable interface.

- A density code of R-AC4 is proposed for the portion of Precinct E bound by Raconteur Drive, Matheson Road, and Hardey Road, with a maximum building height of three storeys. It is considered that the proposed heights are acceptable, as future development will be sufficiently separated from existing residential development. The setbacks outlined in the draft PSP, combined with those in LPS 15, are considered appropriate. Therefore, no modifications to these controls are recommended.

For the portion of Precinct E designated as 'Commercial,' a density code of R-AC3 is proposed, with a maximum height of six storeys. It is considered that the proposed heights are acceptable due to the separation from residential areas. However, there are concerns that this could result in six-storey retail or commercial development. As outlined later in this report, there are concerns with excessive retail and commercial floor space within the precinct. Given this, it is considered necessary to recommend that the draft PSP be modified to restrict heights above two storeys to residential and office developments. The setbacks outlined in the draft PSP, combined with those in LPS 15, are considered appropriate. Therefore, no modifications to these controls are considered necessary.

The Central Belmont Main Drain runs along the southern portion of the 'Commercial' area in Precinct E. Although the draft PSP currently suggests addressing this interface at the development application stage, it is considered beneficial to include specific requirements within the draft PSP to ensure certainty at the subsequent development stage. These provisions aim to ensure a positive interface with the drain, enhance the streetscape along Resolution Drive, and provide an appropriate transition to the Golden Gateway precinct. Therefore, modifications are proposed to:

- Include development provisions in Table 4 addressing the interface with the Central Belmont Main Drain.
- Explicitly reference this interface under Design Element Objective 1.1 (Urban Ecology) and 03.3 (Public Realm).
- Require activation of all street frontages to enhance the interface with the drain and contribute positively to streetscapes.

Retail Floorspace

The draft PSP identifies two areas for potential retail development within Precinct E:

- A Neighbourhood Centre within the 'Commercial' zoned land, with a net lettable area (NLA) of 3,400m²; and
- Up to 9,600m² of 'Shop/Retail' floorspace within the 'Mixed Use' area bounded by Raconteur Drive, Matheson Road and Hardey Road.

Further discussion on each component is provided below.

Neighbourhood Centre

The City's ACPS was informed by a 2020 Retail Needs Assessment and supports a 1,200m² net lettable area (NLA) local centre in this location. It also identifies the potential to expand this to a 2,700–3,000m² neighbourhood centre. This future expansion of floorspace and category of centre is intended to align with further development within the Golden Gateway Precinct, and will be subject to a Net Benefit Test to assess the need for additional floorspace in response to increased population. The draft PSP proposes a larger 3,400m² neighbourhood centre. One submitter has objected to this scale, noting it is inconsistent with the City's adopted Strategy.

In considering the proposed centre classification, level of retail floor space, and the matters raised in the submission, the following is relevant:

- A Retail Assessment (Net Benefit Test) has been prepared in support of the draft PSP. While the assessment concludes that the proposed retail floorspace aligns with the City's strategic framework, this view is not considered to reflect the intent of the City's ACPS. The City's ACPS anticipates incremental expansion over time, whereas the draft PSP proposes delivery a 3,400m² neighbourhood centre from the outset.
- The Retail Assessment states that the centre will be sustainable by 2026 without broader precinct development and with minimal impact on adjacent centres. This assumption relies on sufficient demand from the immediate trade area. However, as the draft Golden Gateway LSP has not been finalised, development within the precinct is unlikely to progress within this timeframe.
- Population growth projections also indicate that growth may not materialise until 2031–2041. As a result, the local population base in 2026 may be insufficient to support a 3,400m² neighbourhood centre without significantly drawing sales from existing centres. The claim that the centre will be sustainable by 2026 is therefore considered overly optimistic and requires further justification.

- Section 2.1 of the Retail Assessment mentions the key considerations outlined in SPP 4.2's Implementation Guidelines for preparation and assessment of retail assessments. However, the report does not provide clear responses to address these matters. The Retail Assessment is therefore not satisfactory in its current form.

Having regard to the above, modifications are proposed to require the Retail Assessment to address the inconsistency with the City's ACPS, particularly its approach to incremental expansion, and to provide further justification for the claim that the centre will be sustainable by 2026. In doing so, the assessment should not focus solely on whether the proposed centre is sustainable but also consider the proposal to establish a full neighbourhood centre from the outset rather than progressing incrementally, as intended in the City's Strategy. Additionally, it should justify why the proposed floorspace exceeds the final outcome anticipated in the Strategy, particularly given the very limited development expected by 2026. Furthermore, clear answers to the questions raised within Section 2.1 of the Retail Assessment should be provided within the conclusions of the report.

Other Retail Floorspace

As outlined earlier, the portion of Precinct E bound by Raconteur Drive, Matheson Road, and Hardey Road is proposed to accommodate 9,600m² of 'Other Retail' floorspace, with a focus on 'Showrooms'. In considering the level of 'Other Retail' floorspace, the following is relevant:

- The Retail Assessment states that the proposed bulky goods showroom will result in insignificant/low risk impacts on the surrounding existing and planned activity centre network, with the potential sales impact offset by the potential for substantial growth in the trade area over the next 15 years.
- The addition of 9,600m² of retail floorspace represents a significant change that is not contemplated in the City's strategic planning framework. Existing planned precincts, such as those along Great Eastern Highway and within the City's business park, are more appropriate to accommodate this use.
- The assessment also indicates that, similar to the neighbourhood centre, the level of retail floorspace will be sustainable in 2026. However, it is unclear what level of development is expected to occur to support the bulky goods showrooms within this timeframe. Given the limited development anticipated by 2026.
- The proposed 'Other Retail' includes more retail floorspace than the designated centre itself, which could undermine the intended role and

hierarchy of the centre by effectively making it the secondary destination. Irrespective of the floor space matter above, the appropriateness of bulky goods showrooms in this location must be further considered having regard to the following:

- There are distinct differences between establishing a bulky goods showroom on Great Eastern Highway compared to locating it adjacent to a local or neighbourhood centre. The latter is subject to significant transformation under relevant Structure Plans, with a key focus on active uses that foster walking and cycling.
- The land identified for bulky goods showrooms is located directly adjacent to the designated future local centre. In accordance with the principles of SPP 4.2, local centres should have a compact urban form with pedestrian-oriented streetscapes, where activity is concentrated along key public streets and open spaces. Introducing bulky goods showrooms in this location contradicts these outcomes. The use is inherently car dependent and fundamentally undermines the intended function of the local centre as a pedestrian-friendly, mixed-use environment.
- State Planning Policy 4.2 designates 'Showroom' as a desired use adjacent to district centres but does not extend this designation to local and neighbourhood centres. Furthermore, while SPP 4.2 states that 'Showrooms' are appropriate within activity centre frame areas, it also acknowledges that smaller centres may not have a frame. In this instance, a frame is not considered appropriate, particularly where the retail floorspace within the frame exceeds that of the centre itself.

Having regard to the above, modifications are proposed to prevent 'Showrooms' from being approved on any 'Mixed Use' zoned land within the precinct. This will result in all references to 'Showrooms' being deleted from the draft PSP and supporting reports, and Figure 16 being updated to remove the activity centre frame designation.

Restricted Uses

Restricted Use areas are a mechanism in local planning schemes that limit land to specific permitted uses. This means that only the designated use(s) are allowed on a particular site, and any other uses that would typically be permissible within the zone are not permitted.

The draft PSP proposes to restrict the permissible uses within the 'Mixed Use' zoned land so that the following cannot be approved:

- 'Amusement Facility'
- 'Amusement Parlour'

- 'Auction Mart'
- 'Garden Centre'
- 'Industry – Light'
- 'Industry – Service'
- 'Motor Vehicle Repair'
- 'Warehouse'.

While this approach is supported, the current wording in the 'Restricted Use' table states: "uses permissible in the Mixed Use zone, but excluding the following uses," followed by a list of the abovementioned uses. To better reflect the intent of 'Restricted Use' areas, it is considered more appropriate to include a full list of uses capable of approval in Table 2. A modification is therefore proposed to explicitly list all permissible uses, ensuring clearer alignment with the purpose of the 'Restricted Use' mechanism.

Further, it is considered necessary to expand the list of uses not permissible in Precincts D and E to include the following:

- 'Fast Food Outlet/Lunch Bar'
- 'Funeral Parlour'
- 'Garden Centre'
- 'Pet Day Care'
- 'Night Club'
- 'Radio or TV Installation'
- 'Restricted Premises'
- 'Service Station'
- 'Vet Hospital'
- 'Showroom'.

These uses are not considered appropriate within proximity to residential development as they are likely to have adverse amenity impacts or do not align with the intent of these precincts. Therefore, a modification is proposed to ensure that the list of 'Restricted Uses' within Table 2 does not include the abovementioned uses.

Restricted Uses are also proposed to apply to Precinct A as discussed earlier in the report.

Racecourse

The balance of the subject land outside Precincts A – E is the Racecourse. This land is currently predominantly zoned 'Place of Public Assembly' and partly reserved 'Parks and Recreation' (refer to Figure 14). The draft PSP does not propose any changes to the zoning or reserve applied to this area of land.



Figure 14: Existing zoning applied to the Racecourse

The Department of Biodiversity Conservation and Attractions requested that the portion reserved 'Parks and Recreation' be ceded to the State Government and that a Foreshore Management Plan should be prepared. In considering this feedback, the following is relevant:

- The Draft PSP does not propose any changes to the Racecourse.
- As the PSP does not alter the Racecourse, there is not considered to be a sufficient need or nexus to reasonably justify ceding the Foreshore Reserve.
- A strategic planning tool such as the PSP is not the appropriate mechanism for requiring land to be ceded. If development or subdivision were proposed in this area, the PSP could identify potential opportunities,

but in the absence of such changes, ceding the Foreshore Reserve is not justified.

- Since no changes to the Racecourse are proposed, there is no need or mechanism for requiring a Foreshore Management Plan. However, this may be appropriate for Precincts A and C, and it is recommended that Section 4.3 is updated to address this.

Having regard to the above, the requirement for ceding a portion of the racecourse (land reserved 'Parks and Recreation') is not supported.

Public Open Space

The draft PSP does not propose public open space within the precinct. While Liveable Neighbourhoods typically requires a 10% public open space contribution for residential development, this does not apply to 'Commercial' or 'Mixed Use' zoned land.

In terms of the proposed 'Residential' zoned land it is considered appropriate for the requirement for public open space to be further considered as part of future subdivision and development applications relating to the site. A modification is recommended to the draft PSP to capture this.

In the case of the 'Commercial' and 'Mixed Use' zoned land there is a requirement for existing open space within 300m of the site to be considered. In considering this, the following is relevant:

- The precinct is located in close proximity to and within 300 metres of the Swan River foreshore, Belmont Trust land, and future open space opportunities at the Ascot Kilns site, as outlined in the draft Golden Gateway LSP.
- The draft PSP also identifies an opportunity for a 1.4ha privately owned, publicly accessible parkland between Precincts A and B, incorporating landscaping, picnic facilities, and a playground. Further information regarding this space is required in the draft PSP; open space on private land would not ordinarily constitute public open space.

A modification is also recommended to the draft PSP to reflect this information.

Movement

Road Network and Intersection Upgrades

The road network within and around the precinct will largely remain in its existing configuration (refer to Figure 15). The only intersection modifications specifically mentioned within the draft PSP and Traffic Impact Assessment (TIA)

are restricting the Resolution Drive and Raconteur Drive intersection to left-in/left-out access and permanently opening the gates at Raconteur Drive and Grandstand Road. It is also not clear if the gates along Hardey Road and Matheson Road will be opened.



Figure 15: *Proposed Movement Network*

Submitters raised several concerns regarding the road network and vehicle movements, including:

- Increased traffic and congestion specifically:
 - On race days.
 - Due to development within the precinct and the Golden Gateway Precinct.
 - Through the 'Residential and Stables' precinct.
 - At the roundabouts along Grandstand Road.
- Amenity impacts associated with access from Ennis Place.
- Traffic flow concerns caused by right turns from Grandstand Road onto Raconteur Drive and from Stoneham Street into Daly Street, as shown in Figure 16 of the draft PSP (refer to Figure 16).



Figure 16: Extract of Figure 16 from the draft PSP

In considering these concerns the following is relevant:

- A TIA has been prepared to assess the likely impacts on road network's performance. It factors in anticipated trip generation rates and concludes that the network and all intersections will operate at an acceptable level of service. Despite this, there are updates required to the TIA as detailed in subsequent points.
- The TIA was prepared before details of the Golden Gateway LSP were available. Now that these details are known, the assessment should be updated to address traffic within the Golden Gateway precinct, with conclusions in both the draft PSP and assessment updated accordingly. Despite this, it should be noted that the Movement and Access Strategy prepared in support of the Golden Gateway LSP factors in movements associated with future racecourse development and concludes that the road network and intersections are able to operate at an acceptable level of service.

- Regarding congestion associated with race day, the TIA indicates that peak racecourse activity occurs outside AM and PM weekday peak periods and that traffic management will continue to be in place on race days. As such, traffic impacts are expected to be appropriately managed. It is also important to note that this is an existing activity that is not being introduced by the draft PSP.
- The TIA states that the gate providing access to Raconteur Drive from Grandstand Road will remain open permanently, leading to increased traffic within the Residential and Stables precinct. While no mention is made of it, it is also not clear if the gates along Hardey Road and Matheson Road will be opened. It is considered that the assessment does not adequately address any associated traffic impacts. The draft PSP and TIA need to be updated to explicitly state whether these gates are proposed to be permanently opened and to provide a more comprehensive analysis of any impacts, and if necessary, mitigation measures.
- Regarding access from Ennis Place, this has been considered in the assessment of the recently approved development for Precinct C, which found it to be suitable. However, the draft PSP and TIA do not identify the potential for access from Ennis Place. Therefore, a modification is proposed that this arrangement be mentioned within the draft PSP and TIA. There may need to be restrictions on vehicle types and access hours. Additionally, this would require access through Lot 10194 which is owned by the State of WA. Therefore, permission may also be required for access through this lot. These matters shall be referenced in the draft PSP.
- Regarding right turns from Grandstand Road into Raconteur Drive, it should be noted these are already accommodated under the existing intersection configuration, and the assessment confirms this arrangement will operate satisfactorily.
- Regarding the right turn from Stoneham Street into Daly Street, a modification is proposed to remove all vehicle movement arrows from Figure 16. The draft Golden Gateway LSP proposes a cul-de-sac at Daly Street, consistent with Main Roads Western Australia's Vehicle Access Strategy for Great Eastern Highway.

Beyond submitter comments, officers have identified further matters requiring attention:

- The assessment assumes no vehicle movements during peak hours for Precincts B and C, whereas some movements are expected, even if low. A modification is proposed to update the assessment to reflect this.

- Figure 14 of the draft PSP shows a left-in/left-out arrangement over the Ascot Kilns site. Clarification is needed on what this relates to, when this land is located within the Golden Gateway precinct and is identified as requiring further planning.
- The Structure Plan states that road reserves are to be maintained in their existing configuration and tenure in accordance with the Structure Plan Map. It is noted that currently Perth Racing own a section of Raconteur Drive. However, this road is shown as a local road on the Structure Plan Map. Officers queried whether this road would stay in private ownership under the care and control of Perth Racing noting that it will purely provide access to Perth Racing's landholdings. Perth Racing have advised that they wish to retain flexibility until future development outcomes are known. It is considered appropriate for Section 4.1.3 of the draft PSP to be updated accordingly.

Crossover Locations

The draft PSP outlines proposed vehicle access arrangements for each precinct and includes indicative crossover locations on the Masterplan. While it is acknowledged that the TIA notes these locations and details will be confirmed at later stages, it is considered more appropriate for the Masterplan to omit the crossover locations at this stage, as they will require technical justification and assessment in later design phases.

Parking

Submitters raised concerns about the loss of parking bays due to commercial development in Precinct E and the potential for increased street parking. It is important to note that the adequacy of parking for future development will be assessed in accordance LPS 15, giving due regard to parking provisions included within the draft PSP. Irrespective of this, officers have identified the following updates required to the draft PSP and TIA as follows:

- The TIA states that parking lost in Precincts C and E will be offset by surplus bays elsewhere on the site and upgrades to a parking area in Precinct B. While officers have reviewed the parking calculations, it is considered that a clearer explanation of the calculations and parking availability should be provided. In addition, the draft PSP and TIA should be updated to ensure consistency. For example, the TIA notes: "Based on observations of parking demand within the grassed area in Precincts B and E, approximately 110 to 125 cars park within this area on a busy race day". However, the draft PSP states: "The Southern Precinct B patron parking area would be upgraded to accommodate an improved layout,

accommodating approximately 110 to 125 cars". This creates uncertainty as to whether the 110 to 125 spaces refer to existing capacity or a planned upgrade.

- The TIA indicates that a Travel Demand Plan will be prepared to assist with traffic management, actively discourage patrons from using private motor vehicles, and ensure that racecourse patrons are well informed about parking distribution and pick-up/set-down areas. While this initiative is supported, it is recommended that more specific details of the Travel Demand Plan be included in the draft PSP, and that Part 1 explicitly reference the requirement for such a plan as part of future development applications relating to the racecourse activities. A modification is proposed to address this.

Submitters also raised general concerns about the availability of parking within new developments.

The structure plan applies parking rates in accordance with LPS 15 and the R-Codes, except for 'Shop,' 'Office,' and 'Bulky Goods Showroom' uses in Precinct E, which are proposed to align with the DPLH's *Guidance for Non-Residential Car Parking Requirements*. When a new structure plan is being prepared, this planning manual recommends that the minimum and maximum car parking rates set out in the document are adopted. However, as outlined earlier in this report, officers do not support the establishment of 'Bulky Goods Showroom' uses within the precinct.

Pedestrian/Cyclist Movements and Crossings

Submitters advocated for enhanced pedestrian infrastructure, specifically requesting the installation of a pedestrian crossing signal at the bus stop on Grandstand Road, along with railings to prevent crossings at other locations. In response:

- The draft PSP proposes improved pedestrian connectivity, including new shared paths. However, officers note that specific details on implementation and responsibility are lacking. For instance, while a shared path is mentioned along Resolution Drive adjacent to Precinct E, the implementation details, such as who is responsible for its development, are not provided.
- The TIA recommends investigating footpath extensions around the racecourse, including south of Grandstand Road, as well as improved connections to local amenities on Great Eastern Highway. However, specific upgrade details are not outlined.
- Neither the draft PSP nor the TIA addresses improvements to pedestrian crossings. Main Roads Western Australia (MRWA) has requested an updated TIA to assess and determine necessary pedestrian facility

upgrades around Ascot Racecourse, including modelling the potential impacts on the road network.

- In response to submitters' suggestions for crossing lights and railings on Grandstand Road, officers consider that while restricting crossing points is unnecessary, further investigations into pedestrian safety, including the potential for crossing lights, are warranted. This would also address another submitter's suggestion for improved pedestrian connectivity to the proposed publicly accessible private open space.

Having regard to the above, it is recommended that further investigations be undertaken for improvements to pedestrian and cyclist infrastructure and that specific details be included within both the draft PSP and the TIA. These details should include details on who will be responsible for delivering this infrastructure.

Environment

Site Contamination

The draft PSP classifies Precincts A, B, and C as "possibly contaminated – investigation required" due to horse racing activities and potential runoff from animal storage and agistment areas nearby. The PSP indicates that Perth Racing is conducting monitoring and investigations into potential contamination, with findings to be reviewed by the Department of Water and Environmental Regulation (DWER). The Local Water Management Strategy mentions that detailed site investigations have been conducted in a separate report. As contamination could affect future development, a modification is proposed to include additional details in the documentation and address its potential impacts.

Acid Sulphate Soils

The DWER's Acid Sulphate Soils (ASS) risk mapping shows that most of the site has a high to moderate risk of ASS occurrence within 3 meters of the natural surface. However, parts of Precincts B, C, and the racecourse are classified as having a moderate to low risk. A modification is proposed to the Structure Plan to specify in Part One, Section 4.3.7 that if ASS is encountered in a moderate to low-risk area, an ASS Management Plan will be required at the subdivision and/or development stage. Additionally, a modification to Section 2.1.4.2 is recommended to clarify that in high to moderate-risk areas, an ASS assessment will be required for subdivision and/or development, and an ASS Management Plan and dewatering plan may also be necessary as a condition of approval.

Tree Retention

Before addressing specific matters raised in submissions and referral responses, it is important to clarify the respective roles of planning and environmental legislation in Western Australia. While planning decisions under the *Planning and Development Act 2005* may consider environmental matters, they do not in themselves grant approval to undertake activities such as vegetation clearing. Such activities are subject to separate requirements under the *Environmental Protection Act 1986*, including the need to obtain a clearing permit. The environmental surveys undertaken to inform planning proposals are intended to support the planning level consideration, noting that more detailed further flora and fauna surveys may still be required to support applications under the *Environmental Protection Act 1986*. It is important not to conflate the role of environmental assessment under the *Environmental Protection Act 1986* with that of assessment under the *Planning and Development Act 2005*. From a planning perspective, the surveys submitted are considered adequate and appropriate for the planning consideration at this stage of the process.

There are existing mature trees on the subject land, particularly within Precincts C and E. Several submissions raised concerns about the potential loss of habitat for Carnaby's Black Cockatoos due to future development in these precincts. The referral response from the Department of Biodiversity, Conservation and Attractions (DBCA) also states that there are opportunities for retaining mature vegetation including potential Carnaby Cockatoo habitat trees. In considering these comments, the following is relevant:

- An Environmental Assessment Report prepared for the draft PSP identifies 1.27ha of Carnaby's Black Cockatoo (CBC) foraging habitat of which 0.35ha comprised primary foraging habitat. A total of 0.84ha of foraging habitat for Forest Red-Tailed Black Cockatoo (FRTBC) was also recorded of which 0.28ha comprised primary foraging habitat. A total of 66 habitat trees were recorded with five trees containing hollows potentially suitable for black cockatoo breeding while the remaining 61 did not contain hollows.
- The majority of the vegetation on the site has been heavily disturbed with limited intact native vegetation present. The vegetation was therefore mostly determined to be in 'degraded – completely degraded' and 'completely degraded' condition, with a small portion determined to be 'very good – good' in part of the site not impacted by the stables development.
- The black cockatoo foraging habitat identified by the field survey is patchily distributed across the site and interspersed with plant species not used by CBC or FRTBC. Additionally, the trees identified as cockatoo foraging habitat are located in parts of the site categorised as being in a degraded condition.

- Although trees were identified as being potential habitat, no signs of use were identified during the targeted black cockatoo survey, such as chew marks, droppings or moulted feathers within any of the habitat trees with potential hollows.
- The consultant comments that the potential habitat trees for CBC and FRTBC within the site are unlikely to represent critical foraging or breeding habitat, given its small extent within an urban setting with minimal potentially suitable hollows and no evidence of use by CBC or FRTBC.
- A recent approval for stables within Precinct C proposes the removal of trees identified as potential nesting/foraging trees. As detailed below, officers were satisfied that the environmental consultant's investigations adequately addressed this matter within the scope of planning legislation. However, separate legislative requirements under the *Environmental Protection Act 1986* must still be satisfied before any clearing can occur.
- The recent Development Assessment Panel report for stables recognise that prior to any clearing, a clearing permit is required to be applied for and granted under the *Environmental Protection Act 1986*.
- A separate condition of the development approval requires the applicant to provide a Conservation Management Plan prepared by a suitably qualified ecologist. This plan is required to identify existing trees to be retained, how they will be protected and other management measures that are to be implemented to mitigate any potential impacts during construction and ongoing use of the development.
- Potential habitat trees exist outside Precinct C, presenting an opportunity through the PSP process to proactively identify trees worthy of protection in future development proposals.
- Although the Environmental Assessment Report states that trees will be retained where possible, it does not specify which trees should be prioritised for protection. To strengthen this, the report should include details on trees worthy of retention, with corresponding protection measures incorporated into Part 1 of the PSP. Additionally, the draft PSP's Urban Ecology objectives should be updated to emphasise tree retention opportunities.

Having regard to the above, modifications are proposed to the draft PSP and Environmental Assessment Report to better identify opportunities for tree retention.

Heritage

Aboriginal Heritage Act 1972

The draft PSP identifies two Aboriginal heritage sites within and adjacent to the subject land: Site 3756 (Swan River) and Site 3753, which intersects the western edge of Precinct B. Section 5.2.6 of the draft PSP states that while the Master Plan does not propose development within these sites, if development within Precinct B intersects the boundary of Site 3753, a DPLH file search should be undertaken to confirm the site's extent before works commence. These details are not included in Part One, Section 4.3.2 – Heritage of the Structure Plan, and modifications are proposed to address this. Additional modifications are also proposed to:

- Identify the potential need for an Aboriginal Heritage Management Plan; and
- Require the location of the two sites to be shown on Figure 83 as per the Aboriginal Heritage Inquiry System Mapping Tool.

Heritage under the Heritage Act 2018 and Local Planning Scheme No. 15

The precinct includes two places on the City's Heritage List: the Ascot Racecourse Complex and the Ascot Residential and Stables Area. It also contains Lee-Steere House and the Matheson Rail Line, which are included on the City's Local Heritage Survey. The Bristle Kilns site, which adjoins the subject land, is also on the City's Heritage List.

The Structure Plan mandates a Heritage Impact Statement for any proposal to demolish, alter, or significantly impact a heritage-listed place, ensuring that heritage values are considered in future development. Part Two of the draft PSP specifies that a photographic record must be made of Lee-Steere House before its demolition to facilitate residential development in Precinct D. However, this requirement is absent from Part One, and a modification to Section 4.3.2 is proposed to address this.

Further modifications are proposed to improve the accuracy and consistency of heritage information throughout the draft PSP. These include clarifying that the Ascot Residential and Stables Area is only partly within the precinct and ensuring the Matheson Rail Line is consistently referenced and shown on Figure 83.

General Modifications

There are a range of general modifications required to the draft PSP and supporting attachments as detailed below. There are also a range of other administrative modifications as detailed within the Schedule of Modifications.

References to the Golden Gateway Local Structure Plan

The draft PSP contains incorrect text and map references related to the draft Golden Gateway LSP. These references, including those for building height and descriptions of Council's previous resolutions should be updated to align with the current version of the draft Golden Gateway LSP.

Additionally, the draft PSP incorrectly assumes that Perth Racing's land will be removed from the Golden Gateway precinct. However, the decision to retain Perth Racing's land within the precinct was made in consultation with officers and Perth Racing. This approach allows Perth Racing to proceed with its own planning while enabling the draft Golden Gateway LSP to move forward. Retaining Perth Racing's land within the broader Golden Gateway precinct ensures coordinated planning for both areas. Therefore, modifications are proposed to correct the assumption that Perth Racing's land will be removed from the Golden Gateway precinct.

Indicative Development Staging

The draft PSP includes an indicative development staging section however there is limited detail provided. Therefore, a modification is proposed to update this section to include specific staging details. This could make reference to small scale food and beverage and commercial uses within Precinct A and describe infrastructure considerations that may be required to deliver development mentioned in the table.

Walkable Catchments

The draft PSP states that Precinct A is within the walkable catchment of the future Golden Gateway Activity Centre. Noting that Precinct A is in excess of 500 metres from Precinct E, Precinct A is not within the walkable catchment of the future centre. A modification is proposed to address this, and a separate modification is proposed to Figure 11 for walkable catchments to be shown on the plan.

Section 4.3 – Other Requirements

Section 4.3 of the draft PSP describes other requirements for future development. Prior to approval of the draft PSP by the WAPC, a Local Planning Scheme Amendment will be required to formalise aspects of the draft PSP such as zoning and land use permissibility changes under LPS 15. A modification is proposed that requires mention of this to be included within Section 4.3.

Section 5.0 - Additional Details

Section 5.0 of the draft PSP includes a list of additional information that may be required to be submitted as part of future development applications. Officers have considered this list and note there are five other reports that may be required as part of subsequent stages of planning. These include:

- Geotechnical Report
- Foreshore Management Plan
- Acoustic Report
- Environmental Impact Assessment
- Aboriginal Heritage Management Plan.

A modification is proposed to require Section 5.0 to be updated with details of these reports.

Figure 17 – Built Form

Design Element 6 of SPP 7.2 – Precinct Design Guidelines requires that built form support a precinct environment that is appropriate in character, intensity, bulk, and scale. Considering the existing built form character within the precinct, particularly in Precinct B. It is therefore deemed appropriate to update Figure 17 to identify all buildings to be retained. A modification to the draft PSP is proposed to reflect this.

Subsurface Drainage

The Local Water Management Strategy (LWMS) states that surface runoff generated by lots, stables and hardstand/car park areas will be directed into subsurface storage. It also states that these storage areas will be located beneath road reserves/verges or other available areas. It is recommended that the LWMS be modified to remove all references to subsurface storage beneath road reserves to avoid impacts on utility services, maintenance, liability, and future infrastructure expansion. Such storage may also compromise pavement integrity, increase the risk of pavement failure and water pressure issues.

Existing Power Services

Figure 16 of the Engineering Servicing Report identifies existing power services within the precinct. However, it does not show the existing power lines running through a portion of Lot 100 Raconteur Drive. Therefore, a modification is proposed to address this.

Conclusion

The Ascot Racecourse PSP has been prepared to guide the future use and development of the land in and around Ascot Racecourse. Having regard to matters raised during assessment of the PSP and comments received from the public consultation period, a number of modifications are proposed to the draft PSP. It is recommended that Council support the draft PSP with modifications, with a recommendation that it is approved by the WAPC.

Financial implications

There are no financial implications evident at this time.

Environmental implications

The draft PSP includes areas where vegetation clearing is anticipated. While vegetation clearing has been considered from a planning perspective, it remains subject to separate assessment and approval under the *Environmental Protection Act 1986*, including the requirement to obtain a clearing permit. Modifications are proposed to the draft PSP and Environmental Assessment Report to strengthen the identification and protection of trees worthy of retention, with further investigation of tree retention opportunities to be undertaken as part of future development proposals.

Social implications

The draft Ascot Racecourse PSP proposes land uses that will enhance the range of services and facilities in the area.

Attachment details

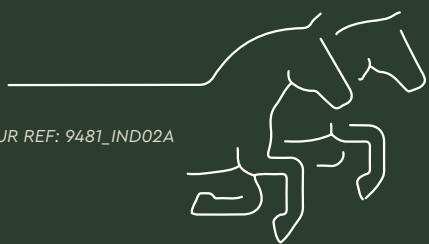
Attachment No and title	
1.	Ascot Racecourse Precinct Structure Plan [12.1.1 - 140 pages]
2.	Local Water Management Strategy [12.1.2 - 165 pages]
3.	Environmental Assessment Report [12.1.3 - 300 pages]
4.	Engineering Servicing Report [12.1.4 - 320 pages]
5.	Transport Impact Assessment [12.1.5 - 92 pages]
6.	Retail Assessment [12.1.6 - 38 pages]
7.	Transportation Noise Assessment [12.1.7 - 18 pages]
8.	Landscape Master Plan [12.1.8 - 41 pages]
9.	Schedule of Modifications [12.1.9 - 7 pages]
10.	Schedule of Submissions [12.1.10 - 41 pages]
11.	CONFIDENTIAL REDACTED - Schedule of Submissions - (Confidential matter in accordance with Local Government Act 1995 (W A) Section 5.23(2)(b)) [12.1.11 - 42 pages]

Ascot Racecourse Precinct Structure Plan

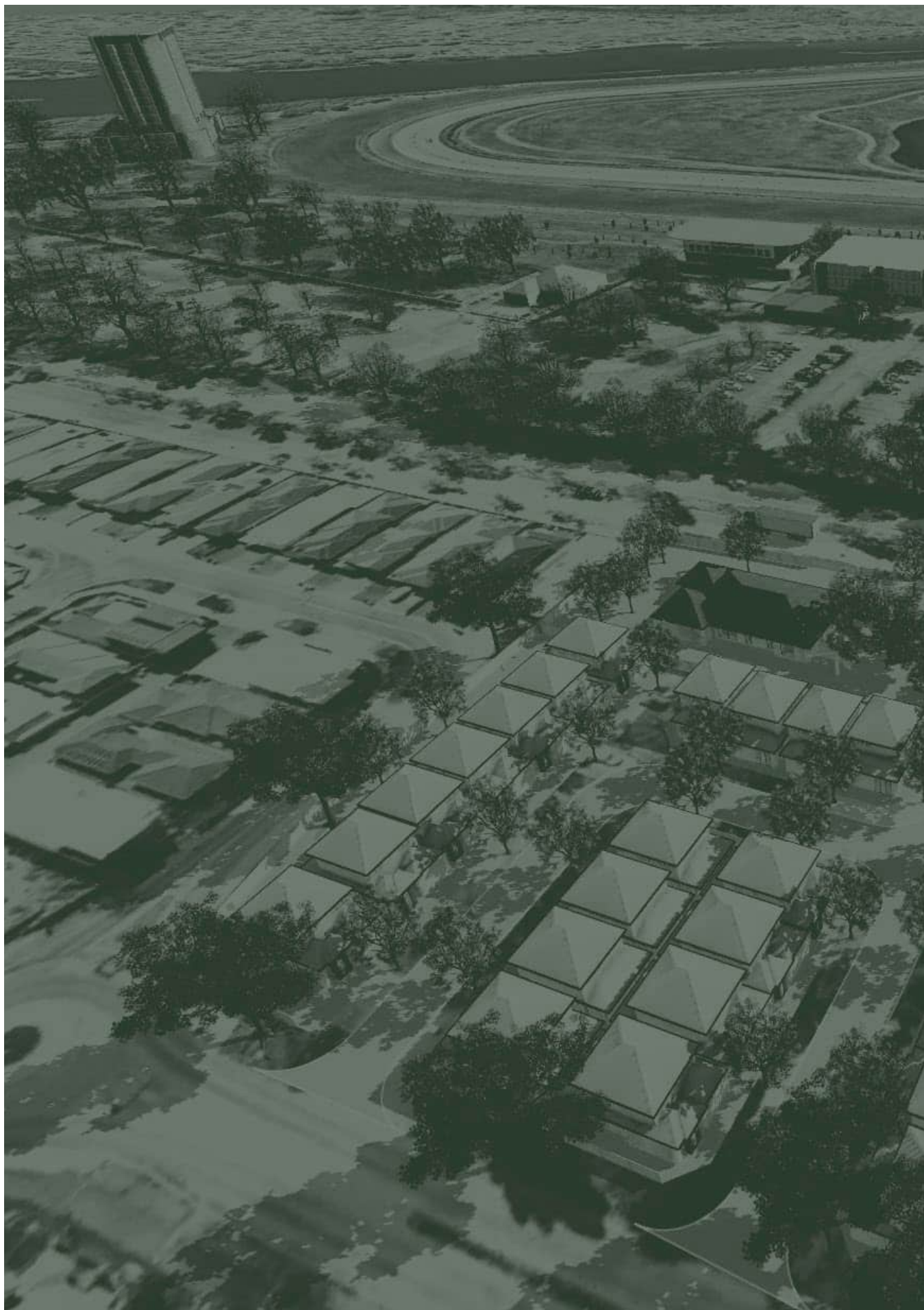
Lots 1, 3, 13, 50, 452 & 9002 Grandstand Road, Lot 7005
Matheson Road, Lots 51 & 100 Raconteur Drive, Ascot



OUR REF: 9481_IND02A



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DESIGN



Document Control

Printed 20 August 2024

9481_IND02A_20240812 Ascot Racecourse Precinct Structure Plan - A4P.indd

Version	File Name	Prepared	Approved	Date
1	9481_231127_R_Belmont_LSP_v7_LL.docx	Lidija Langford	David Maiorana	12/08/2024

This report has been authorised by;



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Record of Endorsement

This structure plan is prepared under the provisions of the City of Belmont Local Planning Scheme No. 15.

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

..... Date

Signed for and on behalf of the Western Australian Planning Commission:

an officer of the Commission duly authorised by the Commission pursuant to section 16
of the Planning and Development Act 2005 for that purpose, in the presence of:

..... Witness

..... Date

..... Date of Expiry



Table of Amendments

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by WAPC



Executive Summary

The Ascot Racecourse Precinct Structure Plan has been prepared to guide the future use and development of Perth Racing's landholdings in Ascot, including and surrounding the existing Ascot Racecourse. This Report has been prepared in accordance with the requirements of the *Planning and Development (Local Planning Schemes) Regulations 2015* and the Western Australian Planning Commission's ('WAPC') Guidance for Structure Plans.

The PSP area comprises nine (9) lots with a total area 61.3294ha, all of which are owned by Perth Racing, except for one (1) lot which is owned by the WAPC. The area is generally bound by the Swan River to the north, the Ascot Residential and Stables area and Matheson Road to the east and south-east, Resolution Drive to the south and south-west, and Grandstand Road to the west.

The Ascot Racecourse PSP is divided into three parts, being:

- **Part One: Implementation** – Part One outlines the implementation requirements to be applied when considering land use, development and subdivision proposals in the PSP area.
- **Part Two: Explanatory Section** – Part Two outlines all relevant information that has informed the preparation of the PSP, incorporating material from more detailed technical studies.
- **Technical Appendices** – A substantial number of technical studies have been completed to inform the PSP. These are provided in Part Three and include:
 - Local Water Management Strategy
 - Environmental Assessment Report
 - Engineering Servicing Report
 - Transport Impact Assessment
 - Retail Assessment (Net Benefit Test)
 - Transportation Noise Assessment
 - Landscape Master Plan

Precinct Structure Plan Summary

Item	Data	Section number referenced in Part 2 of report
Total area covered by the Precinct Structure Plan	61.3294ha	Section 1
Area of each land use proposed:		Section 5.6
Residential	0.94 hectares	
Commercial	1.36 hectares	
Mixed Use	4.96 hectares	
Place of Public Assembly: Racecourse	51.25 hectares	
Parks & Recreation	2.28 hectares	
Estimated number of dwellings	400 dwellings	
Estimated population	920 people	
Estimated commercial floor space	15,000m ²	
Number of school sites	N/A	-
Estimated area and percentage of public open space given over to Local Open Space:	N/A	-

Note: All information and areas are approximate only and are subject to survey and detailed design.





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Attachments

- 1. Certificates of Title**
- 2. Local Water Management Strategy**
- 3. Environmental Assessment Report**
- 4. Engineering Servicing Report**
- 5. Transport Impact Assessment**
- 6. Retail Assessment (Net Benefit Test)**
- 7. Transportation Noise Assessment**
- 8. Landscape Master Plan**



Technical Appendices

Appendix Number	Document Title	Nature of Document	Referral/Approval Agency	Approval status and Modifications
1	Certificates of Title	Supporting	-	-
2	Local Water Management Strategy	Requires Approval	City of Belmont, DWER	-
3	Environmental Assessment Report	Supporting	City of Belmont, DBCA	-
4	Engineering Servicing Report	Supporting	-	-
5	Transport Impact Assessment	Supporting	City of Belmont	-
6	Retail Assessment (Net Benefit Test)	Supporting	-	-
7	Transportation Noise Assessment	Supporting	-	-
8	Landscape Master Plan	Supporting	-	-



Part One Implementation





1. Structure Plan Area & Operation

This Precinct Structure Plan ('Structure Plan') applies to Lots 1 (No. 88), 3 (No. 96), 13, 50, and 9002 (Nos. 71), and Lot 452 (No. 70) Grandstand Road, Lot 7005 (No. 71) Matheson Road, and Lots 51 (No. 2) and Lots 51 (No. 2) and 100 (No. 1) Raconteur Drive, Ascot. The Structure Plan area is defined as the land contained within the inner edge of the line denoting the Structure Plan area on the Structure Plan Map).

Refer **Plan 1 – Structure Plan Map**.

This Structure Plan has effect from the date stated on the cover and for a period of 10 years (or for any other period approved by the WAPC) commencing on the day on which approval of the Ascot Racecourse Precinct Structure Plan is granted.

The operation of the Structure Plan shall be in accordance with the City of Belmont Local Planning Scheme No. 15 ('LPS 15') and the *Planning and Development (Local Planning Schemes) Regulations 2015* ('the Regulations').

2. Purpose & Objectives

The purpose of this Precinct Structure Plan is to guide the future use and development of Perth Racing's landholdings in Ascot, including and surrounding Ascot Racecourse.

2.1. Precinct Objectives

The Structure Plan designates five (5) precinct areas subject to different objectives and planning requirements. The precincts are summarised below. Refer **Plan 2 – Structure Plan Precincts**.



Precinct A (Retirement Living)

- a) Facilitate the development of a vertical residential living village to accommodate retiring members of the horse racing industry.
- b) Provide for small scale food and beverage and commercial uses that are ancillary to, and integrated with, the residential housing village.
- c) Facilitate development that will serve as a landmark in the locality, capitalising on its position at the northern gateway to the City of Belmont, its high amenity values, proximity to the future Golden Gateway activity centre, and high frequency public transport accessibility.



Precinct B (Racecourse Administration & Entertainment)

- a) Support the continuation of the Racecourse spectator and entertainment area.
- b) Integrate Perth Racing's administration functions within the Ascot Racecourse site.
- c) Enhance public and spectator amenity through attractive built form, expansive open spaces, and landscaping.
- d) Respect existing heritage values of the site.



Precinct C (Racecourse & Stabling)

- a) Facilitate land use and development that supports, and is complementary to, the horse racing industry.
- b) Provide for the planned development of on-course horse stabling and ancillary functions to support the ongoing viability of Ascot Racecourse.
- c) Mitigate potential land use conflict through appropriate design and management practices.





Precinct D (Residential & Mixed Use)

- a) Provide for medium density residential development of a scale that is consistent and/or compatible with surrounding residential area.
- b) Support the development of small-scale non-residential uses fronting Grandstand Road, including but not limited to a 'Child Care Premises'.



Precinct E (Commercial)

- a) Facilitate the development of an activity centre at the intersection of Grandstand Road and Resolution Drive.
- b) Support retail, commercial, and other land uses that are consistent and complementary with the role and function of an activity centre.
- c) Support land use and development that is complementary to Racecourse operations.
- d) Satisfy existing and future demand for convenience retail and amenities in the local area.



3. Staging

The staging of development has not yet been defined, nonetheless it will be primarily influenced by Perth Racing's requirements, funding availability, and market demand. The indicative staging for development within the Precinct Structure Plan area is outlined by **Table 1** below.

Indicative Timeframe	Precinct Area	Development
Short Term (0-5 years)	Precinct B	New Racecourse Administration Building & Hospitality Venue
	Precinct C	On-Course Stabling
	Precinct D	Residential Development
	Precinct E	Commercial Development
Medium Term (5-10 years)	Precinct E	Commercial Development
Long Term (10+ years)	Precinct A	Retirement Village
	Precinct E	Commercial Development

Table 1: Indicative Development Staging



4. Subdivision & Development Requirements

4.1. Zones & Land Use

4.1.1. Zones

Plan 1 – Structure Plan Map designates proposed zones in the Structure Plan area, as follows:

- Precinct A: 'Mixed Use' zone
- Precinct B: 'Place of Public Assembly: Racecourse' zone
- Precinct C: 'Place of Public Assembly: Racecourse' zone
- Precinct D: 'Residential' and 'Mixed Use' zones
- Precinct E: 'Commercial' and 'Mixed Use' zones

4.1.2. Land Use Permissibility

Land use permissibility within the Structure Plan area shall be in accordance with the City of Belmont Local Planning Scheme No. 15, with Additional Uses and Restricted Uses, as follows:

No.	Description of Land	Restricted Use	Conditions
1.	All land contained within Precinct A, Precinct D and Precinct E of the Structure Plan area subject of the 'Mixed Use' zone.	Uses permissible in the Mixed Use zone, but excluding the following uses: Amusement Facility Amusement Parlour Auction Mart Garden Centre Industry – Light Industry – Service Motor Vehicle Repair Warehouse	Nil.

Table 2: Restricted Uses

No.	Description of Land	Additional Use	Conditions
1.	All land contained within Precinct B of the Structure Plan area.	Office Hotel Reception Centre Restaurant Tavern	Nil.
2.	All land contained within Precinct C of the Structure Plan area.	Animal Establishment Stables Veterinary Centre	Nil.
3.	All land contained within Precinct E subject of the 'Commercial' zone.	Health Centre	Nil.

Table 3: Additional Uses

4.1.3. Road Reserves

Road reserves are to be maintained in their existing configuration and tenure in accordance with **Plan 1 – Structure Plan Map**.

4.1.4. Public Open Space

This Structure Plan does not propose any areas of public open space within the Structure Plan area.

4.1.5. Foreshore Reserves

Plan 1 – Structure Plan Map depicts the Parks and Recreation Metropolitan Region Scheme ('MRS') reserve and Swan Canning Development Control Area applicable to the Structure Plan area.

4.2. Density & Development

4.2.1. Density & R-Codes

Plan 1 – Structure Plan Map designates the R-Coding applicable to subdivision and development within the Structure Plan area, as follows:

- Precinct A: 'R-AC0'
- Precinct D: 'R60'
- Precinct E: 'R-AC3', 'R-AC4' & 'R10'

Subdivision and development within the Structure Plan area is to be in accordance with the residential density code prescribed by the Precinct Structure Plan, or where no residential density code is prescribed, the provisions of Local Planning Scheme No. 15.



4.2.2. Development Provisions

All development within the Structure Plan area shall be in accordance with the provisions of Local Planning Scheme No. 15, the Residential Design Codes, and any applicable Local Planning Policy, unless otherwise provided below.

Precinct Area	Requirement	Provision(s)
Precinct A (Retirement Living)	Building Height	(i) Maximum building height of 15 storeys (refer to Plan 3 – Building Height Plan). (ii) Maximum podium height of 3 storeys. (iii) Boundary walls shall not exceed a maximum height of 3 storeys.
	Setbacks	(iv) Minimum primary street setback of nil. (v) Development shall be setback a minimum 10m from the Swan River Development Control Area.
	Plot Ratio	(vi) Maximum plot ratio of 2.5.
Precinct B (Racecourse Administration & Entertainment)	Building Height	(i) Maximum building height of 6 storeys (refer to Plan 3 – Building Height Plan).
Precinct C (Racecourse & Stabling)	Building Height	(i) Maximum building height of 3 storeys (refer to Plan 3 – Building Height Plan).
	Setbacks	(ii) Development shall be setback minimum 10m from the Swan River Development Control area. (iii) Buildings setback minimum 7.5m to Matheson Road. (iv) Stables, associated buildings, yards, and training/walking rings setback minimum 10m from any dwelling on adjacent property.
	Landscaping	(v) Minimum 1 shade tree for every 4 open air parking bays.
Precinct D (Residential & Mixed Use)	Building Height	(i) Maximum building height of 3 storeys (refer to Plan 3 – Building Height Plan).
	Setbacks	(ii) Non-residential development setback minimum 2m from Grandstand Road. (iii) Non-residential development adjoining land used for residential purposes shall confirm with the setback requirements under Volume 1 of the Residential Design Codes.
	Landscaping	(iv) Minimum 1 shade tree for every 4 open air parking bays for non-residential development.
	Access	(v) Direct access to Grandstand Road is restricted to left-in/ left-out movements only.

Precinct Area	Requirement	Provision(s)		
Precinct E (Commercial)	Building Height	(i) Maximum building heights as per Plan 3 – Building Height Plan .		
	Setbacks	(ii) Minimum primary and secondary street setback to Carbine Street – 3.75m		
		(iv) Average primary and secondary street setback to Carbine Street – 7.5m		
		(v) Minimum primary and secondary street setback to all other roads (including private roads) – nil setback (non-residential development only).		
		(vi) Residential development setback from street and lot boundaries as per the Residential Design Codes.		
		(vii) Non-residential development adjoining land used for residential purposes shall conform with setback requirements under Volume 1 of the Residential Design Codes.		
	Landscaping	(viii) Minimum 1 shade tree for every 4 open air parking bays.		
	Access	(ix) Minimum 3m wide landscaping to Grandstand Road frontage.		
		(x) Direct lot access to Resolution Drive is restricted to left-in/ left-out movements only.		
	Parking	(xi) The existing Grandstand Road and Raconteur Drive intersection is restricted to left-in, left-out and right-in movements only.		
		Land Use	Minimum	Maximum
		Shop	1 / 50m ² FA	1 / 20m ² FA
		Office	1 / 200m ² FA	1 / 50m ² FA
		Bulky Goods Showroom	1 / 100m ² FA	1 / 50m ² FA

Table 4: Development Provisions



4.3. Other Requirements

4.3.1. Activity Centre

This Precinct Structure Plan includes a portion of the Golden Gateway Activity Centre (within Precinct E) and is supported by a Net Benefit Test to assess the economic demand and implications for potential retail and commercial development in this area. **Refer Appendix 6 – Retail Assessment (Net Benefit Test).**

Development within the Golden Gateway Activity Centre shall be in accordance with the provisions of this Precinct Structure Plan and the requirements of State Planning Policy 4.2 – Activity Centres ('SPP 4.2').

Development of Shop/Retail floorspace up to 3,400m² NLA is permitted within the Golden Gateway Activity Centre without requiring further assessment. Any development proposal involving net additional Shop/Retail floorspace above 3,400m² NLA within the Golden Gateway Activity Centre constitutes 'major development' and shall be supported by a further Net Benefit Test prepared in accordance with SPP 4.2.

4.3.2. Heritage

The Structure Plan area contains the 'Ascot Racecourse Complex' (Place Number 6123), the 'Ascot Residential & Stables Precinct' (Place Number 16779), and 'Lee Steere House' (Place Number 27274) which are identified under the City of Belmont's Local Heritage Survey, and in the case of the 'Ascot Racecourse Complex', also the Heritage List, as having local heritage significance.

A Heritage Impact Statement is to be prepared by an appropriately qualified and experienced Heritage Consultant and provided with the application for development approval pertaining to any development proposal to demolish, modify or otherwise significantly impact the heritage values of the abovementioned heritage places.

4.3.3. Land Assembly

The Structure Plan area includes areas of redundant road reservation that fragment developable land within Precinct E. To achieve a coordinated development outcome, land assembly will be required by way of a road closure and subsequent amalgamation, or lease arrangement, prior to the commencement of development on the affected land.

Satisfactory arrangements are to be made with servicing authorities to provide for the modification and/or protection of existing services within land, as required.

4.3.4. Transport Noise

This Structure Plan is supported by a Transportation Noise Assessment prepared in accordance with State Planning Policy 5.4 – Road and Rail Noise ('SPP 5.4'). **Refer Appendix 7 – Transportation Noise Assessment.**

Subdivision and development of land proposing noise-sensitive land uses within 200 metres of Great Eastern Highway shall accord with any recommendations outlined in the Assessment, and may require:

- The preparation of a Noise Management Plan.
- Implementing any 'Quiet House Design' package requirements.
- A notification being placed on the Certificate of Title(s) of the lots to advise prospective purchasers of potential for noise impacts from major transport corridors.

The management of transport noise will ultimately be considered as part of future applications to subdivide or develop land within the Structure Plan area, in accordance with the requirements of SPP 5.4. A condition of subdivision or development approval, where applicable, may be required at that time.

4.3.5. Water Management

This Precinct Structure Plan is supported by a Local Water Management Strategy ('LWMS') prepared in accordance with the WAPC's Better Urban Water Management Guidelines. **Refer Appendix 2 – Local Water Management Strategy.**

An Urban Water Management Plan or Stormwater Management Plan (as appropriate) addressing water (including groundwater) management measures in accordance with the adopted LWMS will be required as a condition of subdivision or development approval. The preparation of these plans shall be informed by geotechnical investigations, where appropriate.

4.3.6. Flood Management

Precincts A, D and E of the Structure Plan area are affected by the Swan River 1% Annual Exceedance Probability ('AEP') floodway and/or flood fringe. All lots within the Structure Plan area must achieve a minimum 500mm clearance above the 1% AEP flood level of the Swan River.

4.3.7. Acid Sulphate Soils

Subdivision and development of land within the Structure Plan area that is within a 'high to moderate' acid sulphate soil ('ASS') risk area will be required to undertake an ASS assessment and may require the preparation of an ASS management plan and dewatering management plan as a condition of approval.

4.3.8. Environmental Protection & Management

This Structure Plan is supported by an Environmental Assessment Report that outlines environmental factors to be considered in progressing subdivision and development within the Structure Plan area. **Refer Appendix 3 – Environmental Assessment Report.**

To minimise potential impacts to the retained vegetation and fauna during construction works, a Conservation and Environmental Management Plan will be required as a condition of development approval for any works affecting or within proximity to a Threatened Ecological Community ('TEC').

Where any future development works within the site will result in potential impacts to Black Cockatoos, a fauna management plan will be required as a condition of development approval to minimise impacts to fauna through clearing and construction works.

4.3.9. Infrastructure & Servicing

Infrastructure necessary to service the subdivision and development within the Structure Plan area will be upgraded, modified, or extended, where applicable, as part of future subdivision and development.



5. Additional Details

The details of additional information required to be submitted and the stage which it is to be submitted, are summarised below.

Additional Information	Approval Stage	Consultation Required
Transport Impact Statement/ Assessment	Development Application	City of Belmont
Heritage Impact Statement	Development Application	City of Belmont
Net Benefit Test	Development Application (if required)	City of Belmont
Waste Management Plan	Development Application	City of Belmont

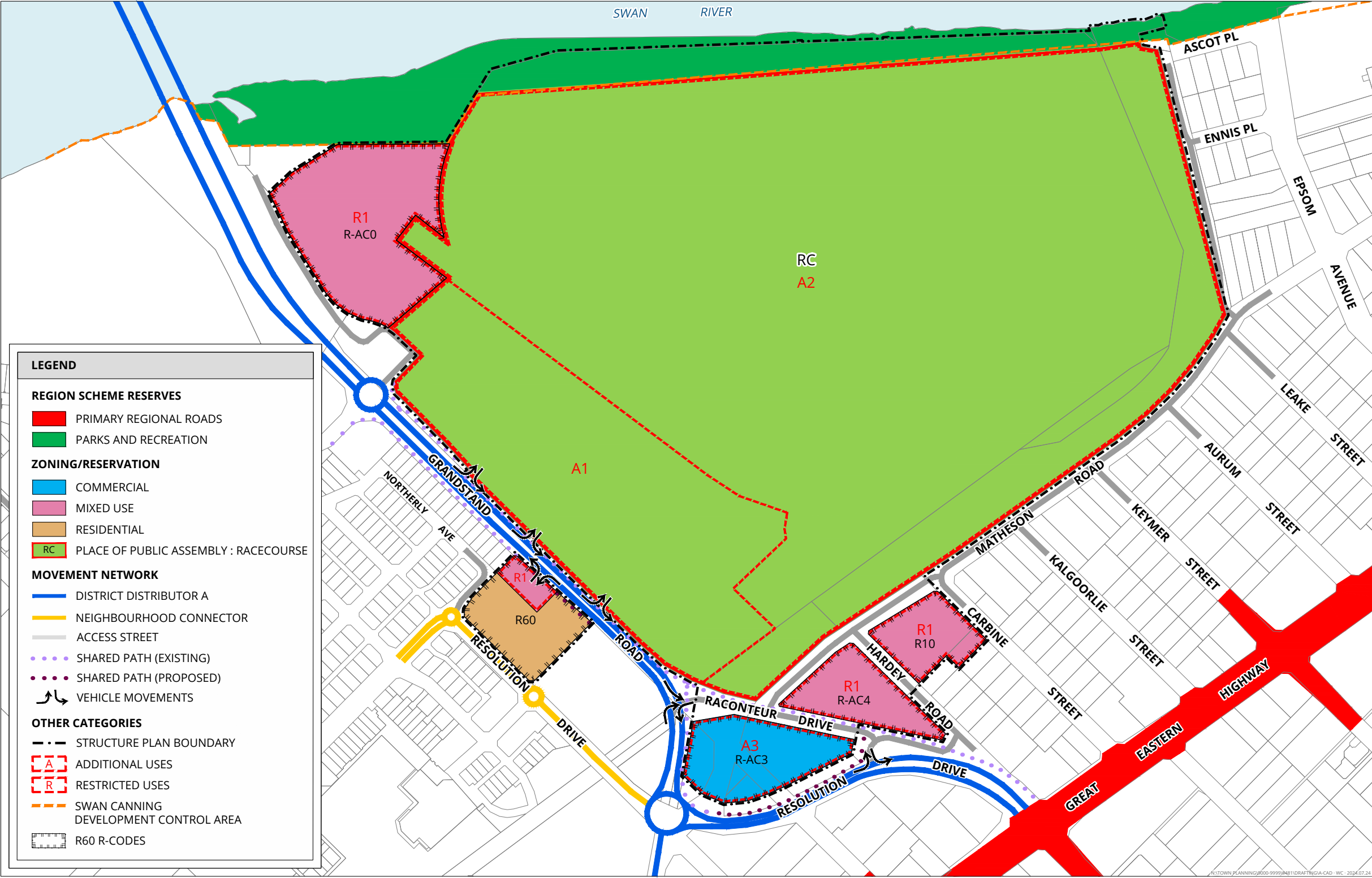
Table 5: Information to be Submitted with an Application

The following additional information, studies or plans are to be required as a condition of subdivision or development approval.

Condition of Approval	Responsible Agency
Landscaping Plan	City of Belmont
Fauna Management Plan	City of Belmont, DBCA
Conservation & Environmental Management Plan	City of Belmont, DBCA
Urban Water Management Plan / Stormwater Management Plan	City of Belmont, DBCA
Acid Sulphate Soil Management Plan	DWER

Table 6: Information Required as a Condition of Approval





Plan 1 – Structure Plan Map





Plan 2 – Structure Plan Precincts





Plan 3 - Building Height Plan



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Part 2

Explanatory Section



1. Introduction & Purpose

The purpose of the Ascot Racecourse Precinct Structure Plan is to guide future use and development of the Precinct Structure Plan area. The Precinct Structure Plan has been prepared on behalf of Perth Racing and encompasses approximately 61.3ha of land bound by the Swan River, Ascot Waters Estate, Grandstand Road, Resolution Drive, Hardey Road, and Carbine Street, in Ascot.

Refer **Figure 1 – Site Plan**.

1.1. Purpose

The purpose of this Report is to provide the relevant planning background and explanatory information that has formed the basis for preparing the Ascot Racecourse Precinct Structure Plan. This Report includes:

- A site and context analysis outlining the physical, community, and planning and governance context relevant to the area and the Precinct Structure Plan.
- An opportunities and constraints analysis of the subject site and the identification of the key design objectives and considerations.
- An overview of stakeholder engagement that has occurred to inform the preparation of the Precinct Structure Plan.
- A detailed explanation of the design response to the site and context analysis, opportunities and constraints analysis, and stakeholder feedback.

The Precinct Structure Plan will guide future land use and development over the subject land and provide a framework for more detailed planning at development application and/or subdivision stage. The following sections provide further detail and explanation for the Structure Plan Part 1 provisions.



1.2. Objectives

The objectives of the Ascot Racecourse Precinct Structure Plan are to:

- Provide a framework to guide the use and development of Perth Racing's landholdings including and surrounding Ascot Racecourse.
- Identify Perth Racing's vision and feasible development aspirations for its landholdings, having regard to landownership restrictions and the need to support the ongoing viability of horse racing operations at Ascot Racecourse.
- Identify zoning, density, built form, and other requirements that will enable Perth Racing's vision to be realised, and inform subsequent stages of planning, having regard to the site context, opportunities, and constraints of the area.

1.3. Project Team

The following multidisciplinary project team have progressed the preparation of the Ascot Racecourse Precinct Structure Plan:

Discipline	Consultant
Town Planning & Urban Design	Rowe Group
Project Management	Davison Advisory Services
Environment, Water Management & Heritage	Emerge Associates
Engineering Servicing	Tabec
Geotechnical	Douglas Partners
Traffic	PJA
Landscape	SLR Consulting
Acoustic	Lloyd George Acoustics
Economic	Taktics4

Table 7: Project Team



1. Site Plan

2. Site Context & Analysis

2.1. Physical Context

2.1.1. Location

The subject land is in the municipality of the City of Belmont ('City'), in the Perth Metropolitan Region. The site is located approximately 7.7 kilometres east of the Perth Central Business District.

Refer **Figure 2 – Regional Location**.

The subject land is situated in the suburb of Ascot, and is bound by the Swan River to the north, the Ascot Residential and Stables area and Matheson Road to the east and south-east, Resolution Drive to the south and south-west, and Grandstand Road to the west.

Grandstand Road provides access to the regional road network including Tonkin Highway and Graham Farmer Freeway via Garrat Road and Guildford Road to the north, and Great Eastern Highway to the south via Resolution Drive and Stoneham Street. The southern portion of the subject land is bound by Resolution Drive and Matheson Road providing access to local residential streets to the south, west and east of the subject area.

Refer **Figure 3 – Local Location**.

2.1.2. Tenure, Ownership & Buildings

The Structure Plan area comprises several landholdings totalling 61.3294ha in area, legally described below.

Lot	Deposited Plan	Volume	Folio	Area	Landowner
1	55346	1724	276	2,452m ²	Western Australian Planning Commission
3	55346	1742	278	350m ²	The Chair of the Committee of the Western Australian Turf Club
13	26760	1883	670	7,312m ²	The Chair of the Committee of the Western Australian Turf Club
50	5729	1041	934	3,516m ²	The Chair of the Committee of the Western Australian Turf Club
51	15104	1883	668	6,939m ²	The Chair of the Committee of the Western Australian Turf Club
100	60341	2723	304	25,725m ²	The Chair of the Committee of the Western Australian Turf Club
452	60339	2723	355	11,441m ²	The Chair of the Committee of the Western Australian Turf Club
7705	209359	1789	567	43,318m ²	The Chair of the Committee of the Western Australian Turf Club
9002	60342	2723	303	512,241m ²	The Chair of the Committee of the Western Australian Turf Club

Table 8: Summary of Land



Refer **Appendix 1 – Certificates of Title**.

The Structure Plan area includes the Ascot Racecourse complex, including the Racecourse, entertainment/hospitality areas, and car parking, forming the 'core' of the site. To the south of the Racecourse is vacant land, which is currently used for overflow car parking on event days. Lee-Steere House, being Perth Racing's administration building, is located to the west of the Racecourse, adjacent to Ascot Waters Estate.

2.1.3. Surrounding Area & Land Uses

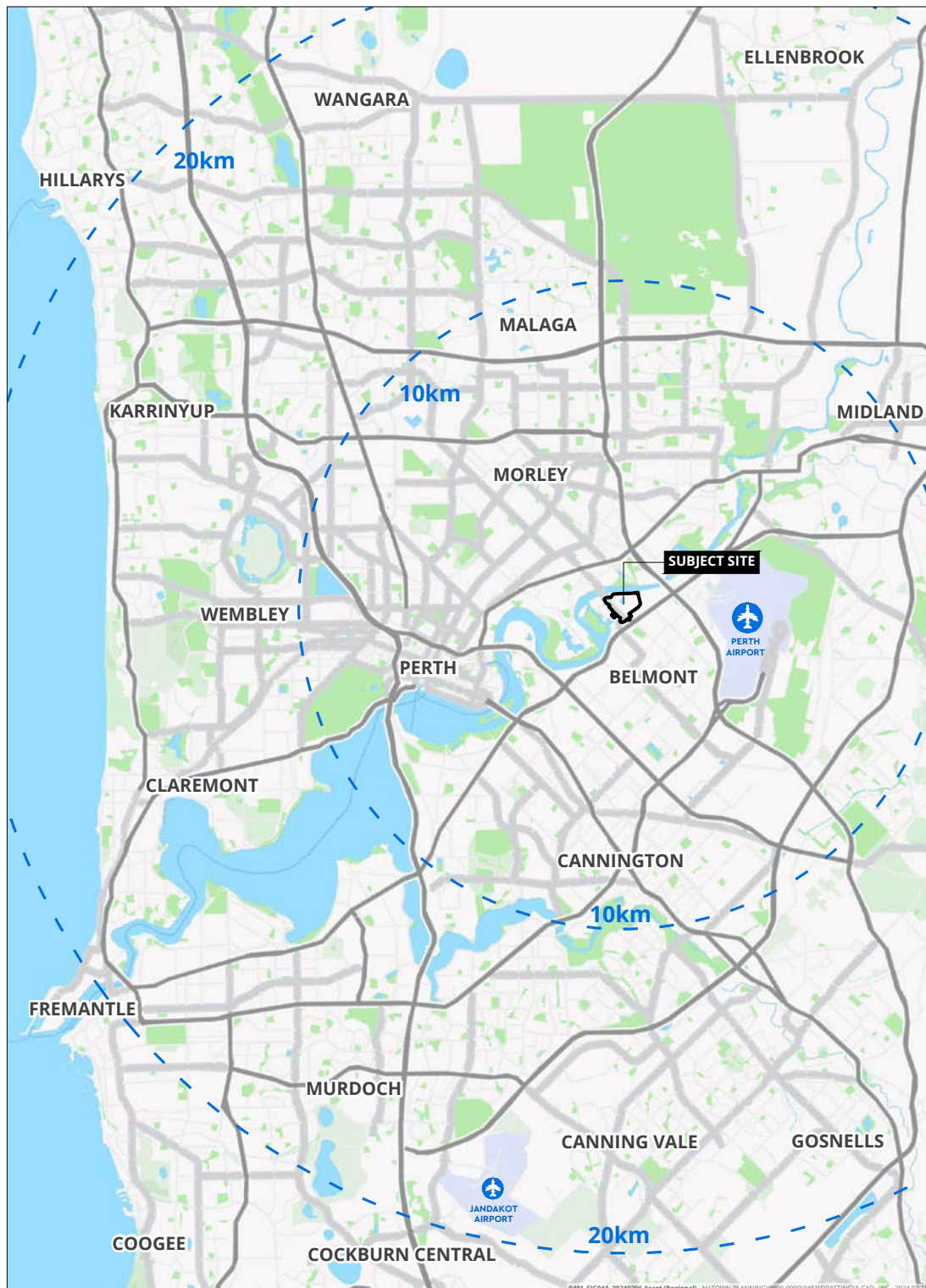
The Structure Plan area abuts the Swan River foreshore located to the north, the Ascot Residential and Stables area to the south and east, light industrial/commercial development to the south, and the Ascot Waters residential estate and Bristle Kilns (also known as the 'Ascot Kilns') to the west.

The Ascot Residential and Stables area to the south and east of the subject land is inherently linked to the horse racing industry and the operation of Ascot Racecourse. The existing zoning applicable to the area permits the keeping of horses within private stable complexes, enabling horse trainers to operate in the area and utilise the Racecourse for training purposes.

Land to the west and south-west of the Precinct Structure Plan area includes a historical landmark being the Bristle Kilns located on the border of the Ascot Waters residential estate.

The light industrial/commercial development to the south comprises of a range of land uses including corporate offices, fast food outlets, and service stations.

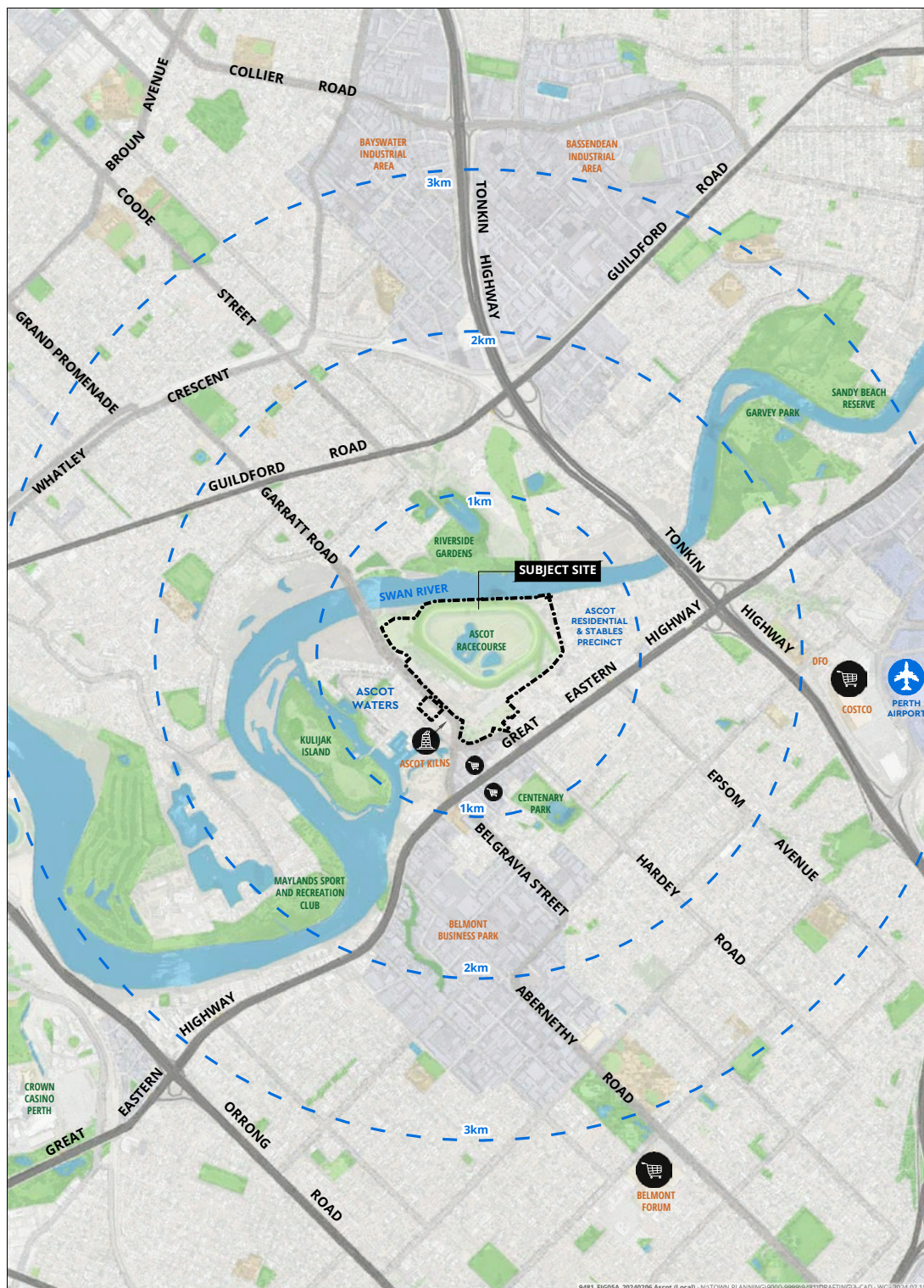




2. Regional Location



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3. Local Location



2.1.4. Environment

2.1.4.1. Landform & Soils

The subject site is generally flat, with a slight increase in elevation in its eastern extent. The northern portion of the site, adjacent to the Swan River, is the lowest point within the subject site at 0m Australian Height Datum (AHD). The remainder of the site is elevated at 2m AHD to the north-west and 7.5m AHD to the east.

The subject site falls within the Swan River Terrace system and contains Guildford formation of Alluvial and leached yellow sands. The soil types present at the subject site include:

- **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, disseminated fine sand, hard when dry, variable clay content of alluvial origin.
- **Ms4** – Sandy Silt: light yellow brown, blocky, mottled with some fine to medium sand, soft when moist, variable clay content.
- **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin.

Geotechnical investigations were undertaken specifically for Precinct A (Douglas Partners, 2014), Precinct C (Douglas Partners, 2023) and Precinct D (Galt, 2024). Each investigation confirms the regional geological mapping generally consisting of shallow layers of sand overlying sandy clay of the Guildford formation, which is generally unsuitable for on-site stormwater disposal.

From a site classification perspective, Precinct A would be 'Class P', Precinct C is also 'Class P' but can be re-classified to 'Class S' with appropriate site preparation, and Precinct D is 'Class S'. It is assumed that Precinct B will have ground conditions similar to Precincts A and C, however further geotechnical investigations will be required to ensure adequate treatment of ground conditions before future development. For Precinct E, it is anticipated that ground conditions would be consistent with the natural material from the geotechnical investigations and geological mapping.

Refer **Appendix 4 – Engineering Servicing Report**.

2.1.4.2. Acid Sulphate Soils

The Department of Water and Environmental Regulation Acid Sulphate Soils ('ASS') risk mapping indicates that the majority of the site is considered to have a 'high to moderate' risk of ASS occurrence within 3 m of the natural surface. A portion of the site, including parts of Precinct B, Precinct C and the Racecourse are mapped as having a 'moderate to low' risk of ASS occurring within the 3m of the natural surface. Should ASS be encountered, an ASS Management Plan will be prepared and implemented at subdivision and/or development stage.

2.1.4.3. Site Contamination

A review of the Department of Water and Environmental Regulation's ('DWER') Contaminated Sites Database indicates that no areas within the subject site are registered as a 'contaminated site' under the *Contaminated Sites Act 2003*.

A basic summary of records of Lot 9002 on DP60342 was requested from DWER which indicated that Precincts A, B and C are classified as 'possibly contaminated – investigation required'. The possible contamination is associated with the site's historical use for horse-racing and runoff from animal storage on the site and agistment in the surrounding areas. Perth Racing are currently undertaking monitoring and investigation into the potential contamination of the site which will be reviewed by DWER.



2.1.4.4. Groundwater & Surface Water

The Perth Groundwater Map (DWER, 2023) indicates that the regional groundwater level sits at 0.5m AHD across the site. The groundwater clearance from south-east to north-west of the site therefore ranges from 6.5m to 0.5m. Local groundwater monitoring undertaken in August 2022 indicates that annual maximum groundwater levels were measured at 1.26m AHD and 1.70m AHD.

In terms of future development, it is anticipated that additional fill may be required to satisfy minimum groundwater clearance of 1.2m above maximum groundwater levels. This would be subject to further investigations on final development requirements and land uses.

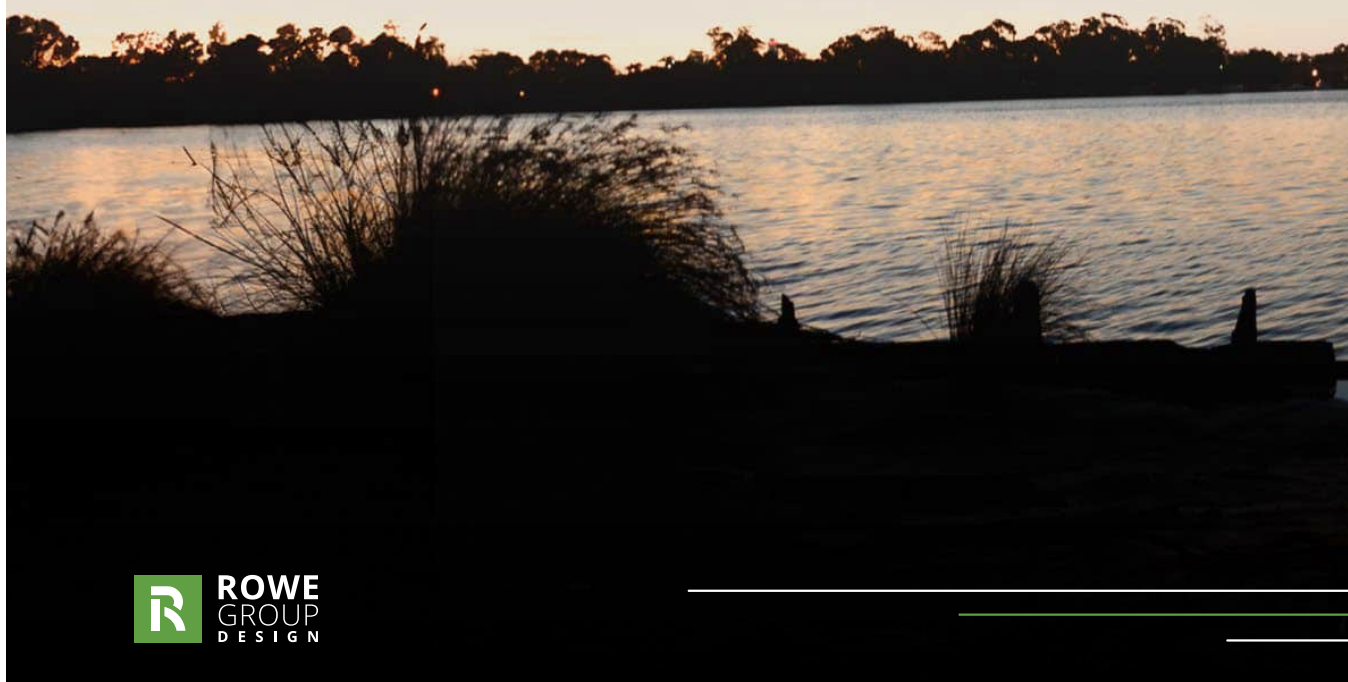
Groundwater is abstracted from an artesian production bore assigned to the Leederville Aquifer to meet the irrigation demand of the Racecourse and surrounds. The bore is located adjacent to the Irrigation Lake at the south corner of the racetrack.

Water quality monitoring indicates that electrical conductivity (EC), total dissolved solids (TDS), and hydrogen (pH) values do not exceed guideline trigger values, however nitrogen (TN) and phosphorous (TP) concentrations continually exceed Australian and New Zealand Environment and Conservation Council (ANZEC) guideline trigger values.

2.1.4.5. Hydrology

The dominant hydrological feature of the site is the Swan River, which adjoins the northern boundary of the site and falls within the Swan Canning Development Control Area and Swan Canning River Park. Online floodplain mapping indicates flood levels in proximity to the Swan River at 2.8m AHD. All lots must have a minimum 500mm elevation above this Swan River flood level and a minimum of 300mm clearance above the 1% AEP top of water level of drainage basins.

There are three lakes located within the centre of the Racecourse (Irrigation Lake, Lined Lake and Wetland Lake). These lakes receive runoff from the grandstand buildings in Precinct B and stables/buildings in Precinct C.



2.1.4.6. Wetlands

The Geomorphic Wetlands of the Swan Coastal Plain dataset indicates the following wetlands within the site:

- Multiple Use Wetland (UFI 8424, UFI 8425, UFI 8426)
- Resource Enhancement Wetland (UF 8423).

The adjacent Swan River is classified as a Conservation Category Wetland (UFI 1316 – Estuary waterbody) and has significant ecological, cultural and heritage values. The associated riparian vegetation associated with the Swan River extends into the north-eastern portion of the site and would provide habitat for waterbirds and aquatic fauna species.

2.1.4.7. Biodiversity & Natural Area Assets

A flora and fauna survey of the subject site undertaken in March 2023 by Emerge Associates identified a total of 1.1ha of native vegetation, comprising of scattered flooded gum (*Eucalyptus rudis*) and marri (*Corymbia calophylla*) trees, and fringing vegetation (vegetation type ErJkSt). The survey found the majority of the subject site is heavily disturbed with limited intact native vegetation. Most of the vegetation was deemed to be in a 'degraded' and 'completely degraded' state.

A small portion of native vegetation in the north-eastern corner of on the site, comprising approximately 70m², was identified as being in 'Good – Very Good' condition. This area includes the 'subtropical and temperate coastal saltmarsh' ecological community which is listed as a Threatened Ecological Community ('TEC') ('vulnerable') under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and as a Priority Ecological Community (Priority 3) under the *Biodiversity Conservation Act 2016*.

The survey found no threatened or priority flora species or suitable habitat for threatened or priority species. Whilst a desktop search indicated potential for two threatened and priority flora species, these were not considered likely to occur on the site due to lack of suitable habitat.

The northern portion of the site (along the Swan River) is identified as an environmentally sensitive area ('ESA') which are prescribed protection under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.



2.1.4.8. Fauna

A basic fauna and targeted black cockatoo survey undertaken by Emerge Associates found that fauna habitat values within the site are limited by historical disturbance and are primarily suited to widespread fauna species with non-specific habitat requirements. The survey found 24 fauna species were recorded within the site including two (2) conservation significant species.

The two conservation significant species recorded at the time of survey include one threatened species, being the Forest Red-Tailed Black Cockatoo (*Zanda banksia naso*) and one Priority 4 species (blue-billed duck (*Oxyura australis*).

A total of 1.27ha of Carnaby's Black Cockatoo foraging habitat was recorded on the site, of which 0.35ha comprised primary foraging habitat and 0.92ha of secondary foraging habitat. A total of 0.84ha of Forest Red-Tailed Black Cockatoo foraging habitat was recorded on the site, comprising 0.28ha of primary native habitat, 0.56ha of secondary foraging habitat.

A total of 32 Black Cockatoo habitat trees were recorded during the survey, of which 29 were located within the subject site. Of the trees located on the site, four (4) trees contained hollows potentially suitable for Black Cockatoo breeding.

2.1.5. Physical Infrastructure & Services

An Engineering Servicing Report has been prepared by TABEC in support of this Precinct Structure Plan. The purpose of the report is to provide servicing and infrastructure advice on the development area and associated future requirements. The findings of the report are summarised below.

Refer **Appendix 4 – Engineering Servicing Report**.

2.1.5.1. Sewer

Precinct A is located in proximity to an existing sewer at Waterway Crescent, however it is anticipated that the existing pipe network will not have sufficient cover below finished ground levels to extend from its current location to the subject site. Alternative options include:

1. Connecting to the existing wastewater pump station to the east located on Ascot Place, requiring the construction of a private pump station and the construction of 950m of DN100 pressure main and new gravity sewer through Ascot Racecourse that discharges into the pump station.
2. Extending the existing 225mm sewer up Grandstand Road from the Marina Drive/ Resolution Drive roundabout. This connection would trigger downstream upgrades due to capacity constraints, with the existing 225mm sewer on Great Eastern Highway requiring an upgrade to a 300mm sewer.

Precinct B is currently serviced by an existing sewer connection located at Raconteur Drive, however Water Corporation do not have any record of this connection and therefore wastewater flows from this Precinct have not been included in their planning assumptions. As such, if there is a substantial increase in wastewater flows to this connection, further discussions will be required with Water Corporation.

In the case of Precinct C, which will include the development of on-course stabling complexes along the outer edge of the Racecourse, multiple sewer connections will be required to service the site. The western portion of the Precinct (between Kalgoorlie Street and Raconteur Drive) is expected to be conveyed to the west to the existing internal sewer. The central area of the Precinct, along Matheson Road, is proposed to be serviced via an existing connection from Kalgoorlie Street. The eastern portion of the Precinct will require two new connections along the eastern boundary to the existing sewer network.

Precinct D can be serviced by the existing sewer network located near the intersection of Marina Drive and Resolution Drive, as confirmed by the Water Corporation.

In terms of Precinct E, there is an existing sewer network located along Resolution Drive which continues north-east from Raconteur Drive towards Carbine Street via Lot 100, which can service future development on Lots 51 and 100.

2.1.5.2. Water

Investigations indicate that the existing water reticulation network within the area can service the subject land depending on final water usage requirements, specifically:

- Precinct A can be serviced by an existing water main located in the western verge of the Waterway Crescent / Grandstand Road roundabout, which will need to be extended to the development site to provide water supply.
- Precinct B is currently serviced by an existing 100mm water main, however if additional water supply is required, this water main may require upgrading.
- Precinct C has access to an existing 100mm water main located along the southern verge of Matheson Road which can service the Precinct area. If, however greater supply is required above the capacity of the pipework, there may be a need to upgrade the size of the water main to Precinct C.
- Precinct D has access to an existing 150mm water main on the western verge of Resolution Drive and a 100mm water main on Grandstand Road which provide adequate opportunity for connection and water supply.
- Precinct E can be serviced by an existing DN100mm water main located within the existing redundant road reserves dissecting this Precinct area.

2.1.5.3. Power

Preliminary estimates on power demand indicate that the site has a total power requirement of 5.4MVA with the proposed new developments requiring an additional 4.2MVA. Western Power's Capacity Mapping indicates there is sufficient capacity within the network (30MVA) to accommodate the proposed development, as contemplated by this Precinct Structure Plan.

2.1.5.4. Stormwater Drainage

There are two significant drainage systems that convey stormwater from the subject area to the Swan River. The first is the Central Belmont Main Drain which is managed by Water Corporation, and the second is the local drainage network located near Matheson Road which conveys water from the surrounding road reserves into the lake system at the centre of the Racecourse.

The lake systems are interconnected, with flows discharging from the lakes to the Swan River via a 450mm and 375mm concrete pipe at peak water level, with its outlet being controlled to restrict tidal influence on the internal lake system.

In terms of precinct-specific stormwater drainage management:

- Precinct A does not currently have access to a stormwater connection, and as part of future development, drainage from this area would be treated and captured within the precinct area.



- Precinct B currently captures and infiltrates water at source, with overland flow being graded towards the existing track.
- Precinct C will be a combination of infiltration at source where levels and soil conditions allow, and discharge to the lake system.
- Precinct D will include stormwater storage and infiltration at the site, with the 1% AEP event discharging into the local drainage network on Resolution Drive.
- Precinct E is anticipated to be treated via bio-retention swale before overflowing to a proposed detention basin storage for the 1% AEP event, with overflow from the basin discharging into the Water Corporation's drainage system.

Refer **Appendix 2 – Local Water Management Strategy**.

2.1.6. People Movement

A detailed review of the existing movement network has been undertaken through the preparation of a Transport Impact Assessment ('TIA'), a summary of which is outlined below. Refer **Appendix 5 – Transport Impact Assessment**.

The Structure Plan area is bound by Grandstand Road to the west, Resolution Drive to the south, and Matheson Road to the south-east. All roads abutting the site are under the care and control of the City of Belmont, though the extent of Matheson Road and Raconteur Drive that sits within the site boundary is owned privately by Perth Racing with access controlled through gates.

Grandstand Road is classified as a 'Distributor A' road under the Main Roads WA Functional Road Hierarchy and forms as a dual carriageway carrying volumes of approximately 16,700 vehicles per day (2018). There are no on-road cycle lane facilities on Grandstand Road. A single continuous shared use path exists along the north-eastern side of Grandstand Road, with intermittent provision on the south-western side. A high-quality shared path extends from the Grandstand Road/Garratt Road bridge to Ascot Place, adjacent to the Swan River and along the northern boundary of the Racecourse.



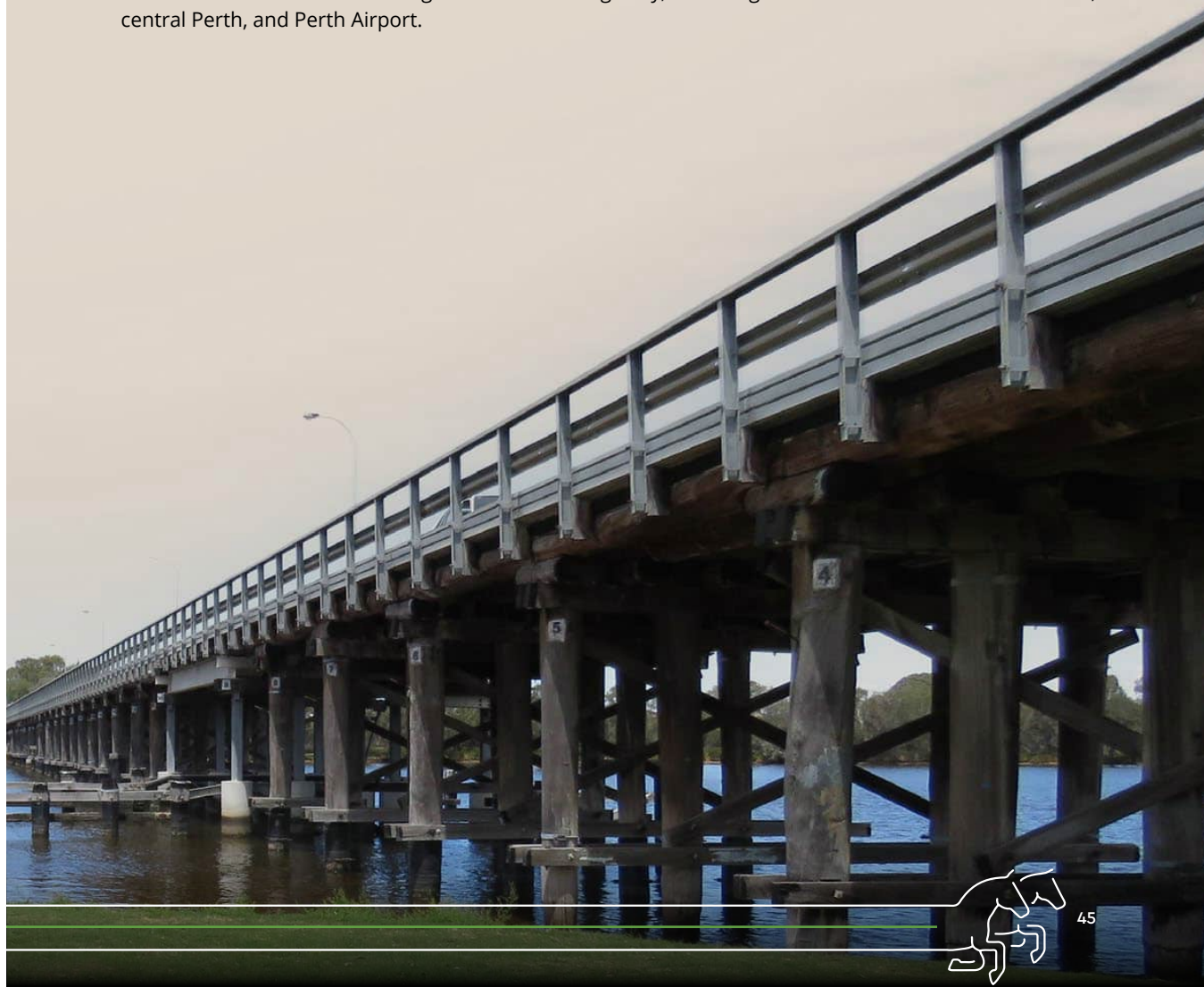
Resolution Drive, to the south of the subject area, is classified as a 'Distributor A' road and forms as a single carriageway, extending between the four-lane Grandstand Road / Stoneham Street / Resolution Drive roundabout to the signalised intersection at Great Eastern Highway and Hardey Road. Based on 2021 traffic count data, Resolution Drive carries approximately 7,900 vehicles per day.

Raconteur Drive diverts east from Grandstand Road, in the form of a three-way priority-controlled intersection, with left-in and right-in movements from each side of Grandstand Road. Raconteur Drive forms as a one-way single-lane carriageway providing access (albeit gated) to Matheson Road and the existing car park for Ascot Racecourse. A pedestrian footpath exists along the northern side of Raconteur Drive connecting to Grandstand Road and Resolution Drive.

Matheson Road is classified as an 'Access Road' and forms as a single-lane carriageway servicing the Residential and Stables area. A shared path exists along the south-eastern side of Matheson Road, with a dedicated horse trail along the northern side.

Great Eastern Highway, to the south of the subject land, is classified as a 'Primary Distributor' under the Functional Road Hierarchy and carries significant volumes of traffic. Great Eastern Highway includes on-road cycle laneways with no physical separation and are combined with bus lanes.

There are existing bus stops located along Grandstand Road, immediately adjacent to one of the key pedestrian access points to the Racecourse, which are served by the 998/999 circle route which has good frequency and provides connectivity through central Perth and Bayswater Train Station. Frequent bus services are also available along Great Eastern Highway, including services towards Redcliffe Station, central Perth, and Perth Airport.



2.2. Community Context

2.2.1. Culture, Values & Identity

The Ascot locality is renowned for its connection to the horse racing industry, with the historical Ascot Racecourse and surrounding Residential and Stables area forming a significant role in the contemporary culture and identity of the area. Ascot Racecourse was established in 1853, importing the English notions of society and social pastimes within a colonial setting. Since that time, the Racecourse has been a site of social interaction, particularly over the summer months, which contributes to the sense of place of both the local area and the wider State.

The continuation of the Residential and Stables area, integrating horse stabling with housing, is reflective of the community's values for ongoing provision of horse racing at Ascot Racecourse, and its association with the individuals and families who are significant in the history of the local area. In recent years, however, it is understood that many emerging horse trainers are now locating on the outskirts of the Perth metropolitan area and travelling to Ascot for training and racing.

The Swan River forms a key feature that signifies the area, extending along the northern boundary of the Racecourse. The Swan River foreshore serves a significant amenity and environmental feature in the area, and a recreational asset for the wider community.

Situated opposite the Ascot Racecourse is a prominent landmark featuring eight (8) brick circular downdraught kilns and five (5) tall brick chimneys, known as the Bristle Kilns (or Ascot Kilns). Becoming known beyond the local community due to heritage significance and prominent location adjacent to Ascot Racecourse and at the gateway to the City of Belmont.



2.2.2. History & Heritage

2.2.2.1. Aboriginal Heritage

A search of the Aboriginal Cultural Heritage Inquiry System identified two (2) Aboriginal heritage places located within and adjacent to the subject land, as follows:

- Site ID 3753 – Registered site, Name: Perth, Type: Historical, Mythological, Hunting Place, Named Place, Natural Feature.
- Site ID 3536 – Registered site, Name: Swan River, Type: Creation / Dreaming Narrative.

Site 3753 partially intersects with the western edge of the site and the boundary is a broader area, with the exact area not being defined. Site 3756 is located immediately adjacent to the site.

2.2.2.2. European Heritage

A search of the 'Inherit' database of the Western Australian Heritage Council ('WAHC') and the City of Belmont Local Heritage Survey and Heritage List identifies five (5) European heritage listings within and adjacent to the Precinct Structure Plan area.

Inherit Id	Name	Address	Local Heritage Survey Management Category
6123	Ascot Racecourse Complex	71 Grandstand Road, Ascot	1
868	Bristle Kilns (Ascot Kilns)	80 Grandstand Road, Ascot	1
16779	Ascot Residential and Stables Area	Area bound by Great Eastern Highway, Hardy Road, Swan River and Tonkin Highway, Ascot	2
27274	Lee-Steere House	70 Grandstand Road, Ascot	4
16863	Rail Line - site	Matheson Road, Ascot	4
18987	Swan and Canning Rivers	Swan River	N/A

Table 9: Heritage Places



2.2.2.2.1. State Register of Heritage Places

The Bristle Kilns – Heritage Place No. 868, located immediately outside of the Precinct Structure Plan area, is included in the State Register of Heritage Places, in recognition of its cultural heritage significance. The Bristle Kilns is an industrial site comprising eight (8) brick circular downdraught kilns and five (5) tall brick chimneys and is the largest cluster of circular downdraught kilns and associated stacks in Australia, which are an increasingly rare industrial structure nationally.

The place represents the development of the clay industry in the Belmont area and has had a significant impact on the development of the City of Belmont from 1905 to 1982. The Bristle Kilns now form part of the Ascot skyline with both aesthetic and social value due to its landmark qualities.

The proposed Precinct Structure Plan will not cause harm or impact the significance of the Bristle Kilns heritage place. Any future development application proposed in proximity to the heritage site may be subject to further heritage assessments.

2.2.2.2.2. State Register Assessment Program Places

There are two (2) places within the Precinct Structure Plan area included on the Western Australian Heritage Council's Assessment Program for consideration for inclusion on the State Register of Heritage Places, being the Ascot Racecourse Complex – Place No. 6123 and the Swan and Canning Rivers – Place No. 18987.

The Ascot Racecourse Complex comprises a complex of buildings surrounding the horse racing track, established in 1850. The place demonstrates the popularity of horseracing in Western Australia, and the allocation of public funds by Government in order to provide facilities for the sport and maintain revenue generated by gambling. The Ascot Racecourse Complex represents the economic prosperity and population increase generated by the Gold Boom of the 1890s, which resulted in dramatically increased building activity. The place remains a rare example of a largely intact group of buildings including parts of a horse racing complex, that still relates to the original form and function of the surrounding area.

The Swan and Canning Rivers (or Swan Canning Riverpark) cover 72.1 square kilometres of river reserve and adjoining public lands. The Swan Canning Riverpark supports a diverse array of plant and animal life, some endemic to the region. The Swan and Canning Rivers stretch and snake their way for 280 kilometres from Wickpin to the Indian Ocean in Fremantle, representing an important slice of Western Australian history, as well as holding significant cultural values for Perth, serving as an important feature of the city's landscape.



2.2.2.2.3. Local Heritage Survey and Heritage List

The City of Belmont's Local Heritage Survey and Heritage List (June 2023) identifies and records places that are, or may become of, cultural heritage significance to the local community within the Local Heritage Survey. Those places considered to contain cultural heritage significance requiring protection and conservation are included on the Heritage List.

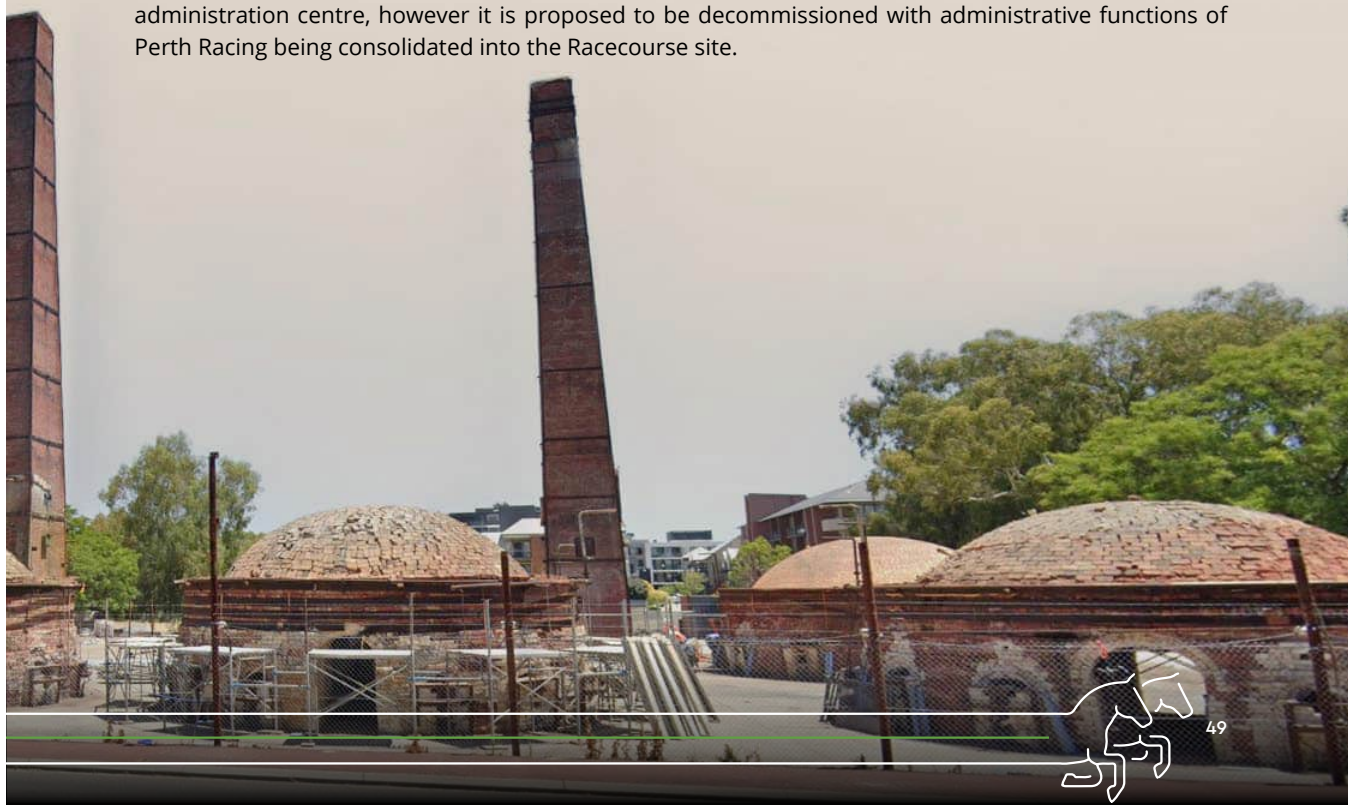
The Ascot Racecourse Complex, the Ascot Residential and Stables Area, and Bristle Kilns are all included on the City's Heritage List, with the former being the only site contained within the subject area. Lee-Steere House and the Rail Line are contained within the subject area, however, are not included on the Heritage List based on their Management Category.

The Ascot Residential & Stables Precinct is located immediately adjacent to the subject area and provides evidence in the built environment of a long association with the horse racing industry and Ascot Racecourse. The area presents a rare surviving example of a suburban area that has retained a significant number of actively used stables integrated into the urban subdivisions. The precinct has social value to the community for the ongoing provision of horse racing at the Ascot Racecourse and for its association with the individuals and families who are significant in the history of the local area and / or the racing profession.

The Local Heritage Survey also identifies two (2) places that contribute to Belmont's history and community as a Management Category 4 (little significance) place. These places include the Rail Line – Site and the Lee-Steere House, which are both situated within the Precinct Structure Plan area.

The former Rail Line site is located on a portion of Matheson Road, Ascot. The site has historic value for its association with the rail link which connected Belmont to the Perth to Guildford railway line. This brought racegoers to Ascot and provided essential deliveries to local businesses. The former Rail line demonstrates how significant the racing industry was to the development of the Belmont district. It should be noted that the site does not contain any original infrastructure and its former use is acknowledged via a plaque located onsite.

Lee-Steere House has historic and social value for the members of the horse racing industry for its provision of services since the 1980s. It is noted that the building is not of any distinct architectural merit but is connected to the racing industry and built in the style of similar clubhouses from that era. The intended use of the building continues to perform the functions for which it was built, being an administration centre, however it is proposed to be decommissioned with administrative functions of Perth Racing being consolidated into the Racecourse site.



2.2.3. People

Ascot Racecourse operates as both a racetrack and training facility, with more than 500 horses training at the Racecourse during a typical week.

Ascot Racecourse, through both racing and non-racing events attracts a range of community members, irrespective of socio-economic status, age or gender, and supports the development and preservation of social and community benefits throughout the Perth Region through club activities and partnerships with community organisations. Amongst the community, horse racing is a profession, sport, hobby and leisure activity.

Perth Racing is the only thoroughbred racing club established within the Perth Region, with racing occurring between Ascot Racecourse (summer months) and Belmont Racecourse (winter months). There are 7,366 people who participate in the thoroughbred horse racing industry within the Perth Region, including 4,928 people who participate in producing racing animals, 1,498 racing club and industry staff, and 541 stable employees (IER, May 2023).

In terms of the wider area, the population of Ascot has steadily grown over the past five (5) years reflecting an increasing trend of an aging population. The key demographic statistics that comprise the Ascot community are summarised in the table below.

Statistic	Ascot (2016)	Ascot (2021)	Western Australia (2021)
Population	2,572 people	3,095 people	-
Median Age	42 years	46 years	38 years
Population over 65 years	15.6%	22%	14.2%
Median Weekly Household Income	\$1,687	\$2,166	\$1,480
Family Composition			
▪ Couple family without children	50%	52.2%	38.8%
▪ Couple family with children	35.8%	34.5%	43.7%
▪ One parent family	12.3%	9.1%	15.9%

Table 10: Ascot Demographic Profile (ABS Census Data 2016 and 2021)

2.2.4. Economy

Within the Perth Region, the thoroughbred horse racing is responsible for generating \$467.9 million in value-added contribution to Gross State Product and sustaining a total of 3,633 full-time equivalent jobs in the region (IER, May 2023). In terms of contribution to the Belmont area, Perth Racing provides an economic contribution of almost \$250 million annually, over 1,500 jobs and almost 2,000 participants and volunteers, and household income of over \$116 million (IER data, May 2022).

A significant number of racing participants have skills that are not easily transferable to other employment sectors, in particular trainers, jockeys, drivers and breeders, and therefore are heavily reliant on the success of the racing industry.

The Ascot locality is characterised by typical labour force participation and an above average proportion of workers who are employed on a full-time basis (ABS Census Data, 2021). The key employment industries for the portion of Ascot defined by Ascot Racecourse and the Residential and Stables area are 'Accommodation & Food Services', 'Arts & Recreational Services' and 'Tourism'. These industries generate a total of 426 jobs in area, representing 64% of all jobs within the area, and a combined economic output of over \$82 million (REMPAN, 2024).



2.3. Governance Context

2.3.1. Planning Strategies

2.3.1.1. Perth and Peel @ 3.5 Million and Central Sub-Regional Planning Framework

The Perth and Peel @ 3.5 Million suite of documents provides a framework for the development of the Perth and Peel regions as the population reaches an estimated 3.5 million people by 2050. The suite of documents includes four planning frameworks for the Central, North-West, North-East and South Metropolitan sub-regions. These documents provide the detailed commentary and analysis accompanying the overall 'Spatial Plan for Perth and Peel @ 3.5 million'.

The subject site lies within the Central Sub-Regional Planning Framework. Under the Framework, Ascot Racecourse is identified as forming part of a 'Green Network' that extends along the Swan River. Great Eastern Highway is identified as an 'Urban Corridor' where focus should be given to investigating increased residential densities, with potential for mixed land uses where appropriate. Both Great Eastern Highway, and Grandstand Road and Resolution Drive immediately abutting Perth Racing's landholdings are identified as a 'high-frequency public transit' route.

2.3.1.2. City of Belmont Local Planning Scheme No. 15 – Report of Review

In accordance with the requirements of the *Planning and Development (Local Planning Schemes) Regulations 2015*, the City undertook a review of LPS 15, preparing a 'Report of Review' analysing the operation of the existing local planning framework. The Report of Review acknowledged the Council had adopted a number of supporting documents and sub-planning strategies to LPS 15, however it was concluded that these documents were considered outdated (adoptions dating from 2008 to 2011).

The Report of Review states that due to the extent of the review required and the age of the strategy, a new local planning strategy and associated sub-strategies should be prepared. The recommendations of the Report of Review were supported by the WAPC on 9 February 2021.

2.3.1.3. City of Belmont Activity Centres Planning Strategy

The City's Activity Centre Planning Strategy ('ACPS') is a holistic guide for the future planning of activity centres within the City of Belmont, based on the current strategic planning framework, future economic trends and analysis of best practice activity centre planning, as outlined by State Planning Policy 4.2 – Activity Centres ('SPP 4.2').

Of relevance to the Precinct Structure Plan area, the ACPS identifies a future 'Local Centre' within the Ascot Waters residential estate (500m² NLA) and the Golden Gateway Precinct (1,200m² NLA). It is intended that the 'Local Centre' would capture a 200m walkable radius which would include a portion of the Precinct area. Further to this, it is noted that a Retail Needs Assessment commissioned by the DPLH in 2016, predicts that the nearby Ascot Kilns site could accommodate a total of 515m² of retail floor area.

During the ACPS consultation period, a submission was prepared on behalf of Perth Racing seeking to designate the future Golden Gateway Local Centre on Perth Racing's landholdings, immediately adjacent to Resolution Drive. Additionally, and as part of this Precinct Structure Plan, a Net Benefit Test has been prepared to justify the appropriateness of the proposed Local Centre in this location to address future planning of its landholdings. This is discussed further in Section 5.6 of this Report.

Refer **Appendix 6 – Retail Assessment (Net Benefit Test)**.

2.3.1.4. City of Belmont draft Great Eastern Highway Urban Corridor Strategy

The City's draft Great Eastern Highway Urban Corridor Strategy ('Corridor Strategy') has been prepared to guide land use planning along Great Eastern Highway, which is identified as an 'Urban Corridor' under the Central Sub-Regional Planning Framework. The Corridor Strategy establishes a 'vision' for the corridor, addressing matters relating to land use, built form, the public realm, and access arrangements.

Of relevance to the Precinct Structure Plan area, the Corridor Strategy identifies land fronting Great Eastern Highway, within the Golden Gateway Precinct as an 'Activity Node'. This Activity Node will provide convenience for residents to the north within the Golden Gateway Precinct, being a portion of the Precinct Structure Plan area.

Following the consideration of submissions, at the Council meeting held on 26 September 2023, the Corridor Strategy was endorsed for further modifications and readvertising for a period of 28 days. One of the modifications include updating the Corridor Strategy to be consistent with the principles of SPP 4.2 and the activity centres identified in the ACPS. At the time of writing this Structure Plan, the Corridor Strategy had not yet been adopted.

2.3.2. Zoning & Reservations

2.3.2.1. Metropolitan Region Scheme

The Precinct Structure Plan area is primarily zoned 'Private Recreation' under the Metropolitan Region Scheme ('MRS'), with the balance of the land zoned 'Urban'. Land abutting the Swan River within the Precinct Structure Plan area is reserved 'Parks and Recreation' and is situated within the 'Swan and Canning River Development Control' area. The surrounding land is zoned 'Urban', notwithstanding 'Bush Forever Site No. 313' situated to the north-west of the subject land and Garratt Road.

The Structure Plan identifies the rezoning of Precinct A to 'Mixed Use' under LPS 15, which is currently subject to a 'Private Recreation' zone under the MRS. To provide consistency with the MRS, it may be necessary to progress an MRS Amendment to facilitate the 'Mixed Use' zoning of the site under LPS 15.

Refer **Figure 4 – Metropolitan Region Scheme Zoning**.

2.3.2.2. City of Belmont Local Planning Scheme No. 15

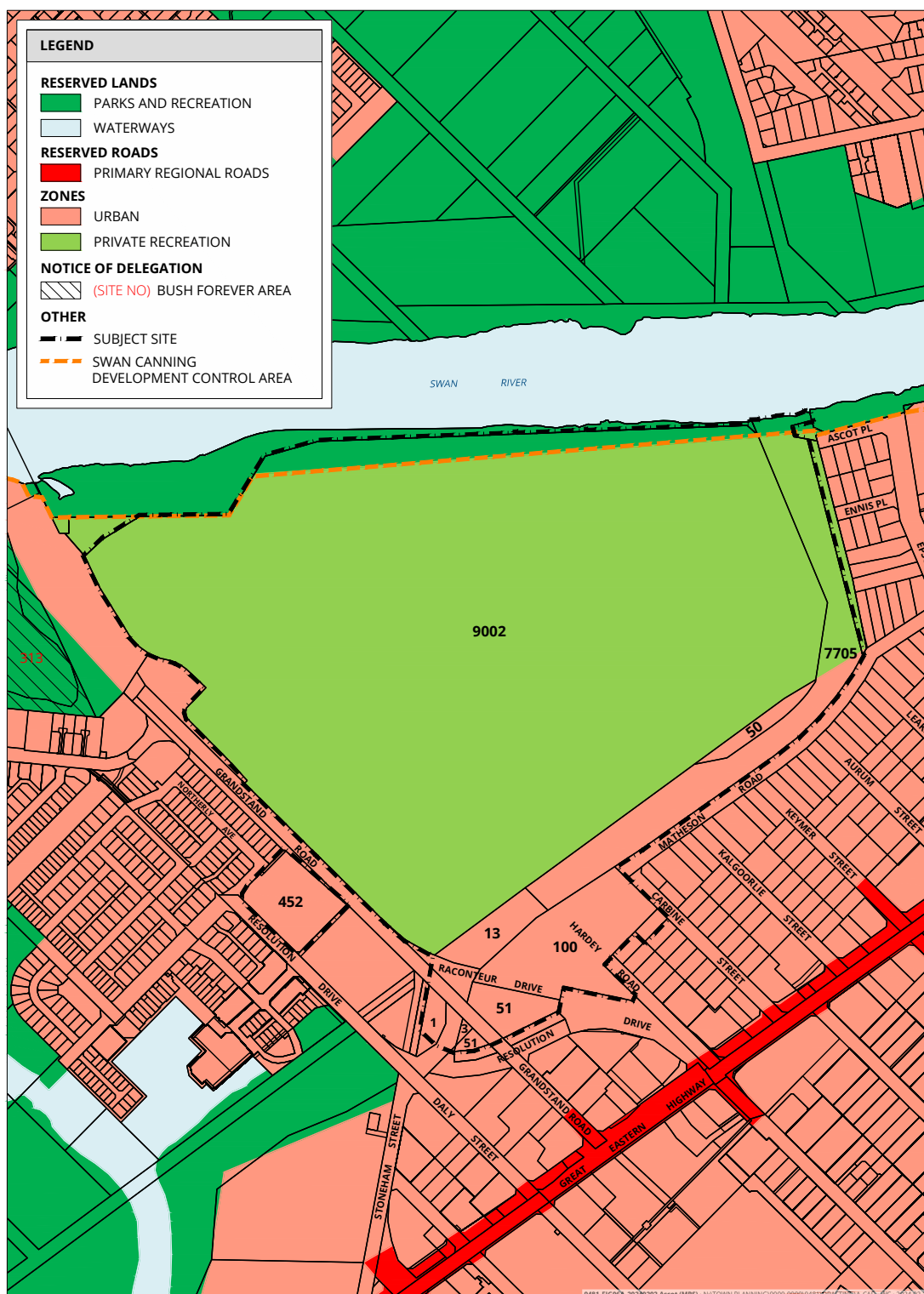
The Precinct Structure Plan area is predominantly zoned 'Place of Public Assembly – Racecourse' and identified as 'Additional Use 18' ('A18') under the City of Belmont's LPS 15. The southern portion of the subject land, abutting Resolution Drive, is zoned 'Mixed Use' under LPS 15.

Under the provisions of LPS 15, A18 enables the subject land to be considered for the additional uses of 'Horse Sales' and 'Stables' which are not otherwise permissible under the 'Place of Public Assembly' zone. This Precinct Structure Plan proposes to modify the scope of Additional Uses applicable to the Place of Public Assembly zone, but retain the general intent and nature of the uses provided.

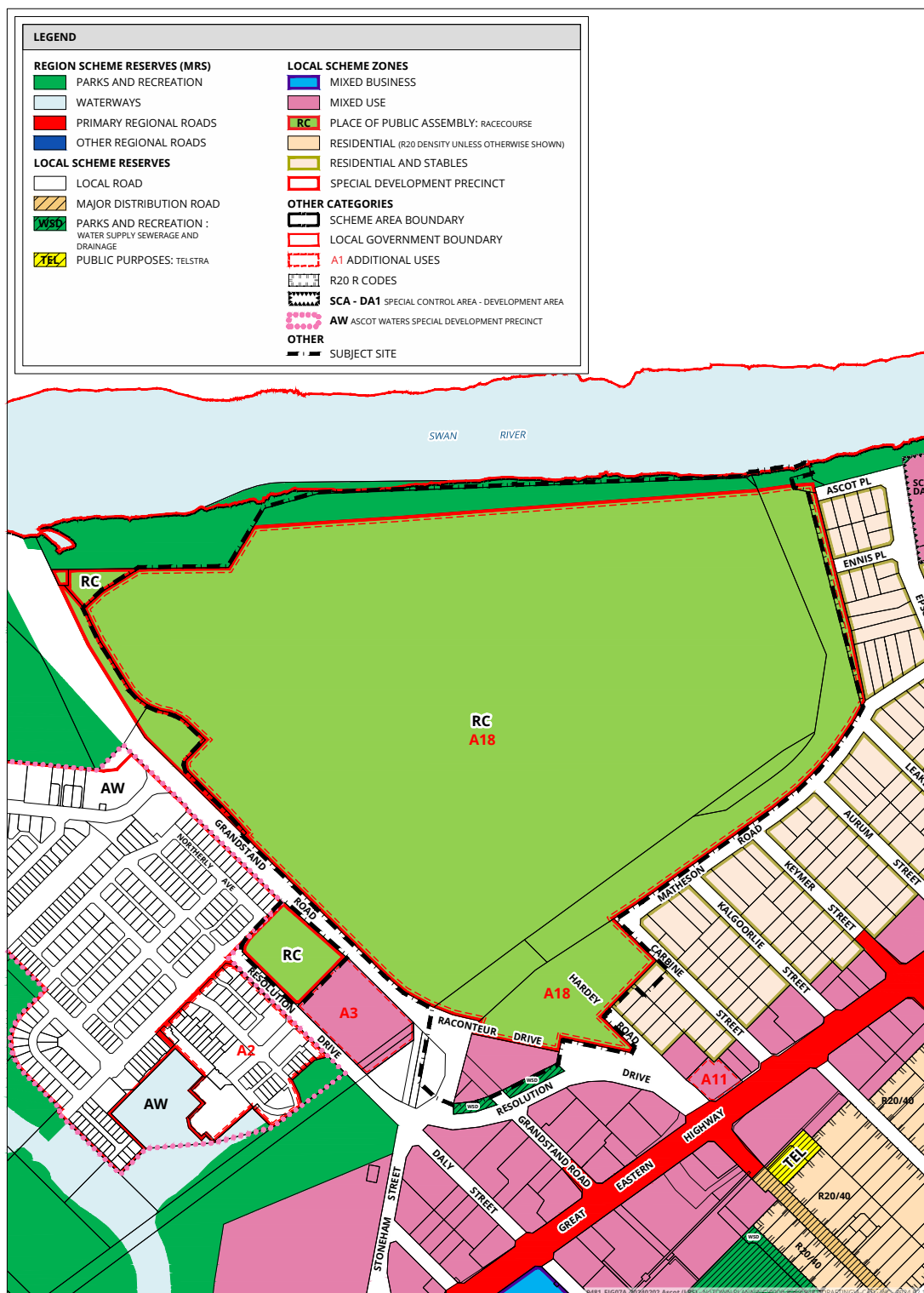
The proposed zoning under Plan 1 – Local Structure Plan would be inconsistent with the existing zonings applicable to Precincts A, D, and E. A Scheme Amendment will be required to ensure consistency between the Structure Plan and LPS 15.

Refer **Figure 5 – City of Belmont Local Planning Scheme No. 15 Zoning**.





4. Metropolitan Region Scheme



5. LPS 15 Zoning Plan



2.3.3. Draft Golden Gateway Local Structure Plan

The City's draft Golden Gateway Structure Plan was prepared to coordinate future subdivision, zoning and development of land generally bound by Great Eastern Highway to the south, the Swan River to the west, the Ascot Waters precinct to the north, and the Ascot Racecourse/Residential and Stables precinct to the east.

The Golden Gateway Structure Plan proposes 'Mixed Use' and 'Residential' zones that enables development ranging from 2 to 20 storeys, including approximately 5.1ha of Perth Racing landholdings, and proposes to establish a 'Local Centre' along Daly Street.

On 23 June 2020, the Golden Gateway Structure Plan was presented to Council following the conclusion of public consultation. During the advertising period, 127 submissions were received, raising issues relating to traffic, built form, public open space, land use, car parking and the future of the Ascot Kilns and Belmont Trust sites.

In response to the above and of relevance to the Precinct Structure Plan area, Council resolved to:

- Revisit the proposed changes to the movement network, including the realignment of Resolution Drive along Raconteur Drive.
- Reduce the building heights to facilitate an appropriate interface to the existing Ascot Waters Estate and Residential and Stables area.

Council also noted their desire to see the Ascot Kiln site developed into a park to allow for the wider community to access and interact with the heritage structures.

At the time of writing this report, we understand that the City is seeking to proceed with the option of retaining the existing road network as is, namely maintaining the existing alignment of Resolution Drive. It is also understood that the City are open to reviewing the position of the future Local Centre within the Precinct, with a view that it could be predominantly located on Perth Racing's landholdings.

Refer **Figure 6 – Draft Golden Gateway Local Structure Plan.**





6. Draft Golden Gateway Local Structure Plan



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2.3.4. State Planning Policies & Guidelines

2.3.4.1. State Planning Policy 2.10 – Swan-Canning River System

State Planning Policy 2.10 – Swan-Canning River System ('SPP 2.10') is an overarching framework that sets out guiding principles for decision making in relation to planning proposals over the Swan and Canning River and its foreshore.

SPP 2.10 contains four (4) guiding principles of social benefit, environmental values, cultural and natural heritage and design and development, and nine (9) precinct areas. The Precinct Structure Plan area is identified within the 'Lower Swan' precinct which is a broad area around the Burswood, Maylands, and Garvey Park peninsulas. The precinct area is subject to certain objectives concerning landscape values which aims to:

- Establish protection measures for riparian vegetation on foreshores;
- Promote an aesthetic environment for new riverside development appropriate to its surroundings, and establish a sense of place by the river;
- Recognise the importance of the river for transport, commerce, tourism and leisure as well as its conservation value;
- Enhance the appearance and function of existing recreation, tourism and commercial nodes and of proposed nodes identified in an adopted Swan-Canning precinct plan;
- Protect places of cultural significance, in particular places on the Register of Heritage Places and the Department of Indigenous Affairs register of significant places; and
- Ensure that subdivisions incorporate adequate foreshore reserves and building setbacks.

The Precinct Structure Plan promotes development outcomes that respect the values of the Swan River. No clearing is proposed within the Swan River foreshore area and the Precinct Structure Plan stipulates minimum setback distances from the foreshore in accordance with DBCA policy.

2.3.4.2. State Planning Policy 3.0 – Urban Growth & Settlement

State Planning Policy 3.0 – Urban Growth and Settlement ('SPP 3.0') is a broad sector policy that sets out the principles and considerations to facilitate sustainable patterns of urban growth and settlement in Western Australia. The objectives of SPP 3.0, are as follows:

- To promote a sustainable and well-planned pattern of settlement across the State, with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.
- To build on existing communities with established local and regional economies, concentrate investment in the improvement of services and infrastructure and enhance the quality of life in those communities.
- To manage the growth and development of urban areas in response to the social and economic needs of the community and in recognition of relevant climatic, environmental, heritage and community values and constraints.



- To promote the development of a sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community.
- To coordinate new development with the efficient, economic, and timely provision of infrastructure and services.

The Precinct Structure Plan is consistent with (and promotes) a number of key principles contained within SPP 3.0 including the following:

- Sufficient and suitable serviced land in the right locations for housing, employment, commercial, recreational and other purposes, coordinated with the efficient and economic provision of transport, essential infrastructure and human services.
- Variety and choice in the size, type and affordability of housing to support a range of household sizes, ages and incomes and which is responsive to housing demand and preferences.
- Making the most efficient use of land in existing urban areas through the use of vacant and under-utilised land and buildings, and higher densities where these can be achieved without detriment to neighbourhood character and heritage values; the cost-effective use of urban land and buildings, schools and community services, infrastructure systems and established neighbourhoods; and promoting and encouraging urban development that is consistent with the efficient use of energy.
- Supporting higher residential densities in the most accessible locations, such as, in and around town and neighbourhood centres, high frequency public transport nodes and interchanges, major tertiary institutions and hospitals, and adjacent to high amenity areas such as foreshores and parks.



- Giving priority to infill development in established urban areas, particularly through urban regeneration and intensification of development of under-utilised urban land, whilst respecting neighbourhood character.
- Locating higher residential densities in locations accessible to transport and services, such as in and around the CBD, regional and district centres, activity corridors and higher education campuses, and in selected areas of high amenity on the coast and river foreshores.

In this regard, the proposed Precinct Structure Plan is consistent with the objectives and principles for future urban growth. The proposal promotes a well-planned pattern of development within the existing urban area of the Ascot Racecourse and surrounding land.

Furthermore, the provisions of the Precinct Structure Plan will ensure that development and subdivision over the subject land responds well to the existing context through the promotion and coordination of sustainable development, consistent with the objectives of SPP 3.0.

2.3.4.3. State Planning Policy 4.2 – Activity Centres

SPP 4.2 provides a hierarchy and network of activity centres that meets the needs of the community, and provides economic and environmental benefits, enables the distribution of goods and services, and facilitates retail, commercial and mixed used developments.

SPP 4.2 applies to the Precinct Structure Plan as Precinct E is intended to facilitate the development of an activity centre at the intersection of Grandstand Road and Resolution Drive, forming part of the wider Golden Gateway activity centre. The size and scale of the proposed Golden Gateway activity centre would be akin to a 'Local Centre' or a 'Neighbourhood Centre' under SPP 4.2.



SPP 4.2 outlines the role and characteristics of a 'Local Centre' and 'Neighbourhood Centre' as follows:

Local centres provide for the convenience and incidental needs of local communities. These centres provide an important role in providing walkable access to services and facilities for local communities.

Neighbourhood centres are important focal points that provide for daily to weekly household shopping needs, community facilities and a small range of other convenience services. They are also a focus for medium density housing. These centres play an important role in providing walkable access to services and facilities for local communities.

In this regard, the proposed Golden Gateway activity centre, partially located within the Precinct E of the Structure Plan area, will provide for the required convenience, services and community facilities to sufficiently cater for the proposed housing density and future community.

Refer **Appendix 6 – Retail Assessment (Net Benefit Test)**.

2.3.4.4. State Planning Policy 5.4 – Road and Rail Noise

State Planning Policy 5.4 – Road and Rail Noise ('SPP 5.4') applies where a noise sensitive land use is proposed within proximity to major transport and freight corridors. Under SPP 5.4, the proposed 'Mixed Use' zone of the Precinct Structure Plan is partially located within the noise buffer zone of Great Eastern Highway, being a strategic freight and major traffic route.

In this regard, a Transportation Noise Assessment has been prepared by Lloyd George Acoustics in support of the proposed Precinct Structure Plan. The Transportation Noise Assessment concluded that:

- Due to the screening effect of existing buildings, any ground floor noise sensitive uses would be compliant with the outdoor noise target; and
- Noise sensitive uses above ground floor and within 200 metres of Great Eastern Highway would be subject to Package A, including a notification on title. Alternatives to the Deemed to Comply Package A can be accepted if supported by a report from a suitably qualified acoustical consultant (member firm of the Association of Australasian Acoustical Consultants (AAAC)) once the specific plans are available.

Implementation of the abovementioned requirements will be applied as a condition of subdivision or development approval (as applicable).

Refer **Appendix 7 – Transportation Noise Assessment**.

2.3.4.5. State Planning Policy 7.2 – Precinct Design

State Planning Policy 7.2 – Precinct Design ('SPP 7.2') and associate Precinct Design Guidelines provides guidance on the design, planning, assessment and implementation of precinct structure plans, local development plans, subdivision and development in areas identified as precincts.

SPP 7.2 contains six (6) precinct design elements which set out specific considerations for decisionmakers when considering the above proposals. These include, urban ecology, urban structure, public realm, movement, land use and built form.

Each of the design principles has been considered and informs the design objectives for the Precinct Structure Plan, as set out in the Design Response section of this Report.

3. Opportunities & Constraints Analysis

3.1. Analysis

The preparation of this Precinct Structure Plan has been informed by a detailed site analysis and technical reporting. An analysis of the strengths, weaknesses, opportunities and threats is provided below.



- Established racecourse operation serving as the premier racing destination in Western Australia.
- Established horse racing community within Ascot.
- Single landownership.
- Location at the northern gateway to the City of Belmont.
- Position adjacent to a future activity centre with significant redevelopment potential.
- High levels of accessibility and passing trade from the adjacent road network (Grandstand Road and Resolution Drive) and proximity to Great Eastern Highway.
- Proximity to existing commercial development within Golden Gateway, along Great Eastern Highway, and further afield in the Belmont Business Park.
- Existing heritage values.
- Position adjacent to the Swan River, offering high-amenity values.
- Existing services.



- Separation between Perth Racing's administration and racecourse operations.
- Land tenure arrangement limits development opportunities.
- Due to restricted ability to sell Perth Racing's landholdings, there is a need to develop income generating uses.
- Fragmentation of southern landholdings towards Resolution Drive with redundant road reservations and existing utility and service infrastructure.
- The Ascot Residential and Stables area is cost-prohibitive for emerging generations of horse trainers and jockeys.
- Access constraints surrounding the existing Grandstand Road / Resolution Drive / Stoneham Street roundabout.





- Large landholding with significant areas of vacant, underutilised land that can be developed.
- Development of income-generating uses to support on-going racing operations.
- Consolidation of racecourse administration and operations.
- Development of on-course horse stabling and improved horse training and welfare infrastructure that is complimentary to the racecourse adjacent the Residential and Stables area.
- Consolidation of southern landholdings in liaison with DPLH, WAPC and service agencies.
- Creation of landmark entry at the northern gateway to the City of Belmont.
- Delivery of amenities and open spaces that attract visitors outside of racecourse events.
- Consolidation of the residential neighbourhood on the western side of Grandstand Road.
- Demand for convenience retail uses within the Golden Gateway precinct.



- Commercial competition in the creation of an activity centre.
- Land tenure restrictions.

Table 11: SWOT Analysis

Refer **Figure 7 – Opportunities & Constraints Plan.**

3.2. Design Objectives

The design objectives of this Precinct Structure Plan are as follows:

- Respect the history and importance of Ascot Racecourse and the wider horse racing industry through the protection and enhancement of racecourse operations.
- Provide appropriate land use and built form transition and interface with the Residential and Stables area.
- Facilitate land uses that support the development of the Golden Gateway activity centre and provide income-streams to support racing operations.
- Support land use and development adjacent to Ascot Waters Estate that is consistent and compatible with the residential nature and built form scale of this area.
- Utilise high amenity land adjacent to the Swan River and Racecourse for landmark development, reflective of its position at the northern gateway to the City of Belmont.
- Enhance the public interface, amenity, and accessibility of Ascot Racecourse.

The above objectives have been considered through the development of a Master Plan and the Structure Plan. It ultimately provides a site responsive design that integrates the aspirations of Perth Racing with the characteristics of the local area.



3.3. Concept Development

A Master Plan was prepared as a reflection of the findings of the site analysis and design objectives. The purpose of the Master Plan exercise was to examine the physical attributes of the Structure Plan area and its surrounding context, to ultimately underpin the design and development of the subject land.

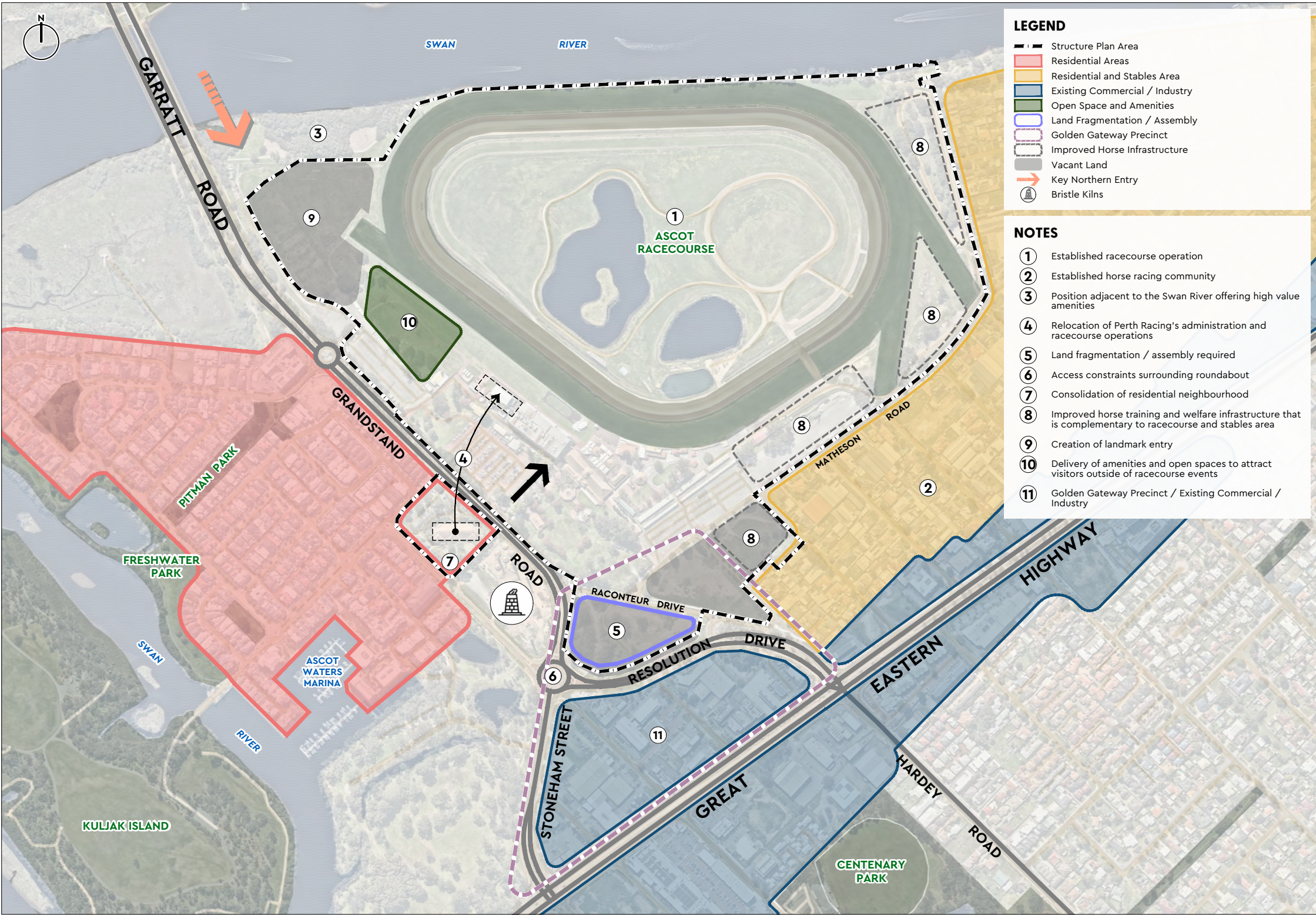
The design process began by mapping the existing physical characteristics of the subject land and surrounding area, such as:

- The location of the existing Racecourse and supporting infrastructure.
- Land tenure arrangement and degree of land consolidation/fragmentation.
- The identification of vacant, underutilised land.
- The prevailing land use and development pattern in the surrounding area, notably the Residential and Stables area to the south and east, Ascot Waters Estate to the west, commercial development to the south, and the Swan River to the north.
- The wider public open space and movement network, including traffic routes, key access points, the pedestrian and cycling network, and recreational nodes.
- Existing character elements of the site and surrounding area, noting historical features within Ascot Racecourse and adjacent Ascot Kilns.
- Land and environmental considerations, considering topography, soil, environmental attributes and associated requirements.
- Availability of existing servicing infrastructure.

The design was then developed into an overall Master Plan for the land, considering the key design objectives for the site. The key features of the Master Plan include:

- The development of on-course horse stabling, horse training and horse welfare infrastructure (equine welfare centre) along the site's southern and eastern boundaries, adjacent to the Racecourse and Residential and Stables area.
- Utilising Perth Racing's southern landholdings to develop a range of commercial uses that support the development of the Golden Gateway activity centre.
- The development of a retirement village at the north-western gateway of the site overlooking the Swan River and Racecourse.
- The development of a new Perth Racing administrative building, hospitality venue, and parkland area at the Racecourse, adjacent to existing facilities.
- The redevelopment of the existing administrative building adjacent to Ascot Waters Estate for residential uses.

Refer **Figure 8 – Master Plan**.



7. Opportunities & Constraints Plan





8. Master Plan



4. Stakeholder & Community Engagement

4.1. Pre-Lodgement Engagement

4.1.1. City of Belmont

The Project Team have had ongoing discussions with the City of Belmont in relation to planning work being undertaken in the area, specifically the Golden Gateway Structure Plan, Perth Racing's development aspirations, and the progression of its own Structure Plan for its landholdings.

In terms of initial engagement, in October 2019, Perth Racing prepared a submission on the draft Golden Gateway Structure Plan, which encompassed Perth Racing's southern and eastern landholdings. Perth Racing were generally supportive of the Structure Plan intent and zoning proposed, however raised concerns in relation to the proposed movement network. At that time, Perth Racing had not developed a vision for its landholdings.

Since 2021, Perth Racing have been developing a long-term vision for their landholdings, including both land within and outside of the Golden Gateway Precinct. It became apparent through this work that the development aspirations outlined in the Golden Gateway Structure Plan, being predominantly focussed on mixed commercial/residential development, did not align with the development outcomes that could be realistically delivered by Perth Racing or appropriately planned by the City of Belmont.

On this basis, Perth Racing, in consultation with the City of Belmont, made the decision to proceed with preparing a separate Structure Plan for the entirety of its landholdings. It is understood that the City of Belmont are supportive of this approach and would look to excise Perth Racing's landholdings from the draft Golden Gateway Structure Plan.

In terms of this Structure Plan, initial feedback was received from the City in relation to the proposed zoning and development provisions. Key feedback provided by the City included:



- The need to adequately justify the proposed elements of the Structure Plan such as building height, plot ratio, and retail floorspace provision.
- Managing the interface and access arrangements of commercial development to Resolution Drive and the Belmont Main Drain.
- The inclusion of provisions to manage the heritage values of the site.
- The inclusion of provisions to address landscape interfaces, particularly along Grandstand Road and Matheson Road.

The above key feedback has been considered and addressed in the preparation of this Structure Plan.

4.1.2. Department of Planning, Lands & Heritage

The Project Team met with officers at the Department of Planning, Lands & Heritage ('DPLH') on two occasions in April 2024 to discuss the preparation and progression of a Structure Plan for Perth Racing's landholdings in Ascot.

The purpose of the initial meeting was to brief DPLH on Perth Racing's development aspirations and initial concept and seek support for the preparation of a Structure Plan to facilitate zoning changes to enable those aspirations to be realised. The DPLH provided high-level feedback only, focussing on the need for a Structure Plan to be prepared rather than commenting on specific elements of the draft concept.

The second meeting with DPLH included officers from the City of Belmont. Discussion focussed on the relationship between the draft Golden Gateway Structure Plan and the proposed Ascot Racecourse Precinct Structure Plan, and the manner in which they can holistically plan over the area. Particular consideration was given to Precinct E, the portion of Perth Racing's landholdings which falls within, and will interface with, the draft Golden Gateway Structure Plan area. The consensus with the City of Belmont was that these matters can be appropriately managed through collaboration with Perth Racing's Project Team. The DPLH concluded that they would permit concurrent structure plans being prepared.



4.1.3. Department of Biodiversity, Conservation & Attractions

The Project Team met with officers from the Department of Biodiversity, Conservation & Attractions ('DBCA') in March 2024 to receive preliminary feedback on the concept plan. The key themes raised by DBCA included the following:

- The importance of wastewater management, ensuring no increase in nutrient loading to groundwater given the site's proximity to the Swan River.
- The need for development and infrastructure to be setback a minimum of 10m from the Swan River foreshore.
- The need to consider the aesthetics of proposed development from the foreshore river, including colour schemes and fencing.
- Support for any landscape screening and/or revegetation with native plantings, including trees that provide shade and habitat.
- Support for stormwater recycling on-site for irrigation purposes, depending on flood management requirements and water quality management.

The DBCA encouraged further preliminary engagement ahead of the lodgement of applications for development approval for works adjacent to the Swan River foreshore.

4.1.4. Community Engagement

Extensive community engagement was undertaken by the City of Belmont in the preparation and review of the draft Golden Gateway Structure Plan, which included consideration of Perth Racing's landholdings. The key concerns raised through the engagement process related to:

- The proposed building heights and their appropriateness for the area.
- The appropriateness of certain land uses within the 'Mixed Use' zone.
- The adequacy of public open space provision.
- Potential built form outcomes.
- The design of the movement network.
- Traffic increases and the capacity of the existing road network.
- Car parking requirements.

The feedback was subject to deliberation by the City and Council, with an Officer Report prepared for Council's consideration at their 23 June 2020 Ordinary Council Meeting. In considering the draft Structure Plan, Council resolved to require a series of modifications to the plan. Of relevance to the Ascot Racecourse Precinct Structure Plan, key modifications included:

- Applying a 'Residential' and 'Mixed Use' zoning over Lot 452 Grandstand Road (Precinct D) and applying densities of 'R40' and 'R100' with maximum building height limits of 3 to 5 storeys.
- Maintaining the 'Mixed Use' zoning to land immediately fronting Resolution Drive (Lot 3 Grandstand Road and Lot 51 Raconteur Drive within Precinct E) and applying a density of 'R-AC3' with a maximum building height of 6 storeys.



- Applying a 'Residential and Stables' zoning and a density of 'R10' to the portion of Lot 100 Raconteur Drive (Precinct E), bound by Hardey Road, Matheson Road and Carbine Street, to align with the zoning of the adjacent area.
- Applying a 'Residential' zoning and densities of 'R50' and 'R100' to the portion of Lot 100 Raconteur Drive (Precinct E), bound by Hardey Road and Raconteur Drive to serve as a transition between the 'Mixed Use' and 'Residential and Stables' zones.

The abovementioned modifications have been considered in the preparation of the Ascot Racecourse Precinct Structure Plan, whilst also having regard to Perth Racing's vision for their landholdings which has significantly evolved since Council's consideration of the Golden Gateway Structure Plan.

4.2. Post-Lodgement Engagement

In accordance with the requirements of the *Planning and Development (Local Planning Schemes) Regulations 2015 – Schedule 2 – Deemed Provisions ('Regulations')*, the Precinct Structure Plan is required to be publicly advertised and referred to any public authority or utility service provider, as relevant.

Public advertising would typically occur by way of letters being sent to owners and occupiers who, in the opinion of the City, are likely to be affected by the proposed Precinct Structure Plan. In addition, advertising of the Structure Plan must occur by way of a notice being published on the City's website. Advertising may also occur by way of newspaper advertising, a sign being placed on the site, and documents being made available at the City's office.

In terms of service agencies and utility providers, the Precinct Structure Plan should, at the very least, be referred to the following agencies/utility providers:

- Main Roads WA
- Water Corporation
- ATCO
- Western Power
- Heritage Council of WA
- Department of Biodiversity, Conservation and Attractions
- Department of Water & Environmental Regulation

Following public advertising, the City is required in accordance with the Regulations, to consider all submissions received and provide a recommendation to the WAPC on the progression of the Precinct Structure Plan.

Further engagement may also be required to satisfy obligations under the *Aboriginal Heritage Act 1972*, the *Environmental Protection Act 1986*, and the *Environment Protection and Biodiversity Conservation Act 1999*.

5. Design Response

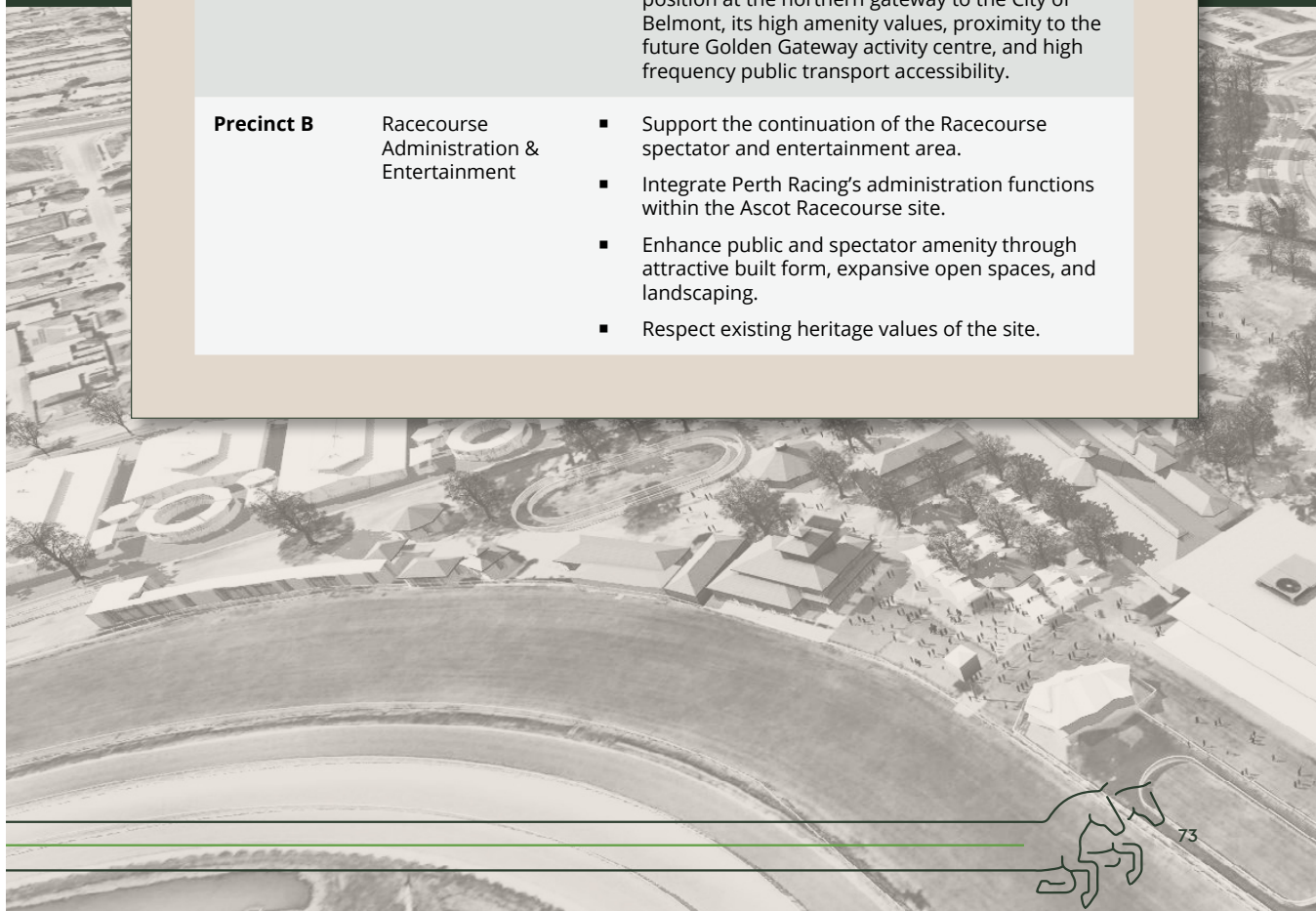
5.1. Vision & Objectives

The Vision of this Precinct Structure Plan is as follows:

To support ongoing horse racing activities at Ascot Racecourse through improved facilities and community infrastructure, and business development opportunities, planned in a manner that is financially sustainable and responsive to site context and community needs.

Having regard to the above Vision and the Opportunities & Constraints Analysis, the Precinct Structure Plan designates five (5) precinct areas subject to a distinctive vision and associated objectives, as outlined below.

Precinct Area	Vision	Objectives
Precinct A	Retirement Living	<ul style="list-style-type: none"> Facilitate the development of a vertical residential living village to accommodate retiring members of the horse racing industry. Provide for small scale food and beverage and commercial uses that are ancillary to, and integrated with, the residential housing village. Facilitate development that will serve as a landmark in the locality, capitalising on its position at the northern gateway to the City of Belmont, its high amenity values, proximity to the future Golden Gateway activity centre, and high frequency public transport accessibility.
Precinct B	Racecourse Administration & Entertainment	<ul style="list-style-type: none"> Support the continuation of the Racecourse spectator and entertainment area. Integrate Perth Racing's administration functions within the Ascot Racecourse site. Enhance public and spectator amenity through attractive built form, expansive open spaces, and landscaping. Respect existing heritage values of the site.



Precinct Area	Vision	Objectives
Precinct C	Racecourse & Stabling	<ul style="list-style-type: none"> Facilitate land use and development that supports, and is complementary to, the horse racing industry. Provide for the planned development of on-course horse stabling and ancillary functions to support the ongoing viability of Ascot Racecourse. Mitigate potential land use conflict through appropriate design and management practices.
Precinct D	Residential & Mixed Use	<ul style="list-style-type: none"> Provide for medium density residential development of a scale that is consistent and/or compatible with surrounding residential area. Support the development of small-scale non-residential uses fronting Grandstand Road, including but not limited to a 'Child Care Premises'.
Precinct E	Commercial	<ul style="list-style-type: none"> Facilitate the development of an activity centre at the intersection of Grandstand Road and Resolution Drive. Support retail, commercial, and other land uses that are consistent and complimentary with the role and function of an activity centre. Support land use and development that is complementary to Racecourse operations. Satisfy existing and future demand for convenience retailing and amenities in the local area.

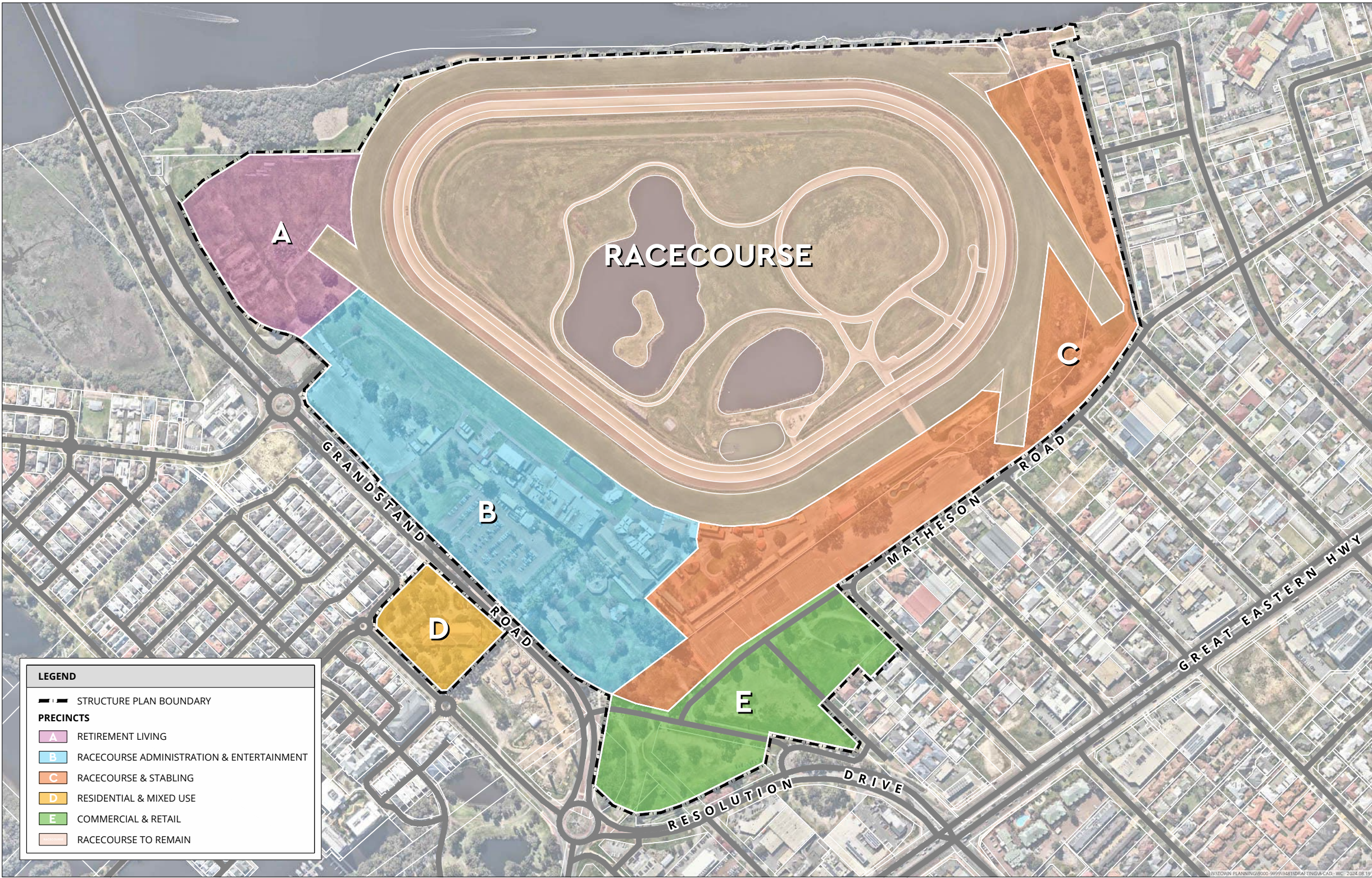
Table 12: Precinct Vision & Objectives

Refer **Figure 9 – Structure Plan Precincts**.

In order to realise the abovementioned vision and objectives, this Precinct Structure Plan provides a framework to guide the use and development of Perth Racing's landholdings in Ascot to support the ongoing viability of horse racing operations at Ascot Racecourse. More specifically, this Precinct Structure Plan seeks to:

- Identify development objectives on a precinct basis, responding to site characteristics, development opportunities, and design responses.
- Provide an indication of likely development outcomes and staging.
- Establish appropriate zoning, land use permissibility, density allocation, and built form requirements that are reflective of precinct objectives and responsive to site context.
- Identify planning requirements applicable to the future subdivision and development of land within the Structure Plan area, having regard to State Planning Policy and other legislative requirements.

Having regard to SPP 7.2, the specific design responses provided by this Structure Plan are discussed below.



9. Structure Plan Precincts



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5.2. Urban Ecology

Design Element 1 of the SPP 7.2 Precinct Design Guidelines requires consideration of 'Urban Ecology', specifically in developing a holistic understanding of the built and natural environment of the site and its wider context. The SPP 7.2 Design Element Objectives and Design Responses are summarised below, with key considerations outlined in further detail thereafter.

No.	Design Element Objective	Design Element Response
O1.1	To protect, enhance and respond to the ecological systems of the precinct.	<ul style="list-style-type: none"> ▪ The Precinct Structure Plan responds to the ground conditions, understanding the likely fill requirements to address soil and groundwater conditions and flood level clearance. ▪ The Precinct Structure Plan identifies principles and development outcomes that respond to, and seek to enhance existing green networks, through development layout, landscaping provision and interface.
O1.2	To enhance the sense of place by recognising and responding to Aboriginal, cultural and built heritage.	<ul style="list-style-type: none"> ▪ The development outcomes proposed by the Structure Plan do not impact any areas of Aboriginal cultural heritage significance. ▪ The development outcomes proposed by the Precinct Structure Plan, being predominantly related to horse racing, is entirely consistent with the heritage of the site and wider area. ▪ The Precinct Structure Plan limits built scale adjacent to the Bristle Kilns to respect its heritage and landmark values.
O1.3	To reduce the environmental and climate change impacts of the precinct development.	<ul style="list-style-type: none"> ▪ The Precinct Structure Plan adopts sustainable water conservation, stormwater management, and groundwater management principles, as outlined in the LWMS. ▪ The future development of the site will reduce overall travel demand.

Table 13: Urban Ecology Design Element Assessment

Refer **Figure 10 – Urban Ecology**.

5.2.1. Topography & Ground Conditions

The subject site is generally flat, with a slight grade with its highest elevation (7.5m AHD) at the eastern corner of the site, adjacent to Matheson Road, and the lowest elevation (2m AHD) at the north-western area of the site adjacent to the Swan River foreshore reserve. Ground conditions are generally unsuitable for on-site stormwater disposal and due to the flood and regional groundwater levels across the site, some level of fill will likely be required.

Notably, Precinct A will need to accommodate an addition 1-2m of fill to achieve clearance from flood levels. Given Precinct A's interface to an existing road reserve on its western boundary and foreshore reserve on its northern boundary, consideration will need to be given to battering and landscaping to ensure an appropriate interface, noting opportunities to provide connectivity to the foreshore reserve. This will be addressed at the development stage.

A majority of the site is considered to have a 'high to moderate' risk of ASS occurrence within 3m of the natural surface. A detailed ASS investigation and management plan will be required for any intrusive works in areas mapped as having a 'high to moderate' ASS risk.

Refer to **Appendix 4 – Engineering Servicing Report**.

5.2.2. Climate

The site experiences a dry Mediterranean climate of hot dry summers and cool wet winters and is in an area of moderate to high rainfall. Addressing climate change is imperative to future planning, specifically encouraging the adoption of more sustainable practices.

Ascot Racecourse currently holds a groundwater licence with a significant allocation to meet the irrigation requirements of the site and surrounding areas. The Precinct Structure Plan seeks to adopt water conservation measures to limit demand on existing groundwater for irrigation purposes, as outlined in the LWMS. Other water conservation measures are also proposed to generally limit water consumption across the site.

Ascot Racecourse is positioned close to the Perth Central Business District and connected via frequent public transport services, supporting alternative modes of transport to the site. The development of an activity centre accommodating convenience uses will reduce travel demand across the local area.

The development of on-course stables at Ascot Racecourse will enable horses to be kept on premises and thereby reduce travel demand for trainers and jockeys, many of whom are travelling from outer areas of the Perth region.



5.2.3. Water Management

A LWMS has been prepared in support of this Precinct Structure Plan, functioning as a broad drainage strategy for the subject site addressing the management of water associated with future development. The LWMS has been prepared in accordance with the WAPC's Better Urban Water Management document, addressing the principles, objectives, and key criteria.

The principle behind stormwater management at the site is to mimic pre-development hydrological conditions and utilise existing infrastructure where sensible to do so. In the case of groundwater management, the strategy is to maintain existing groundwater hydrology.

The water management criteria of the LWMS are outlined below.

Water Management Criteria

Water Conservation	
WC1	For residential dwellings, consumption target of 60 kL/person/year
WC2	Ensure the efficient use of all water resources.
WC3	Non-potable irrigation water to be sourced from existing groundwater licences held over the area.
Stormwater Management	
SW1	Retain and treat the first 15mm of rainfall as close to source as possible and within site.
SW2	Detain up to 1% AEP rainfall event on-site.
SW3	Post-development critical 1% AEP peak flows leaving the site to mimic pre-development peak flows.
SW4	Finished floor levels must have a minimum of 300mm clearance above the 1% AEP TWL in the FSA.
SW5	All lots must have a minimum of 500mm clearance above the 1% AEP flood level of the Swan River.
SW6	Nutrient concentrations within surface water discharging from the site to the Swan River are to meet regional water quality targets.
SW7	Reduce nutrient loads by applying appropriate non-structural measures.
SW8	Design infiltration areas to avoid creating mosquito habitat.
Groundwater Management	
GW1	Surface based infiltration structures should have 300mm clearance above MGL.
GW2	Habitable floor levels should have a clearance to MGL of at least 1.2m.

Table 14: LWMS Water Management Criteria

The LWMS details implementation measures to apply the abovementioned water management criteria to particular elements of the site. Part One of the Precinct Structure Plan identifies the requirement for an Urban Water Management Plan or Stormwater Management Plan to be prepared as a condition of approval to addressing the water management measures outlined by the LWMS.

Refer **Appendix 2 – Local Water Management Strategy**.



5.2.4. Environmental Values

The subject site is predominantly cleared with limited intact native vegetation present or environmental values. Notwithstanding, an assessment undertaken by Emerge Associates identified a small area of 'subtropical and temperate coastal saltmarsh' native vegetation in the north-eastern corner of the site, adjacent to the Swan River, which is listed as a TEC. In addition, the Swan River and adjacent foreshore is identified as a 'Environmentally Sensitive Area' and comprises the Swan River Development Control Area ('DCA'), with the river itself identified as a Conservation Category Wetland ('CCW').

Preliminary consultation with DBCA indicated that any future development will require a minimum 10m setback from the Swan River DCA boundary, which has been reflected as a requirement in Part One of this Structure Plan. Notwithstanding, the Master Plan concept for the site does not propose any development in proximity to the DCA and CCW boundaries or the TEC in the north-eastern corner of the site. Any clearing of native vegetation on the site will require a Clearing Permit pursuant to Part V of the EP Act.

Emerge Associates also found that the site contains 1.27ha of Black Cockatoo foraging habitat and 29 habitat trees, of which four (4) trees contained hollows potentially suitable for Black Cockatoo breeding. These areas are primarily located within the eastern and southern portions of Precinct C, with a small area also located in the north-eastern corner of Precinct E. These areas generally conflict with plans for the on-course stabling and the equine welfare centre, however there may be opportunities to retain some limited areas. This will be considered further through detailed design, however in any event, a referral under the EPBC Act may be warranted prior to works being undertaken.

Part One of the Structure Plan includes requirements for the preparation of a Conservation and Environmental Management Plan and Fauna Management Plan to minimise potential impacts of development works on the abovementioned environmental values.



5.2.5. Green Network

The established nature of Ascot Racecourse limits opportunities to create new 'green networks' within the site. Notwithstanding, it is pertinent that consideration be given to the existing green network surrounding the site and opportunities for the Structure Plan area to relate to and enhance that green network.

The existing green network surrounding the site is heavily influenced by the Swan River, generally following the foreshore, including along the northern boundary of Ascot Racecourse. Noting the amenity value of this green network, future development within Precinct A will seek to maximise interaction and linkages to this space.

There is a disconnect in the foreshore green network on the western side of the Garratt Road Bridge, requiring pedestrians and cyclists to travel along Grandstand Road to connect to the green network extending westwards from Waterway Crescent, or travel further towards Resolution Drive to connect to the green network south of Ascot Waters Estate. In terms of the latter, to support this linkage, treatments along Ascot Racecourse's existing interface to Grandstand Road are relevant and have been addressed in the supporting Landscape Master Plan.

To the south and east of Ascot Racecourse, there is an existing horse path/trail network that provides safe access between nearby stables and the racecourse. Whilst this does not form a 'green network', it nonetheless influences the layout of the site, noting its connectivity to the proposed on-course stables development along the south and eastern side of the Racecourse.



5.2.6. Heritage

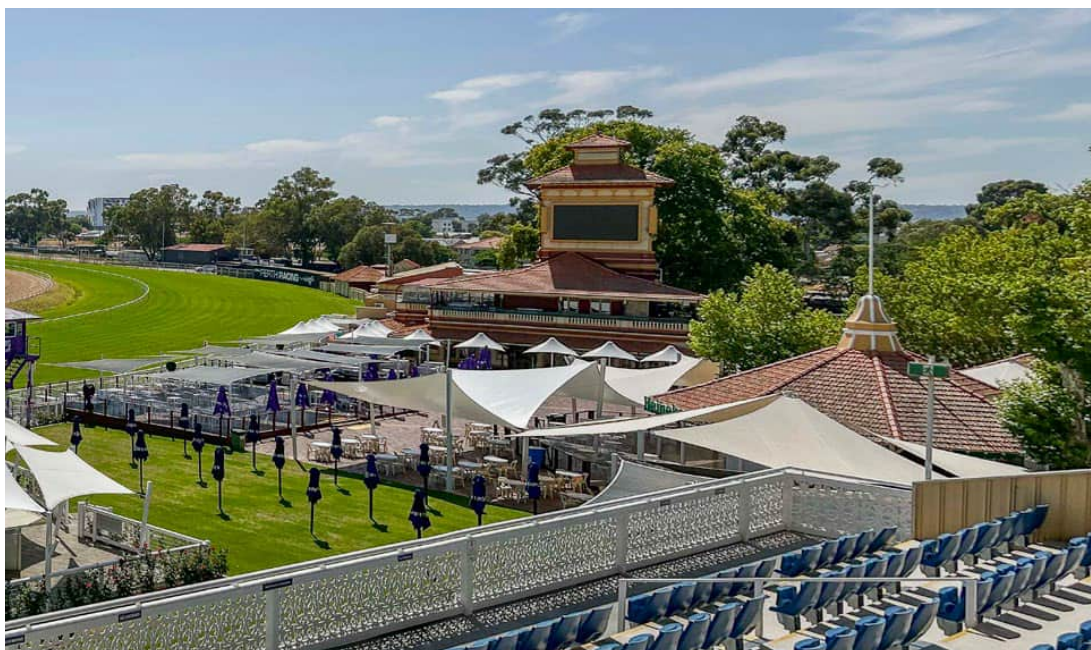
In terms of Aboriginal heritage, the DPLH's Aboriginal Cultural Heritage Inquiry System identified two Aboriginal heritage places located within and adjacent to the subject land. One of the sites (Site 3756 – Swan River) is located outside, but immediately adjacent to the subject land, with the other site (Site 3753: Perth) intersects the western edge of the site (Precinct B), with the boundary being a broader area not accurately defined.

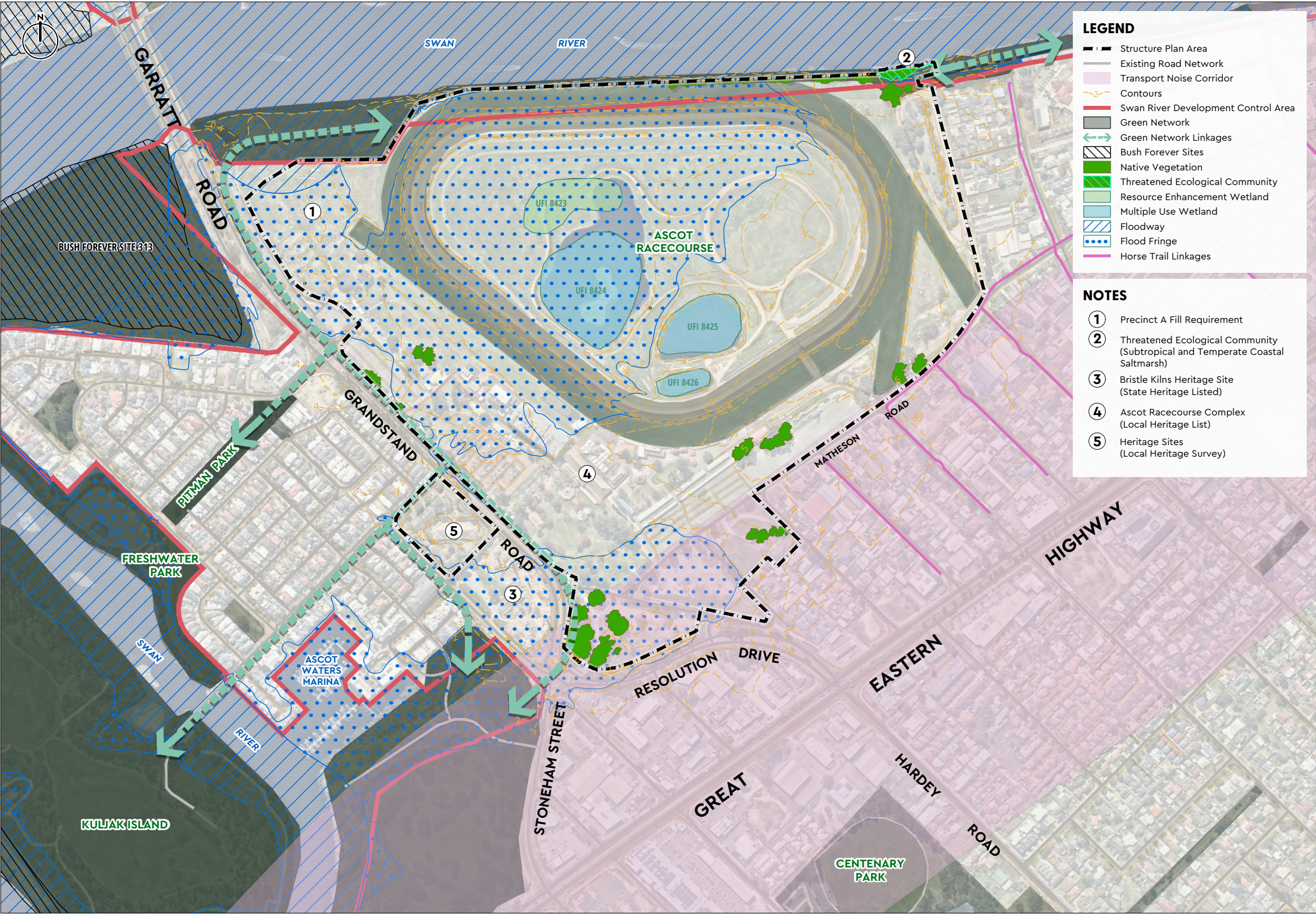
The Master Plan does not propose any development within the boundaries of the identified Aboriginal heritage places. Notwithstanding, should development occur within Precinct B that intersects the boundary of Site 3753, a DPLH file search should be undertaken to accurately determine the extent of the site, prior to any works commencing.

In terms of European heritage, the 'Ascot Racecourse Complex' and 'Lee-Steere House' are heritage places located within the Structure Plan area, both of which are identified under the City of Belmont's Local Heritage Survey with a Management Category of '1' and '4', respectively. Outside of the site, Bristle Kilns (Ascot Kilns), located adjacent to Precinct C, is listed on the State Register of Heritage Places, and the 'Ascot Residential and Stables Area' is included in the City's Local Heritage Survey.

Any future development in relation to the heritage sites within the Structure Plan area may require the preparation of a Heritage Impact Statement, which is addressed in Part One of this Structure Plan. Aside from Lee-Steere House, which is expected to be demolished to accommodate residential development as per the vision for Precinct D, the development outcomes proposed by the Structure Plan, being predominantly related to horse racing, is entirely consistent with the heritage of the area. Prior to the demolition of Lee-Steere House, the site should be photographically recorded, as per the recommendations of the City's Local Heritage Survey.

Noting sensitivities surrounding the Ascot Kilns, consideration has been given to minimising the scale and bulk of future development immediately adjacent to the site. More specifically, Part One of this Structure Plan limits the built scale of development within the immediately vicinity of the Ascot Kilns to 3-storeys, affecting Precinct D. These limitations are considered appropriate in ensuring that the Ascot Kilns remains a landmark heritage feature in the area.





10. Urban Ecology



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5.3. Urban Structure

Design Element 2 of the SPP 7.2 Precinct Design Guidelines requires consideration of 'Urban Structure' with the intent that it should be robust, flexible and legible, and designed to support the intended function and built form of the precinct. The SPP 7.2 Design Element Objectives and Design Responses are summarised below, with key considerations outlined in further detail thereafter.

No.	Design Element Objective	Design Element Response
O2.1	To ensure the pattern of blocks, streets, buildings and open space responds and contributes to a distinct, legible precinct character.	<ul style="list-style-type: none"> Utilising the existing urban structure, the Structure Plan facilitates development outcomes that will better define Ascot Racecourse and improve upon visual connectivity of the site.
O2.2	To promote an urban structure that supports accessibility and connectivity within and outside the precinct.	<ul style="list-style-type: none"> The Structure Plan is not proposing outcomes that would undermine existing accessibility and connectivity within the area. The Structure Plan provides for the extension of the existing shared path network, improving wider accessibility (discussed further under the Movement section).
O2.3	To ensure the urban structure supports the built form, public realm and activity intended for the precinct.	<ul style="list-style-type: none"> The Structure Plan facilitates the creation of development cells that are appropriately sized to accommodate the intended form of development, whilst also providing flexibility to adapt to change.
O2.4	To ensure an adaptable urban structure that can respond to and facilitate change within a precinct.	

Table 15: Urban Structure Design Element Assessment

Ascot Racecourse forms an established urban structure that is influenced by the land requirements of Ascot Racecourse, existing supporting infrastructure, and the Swan River. Beyond Ascot Racecourse, the structuring of the surrounding landholdings is influenced by the prevailing road network and existing land use patterns. The Precinct Structure Plan has been formulated having regard to this context and the identification of 'Precinct Areas'.

Refer **Figure 11 – Urban Structure**.

5.3.1. Northern Gateway

Precinct A comprises vacant land of approximately 2.8ha in area, with full movement access being available from Grandstand Road. The site has been identified as a 'landmark' location, reflective of its prominence at the northern gateway to the City of Belmont and opportunities to maximise on the amenity and connectivity of the Swan River and views of the Racecourse. Precinct A is located within the walkable catchment to the future Golden Gateway activity centre, and given its position adjacent to Grandstand Road, is afforded access to high-frequency public transport services.



The identification of high-density residential development in this location represents an attractive proposition for the development of infill housing. Compared to landholdings along Great Eastern Highway, the site is afforded high levels of amenity making it attractive for development. Furthermore, this location is separated from existing residential development to the south-west of the site, giving rise to standalone considerations of built form scale.

5.3.2. Racecourse Operations & Stabling

Precincts B and C encompass existing Racecourse operations, with the former accommodating existing Racecourse entertainment areas (grandstand and pavilions) and the latter accommodating Racecourse stabling and training areas. From a structuring perspective, it is logical to retain and consolidate Precinct B as the Racecourse administration and entertainment area, shifting the existing Perth Racing headquarters to this area. The establishment of on-course stabling along the southern and eastern edge of the Racecourse maximises land use efficiency due to its proximity to the Racecourse and access to Matheson Road and is compatible with the adjacent Residential and Stables area.

5.3.3. Residential Precinct

Precinct D, comprising the existing Perth Racing headquarters, is located on the western side of Grandstand Road and sits amongst Ascot Waters Estate, with adjacent low to medium scale built form. The site also abuts Ascot Kilns, a prominent site with significant heritage values. The redevelopment of Precinct D for residential purposes would represent a logical 'rounding-off' of residential development on the western side of Grandstand Road. Noting the site's position on Grandstand Road, there are opportunities for low-intensity community or commercial uses to be provided fronting Grandstand Road, such as a Child Care Premises.

5.3.4. Commercial Precinct

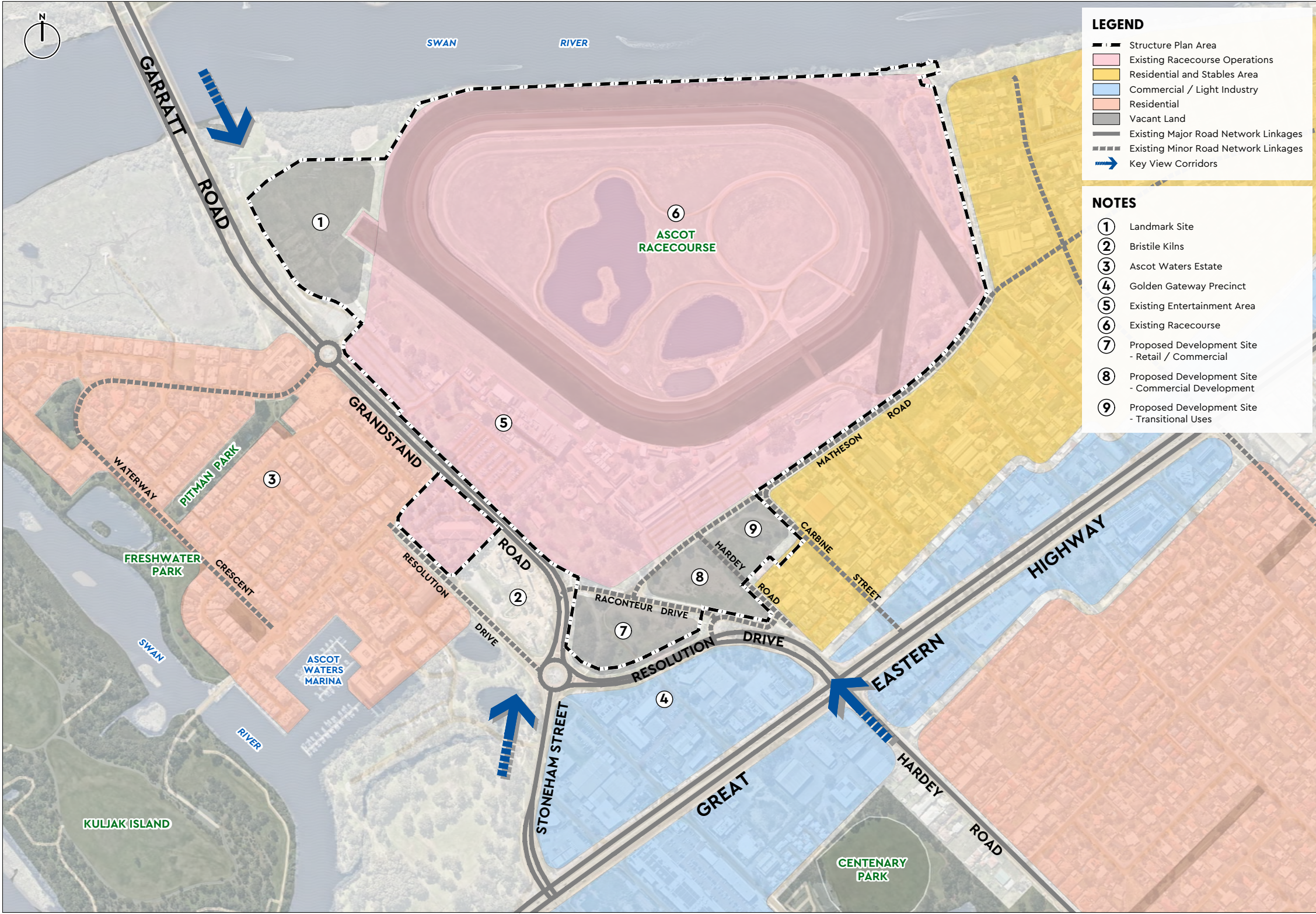
Precinct E forms part of the wider Golden Gateway activity centre, which encompasses a triangular area of land between Great Eastern Highway, Resolution Drive and Stoneham Street. Planning for this wider area will facilitate a mixed-use environment with commercial and residential uses. The existing street network in this precinct is established and defining, with Stoneham Street, Resolution Drive, Great Eastern Highway, and Grandstand Road forming the key access routes that accommodate high volumes of traffic, passing trade, and public transport access.

The existing land use pattern surrounding Precinct E makes it suitable for commercial development, with retail (convenience and bulky goods showrooms) fronting Resolution Drive, maximising on passing trade, view corridors from Great Eastern Highway, and supporting integration with the Golden Gateway activity centre.

Future development sites, ranging from approximately 8,000m² to 14,000m² in area have been identified within Precinct E, which are sized and configured appropriately to accommodate commercial development. The former Raconteur Drive reservation can provide access to these future development sites. Complementary and/or transitional uses can be supported in the eastern portion of Precinct E, abutting Ascot Racecourse and the Residential and Stables area.

Land assembly will be required to create a future development within Precinct E, specifically Lot 3 (No. 96) Grandstand Road, Lot 51 (No. 2) Raconteur Drive, and Lot 1 (No. 88) Grandstand Road, Ascot. This area includes redundant road reservations which fragment these lots. To achieve a coordinated development outcome, land assembly will be required through a road closure and subsequent amalgamation, or a lease arrangement. Given the presence of existing service alignments within this Precinct, satisfactory arrangements are to be made with servicing authorities to provide for the modification and/or protection of existing services.

Refer **Figure 12 – Precinct E Land Assembly Plan**.



11. Urban Structure





12. Land Assembly Plan



5.4. Public Realm

Design Element 3 of the SPP 7.2 Precinct Design Guidelines requires consideration of 'Public Realm' with a view to providing a range of well-connected, functional and enriching places, appropriate to the function, scale and character of the precinct. The SPP 7.2 Design Element Objectives and Design Responses are summarised below, with key considerations outlined in further detail thereafter.

No.	Design Element Objective	Design Element Response
O3.1	<ul style="list-style-type: none"> To ensure the public realm is designed to promote community health and wellbeing. 	<ul style="list-style-type: none"> The Parkland area will provide an exciting local recreational destination that will contribute to the community's health and wellbeing. The proposed Parkland area will support the usage of the site beyond racing events both informally (passive recreation) and formally (private and community events). The proposed Parkland area is positioned to maximise solar access during winter months and will be appropriately landscaped to provide shade for summer months.
O3.2	<ul style="list-style-type: none"> To enable local character and identity to be expressed in public realm design to enhance sense of place. 	<ul style="list-style-type: none"> Landscaping will reinforce the visual and landscape linkages between the racecourse and Swan River. Materials and finishes, plant species and artwork will make reference to the historical and cultural values of the site. Consideration will be given to the character and identity of the site through design preparation and statutory review processes.
O3.3	<ul style="list-style-type: none"> To ensure that key environmental attributes are protected and enhanced within the public realm. 	<ul style="list-style-type: none"> Landscaping adjacent to the Swan River will utilise species consistent with riparian vegetation to enhance environmental attributes. The Structure Plan makes provision for shade tree planting to be provided in car parking areas. The LWMS identifies water sensitive urban design measures to be implemented through the future development of the Structure Plan area.
O3.4	<ul style="list-style-type: none"> To ensure the public realm is designed to be inclusive, safe and accessible for different users and people of all ages and abilities. 	<ul style="list-style-type: none"> The Structure Plan considers the legibility of the site and identifies the need for clear signage and a wayfinding system.
O3.5	<ul style="list-style-type: none"> To ensure public realm design is integrated with the built form, movement network and landscape of the precinct. 	<ul style="list-style-type: none"> Identified interfaces to the public realm give consideration to future built form requirements, the existing landscape, and the context of the movement network.

Table 16: Public Realm Design Element Assessment



This Precinct Structure Plan is supported by a Landscape Master Plan prepared by SLR Consulting which identifies a landscape vision, objectives, and design responses for the future development of the subject area.

Refer **Figure 13 – Public Realm and Appendix 8 – Landscape Master Plan**.

5.4.1. Character & Identity

The character and identity of the subject site area is heavily influenced by its existing and historical use as a racecourse. Whilst there is a mix of built form styles and materials, there are consistent elements such as the use of red bricks, terra cotta tiled gable roofs, open/permeable fencing and feature trees. The Ascot Racecourse design itself has a 'village' feel around the entry gates and entertainment areas, with 'equine' character elements such as post and rail fencing, grass areas, and formal planting (both native and exotic) throughout the site.

The future development of the subject area should consider the character and identity of the site, as outlined in the Landscape Master Plan, and having regard to the principles of State Planning Policy 7.0 – Design of the Built Environment through design preparation and statutory review processes. Any proposal that may impact the heritage values of the site will require the preparation of a Heritage Impact Statement.



5.4.2. Parkland Area

The Ascot Racecourse Master Plan identifies an opportunity to develop a parkland area of approximately 1.4ha immediately adjacent to the Racecourse and existing public car parking area, within Precinct B. The area will provide a public interface to the Racecourse from Grandstand Road and serve as a green link between future development in Precinct A and the existing Racecourse facilities in Precinct B.

The parkland area is intended to be publicly accessible, attracting visitors to the site outside of racing events, and will be developed to include landscaping, a playground, and picnic facilities. The position of the area adjacent to existing car parking makes it suitable for public access, and along with its position adjacent to existing racecourse facilities, allow for future use as part of racecourse events. The site has an uninterrupted northern aspect, allowing for maximum solar access during winter, and with appropriate landscape planting, shade can be provided for summer.

5.4.3. Internal Treatments

The Landscape Master Plan identifies a number of treatments and design responses to enhance the internal public realm, including:

- Creating a pedestrian link between Precincts A and B, including an entry point (vehicles and pedestrians) from Precinct B into Precinct A. The landscape in this area is to remain open to allow views to the Racecourse and Swan River foreshore.
- Within the existing Racecourse entertainment area (Precinct B), ensure the pedestrian access system is shaded, safe and legible, with a clear signage and wayfinding system throughout the site that complements the branding and character of the racecourse.
- Provide shade tree planting in open areas and car parking areas.

Consideration will be given to the above treatments through the future design processes.



5.4.4. Public Realm Interface

5.4.4.1. Commercial Precinct

The proposed commercial precinct (Precinct E) is currently vacant land with scattered trees, particularly along existing drainage corridors and roads/driveways. The area is predominantly fenced/gated and is utilised for overflow parking for events at Ascot Racecourse. The area generally has a low level of visual amenity with limited visible connection to the Racecourse.

As part of the development of this land, there is an opportunity to improve the public realm interface of Precinct E, particularly to Grandstand Road and Resolution Drive, and enhance the connection and relationship to the Racecourse and wider Golden Gateway Precinct. These opportunities include:

- The creation of edges to proposed development that focuses towards key entry points and vistas to the Racecourse.
- Enhance the interface of the Water Corporation's open drain along the Resolution Drive frontage with appropriate landscaping and high-quality fencing.
- Incorporate street tree planting with theming reflective of the character of the site.
- Building frontages addressing the street to improve personal safety through increased surveillance and activity, with sleeved car parking areas.

The above opportunities have been highlighted in the Landscape Master Plan and will be implemented through the future development process of those sites.

5.4.4.2. Matheson Road

The south-eastern portion of Precinct C, fronting Matheson Road, is currently characterised by open hardstand areas associated with jockey and horse float parking, fencing, street trees, and views of the Racecourse. Land on the opposite side of Matheson Road forms part of the Residential and Stables area and presents to the public realm as a low-density residential area, however noting that these properties contain stables typically to the rear of lots.

The south-eastern portion of Precinct C is intended to be developed for on-course stabling, resulting in the future removal of a significant portion of the open hardstand area. The on-course stabling complex is intended to accommodate a stables development with associated amenities and infrastructure, including horse walks, parade rings, sand rolls and horse walkers. Structures visible to the Matheson Road interface include stables buildings, all of which will be consistent with the character of the area.

The Landscape Master Plan identifies opportunities to screen the remaining hardstand area (jockey and horse float parking) and reinforce pedestrian entry and arrival points along Matheson Road. Car parking areas fronting Matheson Road can be softened by on-site tree planting/landscaping. The avenue of street trees along Matheson Road can be further enhanced to harmonise the stables development with the surrounding area and better define the edge and enhance the character of the Racecourse.

The treatment of the Matheson Road frontage will be addressed through the development application process for the on-course stables development.

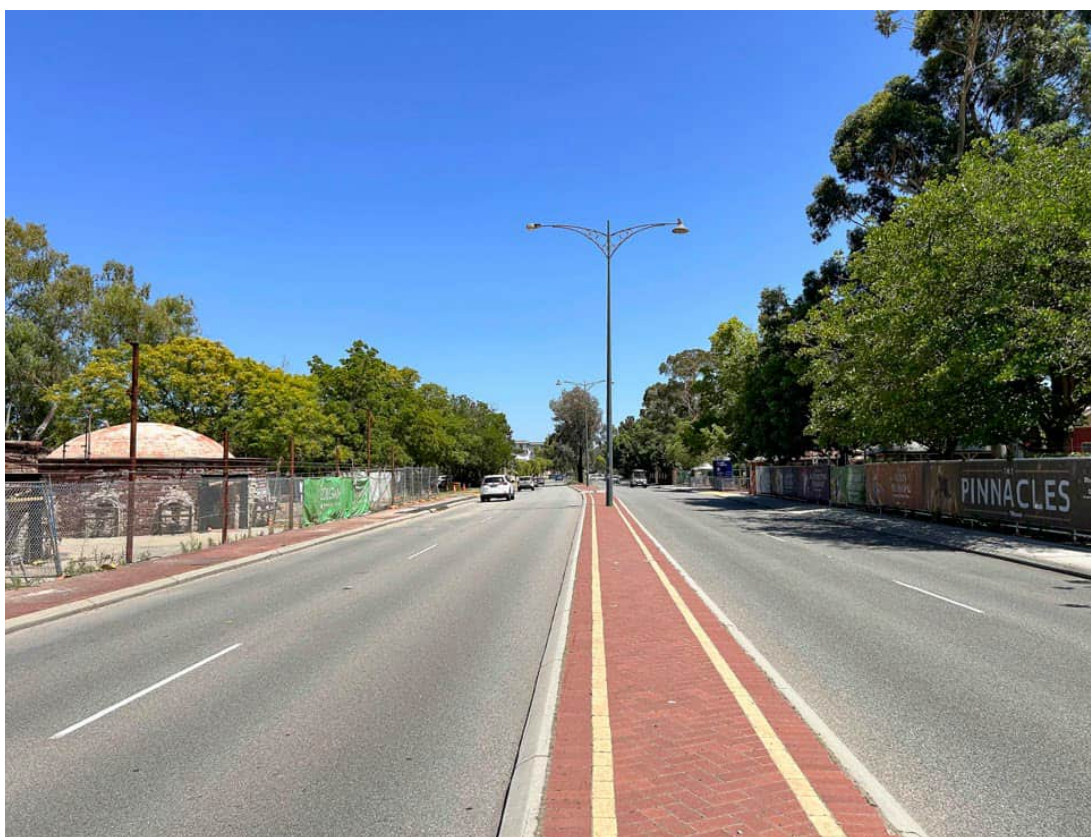
5.4.4.3. Racecourse Entry / Grandstand Road

The key entry to Ascot Racecourse is provided from Grandstand Road via several vehicle and pedestrian access points. Whilst the interface to Grandstand Road is very 'green' with landscaping both within the road reserve and site itself, the existing landscaping does not maximise opportunities to allow or screen views at appropriate points. Parking areas are currently very visible and prominent from Grandstand Road, whereas landscaping, along with fencing and signage, block views into key public areas of the racecourse from Grandstand Road.

The Landscape Master Plan identifies the following key opportunities to improve the streetscape interface of the Racecourse entry from Grandstand Road:

- Create views from the entry points along Grandstand Road to the racecourse and open space areas.
- Limit views to car parks and 'back-of-house' areas through screening landscaping and high-quality fencing.
- Upgrade entry points to improve legibility and access to key areas in the racecourse using pavement changes, landscaping and signage.
- Upgrade the presentation to Grandstand Road with high quality fencing.

Whilst the abovementioned upgrades do not form part of any specific development plans, consideration will be given to these improvements where coinciding with proposed development and/or upgrades, including the new Perth Racing administration building, the proposed parkland area, and development within Precinct A.



5.4.4.4. Swan River Foreshore

The Swan River foreshore extends along the northern boundary of the site, with Precinct A interfacing the foreshore to the west and Precinct C to the east, with the racecourse extending between the two precinct areas. The foreshore is predominantly narrow, flat, low-lying, and accommodates an existing shared path and riparian vegetation.

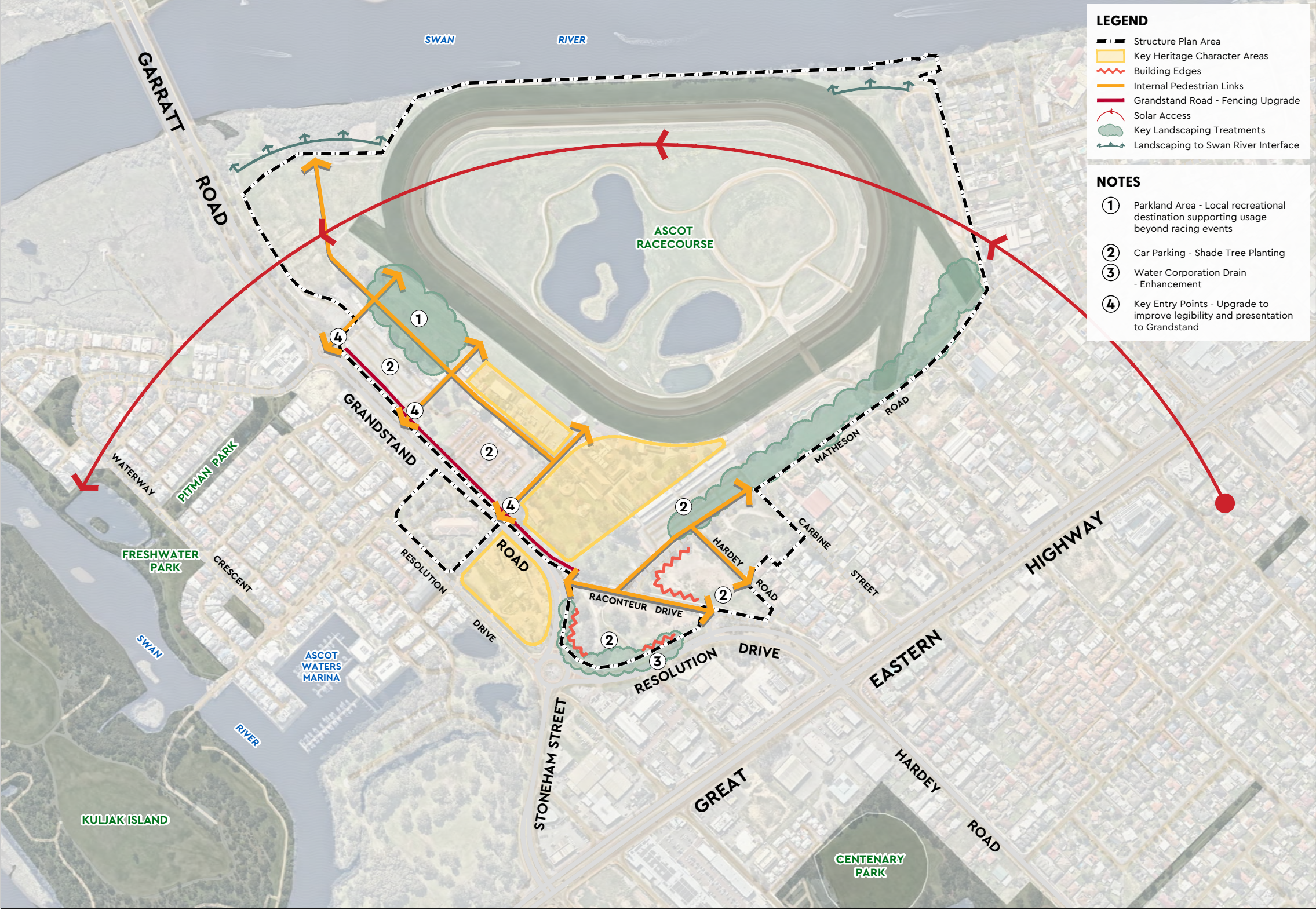
Precinct A currently represents a flat open space with views of the racetrack. There are currently limited views to the Swan River from ground level, however there would be potential for views from higher points in future development. There are opportunities for future development to provide physical path links to the foreshore reserve, connecting to the existing path network within the reserve thereby providing significant amenity benefit to future residents.

In order to accommodate future development in Precinct A, there will be a requirement to fill the site by 1-2m to achieve clearance from flood levels. At the development stage, detailed consideration will be given to the management of fill and battering to ensure an appropriate interface in this area. Landscaping within Precinct A is to borrow from riparian vegetation along the Swan River (species and character).

To the north-eastern part of the site, within Precinct C, the existing interface consists of open style fencing adjacent to a horse training arena. Future development plans within this location include a stable complex, with stables, washdown areas, sand roll areas, horse walkers and holding stalls. Open areas, including sand roll areas and horse walkers, will interface with the northern boundary of Precinct C, with the stables (building) setback from the foreshore thereafter.

At the development stage, consideration will need to be given to the interface of stables development to the north-eastern boundary, having regard to the aesthetics as viewed from the foreshore including colour schemes, fencing barriers, and landscape treatments.





13. Public Realm



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5.5. Movement

Design Element 4 of the SPP 7.2 Precinct Design Guidelines requires consideration of 'Movement', noting that the movement network should respond to the identified movement and place function of the precinct and provide for a range of transport modes. The SPP 7.2 Design Element Objectives and Design Responses are summarised below, with key considerations outlined in further detail thereafter.

No.	Design Element Objective	Design Element Response
O4.1	To ensure the movement network supports the function and ongoing development of the precinct.	<ul style="list-style-type: none"> The Precinct Structure Plan facilitates the function and ongoing development of the precinct, including leasing of un-used road reserve land.
O4.2	To ensure a resilient movement network that prioritises affordable, efficient, sustainable and healthy modes of transport.	<ul style="list-style-type: none"> The Precinct Structure Plan promotes sustainable and healthy modes of transport, reducing reliance on the private motor vehicle.
O4.3	To enable a range of transport choices that meet the needs of residents, workers and visitors.	<ul style="list-style-type: none"> Through the preparation of a Travel Demand Plan, implementation of the Precinct Structure Plan will see use of private motor vehicles discouraged and encourage use of public transport and ride share options. The Precinct Structure Plan encourages upgrades to the infrastructure at bus stops along Grandstand Road. The Precinct Structure Plan accommodates improved pedestrian connectivity through the precinct, including provision of additional shared paths.
O4.4	To ensure the quantity, location, management and design of parking supports the vision of the precinct.	<ul style="list-style-type: none"> The improvements proposed to the parking areas within the precinct promote the vision for the precinct as a tourist destination and sporting venue.

Table 17: Movement Design Element Assessment

This section provides a movement strategy for the Structure Plan area, highlighting the planned connectivity between the various land uses/precincts within the Structure Plan area and consideration towards the existing movement network. A detailed analysis of Traffic is provided within the Traffic Impact Assessment ('TIA') that accompanies this Precinct Structure Plan.

Refer **Figure 14 – Movement Network** and **Appendix 5 – Transport Impact Assessment**.



5.5.1. Proposed Vehicle Access & Intersection Upgrades

Vehicle access to the Ascot Racecourse complex is achieved from several locations along Grandstand Road, Resolution Drive, and Matheson Road. Intersection arrangements to Grandstand Road will remain the same for the Ascot Racecourse complex.

There is an opportunity for a left-in/left-out access from Precinct D (opposite the racecourse) to Grandstand Road to serve a future commercial/community use. This will need to ensure the access is integrated safely with the operations of the crossover on the opposite side of the road to the racecourse. Detailed assessment of the anticipated traffic impacts associated with a commercial development on this site will occur in later planning stages. Precinct D also accommodates future residential uses, however access to residential lots in this location will be provided from Resolution Drive.

In terms of Precinct E, this Precinct Structure Plan proposes modifications to the existing access arrangement at Grandstand Road/Raconteur Drive to facilitate left-in, left-out and right-in movements only. Access from the existing Resolution Drive/Raconteur Drive intersection is proposed to be restricted to left-in/left-out movements only.

Access to Precinct A will be provided via the existing Waterway Crescent/Grandstand Road roundabout.

5.5.2. Proposed Pedestrian Network

The Precinct Structure Plan proposes the continuation of pedestrian access within the precinct, including along Grandstand Road, adjacent to Precinct D. The ability exists (for others) to extend this past the Bristle Kilns should this be required.

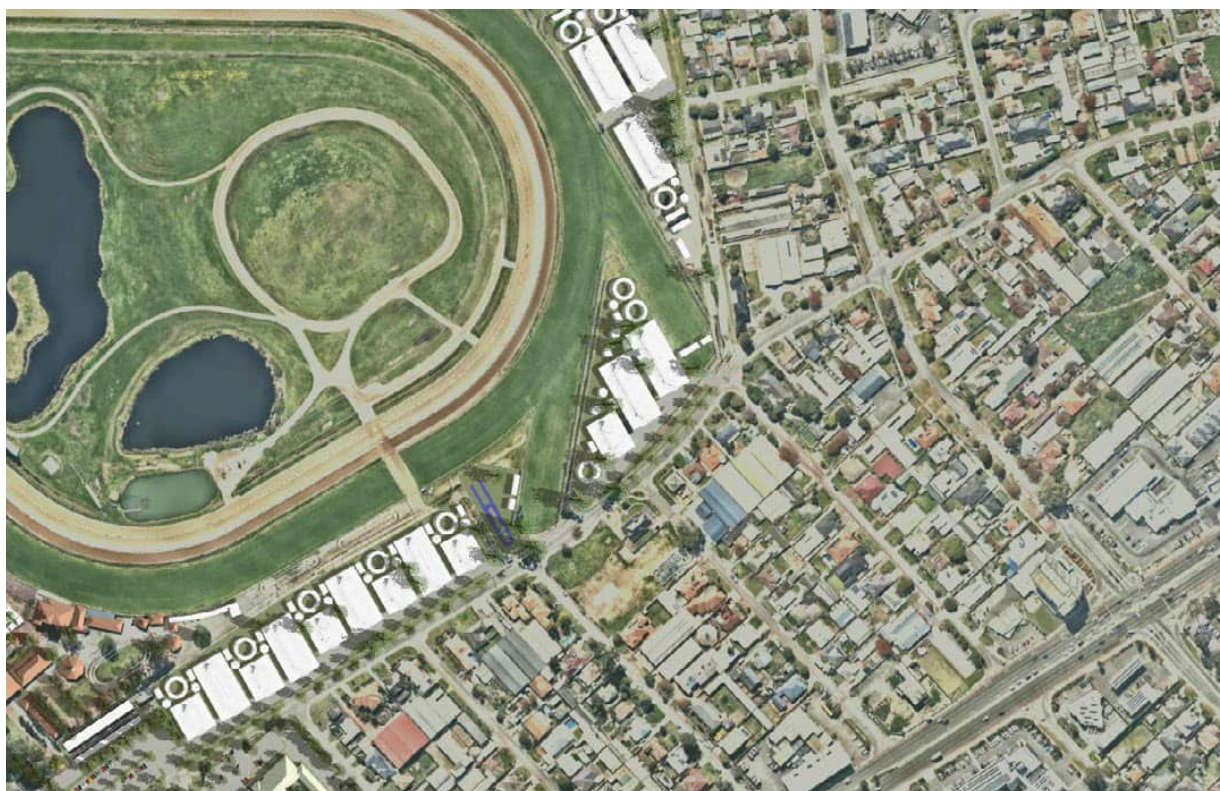
The shared path is proposed to be extended along Resolution Drive, adjacent to Precinct E, connecting to the existing shared path network along Grandstand Road and Raconteur Drive.



5.5.3. Parking Improvements

Precinct B accommodates the Ascot Racecourse, the use of which relies on parking currently located within Precincts B, C and E. The proposed redevelopment of Precinct C (for on course stabling purposes) and Precinct E (for a commercial development) will remove some on-site parking. In this regard, parking arrangements are proposed to be improved as follows:

- The jockey and horse float parking will be relocated towards the southern extent of Precinct C.
- The southern Precinct B patron parking area would be upgraded to accommodate an improved layout, accommodating approximately 110 to 125 cars.
- On a typical busy race day, investigations suggest there is an oversupply of parking within the northern end of Precinct B, suggesting approximately 40 parking bays are underutilised.
- A Travel Demand Plan will therefore be implemented for typical race days to actively discourage patrons from using private motor vehicles and instead encouraging the use of readily available public transport options and private ride share services, recognising the non-typical nature of parking at the racecourse, being reflective of a tourist destination/sporting venue.
- For non-typical large event days, such as the Perth Cup, implementation of the adopted traffic management plan for the Racecourse will continue.



Parking for future commercial development within Precinct E is to be provided having regard to the DPLH's Interim Guidance for Non-Residential Car Parking Requirements, through the application of minimum and maximum parking standards. This is reflective of a move towards reducing the traditional over-supply of under-utilised parking, better meeting the parking demands for different centres and responding to the preferred approach for precinct planning.

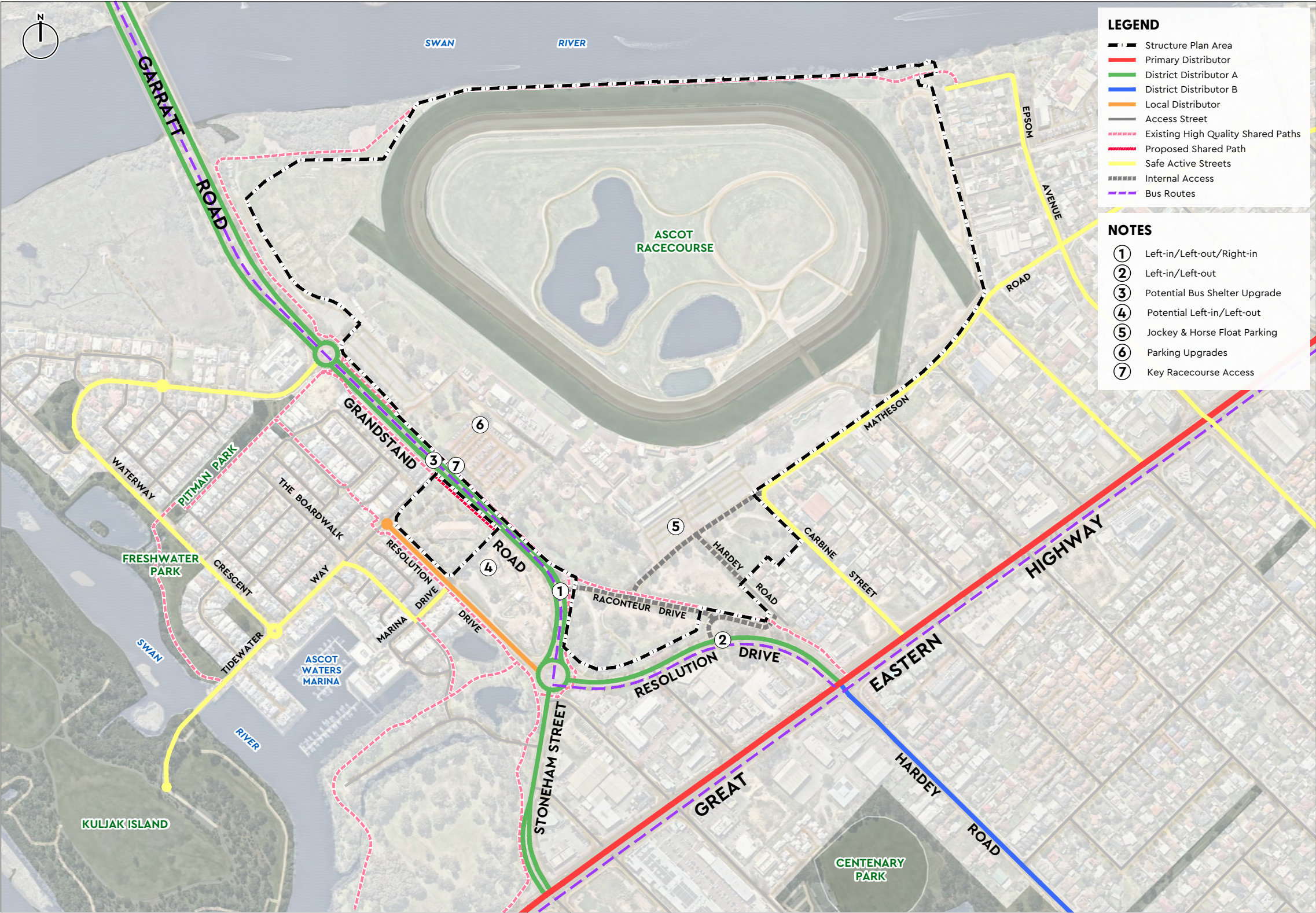
Car parking for residential development within Precinct D will be provided in accordance with the Residential Design Codes.

5.5.4. Public Transport

There are existing bus stops along Grandstand Road, immediately adjacent to one of the key pedestrian access points to the Racecourse, which is served by the 998/999 circle route, providing connectivity to the central Perth and Bayswater Train Stations. Frequent bus services are also available along Great Eastern Highway, providing access to Redcliffe Station, central Perth and Perth Airport.

Development of the site will utilise the existing public transport network, with opportunities to upgrade the infrastructure at the stops along Grandstand Road.





14. Movement Network



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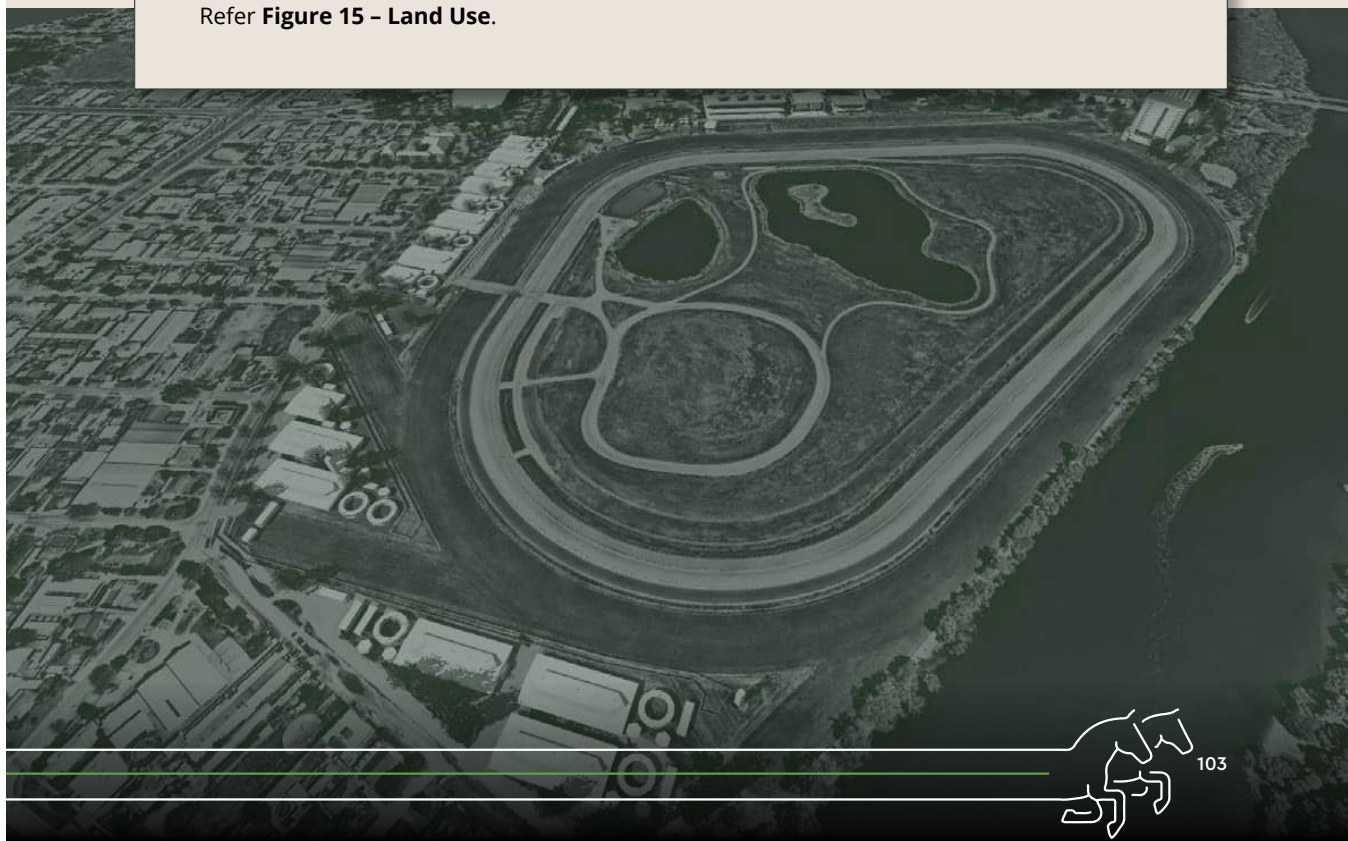
5.6. Land Use

Design Element 5 of the SPP 7.2 Precinct Design Guidelines requires consideration of 'Land Use', noting that land use planning should reflect the role of the precinct in its wider context and respond to community needs, current and intended future activities and functions, alongside broader trends. The SPP 7.2 Design Element Objectives and Design Responses are summarised below, with key considerations outlined in further detail thereafter.

No.	Design Element Objective	Design Element Response
O5.1	To ensure current and planned land uses respond to the needs and expectations of the community.	<ul style="list-style-type: none"> The Precinct Structure Plan provides for the development of retail convenience uses which respond to an identified need within the Ascot locality. The Precinct Structure Plan facilitates a residential interface to Ascot Waters Estate.
O5.2	To ensure the planned land use types contribute positively to the precinct character and amenity.	<ul style="list-style-type: none"> The Precinct Structure Plan maintains and facilitates equine-focussed land uses adjacent to the established Ascot Racecourse and Residential and Stables area. Higher trip-generating land uses are focussed on the existing distributor road and public transport network.
O5.3	To achieve a mix of land uses and activity that supports the precinct vision.	<ul style="list-style-type: none"> Through the application of appropriate zoning and land use controls, the Precinct Structure Plan provides for a mix of land uses that respond to the characteristics of the locality and site-specific opportunities identified by the Master Plan.

Table 18: Land Use Design Element Assessment

Refer **Figure 15 – Land Use**.



5.6.1. Land Use & Zoning

The subject area is currently zoned 'Place of Public Assembly' under the City of Belmont's LPS 15, except for Lot 3 (No. 96) Grandstand Road and Lot 51 (No. 2) Raconteur Drive, Ascot, in the southern part of the site (Precinct E), which are currently zoned 'Mixed Use'. The Racecourse component of the site is subject to 'Additional Uses' under LPS 15 which permit the land uses 'Horse Sales' and 'Stables', which are not otherwise permissible in the 'Place of Public Assembly' zone.

5.6.1.1. Precinct A

In accordance with the Master Plan, Precinct A is intended to be developed for a residential housing village to accommodate retiring members of the horse racing industry, with small-scale food and beverage and commercial uses that are ancillary to, and integrated with, the residential housing village. Overall, it is estimated that this development could yield up to 360 apartments and a maximum 300m² café.

This development outcome is responsive to the land tenure restrictions of the site, specifically the inability for the site to be subdivided/on-sold and the limitation on use to horse-racing related activities. This Structure Plan applies a 'Mixed Use' zoning to Precinct A to support the abovementioned development outcomes, with 'Restricted Uses' that limit the scope of land uses that can be applied to the site to ensure an appropriate interface with the Swan River.

5.6.1.2. Precincts B & C

Precinct B, which contains the entertainment areas associated with Ascot Racecourse, is intended to be developed to include a new administration building for Perth Racing (approximately 700m²), along with a hospitality venue (approximately 1,000m²). Precinct C, comprising the existing Racecourse, is intended to be developed with approximately 400 on-course stables across three (3) stabling complexes.

The objective of the 'Place of Public Assembly' zone, along with the land uses that are currently permissible on the site under LPS 15, are considered appropriate for the existing Racecourse operations, which are proposed to be retained (Precincts B and C). This includes retaining the existing Additional Uses applicable to Precinct C which will support the proposed on-course stables development. To provide flexibility for future administration and hospitality uses within Precinct B, the Structure Plan provides for several Additional Uses including 'Office', 'Hotel', 'Reception Centre', 'Restaurant', and 'Tavern'.



5.6.1.3. Precinct D

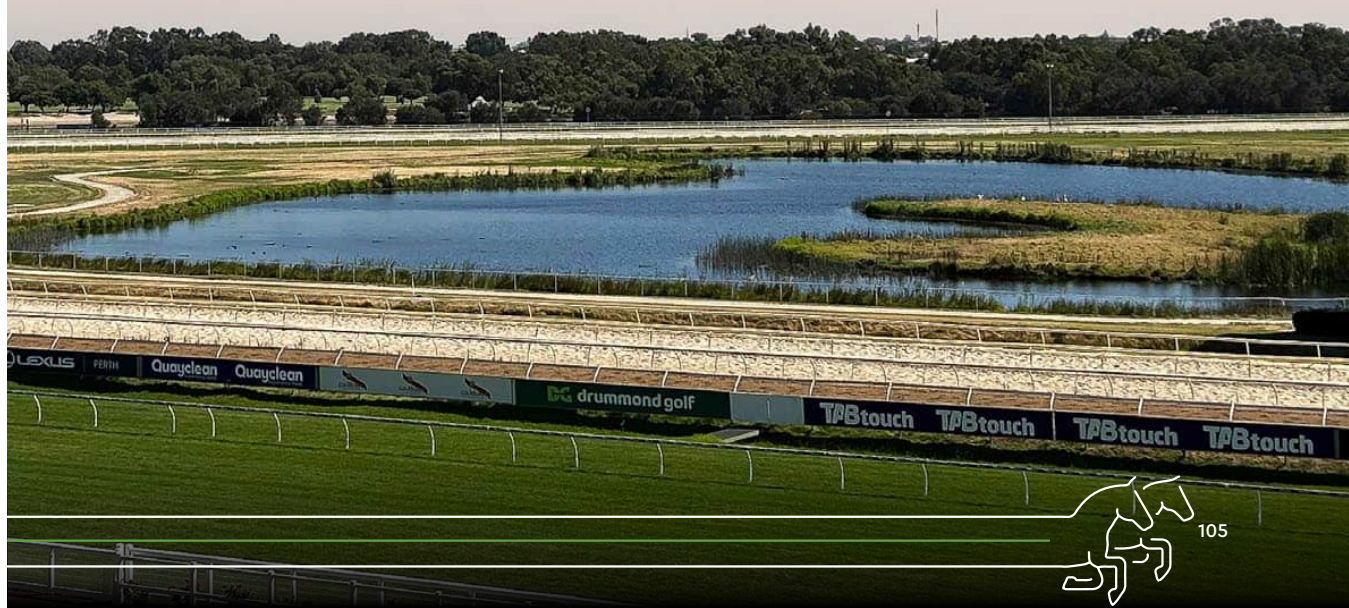
Following the relocation of Perth Racing's administration building, Precinct D is intended to be redeveloped for residential purposes, with a small-scale commercial/community use (such as a Child Care Premises) fronting Grandstand Road. It is estimated that this development could yield approximately 41 residential lots and a potential 2,000m² commercial lot. This outcome would be consistent with the residential character of the adjacent Ascot Waters Estate, whilst noting that some opportunity exists for low intensity and compatible non-residential uses that would benefit from frontage to a distributor road.

This Precinct Structure Plan applies a 'Residential' zoning to a majority of Precinct D, with a 'Mixed Use' zone applied to a portion fronting Grandstand Road. Given the extent of permitted uses afforded by the 'Mixed Use' zone, this Precinct Structure Plan applies 'Restricted Uses' to limit the intensity/scale of development on the site to ensure compatibility with surrounding development.

5.6.1.4. Precinct E

Precinct E has been identified for future commercial development, reflective of its position within the Golden Gateway activity centre. The Structure Plan provides for Precinct E to be zoned 'Commercial' and 'Mixed Use' to facilitate a range of commercial uses. Land immediately adjacent to Resolution Drive and Grandstand Road, proposed to be zoned 'Commercial', would be suitable for active land uses such as a supermarket and speciality retail uses, and could form as the 'core' of the activity centre, positioned centrally within the activity centre and having suitable access and exposure to passing trade.

To provide an appropriate transition to the adjacent 'Residential and Stables' precinct, Perth Racing are also exploring opportunities to develop transitional commercial and/or equine focussed development, such as bulky goods showroom, offices, a gym, and/or vet consulting rooms, to the north-east of Raconteur Drive. The application of the 'Mixed Use' zoning by the Precinct Structure Plan will support the development of these land uses. Like Precincts A and D, 'Restricted Uses' are proposed to be applied to the 'Mixed Use' zone to ensure compatibility with surrounding development.



5.6.2. Golden Gateway Activity Centre

5.6.2.1. Activity Centre Considerations

The City of Belmont's Activity Centres Planning Strategy ('ACPS') identifies a future activity centre ('Golden Gateway activity centre') within the Golden Gateway Precinct in Ascot, in the area bound by Great Eastern Highway, the Swan River, Resolution Drive (north), Grandstand Road (north), the south-eastern boundary of Ascot Racecourse, Carbine Street and Hardey Road. This area encompasses the southern portion of Perth Racing's landholdings identified as Precinct E in this Structure Plan.

Refer **Figure 16 – Golden Gateway Activity Centre.**

There are unique considerations in the planning of the Golden Gateway activity centre including, but not limited to, the extent of land fragmentation, the type and nature of existing land uses/development, and access constraints. The centre's proximity to Great Eastern Highway makes it attractive for uses reliant upon passing trade, such as bulky goods showrooms. Similarly, its proximity to the Perth Central Business District and Belmont Business Park, coupled with high levels of accessibility afforded by the road network and public transport services, makes it attractive for service industries and offices to locate.

There is currently no residential development within the centre, with the residential catchment being limited to that of the surrounding area. The draft Golden Gateway Structure Plan identified a desire for intensive residential development to be undertaken within the Golden Gateway activity centre, which would support the development of the activity centre. In the case of Perth Racing's land, there is an inability to subdivide and sell-off landholdings in Precinct E, meaning that any proposition of residential development cannot be realised in Precinct E.



As outlined, Perth Racing's vision for Precinct E is to develop active commercial/retail land uses adjacent to Resolution Drive and Grandstand Road and transitioning to less intensive retail (i.e. bulky goods showrooms), commercial, and/or equine focussed development to the north-east of Raconteur Drive, adjacent to the Residential and Stables area. These land uses would be consistent with the intent of an activity centre in this location, whilst also responding to the existing 'equine-focus' of the area.

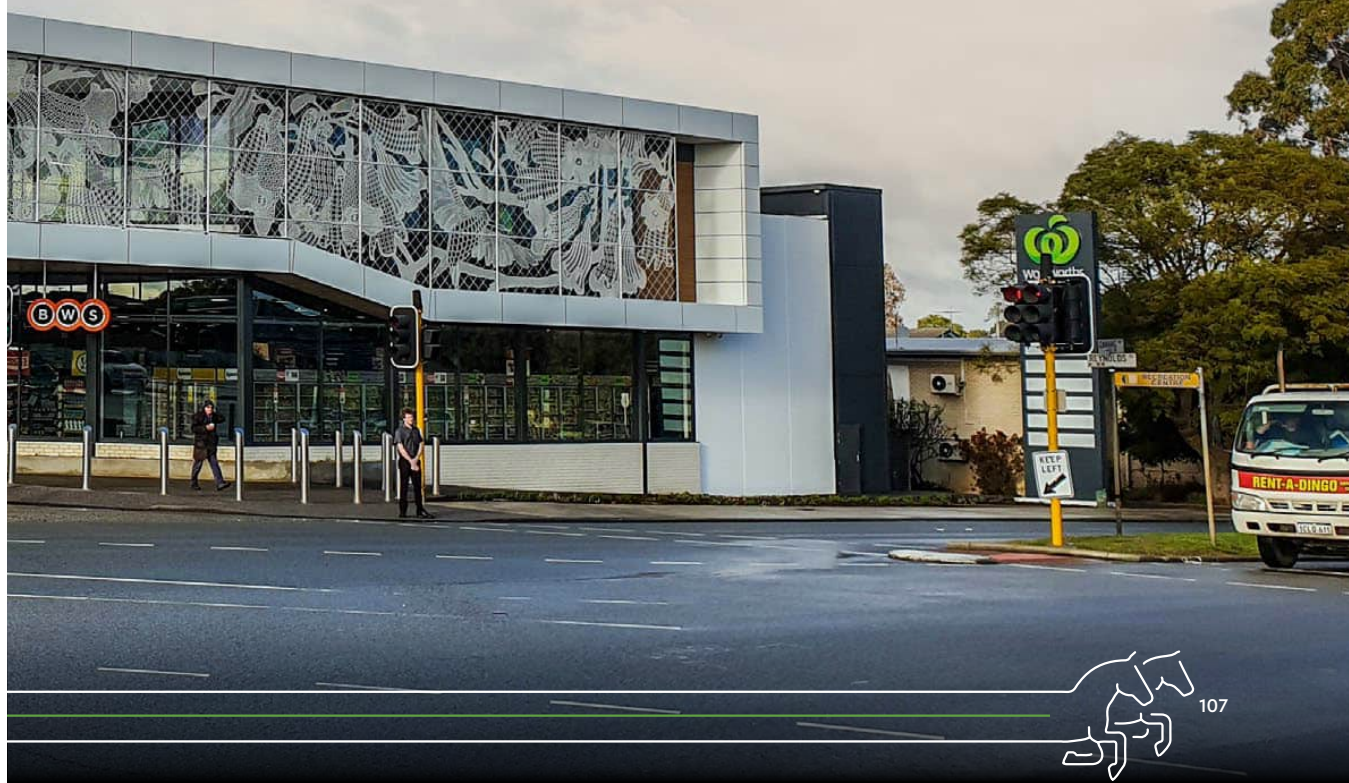
Given the size, positioning, and current vacant status of Perth Racing's landholdings, there is a real opportunity for development in this location to serve as a catalyst for future development within the Golden Gateway activity centre. It is anticipated that other land within the activity centre will transition to mixed-use development outcomes over time as amenity and land values improve, opportunities will exist to better utilise land.

The size and configuration of Perth Racing's landholdings in Precinct E are such that development outcomes could not reasonably or practically exceed that of a local or neighbourhood centre, nor similarly be developed in such a way that would be conducive to the creation of a standalone bulky good showroom precinct. Any development in this locality would be reflective of local community needs, having regard to locational characteristics and market demands.

5.6.2.2. Retail Needs Assessment

The ACPS has been informed by a Retail Needs Assessment ('RNA') undertaken in accordance with the requirements of SPP 4.2. The findings of the RNA, as outlined by the ACPS, anticipates a 7,000m² retail floorspace increase within the Precinct by 2036, and an increase in retail floorspace to approximately 7,000m² by 2036, providing for the establishment of a neighbourhood centre with 2,700m² to 3,000m² of retail floorspace. This demand is reflective of the limited-service provision within the Ascot locality.

The abovementioned findings of the RNA reflect the spatial distribution of activity centres across the region, noting that the Ascot locality has limited convenience shopping facilities available to service the local population. The 'gap' in service provision in the area is proposed to be addressed by this Structure Plan, along with the Golden Gateway Structure Plan, which will facilitate commercial and retail development within the Golden Gateway activity centre



5.6.2.3. Net Benefit Test

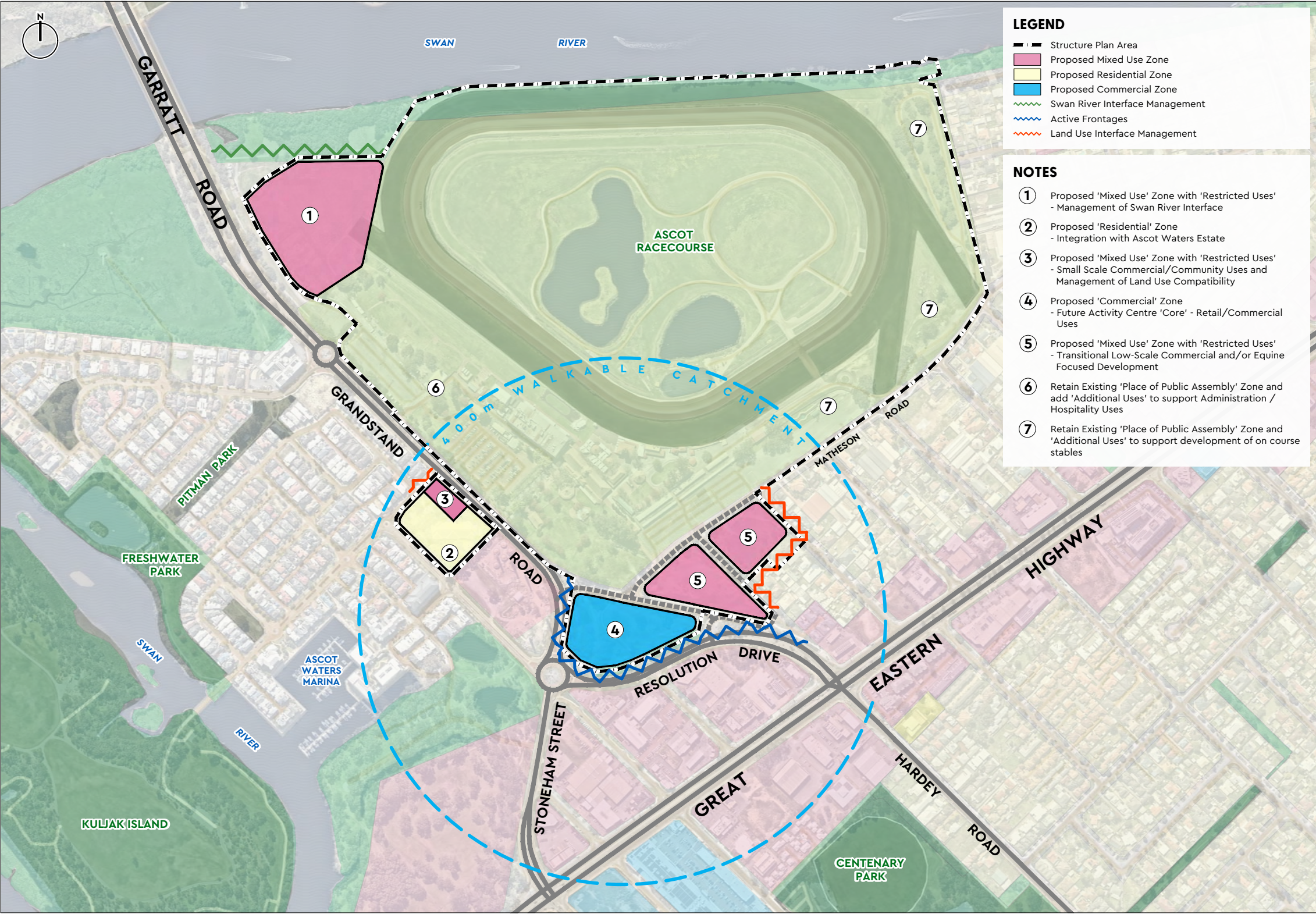
In accordance with SPP 4.2, a Net Benefit Test has been prepared by Taktics4 in support of this Structure Plan to assess the economic demand and implications for potential retail development in this area. Through this assessment, particular attention was given to the 'Shop/Retail' (PLUC: 5-SHP) and 'Other Retail' (PLUC: 6-RET) planning land use categories.

Under SPP 4.2, the 'Shop/Retail' (PLUC: 5-SHP) planning land use category captures the land uses 'Shop', 'Liquor Store – Large', 'Fast Food Outlet/Lunch Bar', and 'Restaurant/Café'. The 'Other Retail' (PLUC: 6-RET) planning land use category applies to the land uses 'Bulky Goods Showroom' and 'Motor Vehicle, Boat, or Caravan Sales', noting the latter of which is not permitted under the 'Mixed Use' zone.

The Net Benefit Test assesses the potential for 3,400m² net lettable area ('NLA') of 'Shop/Retail' floorspace and 9,600m² NLA of 'Other Retail', representing a 'worst-case' maximum retail floorspace scenario for Precinct E. The findings of the Net Benefit Test indicate the following:

- The proposed development of 'Shop/Retail' and 'Other Retail' within the activity centre will have low/insignificant impacts on the existing and future activity centre network, with any impacts likely offset by potential sales growth generated by additional population and spending over the next 15 years.
- The creation of an activity centre in the area will reduce the number of vehicle kilometres required to be travelled by residents in the immediate trade area, and overall will save up to 700,000 vehicle trips per annum outside of the trade area.
- The development could create up to 205 full-time equivalent jobs.
- The 'Shop/Retail' floorspace will be sustainable from 2026 and satisfy an existing resident trade area, filling an existing demand in the market.
- Any development of 'Other Retail' will complement existing offerings in the vicinity.

Refer **Appendix 6 – Retail Assessment (Net Benefit Test)**.



15. Land Use





16. Golden Gateway Activity Centre



5.7. Built Form

Design Element 6 of the SPP 7.2 Precinct Design Guidelines requires consideration of 'Built Form', outlining that built form should support a precinct environment that is place and functionally appropriate in character, intensity, bulk and scale. The SPP 7.2 Design Element Objectives and Design Responses are summarised below, with key considerations outlined in further detail thereafter.

No.	Design Element Objective	Design Element Response
O6.1	To ensure that the built form is responsive to the purpose, context and intended character of the precinct.	<ul style="list-style-type: none"> ■ Built form outcomes provided by this Structure Plan align with the future context and character of the Golden Gateway Precinct. ■ The Precinct Structure Plan provides for built form outcomes which are consistent with the character of Ascot Waters Estate and the Residential and Stables area.
O6.2	To ensure building placement, scale and massing is appropriate for the intended precinct and streetscape character.	<ul style="list-style-type: none"> ■ In recognising the strategic positioning of Perth Racing's north-western corner, the Precinct Structure Plan seeks to facilitate a landmark development. ■ The intended placement of buildings is responsive to site context and configuration.
O6.3	To ensure that built form design reduces energy demand across the precinct by facilitating climate-responsive design.	<ul style="list-style-type: none"> ■ Street block configuration and built form scale support solar access to buildings and the public realm and do not undermine natural ventilation on adjoining properties and the public realm. ■ The Precinct Structure Plan makes provision for increased tree canopy to reduce heat-island effect.
O6.4	To ensure that built form is responsive to the streetscape and contributes to a safe and comfortable public realm.	<ul style="list-style-type: none"> ■ The Precinct Structure Plan facilitates a development outcome that is conducive to active and passive interaction with the public realm.

Table 19: Built Form Element Assessment

Refer **Figure 17 – Built Form**.

The existing and future built form context surrounding the subject area varies, noting the established nature of Ascot Waters Estate and the Residential and Stables area to the west and east, respectively, and the proposed transition of the Golden Gateway precinct to the south of Ascot Racecourse. The site context to the north and north-east of the site comprises natural areas including the Swan River and foreshore areas.



5.7.1. Commercial Precinct

Under the draft Golden Gateway LSP, the Golden Gateway precinct is intended to be transformed into a mixed-use precinct with maximum building heights of 9 storeys with an 'R-AC1' coding along Great Eastern Highway and 6 storeys with an 'R-AC3' coding across the remainder of the precinct, inclusive of Perth Racing's properties fronting Grandstand Road within Precinct E.

As per Perth Racing's vision, the portion of Precinct E fronting Resolution Drive is intended to be developed for commercial and retail purposes, with no intention to undertake residential development or any form of intensive built form development. Notwithstanding, in acknowledging that this land will have the potential to be developed for residential purposes and to provide consistency with the Golden Gateway Structure Plan, this Structure Plan applies an 'R-AC3' coding and a maximum 6 storey building height.

Development fronting Resolution Drive is intended to accommodate more 'active' land uses and should be designed accordingly in line with contemporary planning practice. There are some limitations to the positioning of buildings on this site due to the presence of existing services, however, as shown in the Master Plan, there are opportunities to position buildings such that they address and interface with the street and sleeve parking areas from key viewpoints.

Given the presence of the Belmont Main Drain along the site's frontage to Resolution Drive, consideration should be given to its presentation through the detailed design process. This includes the potential for landscaping within and/or surrounding the drain, and the upgrade of fencing.

To reduce the dominance of car parking and heat-island effect, Part One of the Precinct Structure Plan applies a requirement for shade trees within car parking areas.

To provide a transition to the Residential and Stables area, built form is intended to 'step down', with an 'R-AC4' coding applied to the portion of Precinct E comprising the southern part of Lot 100 Raconteur Drive and a maximum 3-storey building height. This site is 'triangular' in shape, meaning that the positioning of buildings will likely occur on the wider north-western portion of the site, with parking placed towards the south-eastern portion, adjacent to Raconteur Drive and Hardey Road.

In terms of boundary setbacks, the control of non-residential development will be provided through LPS 15. Part One of the Precinct Structure Plan does however identify a nil street setback requirement for non-residential development, which is intended to facilitate an active street outcome. The setback of any residential development will be controlled through the Residential Design Codes.

5.7.2. Residential & Stables Interface

The Ascot Residential and Stables area to the south and east of the Structure Plan area is unique from a land use and built form perspective. The area is characterised by large rectangular lots ranging from approximately 800m² to 2,000m² in area and typically containing a single house at the front (facing the street) with stables provided to the rear within the backyard area of each respective lot. Development within this area is typically single storey in scale, but intensive site coverage, with stables development often occupying significant portions of the lot with nil or limited setbacks provided to side boundaries.

Under the City's LPS 15, the Residential and Stables area is not subject to a density code, however the Scheme Text states that the provisions of the 'R10' code apply with regard to 'open space' and 'minimum setbacks from boundaries' (for residential development only). In accordance with Volume 1 of the R-Codes, the primary street setback under the 'R10' coding is a minimum of 3.75m and an average of 7.5m. There are no building height limits that apply to the Residential and Stables zone.

Under this Structure Plan, both Precincts C and E interface with the Residential and Stables area. In the case of Precinct C, which is subject to the proposed on-course stables development, Part One of this Precinct Structure Plan includes development provisions pertaining to the setback of development from Matheson Road to the south (7.5m setback) and the setback of stables and yard areas to private properties to the east (10m setback). The minimum setbacks identified align with the primary street setback requirement under the R-Codes and the City's Local Laws pertaining to stable and yard setbacks from dwellings.

In terms of the Precinct E interface, as outlined in Perth Racing's vision, development immediately adjacent to the Residential and Stables area is intended to be equine focussed, potentially in the form of an equine welfare centre and jockey support centre. Such a development would likely be of a low-scale and predominantly single-storey in nature. Part One of the Precinct Structure Plan provides for a maximum 2-storey building height in this location, a maximum residential density of 'R10', and a minimum and average primary and secondary street setback of 3.75m and 7.5m, respectively, to be consistent with that of the surrounding area.



5.7.3. Ascot Waters & Bristle Kilns Interface

Built form within Ascot Waters Estate is residential and mixed use in nature, ranging from two to four-storeys in height and at a scale equivalent to the 'R30', 'R40' and 'R100' density codes. In Council's deliberations on the draft Golden Gateway LSP, consideration was given to this context in relation to Lot 452 Grandstand Road (Precinct D) where it was determined appropriate to apply densities of 'R40' and 'R100' with maximum building height limits of 3 to 5 storeys.

This Structure Plan applies an 'R60' coding with a maximum building height of 3 storeys to Lot 452 Grandstand Road (Precinct D). Whilst this approach does not strictly align with Council's previous decision, it represents a balanced approach to built form on the site and avoids a situation where requirements differ across a lot, providing more flexibility from a development perspective. Furthermore, it is considered that a maximum building height provided by this Precinct Structure Plan would not impose upon or undermine the heritage values of the adjacent Bristle Kilns.

In terms of Precinct B, there is limited built form interrelationship with Ascot Waters Estate given the substantial building setbacks within Ascot Racecourse and the positioning and treatment of Grandstand Road is serving as a logical separation between these areas.

5.7.4. Swan River Interface

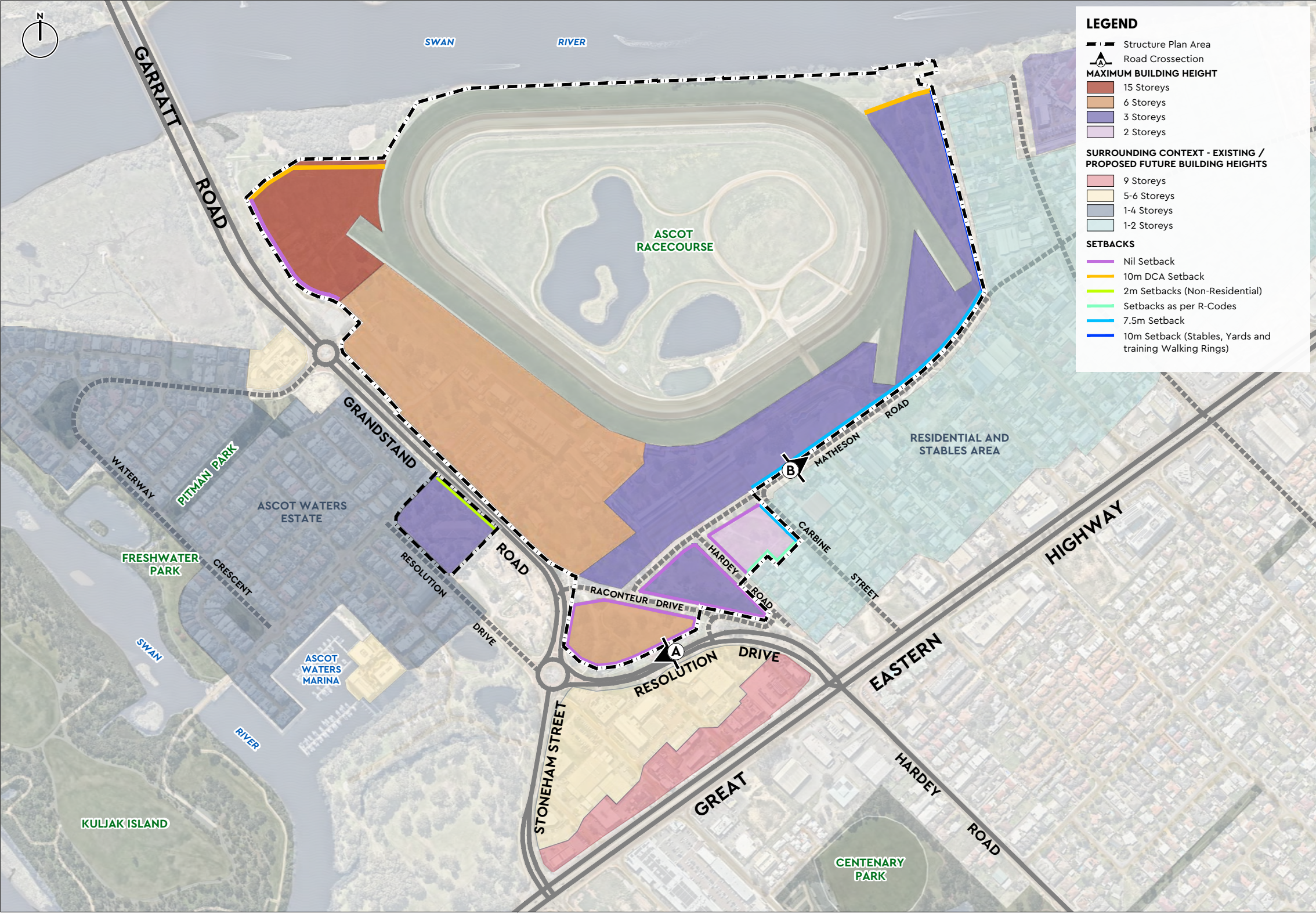
Perth Racing's vision for Precinct A, which interfaces to Swan River, is to develop a residential housing village with small-scale integrated commercial uses. It is envisioned that future development could comprise three (3) tower buildings developed up to a maximum of 15 storeys, and oriented such that they provide outlook to the Swan River and Racecourse. This vision is reflective of the site's notable prominence, being strategically positioned on the Swan River and at the northern gateway to the City of Belmont.

Precinct A is situated on the southern side of the Swan River and is devoid of surrounding development, meaning that any implications associated with intensive built form scale, such as overshadowing and privacy, will be negligible. Whilst there will be a need to undertake earthworks on the site to lift ground levels, there are opportunities through the detailed design process to consider appropriate setbacks, battering and/or retaining to the Swan River interface.

In terms of density, an 'R-AC0' coding has been applied to Precinct A to enable this Precinct Structure Plan to identify specific built form primary controls pertaining to building height, plot ratio, and setbacks. Specifically, Part One of the Precinct Structure Plan identifies a maximum building height of 15-storeys with a maximum 3-storey podium height, and a maximum plot ratio of 2.5 which is reflective of the vision for the site. In accordance with DBCA requirements, the Precinct Structure Plan identifies a minimum 10m setback requirement from the Swan River foreshore. Given Precinct A's existing substantive setback to Grandstand Road, the Precinct Structure Plan allows for a nil setback to the primary street.

Noting the limitations posed by groundwater hydrology and flood levels in Precinct A, basement structures in this location will likely be impractical, meaning that car parking areas will likely be a combination of at-grade and above-ground parking integrated into the building. The design process for these buildings will need to ensure that car parking areas are designed in such a way that they do not dominate or detract from the overall design of the site and its interface to the Swan River.

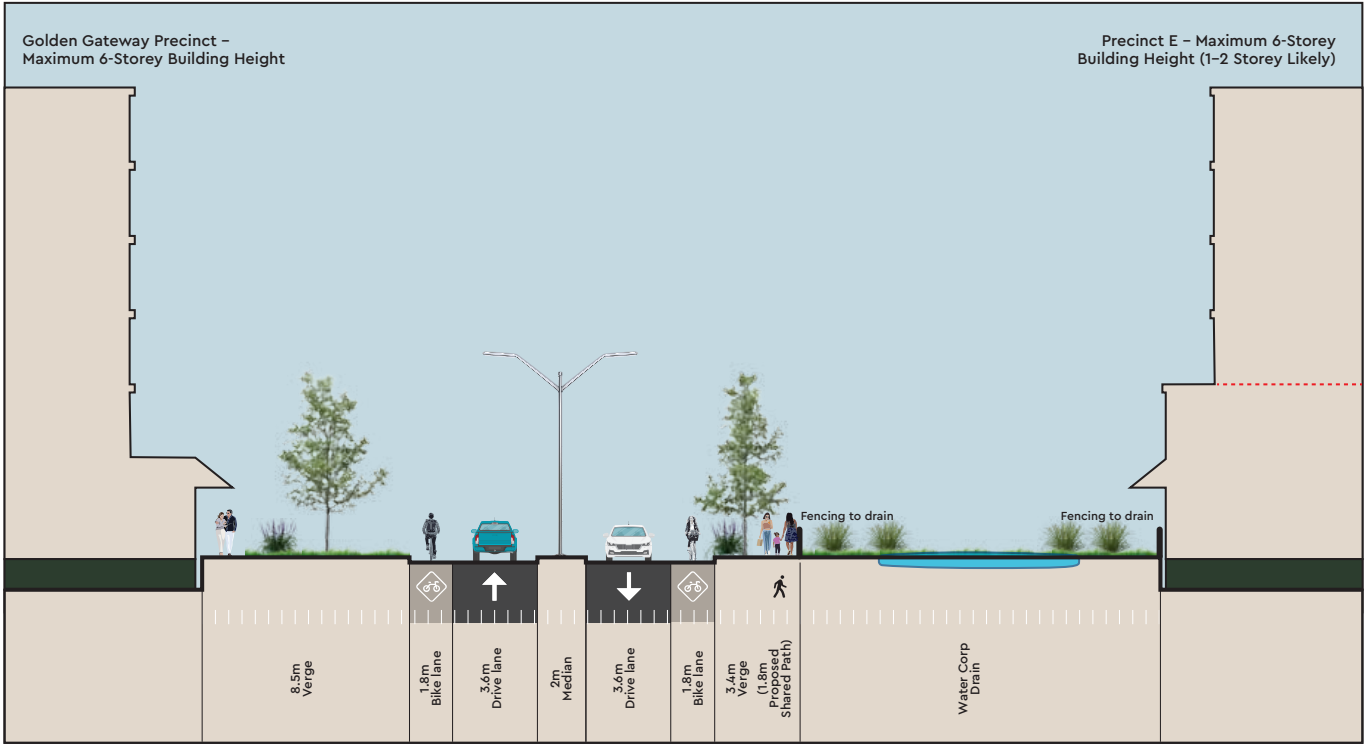
All other development controls applicable to Precinct A will be provided by LPS 15 and Volume 2 of the R-Codes.



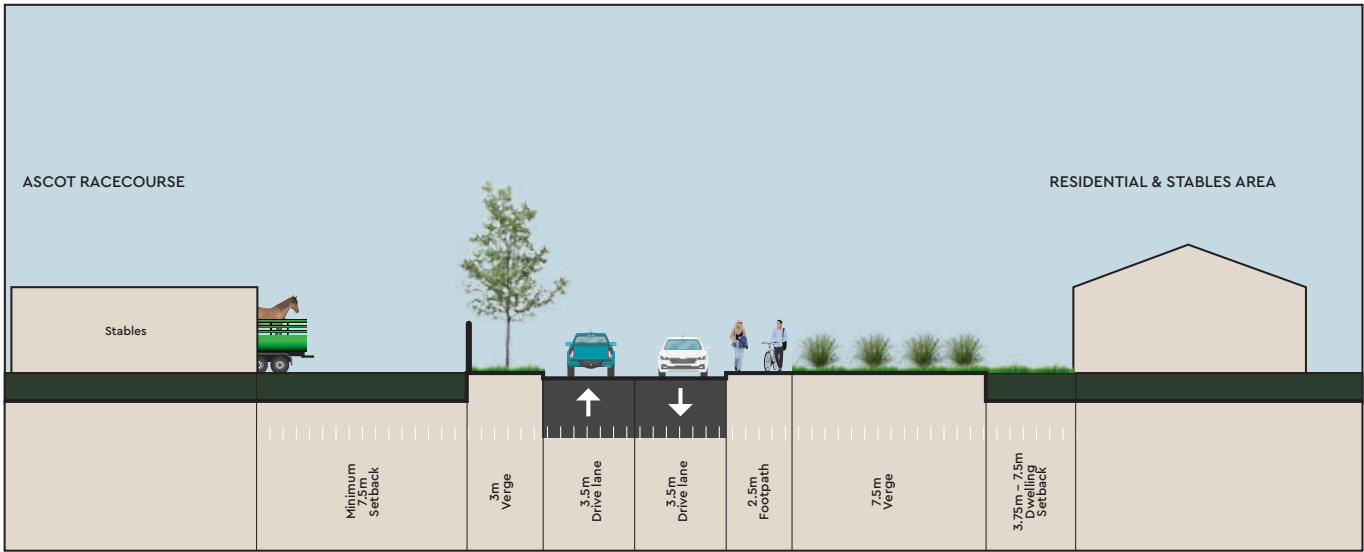
17. Built Form



Cross Section A – Resolution Drive



Cross Section B – Matheson Road

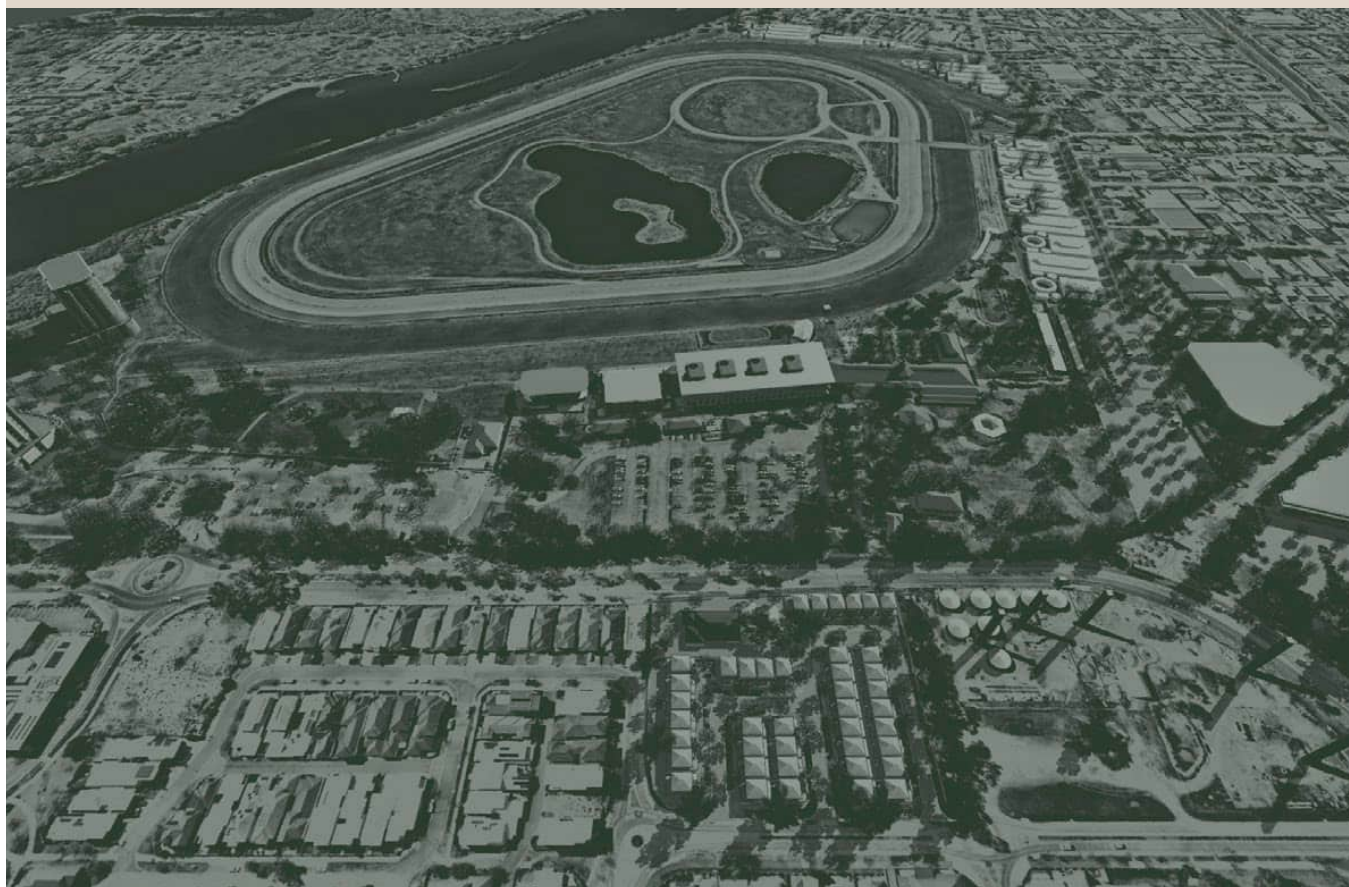


18. Indicative Cross Sections



Appendix 1

Certificates of Title



WESTERN



AUSTRALIA

TITLE NUMBER

Volume

Folio

1041

934

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 50 ON PLAN 5729

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: P5729
PREVIOUS TITLE: 1041-164
PROPERTY STREET ADDRESS: 71 GRANDSTAND RD, ASCOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF BELMONT

WESTERN



AUSTRALIA

TITLE NUMBER

Volume

Folio

2723

355

RECORD OF CERTIFICATE OF TITLE
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BG Roberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 452 ON DEPOSITED PLAN 60339

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 167 P. & D. ACT FOR DRAINAGE PURPOSES TO CITY OF BELMONT - SEE DEPOSITED PLAN 60339.
2. L014556 EASEMENT TO CITY OF BELMONT FOR RIGHT OF FOOTWAY PURPOSES - SEE SKETCH ON DEPOSITED PLAN 60339. REGISTERED 30/7/2009.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
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-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

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SKETCH OF LAND: DP60339
PREVIOUS TITLE: 1776-799
PROPERTY STREET ADDRESS: 70 GRANDSTAND RD, ASCOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF BELMONT

WESTERN



AUSTRALIA

TITLE NUMBER

Volume

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BG Roberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 100 ON DEPOSITED PLAN 60341

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 27A T.P. & D. ACT FOR GAS PURPOSES TO S.E.C. - SEE SKETCH ON DEPOSITED PLAN 60341 AS CREATED ON PLAN 15104.
2. L014550 EASEMENT TO WA GAS NETWORKS PTY LTD FOR GAS PIPELINE PURPOSES - SEE DEPOSITED PLAN 60341 REGISTERED 21/7/2009.
3. M230259 EASEMENT TO ELECTRICITY NETWORKS CORPORATION FOR TRANSMISSION OF ELECTRICITY PURPOSES - SEE SKETCH ON DEPOSITED PLAN 76199 REGISTERED 4/4/2013.
4. M230260 EASEMENT TO ELECTRICITY NETWORKS CORPORATION FOR TRANSMISSION OF ELECTRICITY PURPOSES - SEE SKETCH ON DEPOSITED PLAN 76199 REGISTERED 4/4/2013.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
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-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

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SKETCH OF LAND: DP60341
PREVIOUS TITLE: 1883-667
PROPERTY STREET ADDRESS: 1 RACONTEUR DR, ASCOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF BELMONT

WESTERN



AUSTRALIA

TITLE NUMBER

Volume

Folio

2723

303

RECORD OF CERTIFICATE OF TITLE
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BG Roberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 9002 ON DEPOSITED PLAN 60342

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. CROWN GRANT IN TRUST. SEE CROWN GRANT FOR CONDITIONS. AS TO THE PORTION OF SWAN LOCATION 823 FORMERLY COMPRISED IN VOLUME 1771 FOLIO 332 ONLY.
2. H712859 LEASE TO VODAFONE NETWORK PTY LTD OF 799 PACIFIC HIGHWAY, CHATSWOOD, NEW SOUTH WALES EXPIRES: SEE LEASE. AS TO PORTION ONLY. REGISTERED 4/4/2001.
H970091 TRANSFER OF LEASE H712859, LESSEE NOW CROWN CASTLE AUSTRALIA PTY LTD OF CARE OF LEVEL 1, 754 PACIFIC HIGHWAY, CHATSWOOD, NEW SOUTH WALES REGISTERED 24/12/2001.
K929949 EXTENSION OF LEASE H712859. REGISTERED 5/5/2009.
3. I041460 LEASE TO OPTUS MOBILE PTY LTD OF OPTUS CENTRE, 101 MILLER STREET, NORTH SYDNEY, NEW SOUTH WALES AS TO PORTION ONLY. EXPIRES: SEE LEASE. REGISTERED 13/3/2002.
4. K929948 LEASE TO CROWN CASTLE AUSTRALIA PTY LTD OF LEVEL 1, 754 PACIFIC HIGHWAY, CHATSWOOD, NEW SOUTH WALES EXPIRES: SEE LEASE. AS TO PORTION ONLY. REGISTERED 5/5/2009.
5. K944992 CAVEAT BY CROWN CASTLE AUSTRALIA PTY LTD AS TO PORTION ONLY. LODGED 19/5/2009.
6. EASEMENT BURDEN CREATED UNDER SECTION 167 P & D ACT FOR ELECTRICITY PURPOSES TO ELECTRICITY NETWORKS CORPORATION - SEE DEPOSITED PLAN 60342.
7. L399948 MEMORIAL. CONTAMINATED SITES ACT 2003 REGISTERED 13/8/2010.
8. M813804 LEASE TO OPTUS MOBILE PTY LTD OF 1 LYONPARK ROAD, MACQUARIE PARK, NEW SOUTH WALES EXPIRES: SEE LEASE. AS TO PORTION ONLY REGISTERED 31/10/2014.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
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END OF PAGE 1 - CONTINUED OVER

RECORD OF CERTIFICATE OF TITLE

REGISTER NUMBER: 9002/DP60342

VOLUME/FOLIO: 2723-303

PAGE 2

-----END OF CERTIFICATE OF TITLE-----

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SKETCH OF LAND:	DP60342
PREVIOUS TITLE:	2216-686
PROPERTY STREET ADDRESS:	71 GRANDSTAND RD, ASCOT.
LOCAL GOVERNMENT AUTHORITY:	CITY OF BELMONT

WESTERN



AUSTRALIA

TITLE NUMBER

Volume

Folio

1883

670

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

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BGRoberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 13 ON DIAGRAM 26760

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1883 FOL 670.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

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SKETCH OF LAND: 1883-670 (13/D26760)
PREVIOUS TITLE: 202-100A
PROPERTY STREET ADDRESS: 71 GRANDSTAND RD, ASCOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF BELMONT

WESTERN



AUSTRALIA

TITLE NUMBER

Volume

Folio

1883

668

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UNDER THE TRANSFER OF LAND ACT 1893

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BGRoberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 51 ON PLAN 15104

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
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SKETCH OF LAND: 1883-668 (51/P15104)
PREVIOUS TITLE: 1883-666
PROPERTY STREET ADDRESS: 2 RACONTEUR DR, ASCOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF BELMONT

WESTERN



AUSTRALIA

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BG Roberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 7705 ON DEPOSITED PLAN 209359

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE.
2. CROWN GRANT IN TRUST. SEE CROWN GRANT FOR CONDITIONS.
3. K930699 EASEMENT TO WATER CORPORATION FOR TANK AND PIPELINE PURPOSES - SEE DEPOSITED PLAN 58026 REGISTERED 5/5/2009.

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STATEMENTS:

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SKETCH OF LAND: 1789-567 (7705/DP209359)
PREVIOUS TITLE: 1259-989
PROPERTY STREET ADDRESS: 71 MATHESON RD, ASCOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF BELMONT

NOTE 1: K364458 DEPOSITED PLAN (INTEREST ONLY) 58026 LODGED

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BGRoberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 3 ON DIAGRAM 55346

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE CHAIRMAN OF THE COMMITTEE OF THE WESTERN AUSTRALIAN TURF CLUB OF 70 GRANDSTAND
ROAD ASCOT WA 6104

(AN N508676) REGISTERED 13/12/2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
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SKETCH OF LAND: 1742-278 (3/D55346)
PREVIOUS TITLE: 1742-275
PROPERTY STREET ADDRESS: 96 GRANDSTAND RD, ASCOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF BELMONT

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TITLE NUMBER

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1742

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RECORD OF CERTIFICATE OF TITLE
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BG Roberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 1 ON DIAGRAM 55346

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

STATE PLANNING COMMISSION OF 22 ST. GEORGE'S TERRACE, PERTH

(T D398174) REGISTERED 15/1/1987

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. D367664 CAVEAT BY DIAMOND SYNDICATE PTY LTD LODGED 24/11/1986.

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STATEMENTS:

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SKETCH OF LAND:	1742-276 (1/D55346)
PREVIOUS TITLE:	1742-275
PROPERTY STREET ADDRESS:	88 GRANDSTAND RD, ASCOT.
LOCAL GOVERNMENT AUTHORITY:	CITY OF BELMONT
RESPONSIBLE AGENCY:	WESTERN AUSTRALIAN PLANNING COMMISSION



Appendix 2

Local Water Management Strategy



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Appendix 3

Environmental Assessment Report



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Appendix 4

Engineering Servicing Report



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Appendix 5

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Appendix 6

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Appendix 7

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Appendix 8

Landscape Master Plan



Local Water Management Strategy

Ascot Racecourse Local Structure Plan

Project No: EP23-109(03)

**Prepared for Perth Racing
July 2024**

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Document Control

Doc name: Local Water Management Strategy Ascot Racecourse Local Structure Plan					
Doc no.: EP23-109(03)--001B JM					
Version	Date	Author		Reviewer	
1	May 2024	Joyti Mabruk	JM	David Coremans	DPC
	For project team review				
A	May 2024	Joyti Mabruk	JM	David Coremans	DPC
	For submission to Agencies				
B	July 2024	Joyti Mabruk	JM	David Coremans	DPC
	For submission to Agencies				

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Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Executive Summary

Perth Racing (the ‘proponent’) proposes to progress a local structure plan (LSP) over its landholdings in Ascot. The area is bounded by the Swan River to the North, Grandstand Road to the west and south, Matheson Road and Resolution Drive to the south and residential areas to the east, referred to herein as ‘the site’. The structure plan area also includes the existing Ascot Racecourse. The site is located approximately 8.5 km east of Perth central business district (CBD) and is approximately 62 ha in size, within City of Belmont (CoB). The LSP consists of six precincts: Precinct A, Precinct B (largely unchanged from existing), Precinct C, Precinct D, Precinct E, and the racecourse. The layout of LSP and precinct plan is shown on **Figure 1** and provided in **Appendix A**. The site is currently zoned “Urban”, “Parks and Recreation”, and “Private Recreation” under the Metropolitan Regional Scheme (MRS) (WAPC 2023b). Under the Local Planning Scheme (LPS) No. 15 (WAPC 2023a), the site is zoned as “RC – Place of Public Assembly: Racecourse”, Mixed Use”, “Parks and Recreation” and “Parks and Recreation: Water Supply Sewerage and Drainage”.

This Local Water Management Strategy (LWMS) outlines the water management approach as required for the site by *Better Urban Water Management* (WAPC 2008b) and supports the Ascot Racecourse Structure Plan. It is intended to satisfy the expectations of the Department of Water and Environmental Regulation (DWER) and City of Belmont (CoB). The LWMS also aids in achieving the goals and objectives outlined in the *Kep Katitjin – Gabi Kaadadjan – Waterwise Perth Action Plan 2* (DWER 2023d).

The first step in applying integrated water cycle management in urban catchments is to establish agreed environmental values for receiving environments. In summary, the environmental investigations conducted to date indicate that:

- The site is being used for horse racing, mixed uses (i.e. car park, stables and entertainment/hospitality venues, and commercial). Some portions of the site are only used infrequently (e.g. for parking or events).
- The site is located in an area of moderate to high rainfall, receiving 756.3 mm on average annually with the majority of rainfall received between June and August.
- The majority of the site has a relatively flat topography of 1 mAHD at the northwest (along the Swan River) and 2 mAHD to the south and rising to 7 mAHD to the east of the site.
- The site is within the Swan River Terraces system and displays Guildford formation soils of alluvial and leached yellow sand described as:
 - **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, fine sand, hard when dry, variable clay content of alluvial origin
 - **Ms4** – Sandy Silt: light yellow brown, blocky, mottled some fine to medium sand, soft when moist, variable clay content
 - **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin
- The groundwater depth below the surface of Precinct A varies from 1.09 m mBGL to 2.37 mBGL (Douglas Partners 2024).
- The highest groundwater level beneath the site is reported 3.03 mBGL during February 2024 (Galt 2024), located beneath Precinct D.

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



- Most of the site is considered to have a high to moderate risk of ASS occurring, however some portions of Precinct B, Precinct C and the Racecourse are considered to have a moderate to low risk of ASS occurring within the 3 m of the natural surface.
- The northern portion of the site along the Swan River is identified as an ESA.
- The entirety of the site is classified as a SSA and classified as:
 - a) Estuary catchments on the Swan and Scott Coastal Plains.
 - f) The area is <1 km up-groundwater-gradient and 250 m down-gradient of a significant wetland; or where the groundwater gradient is unknown within 1 km of the significant wetland.
- The following wetlands are located within the site and these are classified as:
 - Multiple Use category wetland (MUW) area (UFI 8424, UFI 8425, UFI 8426).
 - Resource Enhancement wetland (REW) area (UFI 8423).
- The dominant hydrological feature of the site is the Swan River estuary. The northern boundary of the site falls within the Swan Canning Development Control Area (DCA) (CoB 2018) and Swan Canning River Park.
- The floodway of the Swan River is immediately adjacent to but not within the site. The 1% AEP flood elevation of the Swan River adjacent to the site is 2.8 mAHd.
- There are two existing major drainage network systems within or adjacent to the site include:
 - The Central Belmont Main Drain (CBMD), managed by the Water Corporation. This currently receives runoff from Precinct C (via the CoB drainage network) and Precinct E.
 - The CoB local piped drainage network, which exists along Matheson Road, Grandstand Road and the northern portion of Resolution Drive.
- There are three lakes (Irrigation Lake, Lined Lake and Wetland Lake) located within the centre of the racecourse. These are understood to receive runoff from the Grandstand buildings in Precinct B and stables/buildings in Precinct C.
- The groundwater beneath the site is a multi-layered system consisting of the Superficial, Kings Park Formation, Leederville and Yarragadee aquifers.
- Regional groundwater mapping indicates that the groundwater levels across the site are at approximately 0.5 m AHD.
- Local groundwater level monitoring indicates that annual maximum groundwater levels (recorded in August 2022) were measured at 1.26 m AHD and 1.70 m AHD at Bore 1 and Bore 2 respectively. Groundwater levels in adjacent areas included Precinct A levels at 1.09 mBGL to 2.37 mBGL and Precinct D levels of approximately 3.03 mBGL.
- Water quality monitoring indicates that EC, TDS and pH values do not exceed guideline trigger values. However, TN and TP concentrations continually exceed the ANZECC guideline trigger value of 1.2 mg/L and 0.065 mg/L respectively.

The design criteria and the manner in which they are proposed to be achieved are presented in **Table E1**.

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Table E1: Water management criteria and compliance summary

Management Aspect	Criteria Number	Criteria Description	Manner in which compliance will be achieved	Responsibility for implementation	Timing of implementation
Water Conservation	WC1	For residential dwellings consumption target of 60 kL/person/year scheme water.	Provide advice to Precinct A and Precinct D residents on water conservation measures	Proponent	Point of sale
			RWTs can be utilised for non-potable uses	Lot owner	Post-house construction
			Promotion and use of WWG in lots within Precinct D and other open spaces across all precincts	Proponent/Lot owner	Point of sale/Post-house construction
			Promotion and use of water efficient appliances within Precinct A and Precinct D	Proponent/Lot owner	Point of sale/Post-house construction
			Mandate water efficient fittings within Precinct A and Precinct D	CoB	Building approval
	WC2	Ensure the efficient use of all water resources.	Use of waterwise landscaping principles in all open spaces and verges	Proponent	Landscape design
			Open spaces designed to use no more than allocated groundwater		
			Minimise water requirements for open spaces and verge maintenance		
			Use of water efficient appliances within Precinct A and Precinct D	Lot owner	Post-house construction
			Use of WWG principles within Precinct A and Precinct D		
	WC3	Non-potable irrigation water to be sourced from existing groundwater licences held over the area.	The proponent holds a groundwater Licence with an allocation of 347,000 kL per annum which will meet the irrigation requirements of the racecourse.	Proponent	Landscape design

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Table E1: Water management criteria and compliance summary (Continued)

Management Aspect	Criteria Number	Criteria Description	Manner in which compliance will be achieved	Responsibility for implementation	Timing of implementation
Stormwater Management	SW1	Retain and treat the first 15 mm of rainfall as close to source as possible	Lots within Precinct D and Precinct E to retain the first 15 mm of rainfall on lot in soakwells/soakage. Lot storage will be the responsibility of the lot owners.	Lot owner/developer	Construction
	SW2	Retain up to 1% AEP rainfall event on-site.	Runoff up to the 1% AEP to be detained within the FSA in Precinct A. Precinct A and a portion of Precinct C will ultimately discharge to the centre of the track.	Proponent	Construction
			Runoff up to 1% AEP to be managed with the sub-surface storage in Precinct D.	Proponent	Construction
	SW3	Post-development critical 1% AEP peak flows leaving the site to mimic pre-development peak flows.	Runoff up to 1% AEP event to be detained in the detention basin and subsurface storage which will maintain the pre-development peak flow of 0.95 m ³ /s from Precinct E and 0.463 m ³ /s from Precinct D respectively.	Proponent	Construction
	SW4	Finished floor levels must have a minimum of 300 mm clearance above the 1% AEP TWL in the FSA.	It is anticipated that the FSA and detention basin invert will be set so that the Finished floor levels must have a minimum of 300 mm clearance above the 1% AEP TWL in the basins.	Proponent	Detailed drainage design
	SW5	All lots must have a minimum of 500 mm clearance above the 1% AEP flood level in the Swan River.	The 1% AEP flood level in the Swan River is 2.8 mAHD. The preliminary bulk earthworks concept provided in shows that finished floor level will be at 4.0 mAHD.	Proponent	Detailed drainage design
	SW6	Nutrient concentrations within surface water discharging from the site to the Swan River are to meet regional water quality targets.	BRA will be designed so that after treatment the nutrient concentrations within surface water meet the regional water quality target.	Proponent	Detailed drainage design
	SW7	Reduce nutrient loads by applying appropriate non-structural measures	<ul style="list-style-type: none"> Minimise use of fertilisers within POS and road verges. Street sweeping at regular intervals. Use of drought tolerant turf species. Education of residents regarding fertiliser use 	Landscape/Maintenance Contactor/Proponent	Landscape Implementation/ Point of Sale
	SW8	Design infiltration areas to avoid creating mosquito habitat	Stormwater infrastructure will be designed to ensure all runoff is infiltrated within 96 hours.	Proponent	Detailed drainage design

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Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Table E1: Water management criteria and compliance summary (Continued)

Management Aspect	Criteria Number	Criteria Description	Manner in which compliance will be achieved	Responsibility for implementation	Timing of implementation
Groundwater Management	GW1	Surface based infiltration should have 300 mm clearance above MGL.	Basin inverts will be set at 300 mm above the MGL, and subsoil drainage will be provided in the POS.	Proponent	Detailed drainage design
	GW2	Finished floor levels should have a clearance to the MGL of at least 1.2 m.	Lots will be set at least 1.2 m above the MGL.	Proponent	Detailed drainage design

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Figure 7B: Precinct C Stormwater Management Plan

Figure 7C: Precinct D Stormwater Management Plan

Figure 7D: Precinct E Stormwater Management Plan

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Appendices

Appendix A

Concept plan

Appendix B

Geotechnical Reports

Appendix C

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Appendix D

Modelling Assumption Report

Appendix E

Central Belmont Main Drain Water Corporation

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Local Water Management Strategy

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Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
ANZECC	Australian and New Zealand Environment and Conservation Council
BoM	Bureau of Meteorology
DBCA	Department of Biodiversity, Conservation and Attractions
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
CoB	City of Belmont
WC	Water Corporation of Western Australia (Water Corp)

Table A2: Abbreviations – General terms

General terms	
AEP	Annual exceedance probability
ASS	Acid sulfate soils
CCW	Conservation category wetland
CEMP	Construction Environmental Management Plan
DCA	Development Control Area
DMP	Drainage management plan
EC	Electrical conductivity
FMP	Foreshore management plan
LWMS	Local Water Management Strategy
MGL	Maximum groundwater level
MRS	Metropolitan Region Scheme
NWQMS	National Water Quality Management Strategy
POS	Public open space
SCWQIP	Swan and Canning Water Quality Improvement Plan
SRA	Swan River Alluvium
TDS	Total dissolved solids
TEC	Threatened ecological community
TKN	Total Kjeldahl nitrogen
TN	Total nitrogen
TP	Total phosphorus
TSS	Total suspended solids

Local Water Management Strategy

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General terms	
TWL	Top water level
UFI	Unique feature identifier
UWMP	Urban Water Management Plan
WSUD	Water sensitive urban design
WWG	Water wise gardening

Table A3: Abbreviations – units of measurement

Units of measurement	
cm	centimetre
ha	hectare
m	metre
m ²	square metre
m ³	cubic metre
m ³ / s	cubic metres per second
mAHD	metres in relation to the Australian height datum
mBGL	metres below ground level
mm	millimetre
mS / cm	millisiemens per centimetre
µg/L	micrograms per litre
mg / L	milligrams per litre

Table A4: Terminology – design rainfall

Rainfall event	Annual exceedance probability (AEP)	Approximate equivalent average recurrence interval (ARI)
Small	1 exceedance year (EY) event (frequent)	1 in 1 year ARI event
Minor (residential purposes)	20% AEP event	1 in 5 year ARI event
Minor (commercial purposes)	10% AEP event	1 in 10 year ARI event
Major	1% AEP event	1 in 100 year ARI event

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



1 Introduction

1.1 Background

Perth Racing (the 'proponent') proposes to progress a local structure plan (LSP) over its landholdings in Ascot. The area is bounded by the Swan River to the North, Grandstand Road to the west and south, Matheson Road and Resolution Drive to the south and residential areas to the east, referred to herein as 'the site'. The structure plan area also includes the existing Ascot Racecourse and Perth Racing Administration lot/building on Grandstand Road. The site is located approximately 8.5 km east of Perth central business district (CBD) and is approximately 62 ha in size, within City of Belmont (CoB). The LSP consists of six precincts: Precinct A, Precinct B, Precinct C, Precinct D, Precinct E, and the racecourse. The layout of LSP and precinct plan is shown on **Figure 1** and provided in **Appendix A**.

1.2 Town planning context

The site is currently zoned "Urban", "Parks and Recreation", and "Private Recreation" under the Metropolitan Regional Scheme (MRS) (WAPC 2023b). Under the Local Planning Scheme (LPS) No. 15 (WAPC 2023a), the site is zoned as "RC – Place of Public Assembly: Racecourse", "Mixed Use", "Parks and Recreation" and "Parks and Recreation: Water Supply Sewerage and Drainage".

1.3 Purpose of this report

This Local Water Management Strategy (LWMS) outlines the water management approach as required for the site by *Better Urban Water Management* (WAPC 2008b) and supports the Ascot Racecourse Structure Plan. It is intended to satisfy the expectations of the Department of Water and Environmental Regulation (DWER) and CoB. The LWMS also aids in achieving the goals and objectives outlined in the *Kep Katitjin – Gabi Kaadadjan – Waterwise Perth Action Plan 2* (DWER 2023d).

1.4 Policy Framework

There are a number of State Government legislation and policies of relevance to the site. These policies include:

- *Kep Katitjin – Gabi Kaadadjan – Waterwise Perth Action Plan 2* (DWER 2023d)
- *Swan and Canning Rivers Management Act 2006* (Government of WA 2006)
- *Policy 49 – Planning for stormwater management affecting the Swan Canning Development Control Area* (DPaW 2016)
- *Local Planning Scheme No. 15 (City of Belmont)* (WAPC 2023a)
- *State Water Plan* (Government of WA 2007)
- *Draft State Planning Policy 2.9: Planning for Water Guidelines* (DPLH 2021)
- *State Planning Policy 2.10 Swan Canning River System* (WAPC 2006b)
- *Guidance Statement No. 33: Environmental Guidance for Planning and Development* (EPA 2008)
- *Liveable Neighbourhoods* (WAPC 2009a)
- *Planning Bulletin No. 64: Acid Sulfate Soils* (WAPC 2009b)

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In addition to the above policies, there are a number of published guidelines and standards available that provide direction regarding the water management characteristics that urban developments should aim to achieve. These are key inputs that relate either directly or indirectly to the site and include:

- *Better Urban Water Management* (WAPC 2008b)
- *Urban Water Management Plans: Guidelines for Preparing Plans and for Complying with Subdivision Conditions* (DoW 2008)
- *National Water Quality Management Strategy (NWQMS)* (ANZECC 2000)
- *Australian Runoff Quality* (Wong et al. 2006)
- *National Water Quality Management Strategy* (ANZECC 2000)
- *Stormwater Management Manual for Western Australia* (DoW 2007)
- *Decision Process for Stormwater Management in Western Australia* (DWER 2017)
- *Australian Rainfall and Runoff* (Ball J et al. 2019)
- *Swan and Canning Water Quality Improvement Plan* (SCWQIP) (SWT 2009)
- *Swan and Canning Rivers Foreshore Assessment and Management Strategy* (SRT 2008)
- *Golden Gateway Structure Plan* (CoB 2019).

1.5 Previous Studies

1.5.1 Golden Gateway Local Water Management Strategy

The draft Golden Gateway LWMS (Essential Environmental 2018b) was prepared to support the Golden Gateway Structure Plan (CoB 2019) by Essential Environmental. The LWMS was prepared in consideration of *Better Urban Water Management* (WAPC 2008b) and *State Planning Policy 2.9: Water Resources* (WAPC 2006a). The key objectives and design criteria of the draft LWMS (Essential Environmental 2018b) included:

Water Conservation:

- Ensure the efficient use of all water resources in the redeveloped urban form and aim to achieve highest value use of fit-for-purpose water.
- Maintain opportunities for future generations by using water more efficiently.

Stormwater management:

- The first 15 mm of rainfall is to be retained within all lots through a combination of raingardens, water tanks and soakwell systems.
- Raingardens and tree-pits are to be installed in all new or upgraded streets to provide infiltration of the first 15 mm of rainfall.
- Minor event runoff from events larger than 15mm total depth are to be managed in accordance with serviceability requirements of the City of Belmont.
- Roads and public open spaces are to be designed to cater for the surface overflow for more severe storm events with habitable floors at least 0.3 m above the 1% AEP flood or storage level at any location.
- Habitable floors are to be constructed at least 0.5m above the 1% AEP flood level in the Swan River adjacent to the development area.

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- Water quality treatment systems and stormwater management structures should be designed in accordance with the *Stormwater Management Manual for Western Australia* (DoW 2007) and *Australian Runoff Quality: A guide to water sensitive urban design* (Wong et al. 2006).

Groundwater management:

- Groundwater management systems are to be designed as free discharging under normal operating conditions.
- Flows from groundwater management systems are to be treated prior to discharge.

1.6 LWMS objectives

Whilst the criteria proposed in the Golden Gateway LWMS are relevant to some parts of the Ascot Racecourse structure plan area, it is not representative of all areas and site characteristics and therefore only partially applicable. This LWMS supports the Ascot Racecourse Structure Plan, which proposes an alternate layout (to the Golden Gateway Structure Plan) to some of the land uses surrounding the Ascot Racecourse. The design criteria and objectives proposed in this LWMS are generally based on those proposed in the Golden Gateway LWMS, though with additional consideration for site and Precinct- specific characteristics. This LWMS adopts the following major objectives:

- Protect water quality in the Swan River by providing appropriate water quality treatment at source.
- Mitigate potential flooding within the Structure Plan area and immediate surrounds.
- Take account of existing drainage infrastructure capacity and ensure that sufficient land is set aside to manage stormwater.
- Provide a broad level stormwater management framework to support future urban development.
- Incorporate appropriate best management practices (BMPs) into the drainage systems that address the environmental and stormwater management issues identified.
- Minimise development construction costs, which will result in reduced land costs for future home owners.
- Minimise transport of nutrients/pollutants to groundwater.
- Develop a non-potable water conservation strategy that will accommodate existing groundwater allocation constraints for the area.
- Gain support from DWER, DBCA, CoB and Water Corporation for the proposed method to manage stormwater within the site.

Detailed objectives for water management within the site are further discussed in **Section 4**.

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2 Proposed Development

A total of approximately 62.0 ha is proposed to be developed as shown on **Figure 1**. The Ascot Racecourse Structure Plan proposes six precincts with different objectives and character, and these include:

- **Precinct A** – Approximately 3.0 ha for retirement living/village and mixed use purposes
- **Precinct B** – Approximately 9.3 ha for the use of public assembly (i.e. entertainment/office purposes)
- **Precinct C** – Approximately 8.0 ha for the use of public assembly (i.e. racecourse/stabling purposes)
- **Precinct D** – Approximately 1.5 ha for residential/childcare purposes
- **Precinct E** – Approximately 4.2 ha for mixed use (i.e. commercial/retail purposes)
- **The Racecourse** – Approximately 36.0 ha of retained 'Place of Public Assembly: Racecourse' uses.

The proposed land uses surrounding Ascot Racecourse will be integrated into the Racecourse Precinct. Management of surface and groundwater will take a water sensitive urban design (WSUD) approach that will integrate the management of water within the Precincts with the Racecourse and immediately surrounding infrastructure.

The WSUD measures that will be adopted within the Structure Plan area will include:

- Bio-retention areas (BRAs) to meet water quality treatment requirements
- Subsurface infiltration cells that will facilitate at-source infiltration
- Flood storage integrated into existing surface water bodies located centrally within the Racecourse
- Flood storage areas (FSAs) to provide flood detention, retention and infiltration as close to source as possible.

The WSUD approaches are further discussed in **Section 6**. The detailed concept plan and preliminary civil drawings are provided in **Appendix A** and **Appendix C**.

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3 Pre-development Environment

3.1 Sources of information

The following sources of information were used to provide a broad regional environmental context for the site:

- *Geological Survey of Western Australia* (Gozzard 2007)
- *Map Viewer Plus* (Landgate 2023)
- *Water Register* (DWER 2024c)
- *Perth Groundwater Map* (DWER 2024a)
- *Weather and Climate Statistics Data* (BoM 2024)
- *Acid Sulfate Soil Mapping* (DWER 2023a)
- *Water Information Reporting* (DWER 2024b).

In addition to the above information, site-specific investigations have been conducted. These have aimed at providing more detail to the existing regional information. These site-specific investigations and information have been available from the following sources:

- *Draft Golden Gateway Structure Plan* (CoB 2019)
- *Draft Golden Gateway LWMS* (Essential Environmental 2018b)
- *Draft Golden Gateway Environmental Report* (Essential Environmental 2018a)
- *Draft Infrastructure Assessment Report : Golden Gateway Precinct* (Cardno 2017)
- *Swan and Canning Water Quality Improvement Plan* (SCWQIP) (SWT 2009)
- *Swan and Canning Rivers Foreshore Assessment and Management Strategy* (SRT 2008).

3.2 Land use context

The site has been used as the Ascot Racecourse since 1892 (Landgate 2023). The northeast portion of the site is being used for horse racing and training purposes and the surrounding area is being used for stabling, training and entertainment venues which support the above purposes. Some portions of the site are predominantly cleared (e.g. Precinct A, Precinct E) and are occasionally used for parking or other temporary uses. The Precinct D area is used for commercial purposes, being the current Perth Racing administration building.

3.3 Climate

The site experiences a dry Mediterranean climate of hot dry summers and cool wet winters and is located in an area of moderate to high rainfall, receiving 756.3 mm on average annually with the majority of rainfall received between June and August (BoM 2024). The region experiences rainfall for 84.8 days annually (on average).

3.4 Topography

The site is mostly flat with a slight downward slope from east to north and northwest, with a few low points. The variance in topography of the Precincts is described further as:

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- The Racecourse slopes from Precinct C towards the Swan River with topography approximately 7 m Australian Height Datum (mAHD) to 1m AHD and from 7 mAHD (east) to 3 mAHD (west). There are a few local depressions (i.e., lakes and swale) observed within the centre of the racecourse.
- Precinct A has a generally flat topography of 2 mAHD with a high point of 3 mAHD to the west adjacent to Grandstand Road.
- Precinct B slopes from south to north (4 mAHD to 2 mAHD) and from west to east (3 mAHD to 2 mAHD). Precinct D and E are generally flat with a topography of 3 mAHD and 2 mAHD respectively.
- Parts of Precinct C (existing stables and buildings) drain towards the Racecourse, however most of Precinct C is currently carpark that drains towards Precinct E and the Southern Main Drain.
- Precinct D is generally flat with a topographic level 3 mAHD.
- Precinct E has a gentle slope from east to west. The topography of the precinct ranges from 4 mAHD to the east to 2 mAHD to the west.

The topographic contours of the site are shown on **Figure 2**.

3.5 Geotechnical conditions

3.5.1 Geology and soils

The Perth Metropolitan Region 1:50,000 Environmental Geology Series (Gozzard 1986) and *Sea to scarp - geology, landscape, and land use planning in the southern Swan Coastal Plain* (Gozzard 2011) describes that the site lies in the Swan River Terraces system, being underlain by the Guildford formation of alluvial and leached yellow sand. The regional geological mapping indicates that the site soils include:

- **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, fine sand, hard when dry, variable clay content of alluvial origin
- **Ms4** – Sandy Silt: light yellow brown, blocky, mottled some fine to medium sand, soft when moist, variable clay content
- **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin

The regional geological mapping is shown on **Figure 3**.

3.5.2 Precinct A geotechnical investigation

A detailed geological investigation has been carried out in January 2024 (Douglas Partners 2024) for Precinct A (see **Appendix B**). This investigation generally confirms the regional geological mapping, and the ground conditions of Precinct A are described as:

- Uncontrolled Fill
 - Granular FILL - SAND, Organic SAND, Gravelly SAND, Silty SAND and Sandy GRAVEL
 - Cohesive FILL - Clayey SAND, Sandy CLAY, CLAY
- Overlying natural soils includes
 - Clayey soils including Clayey SAND and CLAY
 - Sandy soils including SAND and Silty SAND

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Douglas Partners (2024) concluded that if unmodified, Precinct A is considered unsuitable for on-site stormwater disposal due to the low permeability soils and shallow groundwater depth. To meet geotechnical requirements, stormwater should be managed by connecting to a suitable outflow (Douglas Partners 2024).

3.5.3 Precinct D geotechnical investigation

Galt has undertaken a geotechnical study in March 2024 (Galt 2024) for Precinct D (provided in **Appendix B**) and has described the Precinct D ground conditions as:

- **Surficial Topsoil** (in landscaped areas) up to 0.3 m thick and **Hardstand Fill Layers** (in carparks and access ways); overlying
- **FILL: SAND / SAND (SP)**, fine to medium grained, sub-rounded to sub-angular, yellow / brown / grey layers, includes trace gravel / Sandy GRAVEL layers, trace / with fines, some typically medium dense to dense, extending to depths of about 0.4 m to 0.9 m; overlying
- **In BH03 and BH04 only: Silty SAND / Clayey SAND (SM/SC)** fine to medium grained, sub-rounded to sub-angular, brown / grey, low to medium plasticity fines, some typically medium dense to dense, extending to depths of about 0.7 m to 1.2 m; overlying
- **Sandy CLAY / CLAY (CI)**, medium plasticity, brown / orange / grey, trace sand to sandy, trace gravel in some zones, desiccated, CPT traces indicate presence of occasional sand layers, typically very stiff to hard, extending to the maximum depth investigated of 10 m.

Whilst detailed geotechnical investigations have not been undertaken in each Precinct, it is expected that the soils encountered will be generally consistent with regional geological mapping and the investigations undertaken for Precincts A and D and will consist of generally shallow layers of sand overlying sandy clay of the Guildford formation. Such soils are unlikely to be suitable for onsite infiltration of all stormwater and onsite detention unless modified and stormwater management will need to be supplied with an outlet so that flood storage areas have a way to drain between storm events.

3.5.4 Acid sulfate soils

The acid sulfate soil (ASS) risk mapping (DWER 2023b) indicates that most of the site is considered to have a high to moderate risk of ASS occurring within the 3 m of the natural surface. Some portions of Precinct B, Precinct C and the Racecourse are mapped to have a moderate to low risk of ASS occurring within the 3 m of the natural surface.

The ASS risk mapping is shown on **Figure 4**.

3.6 Environmental assets

3.6.1 Environmentally sensitive area

The northern portion of the site (along the Swan River) is identified as an environmentally sensitive area (ESA). ESAs are shown on **Figure 5**.

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3.6.2 Sewerage sensitive area

The entirety of the site is classified as a sewage sensitive area (SSA) by the *Government Sewerage Policy* (DPLH 2019). The two classifications of relevance to the site define a SSA as:

- a) Estuary catchments on the Swan and Scott Coastal Plains.
- f) The area is <1 km up-groundwater-gradient and 250 m down-gradient of a significant wetland; or where the groundwater gradient is unknown within 1 km of the significant wetland.

3.6.3 Geomorphic wetlands

The *Geomorphic Wetlands of the Swan Coastal Plain* dataset indicates the following wetlands within the site:

- Multiple Use Category Wetland (MUW) area (UFI 8424, UFI 8425, UFI 8426).
- Resource Enhancement Wetland (REW) area (UFI 8423)

The Swan River, situated immediately adjacent to the northern boundary of the site, is recognised as a “Conservation Category Wetland” (CCW) (UFI 1316 - Estuary waterbody) within the *Geomorphic Wetlands of the Swan Coastal Plain* dataset and has additional significant ecological, cultural and heritage values (DEC 2011).

The location of the geomorphic wetlands is shown on **Figure 5**.

3.7 Hydrology

3.7.1 Surface water

3.7.1.1 Water Resources

The dominant hydrological feature of the site is the Swan River estuary. The estuary is subject to marked seasonality, which controls the salinity of the site, and particularly the foreshore area. This seasonality is a result of the short winter rainfall patterns, a small tidal range and the landform of the estuary (Hodgkin and John 1986).

The northern boundary of the site falls within the Swan Canning Development Control Area (DCA) (CoB 2018) and Swan Canning River Park (shown on **Figure 6**). Any proposed development on land adjacent river within the DCA and/or partly within DCA are subject to assessed and approved by the Department of Biodiversity, Conservation and Attraction (DBCA) under Part 5 of the *Swan and Canning Rivers Management Act 2006* and the *Swan and Canning River Management Regulations 2007* (CoB 2018).

Water management strategies will be needed to ensure protection (i.e. water quality improvement) of the Swan River. The catchments of the Swan Canning River system are the subject of the Swan Canning Water Quality Improvement Plan (SRT 2009) which contains catchment management measures and control actions.

The major event flood levels in the Swan River have been documented in recent studies undertaken on behalf of DWER (DWER 2023c). These flood levels, along with the extent of floodway/floodplain

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are shown in the DWER online floodplain mapping tool. This tool indicates that the anticipated 1% AEP flood level adjacent to the site is 2.8 mAHD – noting that this level includes consideration for future climate change. The extent of floodway/floodplain from the Swan River adjacent to the site is shown on **Figure 6**.

3.7.1.2 Lakes

There are three lakes within the racecourse including:

- **Irrigation lake** – located adjacent to the Production Bore 1 (PB01) and has a volume of 6,000 m³ to 7,000 m³. Water is pumped out from PB01 into the lake, and irrigation water is drawn from the Irrigation Lake. During winter the Irrigation Lake overflows into the adjacent Lined Lake. The current irrigation demand for the Racecourse is approximately 3,000 m³/day, there is no shortage of irrigation water supply as the lake has sufficient storage capacity. The top water level (TWL) of the Irrigation Lake is approximately 3.1 mAHD.
- **Lined Lake** – this Lake is sealed with a natural clay liner and fed via a 225 mm overflow pipe from the Irrigation Lake. The Lined Lake overflows into the Wetland Lake. The elevation of the Lined Lake is approximately 2.1 mAHD.
- **Wetland lake** – is the largest of the three lakes and has approximately 2.6 ha of surface area. The Wetland Lake has a TWL of approximately 0.4 mAHD. Two overflow pipes at the northern end of the Wetland Lake allow excess water within the Lake to flow to the Swan River.

Peak water levels within the Lined Lake and Wetland Lake were predicted for a 10% AEP storm event (Evangelisti & Associates 1997). The peak water level for was 2.68 mAHD in the Lined Lake which then discharged to the Wetland Lake. The Wetland Lake discharged to the Swan River after reaching the peak water level of 0.53 mAHD. The lakes are connected by 450 mm RCP pipes. The outfall into the Swan River is directed via two pipes (450 mm RCP and 375 mm RCP). The pipes are fitted with headwall and tidal control gate to mitigate inundation from the Swan River (Evangelisti & Associates 1997).

The location of the lakes and overflow pipes are shown on **Figure 6**.

3.7.1.3 Drainage network systems

The Central Belmont Main Drain (CBMD) is managed by the Water Corporation and is the regional drainage system and has a catchment area of 189 ha and which discharges into the Swan River. Catchment plans for the CBMD indicate that inflow from the site occurs in the southwestern corner of Precinct E, where an open drain connects to the CBMD at node CAN008 as shown in **Appendix E** and **Figure 6**.

The CoB has a local drainage piped network located beneath Hardey Road adjacent to Precinct C and which discharges to the CBMD within Precinct E. A larger local CoB network extends along Matheson Road to the East. This is currently connected to the 900 mm pipe that discharges northwards to the lined lake within the centre of the racecourse.

CoB local drainage pipes also exist beneath Grandstand Road adjacent to Precinct A however there is no current connection between Precinct A and the local drainage network. The same network also extends past/adjacent to Precinct D along the northern end of Resolution Drive, however there is no

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current connection from Precinct D to the local pipe network. The pipe network along Resolution Drive includes a 450 mm and 525 mm pipe which are understood to discharge into the CBMD. Whilst the CoB catchment has not been modelled to determine peak flows under differing storm durations, an estimate can be made based on the capacity of the pipes which discharge to the CBMD. The combined capacity of the two existing pipes is estimated to be 0.62 m³/s, and therefore the allowable discharge from Precinct C and Precinct E is estimated to be 0.33 m³/s.

Within the Racecourse an existing swale is being used around the racecourse to convey water from the track into the central Wetland Lake.

The location of the swales within the Racetrack Precinct and outlet to Swan River from the Wetland Lake is shown on **Figure 6**.

3.7.2 Groundwater

3.7.2.1 Groundwater Resource

The groundwater beneath the site is a multi-layered system comprised of the following:

City of Bayswater – Perth Superficial Swan unconfined aquifer. The Superficial Aquifer is approximately 20 m thick under the Ascot Racecourse, with the base of the aquifer under the racecourse at approximately - 20 mAHD (Davidson, 1995). The aquifer is recharged directly by rainfall and from the Swan River.

King Park Aquifer. The Kings Park Aquifer is 155 m thick starting from - 20 mAHD and is recharged laterally from the adjacent northern Mirrabooka Aquifer and Superficial Aquifer. The Kings Park Aquifer comprises 2 members: the Mullaloo Sandstone and Como Sandstone. Only the Mullaloo Sandstone member is present at the Ascot site (Davidson, 1995). The Mullaloo Sandstone member is underlain by the Kardinya Shale confining bed of the Osborne Formation.

The groundwater salinity in the aquifer in 1995 was mapped as 500 mg/L to 1,000 mg/L TDS (Davidson, 1995). However, data in recent years indicates the aquifer salinity levels are increasing due to saltwater intrusion.

Perth South – Perth Leederville confined aquifer is below -160 mAHD and is approximately 370 m thick. In the Ascot area the Leederville Aquifer is confined but further to the south and north of Perth it is hydraulically connected to the Superficial Aquifer. The Leederville Aquifer comprises of four formations under the Ascot Racecourse, namely Henley Sandstone, Pinjar Member, Wanneroo Member and the Mariginiup Member.

Groundwater flow is generally westwards through the Leederville Aquifer. Lateral discharge can occur to the Kings Park Aquifer but depends on levels of abstraction in the Leederville Aquifer adjacent to the discharge area.

Generally, groundwater salinity in the Leederville Aquifer can be divided into an upper and a lower zone. The upper zone is generally fresh with salinity ranging from 250 to 1,000 mg/L. Salinity in the lower zone (below -400 mAHD) ranges from 1,000 mg/L to greater than 3,000 mg/L.

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Groundwater is abstracted from an artesian production bore (PB1) assigned to the Leederville Aquifer to meet the irrigation demand of the Racecourse and surrounds. The bore is located adjacent the Irrigation Lake at the south corner of the Ascot Racecourse track. The bore is screen in the upper Leederville Formation which extends between -160 mAHD and -400 mAHD.

The allocation status of aquifers is further discussed in **Section 5.1.2**.

3.7.2.2 Groundwater levels

Perth Groundwater Map indicates (DWER 2023e) that the regional groundwater level sits at 0.5 m AHD across the site. Therefore, the groundwater clearance from southeast to northwest of the site ranges from 6.5 m to 0.5 m.

There are two groundwater level and quality monitoring bores (Bore1 and Bore2) and one production bore (PB1) within the Racecourse (see **Figure 2**) which are monitored by Perth Racing. Groundwater levels in these are monitored monthly.

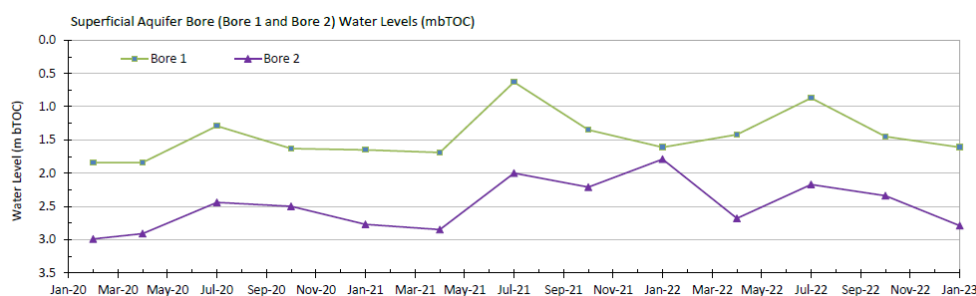


Plate 1: Groundwater levels within the Superficial Aquifer at Bore1 and Bore2 (JDA 2023)

Plate 1 depicts the groundwater levels observed within the Racecourse which clearly indicates the rise and fall of groundwater levels seasonally. The peak groundwater level at Bore 1 and Bore 2 were recorded 1.26 m AHD and 1.70 m AHD respectively, during August 2022.

Monitoring has recently been undertaken within Precinct A. Six monitoring wells were installed for the Precinct A geotechnical investigation. The groundwater depth below the surface of the Precinct A (during January 2024) varied from 1.09 m below ground level (mBGL) to 2.37 mBGL (Douglas Partners 2024).

Monitoring has also recently been undertaken within Precinct D by Galt Geotechnics during the geotechnical investigation. The highest groundwater level beneath Precinct D is reported as 3.03 mBGL during February 2024 (Galt 2024). The various monitoring data/sources have been collated to prepare estimated maximum groundwater contours beneath the site. These have also considered the surface elevation of swales adjacent to the racetrack and the reported TWL of the Wetland Lake. The regional groundwater levels are shown in **Figure 2**, with spot heights recorded at the various locations also provided. It is noted that these do not necessarily represent the annual maximum groundwater levels at all parts of the site given the various timing of measurement of groundwater. Notwithstanding the variability of timing, it is likely that the management of stormwater (and in

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particular infiltration) will more likely be influenced by localised soil conditions than seasonal peak groundwater levels in the superficial aquifer.

3.7.2.3 Groundwater quality

Water quality monitoring was conducted monthly at PB1 and quarterly at Bore1 (JDA 2023). Water quality parameters those were analysed during the monitoring period include:

Monitoring Bore (Bore1)

- EC
- pH
- TDS
- Total phosphorus (TP)
- Filterable Reactive Phosphorus or Phosphorus in Orthophosphate ($\text{PO}_4\text{-P}$)
- Total Nitrogen (TN)
- Nitrogen in Total Oxidised Nitrogen ($\text{NO}_x\text{-N}$)
- Nitrogen in Ammonia ($\text{NH}_3\text{-N}$)
- Total Kjeldahl Nitrogen (TKN)

Production Bore (PB1)

- Electrical conductivity (EC)
- pH
- Total Dissolved Solids (TDS)

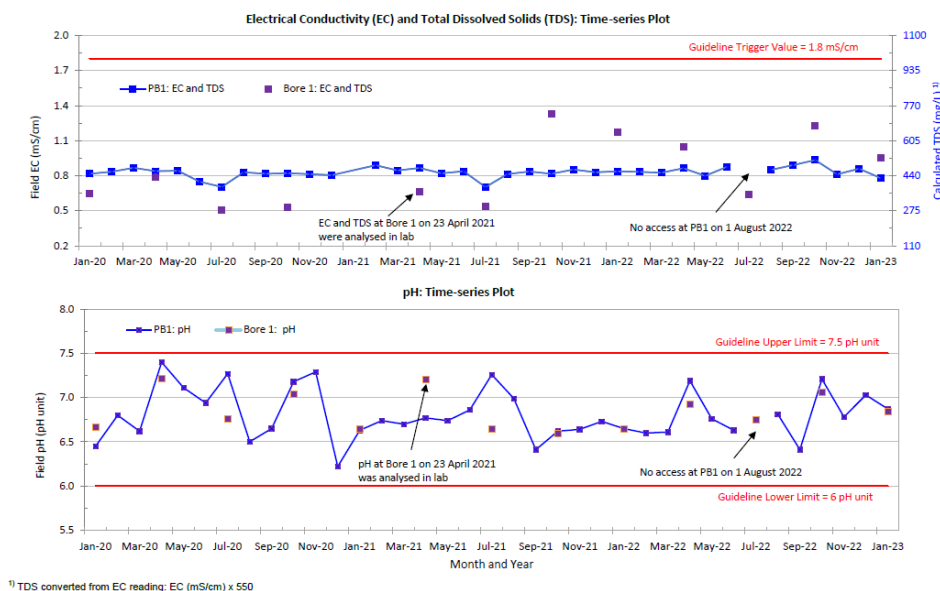


Plate 2: Water Quality (EC, TDS and pH) Monitoring results (JDA 2023)

Plate 2 and **Plate 3** illustrate the water quality of the groundwater within the site is generally consistent over the monitoring periods with typically low variance in parameters tested. EC, TDS and

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pH values did not display any exceedances of the trigger values. However, TN and TP regularly exceeded the ANZECC guideline trigger value of 1.2 mg/L and 0.065 mg/L (respectively). It is also noted a large exceedance in TN occurred in August 2022 however this does not appear to be representative of long-term values.

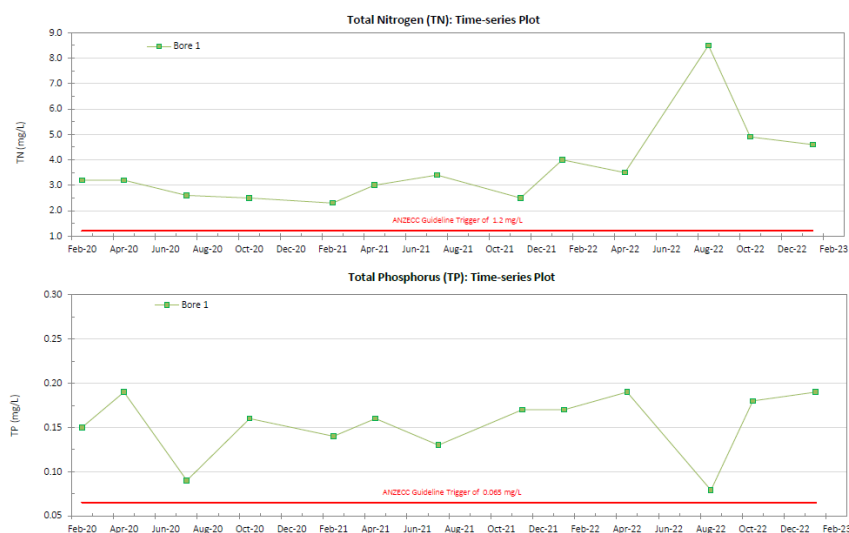


Plate 3: Water Quality (TN and TP) Monitoring results (JDS 2023)

3.8 Summary of existing environment

In summary, the environmental investigations conducted to date indicate that:

- The site is being used for horse racing, mixed uses (i.e. car park, stables and entertainment/hospitality venues, and commercial). Some portions of the site are only used infrequently (e.g. for parking or events).
- The site is located in an area of moderate to high rainfall, receiving 756.3 mm on average annually with the majority of rainfall received between June and August.
- The majority of the site has a relatively flat topography of 1 mAHD at the northwest (along the Swan River) and 2 mAHD to the south and rising to 7 mAHD to the east of the site.
- The site is within the Swan River Terraces system and displays Guildford formation soils of alluvial and leached yellow sand described as:
 - **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, fine sand, hard when dry, variable clay content of alluvial origin
 - **Ms4** – Sandy Silt: light yellow brown, blocky, mottled some fine to medium sand, soft when moist, variable clay content
 - **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin
- The groundwater depth below the surface of Precinct A varies from 1.09 m mBGL to 2.37 mBGL (Douglas Partners 2024).

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- The highest groundwater level beneath Precinct D is reported 3.03 mBGL during February 2024 (Galt 2024).
- Most of the site is considered to have a high to moderate risk of ASS occurring, however some portions of Precinct B, Precinct C and the Racecourse are considered to have a moderate to low risk of ASS occurring within the 3 m of the natural surface.
- The northern portion of the site along the Swan River is identified as an ESA.
- The entirety of the site is classified as a SSA and classified as:
 - a) Estuary catchments on the Swan and Scott Coastal Plains.
 - f) The area is <1 km up-groundwater-gradient and 250 m down-gradient of a significant wetland; or where the groundwater gradient is unknown within 1 km of the significant wetland.
- The following wetlands are located within the site and these are classified as:
 - Multiple Use category wetland (MUW) area (UFI 8424, UFI 8425, UFI 8426).
 - Resource Enhancement wetland (REW) area (UFI 8423).
- The dominant hydrological feature of the site is the Swan River estuary. The northern boundary of the site falls within the Swan Canning Development Control Area (DCA) (CoB 2018) and Swan Canning River Park.
- The floodway of the Swan River is immediately adjacent to but not within the site. The 1% AEP flood elevation of the Swan River adjacent to the site is 2.8 mAHd.
- There are two existing major drainage network systems within or adjacent to the site include:
 - The CBMD, managed by the Water Corporation. This currently receives runoff from Precinct C (via the CoB drainage network) and Precinct E.
 - The CoB local piped drainage network, which exists along Mathieson Road, Grandstand Road and the northern portion of Resolution Drive.
- There are three lakes (Irrigation Lake, Lined Lake and Wetland Lake) located within the centre of the Racecourse. These are understood to receive runoff from the grandstand buildings in Precinct B and stables/buildings in Precinct C.
- Allowable discharge to the CBMD from the local drainage network is 0.95 m³/s based on Water Corporation modelling.
- The groundwater beneath the site is a multi-layered system consisting of the Superficial, Kings Park Formation, Leederville and Yarragadee aquifers.
- Regional groundwater mapping indicates that the groundwater levels across the site are at approximately 0.5 m AHD.
- Local groundwater level monitoring indicates that annual maximum groundwater levels (recorded in August 2022) were measured at 1.26 m AHD and 1.70 m AHD at Bore 1 and Bore 2 respectively. Groundwater levels in adjacent areas included Precinct A levels at 1.09 mBGL to 2.37 mBGL and Precinct D levels of approximately 3.03 mBGL.
- Water quality monitoring indicates that EC, TDS and pH values do not exceed guideline trigger values. However, TN and TP concentrations continually exceed the ANZECC guideline trigger value of 1.2 mg/L and 0.065 mg/L respectively.

4 Design Criteria and Objectives

This section outlines the objectives and design criteria that this LWMS and future management plans must achieve. The water management strategy includes water conservation, groundwater management and stormwater management.

4.1 Integrated water cycle management

Better Urban Water Management (WAPC 2008a) endorses the promotion of integrated water cycle management and application of WSUD principles to provide improvements in the management of stormwater, and to increase the efficient use of other existing water supplies.

The key principles of integrated water cycle management include:

- Considering all water sources, including wastewater, stormwater and groundwater
- Integrating water and land use planning
- Allocating and using water sustainably and equitably
- Integrating water use with natural water processes
- Adopting a whole catchment integration of natural resource use and management.

Integrated water cycle management addresses not only physical and environmental aspects of water resource use and planning, but also integrates other social and economic concerns. Water management design objectives should therefore seek to deliver better outcomes in terms of:

- Potable water consumption
- Stormwater quality management
- Groundwater management.

The first step in applying integrated water cycle management in urban catchments is to establish agreed environmental values for receiving environments. The existing environmental context of the site has been discussed in **Section 3** of this document. Guidance regarding environmental values and criteria is provided by a number of national and state policies/guidelines and site-specific studies undertaken in and around the site. These were detailed in **Section 1.4** and **Section 1.5** respectively.

4.2 Water conservation

This LWMS proposes the following water conservation criteria:

- Criteria WC1** For residential dwellings, consumption target of 60 kL/person/year.
- Criteria WC2** Ensure the efficient use of all water resources
- Criteria WC3** Non-potable irrigation water to be sourced from existing groundwater licences held over the area.

The manner in which this objective will be achieved is further detailed in **Section 5**.

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4.3 Stormwater management

The principle behind stormwater management at the site is to mimic the pre-development hydrological conditions and utilise existing infrastructure where sensible to do so, as described in **Section 3.7**. This principle and the guidance documents discussed in **Section 1.4** and **Section 1.5** and have guided the stormwater management criteria.

- Criteria SW1** Retain and treat the first 15 mm of rainfall as close to source as possible and within site.
- Criteria SW2** Detain up to 1% AEP rainfall event on-site.
- Criteria SW3** Post-development critical 1% AEP peak flows leaving the site to mimic pre-development peak flows.
- Criteria SW4** Finished floor levels must have a minimum of 300 mm clearance above the 1 % AEP TWL in the FSA.
- Criteria SW5** All lots must have a minimum of 500 mm clearance above the 1 % AEP flood level in the Swan River.
- Criteria SW6** Nutrient concentrations within surface water discharging from the site to the Swan River are to meet regional water quality targets.
- Criteria SW7** Reduce nutrient loads by applying appropriate non-structural measures.
- Criteria SW8** Design infiltration areas to avoid creating mosquito habitat.

The manner in which these objectives will be achieved is further detailed in **Section 6**.

4.4 Groundwater management

The principle behind the groundwater management strategy is to maintain the existing groundwater hydrology. The groundwater management criteria for the site include:

- Criteria GW1** Surface based infiltration structures should have 300 mm clearance above the MGL.
- Criteria GW2** Habitable floor levels should have a clearance to the MGL of at least 1.2 m.

The manner in which the groundwater management objectives will be achieved is further detailed in **Section 7**.

5 Water Conservation Strategy

5.1 Fit for purpose water use

Conservation of water through fit-for-purpose use and best management practices is encouraged so that scheme water is not wasted. Fit-for-purpose describes the use of water that is of a quality suitable for the required use of the water. Fit-for-purpose principles have been utilised in the water conservation strategy for the site and will achieve **Criteria WC1**.

5.1.1 Scheme water supply

Scheme water will be supplied by the Water Corporation Integrated Water Supply System. Scheme water is proposed to be used for all potable uses. Scheme water will also service some external uses, where fit-for-purpose alternatives are not available.

5.1.2 Groundwater

As discussed in **Section 3.7.2.1**, the site is located beneath a multi-layered system comprising of the Superficial Swan, Kings Park Formation, Leederville and Yarragadee aquifers.

The proponent holds a groundwater allocation from the Perth South Leederville confined aquifer for the following:

- GWL 178519 - 347,000 kL

This licence will be used to meet the irrigation requirements for the Racecourse Precinct, Precinct A, Precinct B and part of Precincts C and E.

The above-mentioned measure will achieve **Criteria WC3**.

5.1.3 Rainwater tanks

Rainwater tanks (RWTs) can be used within private lots to harvest roof runoff. This water is considered non-potable but can be used to supplement non-potable water uses.

5.2 Lot scale water conservation measures

This LWMS proposes that the water conservation measures to be adopted would include RWTs, waterwise principles for lot scale gardens and within estate landscaping (WWG) and water efficient fixtures and appliances (WEFA) to ensure that the residential portion of the development minimises the use of water. These are summarised in the following sections.

5.2.1 Rainwater tanks

The use of RWTs will not be mandated, and the stormwater quantity management strategy does not rely on their use. They are therefore only considered to be a water conservation measure. Given that rainwater tanks will not be mandated or supplied by the proponent, it has been assumed that these would be implemented by 7.5% of households within Precinct D. Whilst they may be considered for

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Precinct A they are not proposed to be taken up in other Precincts. The assumed uptake rate has been based on data obtained from the Australian Bureau of Statistics (ABS 2013). It is assumed (for the purposes of the water balance analysis) that all rainwater tanks have a capacity of 3 kL.

5.2.2 Water efficient fixtures and appliances

Water conservation strategy for the site proposes the use of WEFA. Water efficient fittings will be mandated through the building licence, while uptake of water efficient appliances can be encouraged by State and Local Government rebates in addition to education from the proponent at point of sale. WEFA are relevant to Precinct A and Precinct D. It is assumed that water efficient appliances will be implemented by 40% of households within Precinct A and Precinct D, which has been based on data obtained from the Australian Bureau of Statistics (ABS 2013, 2014).

5.2.3 Waterwise gardens

Landscape packages will not be provided as a part of the land sale contract. Lot scale waterwise gardening principles (WWG) are only relevant for Precinct D. These will be achieved by promoting Waterwise gardening principles (WWG) (WC 2003) at the time of sale of land within Precinct D. It is assumed that 75% of households in Precinct D will implement WWG principles within lot gardens (ABS 2013). WWG principles include:

- Soil to be improved with soil conditioner certified to Australian Standard (AS) 4454 to a minimum depth of 150 mm where turf is to be planted and a minimum depth of 300 mm for garden beds.
- The irrigation system shall be designed and installed according to best water efficient practices:
 - The controller must be 'hydrozoned'.
 - Emitters must disperse coarse droplets or be subterranean.
- Garden beds to be mulched to 75mm with a product certified to AS4454.
- Increasing community awareness of water conservation by promoting Waterwise practices, fixtures and fittings at the point of sale.

WWG principles will also be considered for Precinct A and Precinct E, however it is anticipated that these areas will have minimal irrigated landscaping to which this would apply. The current approach to irrigation within the Racecourse Precinct, Precinct B and Precinct C adopts a range of water conservation measures (including non-irrigated area and retention of existing trees/vegetation) to ensure that Perth Racing operates within the available groundwater allocation. This approach is not proposed to be significantly modified.

The above measures will assist in achieving **Criteria WC1** and **WC2**.

5.3 Water use analysis

5.3.1 Lot scale water use analysis

A water use analysis has been undertaken for Precinct D to estimate the expected individual residential lot water use to demonstrate the effectiveness of the water conservation strategy. The water use analysis has been based on the rates and calculation methodology presented in the Water

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Corporation (2011) spreadsheet *AltWaterSupply_Water_Use_Model.xls*. This spreadsheet has been adapted to model the effects of using the water conservation measures proposed, and key assumptions include:

- Lot area has been based on a conceptual lot layout (see **Appendix A**).
- Average residency of 2.6 people per single lot dwelling. This value has been calculated from data provided by ABS for new housing developments in Perth (ABS 2022).
- Assumed up-take rates include:
 - 100% uptake of water efficient fittings
 - 40% uptake of water efficient appliances
 - 7.5% uptake of RWTs
 - 55% uptake of WWG principles.

The results of the water balance indicate that if households in Precinct A and Precinct D adopt the proposed water conservation measures (e.g. efficient fittings, RWT, WWG principals) at typical uptake rates they will use an average of 33.0 kL/year/person. This achieves the water target of no more than 60 kL/year/person of scheme water and satisfies **Criteria WC1**.

5.4 Wastewater management

The wastewater generated from the site will be managed by connecting the development to the Water Corporation deep sewer network.

5.5 Water conservation management criteria compliance

A summary of the proposed water conservation management criteria and how these are addressed is provided within **Table 1**.

Table 1: Water conservation management criteria compliance

Criteria number	Criteria description	Manner in which compliance will be achieved
WC1	Residential consumption target of 60 kL/person/year scheme water.	Provide advice to residents in Precinct A and Precinct D on water conservation measures
		RWTs can be utilised for non-potable uses within Precinct D
		Promotion and use of WWG in lots within Precinct D
		Promotion and use of water efficient appliances to Precinct A and Precinct D
		Mandate water efficient fittings within Precinct A and Precinct D
WC2	Ensure the efficient use of all water resources.	Use of waterwise landscaping principles in open spaces
		Open spaces designed to use no more than allocated groundwater
		Minimise water requirements for open space and verge maintenance
		Use of water efficient appliances within Precinct A and Precinct D
		Use of WWG principles in lots in Precinct D

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Table 2: Water conservation management criteria compliance (Continued)

Criteria number	Criteria description	Manner in which compliance will be achieved
WC3	Non-potable irrigation water to be sourced from existing groundwater licences held over the area.	The proponent holds a groundwater Licence with an allocation of 347,000 kL per annum which will meet the irrigation requirements of the Racecourse and surrounding Precincts.

6 Stormwater Management

The principle behind the stormwater management strategy for the site is to maintain the existing hydrology by detaining, retaining and treating runoff from the small rainfall event (i.e. first 15 mm) as close to source as possible and detaining/retaining the major event (1% AEP) on site prior to discharge to either the centre of the Racecourse (i.e. self-retained) or to the CBMD the pre-development outflow rates. Due to the existing soil conditions (See **Section 3.5**), the site is not well suited for structural controls utilising infiltration of stormwater unless modified. However, given that fill will be utilised to ensure that habitable floor levels are above the 1% AEP flood elevation of the Swan River, final elevations will be approximately 4 mAHD. Where fill is used to achieve this there will be sufficient clearance to MGL and permeability of soils to adopt WSUD measures which utilise infiltration.

WSUD measures proposed will vary across the Precincts and will include:

- BRAs to achieve water quality treatment (Precincts A, C, D and E)
- FSAs to detain runoff prior to discharge to the adjacent road network system
- Subsurface infiltration cells that will facilitate at-source infiltration (Precinct D)
- Flood storage integrated into existing surface water bodies located centrally within the Racecourse (for Precinct A and C)
- FSAs to provide flood detention and infiltration as close to source as possible (Precinct E).

The overall approach to precinct drainage is shown on **Figure 7**.

The WSUD measures that will be implemented as a part of the development are described in the following sections. Precinct B has been assumed to be self-retained and a portion of Precinct C (already connected to the Lakes in the centre of the track) has been assumed to be the same as it is now. Surface runoff modelling undertaken using XPSWMM has been used to inform the design of stormwater infrastructure as detailed in the following sections. Assumptions used to represent the post-development environment are provided in the modelling assumptions report in **Appendix D**.

6.1 Lot scale drainage measures

Lots within Precinct D and Precinct E will retain the first 15 mm rainfall event runoff within soakwells/soakage which will need a capacity of 150 m³/ha. Lot storage is the responsibility of the lot owner and will be assessed as part of the building approval process prior to construction.

The use of soakwells/soakage areas will assist in achieving **Criteria SW1**.

6.2 Development drainage measures

6.2.1 Bio-retention areas

Runoff from the first 15 mm of rainfall will be captured and retained within a vegetated BRA located in open spaces. The BRA is assumed to have a depth of 500 mm with 1:3 side slopes. Treatment of

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runoff will be provided through interaction with vegetation and adsorption to sand particles through infiltration prior to reaching groundwater.

The BRA will be underlain by material with an appropriate PRI (nominally a PRI of 20 at 150 mm or equivalent). It is acceptable for this to be achieved with a thicker layer of lower PRI soil (e.g. 300 mm of PRI 10). This will be finalised prior to detailed design. The location of the BRA will either be in a drainage reserve, an open space or they may be within the centre of the Racecourse as a separate treatment area (separate from the existing Lakes). The sizing and spatial requirements of BRAs will be confirmed in the detailed designs.

The use of BRA will assist in achieving **Criteria SW1, SW6, and SW8**.

6.2.2 Flood detention/storage

An FSA will be utilised to detain runoff above the first 15 mm and up to the 1% AEP rainfall event. To achieve this, the invert of the FSA will have sufficient clearance above groundwater 300 mm. FSAs are assumed to be 1.2 m depth with 1:6 side slope and will be integrated into POS or drainage reserve, and will overflow to the Water Corporation drainage network. The sizes and spatial requirements for the FSA will be confirmed in the detailed designs and development stages.

The use of an FSA will assist in achieving **Criteria SW1, SW2, SW4, and SW6**.

6.2.3 Subsurface storage

Surface runoff generated by lots, stables and hardstand/carpark areas will be directed into sub-surface storage. Precinct D will have an independent drainage pipe network within individual precincts which convey flows to downstream sub-surface retention structures.

These structures have been sized to accommodate up to the 1% AEP rainfall event and have been designed as a 1 m deep structure. The detailed configurations could be modified to suit site constraints. These will either be location beneath road reserve/verge or beneath an open space and will require an overflow connection to the local (CoB) drainage network to ensure that they can dry out. The sizes and spatial requirements for the subsurface storages are provided in **Table 2** and illustrated in **Figure 7A: Precinct A Stormwater Management Plan**

Figure 7B: Precinct C Stormwater Management Plan

Figure .

The use of the sub-surface storage will assist in achieving **Criteria SW1, SW2, and SW6**.

6.2.4 Lake storage

Precinct A and Precinct C (stables) will first direct runoff to a bio-retention areas, however overflow from these will be catered for in the Wetland Lake. In a 1% AEP storm event an additional 78 mm of depth will occur within the Wetland Lake from both Precincts.

As indicated in **Section 3.7.1.2**, the Wetland Lake is connected/discharges to the Swan River via a 375 mm and 450 mm culvert. These are not proposed to be modified. The combined nominal flow capacity of the 375 mm and 450 mm pipes is approximately 0.4 m³/s. The inlet, length, grade, etc of

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these pipes is not proposed to be modified and therefore the current overflow regime from the site to the Swan River will remain unchanged.

The use of the Wetland Lake storage will assist in achieving **Criteria SW1, SW2, SW3, and SW6**.

6.3 Precinct based drainage approach

6.3.1 Precinct A

There is no current connection point for drainage to be exported from site to the local CoB network. Runoff will therefore need to be managed within Precinct A and the Racecourse. Precinct A will require a single BRA that will address treatment of water quality; this will be located within Precinct A as close to source as possible. The BRA should have the following characteristics:

- Base will be vegetated with reeds/rushes as per a biofilter
- 1:3 side slopes
- Depth of 300 – 500 mm pending final design
- Volume of the BRA will need to achieve 194 m³
- Nominal surface area of 450 m².

In addition to the volume achieved by the BRA, in a major (1% AEP) storm event a further 1,345m³ of flood retention storage will be required. The proposed earthwork level of Precinct A (4.0 mAHD) means that it is possible to direct runoff exceeding BRA capacity to the Wetland Lake in the centre of the Racecourse. This approach will add approximately 52 mm to the central 2.6 ha Wetland Lake.

The volumes of storage required and locations of storage across the Precincts is summarised in **Table 2**. The approach to water management in Precinct A is shown in **Figure 7A**.

6.3.2 Precinct B and Racecourse

As indicate previously, there are no substantial changes proposed to Precinct B. Precinct B currently manages surface runoff within the precinct and adjacent Racecourse, largely via at source infiltration, swales around the perimeter of the track surface and the existing lake system Precinct B and the Racecourse are proposed to be retained largely as is.

As indicated in **Section 3**, the Wetland Lake currently has a piped overflow connection to the Swan River. This overflow pipe(s) reportedly rarely overflow and can be controlled via a structure at the outlet (which also prevents tidal influence on the Wetland Lake). The Wetland Lake has a 2.6 ha surface area, and therefore can provide significant volume of stormwater retention in the event of a major storm event. There are no new connections proposed to the Swan River and there are no changes proposed to the management approach currently taken for the Wetland Lake and the current piped outlets.

6.3.3 Precinct C

Precinct C is the existing stables area, adjacent carparks and future stables areas along the south and east of the Structure Plan area. The existing buildings currently either infiltrate runoff at source or

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discharge to the Lined Lake in the centre of the Racecourse. This approach is proposed to be retained.

Surface runoff generated by hardstand/carpark areas of Precinct C will be directed and discharged towards Precinct E via the existing connections to the CoB drainage network along Matheson Road or via the existing pipe connection in the southwest of the Structure Planning area to the existing connection to the CBMD (Water Corporation drainage system) within Precinct E.

The drainage requirements for the southern (carpark) portion of Precinct C are therefore detailed with those proposed for Precinct E.

For the two currently undeveloped portions of Precinct C (future stables along the south and east of the Structure Plan area), the post-development drainage system will collect the runoff from these areas and direct them to the centre of the Racecourse. Initial treatment will be provided by a BRA which accommodates 418 m³, with a nominal surface area of 924 m².

Runoff exceeding the capacity of the BRA (which will be 684 m³) will be directed to the Wetland Lake. The direction of major event stormwater runoff to the Wetland Lake will add 26 mm to the top water level of the Wetland Lake.

The volumes required to be treated and for flood mitigation for Precinct C are summarised in **Table 2**. The approach to water management in Precinct A is shown in **Figure 7B**.

6.3.4 Precinct D

As indicated in **Section 6.1**, private lots and the childcare building within Precinct D are assumed to retain the first 15 mm within the lot boundary, most likely within soakwells, which should be appropriate given that some measure of imported fill will be required to meet clearance above regional flood levels. Based on the density of lots proposed in Precinct and lack of open space, this precinct will need 42 m³ of subsurface storage to accommodate and detain the 1% AEP storm event to ensure that the post development peak flow rates will mimic the pre -development conditions. This is assumed to be located adjacent to Resolution Drive as shown in **Figure 7C**. The outflow from this Precinct will likely be predominantly overland flow once the first 15 mm of storage has reached capacity, however a low flow to ensure that these can adequately drain between storm events is recommended.

The volumes required to be treated and for flood mitigation for Precinct D are summarised in **Table 2**.

6.3.5 Precinct E

Surface runoff from across Precinct E (inclusive of Precinct C hardstand/carpark) will be conveyed via the drainage network firstly to a BRA for water quality treatment and then this will overflow to an FSA (detention drainage structure) at the south western corner of Precinct E for detention of the 1% AEP storm event. Overflow from Precinct E basin will discharge into the CBMD (Water Corporation drainage system) at existing flow rates. The Water Corporation surface runoff modelling of the CBMD indicates that the local drainage network contributes 0.95 m³/s at node CNA008. This is understood to be contributed to by existing 450 mm and 525 mm pipes beneath Resolution Drive and therefore it is assumed that 0.62 m³/s is taken up by the existing pipe network, and approximately 0.33 m³/s of

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capacity is available to convey runoff from Precinct C, Precinct E and upstream contributing catchments.

The volumes required to be treated and for flood mitigation for Precinct E are summarised in **Table 2**. The approach to water management in Precinct E is shown in **Figure 7D**.

6.3.6 Precinct drainage summary

The requirements for water quality treatment within the Precincts is summarised in **Table 2**.

Table 2: Precinct drainage summary

Precinct	First 15 mm requirement (m ³)	Location of first 15 mm	1% AEP flood mitigation requirement (m ³)	Location of 1% AEP flood mitigation requirement	1% AEP outflow from site
Precinct A	194	BRA located within Precinct A	1,345	Wetland Lake, centre of Racecourse	0
Precinct B	No change to existing	Precinct B	No change to existing	Precinct B	Self-retained
Precinct C (Stables)	418	BRA located in the centre of the Racecourse	684	Wetland Lake in centre of Racecourse	0
Precinct C (carpark)	Combined with Precinct E volumes	BRA in Precinct E	Combined with Precinct E volumes	FSA in Precinct E	
Precinct D	28	Subsurface storage cells beneath road reserve/drainage reserve	42	Subsurface storage cells beneath road reserve/drainage reserve	0.402 m ³ /s to local drainage network/road pavement
Precinct E	365	Southwest corner of Precinct E, adjacent to FSA	930	South west corner of Precinct E	0.32 m ³ /s to CBMD

There will be no new connections to the Swan River or to the CBMD, and the existing flow regimes at these outlet points will be maintained. Specifically with regard to overflow from the Wetland Lake which occurs via gravity, the peak flow rates that the existing 375 mm and 450 mm pipes are capable of achieving (approximately 0.4 m³/s) will not change given that the inlet, length, grade and outlet of these pipes is not proposed to be modified.

Precinct D will require a connection to the local drainage network, however the outflow rate will be nominal, and has not been accounted for when sizing the subsurface storage cells within Precinct D. The direction of runoff from Precinct A and a portion of Precinct C to the centre of the Racecourse will require a BRA with a surface area of 1,105 m² (for Precinct C) and will add a total of 78 mm depth to the top water levels within the Wetland Lake.

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The precinct areas and a summary of the approach to surface water management are shown on **Figure 7**.

6.3.7 Non-structural measures

A number of non-structural measures will be implemented to help reduce nutrient loads within stormwater runoff. These measures include:

- Minimising fertiliser use to establish and maintain vegetation within POS and road verges.
- Street sweeping at regular intervals.
- Ongoing management of nutrient application to Precinct B and the Racecourse.
- Precinct A to adopt a similar nutrient application management regime as that currently applied to Precinct B.
- Minimising the use of turf within open spaces.
- Active management of equine waste within Precinct C and the Racecourse. This includes manual collection and remove of manure from site.
- Education of residents regarding fertiliser use and nutrient absorbing vegetation species within lots.

The above measures will assist in achieving **Criteria SW7**.

6.3.8 Earthwork levels

Finished floor levels of the entire development will be set at minimum of 4.0 mAHD (See **Appendix C**) which will assist in achieving **Criteria SW5**.

6.4 Stormwater criteria compliance

A summary of the proposed stormwater design criteria and how these are addressed is provided in **Table 3**.

Table 3: Stormwater management criteria compliance

Criteria number	Criteria description	Manner in which compliance will be achieved
SW1	Retain and treat the first 15 mm of rainfall as close to source as possible	Lots within Precinct D and Precinct E to retain the first 15 mm of rainfall on lot in soakwells/soakage. Lot storage will be the responsibility of the lot owners.
SW2	Retain up to 1% AEP rainfall event on-site.	Runoff up to the 1% AEP to be detained within the FSA in Precinct A. Precinct A and a portion of Precinct C will ultimately discharge to the centre of the track. Runoff up to 1% AEP to be managed with the sub-surface storage in Precinct D.
SW3	Post-development critical 1% AEP peak flows leaving the site to mimic pre-development peak flows.	Runoff up to 1% AEP event to be detained in the detention basin and subsurface storage which will maintain the pre-development peak flow of 0.32 m ³ /s from Precinct E and 0.463 m ³ /s from Precinct D respectively.
SW4	Finished floor levels must have a minimum of 300 mm clearance above the 1% AEP TWL in the FSA.	It is anticipated that the FSA and detention basin invert will be set so that the habitable floor levels must have a

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		minimum of 300 mm clearance above the 1% AEP TWL in the basins.
SW5	All lots must have a minimum of 500 mm clearance above the 1% AEP flood level in the Swan River.	The 1% AEP flood level in the Swan River is 2.8 mAHD. The preliminary bulk earthworks concept provided in shows that finished floor level will be at 4.0 mAHD.
SW6	Nutrient concentrations within surface water discharging from the site to the Swan River are to meet regional water quality targets.	BRA will be designed so that after treatment the long term nutrient concentrations within surface water meet the regional water quality targets.

Table 4: Stormwater management criteria compliance (Continued)

Criteria number	Criteria description	Manner in which compliance will be achieved
SW7	Reduce nutrient loads by applying appropriate non-structural measures	<ul style="list-style-type: none"> • Minimise use of fertilisers within open space and road verges. • Street sweeping at regular intervals. • Use of drought tolerant turf species. • Education of residents regarding fertiliser use
SW8	Design infiltration areas to avoid creating mosquito habitat	Stormwater infrastructure will be designed to ensure all runoff is infiltrated within 96 hours.

7 Groundwater Management

7.1 Groundwater management approach

The principle behind groundwater management is to maintain the existing hydrology across the site, provide appropriate protection from groundwater inundation, and maintain or improve existing groundwater quality.

7.2 Groundwater level management

The regional groundwater map (DWER 2023e), localised measurement of groundwater and the surface contours of the site (see **Section 3.4** and **Figure 2**) indicate that there is sufficient clearance to groundwater beneath the site to facilitate infiltration of stormwater runoff, on the basis that fill is being imported to raise finished levels to 4.0 mAHD.

Whilst the underlying parent soils have demonstrated generally low permeability, the earthworks approach will require import of fill to 4.0 mAHD to achieve clearance above the 1% AEP flood level in the Swan River for Precinct A, Precinct D and Precinct E. Therefore, stormwater will be encouraged to infiltrate at source wherever possible to minimise stormwater runoff and to adopt an at-source approach to management of runoff where possible. This will occur within soakwells, permeable portions of lots and BRAs which will have at least 300 mm of clearance above the MGL. The above-mentioned measure will assist in achieving **Criteria GW1**.

For Precinct C (stables) runoff will be directed to the centre of the racetrack. The stables facilities do not require a specific separation from groundwater, and in order to accommodate equine uses the land between buildings/facilities should be as flat as possible. The most appropriate response is therefore to accommodate stormwater quality treatment and flood retention within the centre of the racetrack. Given the low permeability of soils in the centre of the racetrack, the BRA is unlikely to achieve separation from groundwater or the low permeability soil layer. This is however considered acceptable as it is consistent with the presence of the three Lakes currently within the centre of the racetrack.

The control of groundwater by subsoil drainage is not proposed due to requirements to provide adequate clearance above the 1% AEP flood levels and the proximity of the Swan River. Rather, groundwater separation requirements will be achieved by the use of imported fill as described above. The earthworks strategy provided in **Appendix C** shows that all habitable floor levels will be greater than 1.2 m above the MGL. The above-mentioned measure will assist in achieving **Criteria GW2**.

As previously discussed, there are no changes proposed to the form of development within Precinct B or to the Racecourse. These areas are currently managed by the swales aligned with the existing racetrack which control soil moisture conditions in these areas, and which discharge to the Wetland Lake. This approach will be retained in the post-development environment.

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7.3 Groundwater quality management

Whilst not specified in a design criterion, the main objective for groundwater quality management is to maintain or improve the existing groundwater quality. This can be achieved by reducing the total nutrient load into the groundwater that originates from the site. Groundwater that originates from the site is surface runoff that has infiltrated into the soil profile. Therefore, improving groundwater quality can be achieved by treatment of the surface runoff prior to infiltrating to groundwater.

The reduction of nutrient load to the groundwater will be achieved by:

- Retention of existing trees within open spaces wherever possible.
- Directing stormwater to a vegetated (with native wetland species) BRA.
- The BRA will be underlain by material with an appropriate PRI (nominally a PRI of 20 at 150 mm or equivalent). It is acceptable for this to be achieved with a thicker layer of lower PRI soil (e.g. 300 mm of PRI 10).
- Minimise fertiliser use to establish and maintain vegetation within open space areas and road verges.
- Ongoing management of nutrient application to Precinct B and the Racecourse.
- Precinct A to adopt a similar nutrient application management regime as that currently applied to Precinct B.
- The use of turf will be minimised, however where adopted a drought tolerant turf species that require minimal water, and nutrients will be used.
- Roll-on turf will be used within the open space areas and road verges, to prevent the high nutrient input requirement during establishment of the turf.
- Garden beds should not be immediately adjacent to BRAs to reduce nutrient transportation into these infiltration areas.
- Active management of equine waste within Precinct C and the Racecourse. This includes manual collection and remove of manure from site.

The above measures will improve the quality of water prior to it infiltrating into the underlying groundwater.

7.4 Groundwater criteria compliance summary

A summary of the proposed groundwater quantity design criteria and how these are addressed within the site is provided in **Table 4**.

Table 4: Groundwater criteria compliance summary

Criteria number	Criteria description	Manner in which compliances will be achieved
GW1	Surface based infiltration should have 300 mm clearance above MGL.	Basin inverts will be set at 300 mm above the MGL, the exception being the BRA in the centre of the racetrack.
GW2	Finished floor levels should have a clearance to the MGL of at least 1.2 m.	Lots will be set at least 1.2 m above the MGL.

8 Subdivision and Urban Water Management Plans

The requirements to undertake preparation of more detailed water management plans to support subdivision is generally imposed as a condition of subdivision. This will be most relevant to Precinct D. Other precincts may be developed under a Development Approval and therefore water management will likely be documented within a Stormwater Management Plan (SMP). The development of future UWMP/SMPs should follow *Urban Water Management Plans: Guidelines for preparing plans and for Complying with Subdivision Conditions* (DoW 2008).

While strategies have been provided within this LWMS that address planning for water management within the site, it is a logical progression that future subdivision designs and the supportive UWMP/SMP will clarify details not provided within the LWMS. The main areas that will require further clarification within future UWMP/SMPs may include (pending which precinct is being addressed):

- Extent of land uses within Precincts
- Connection to local and Main Drainage networks
- Surface runoff modelling
- Implementation of water conservation strategies
- Non-structural water quality improvement measures
- Management and maintenance requirements
- Construction period management strategy.

These are further detailed in the following sections. As stated above, ongoing (post-development) monitoring of groundwater will be detailed in the UWMP/SPM, however in this LWMS is outlined broadly in **Section 9**.

8.1 Extent of land uses within Precincts

It is expected that the layout and extent of land uses within Precincts may evolve over time. Future water planning documents will need to be updated to align with the most up to date spatial plans for each Precinct. Changes to the spatial plans will likely have an implication on the size of stormwater infrastructure and possibly their location, and should be revised and clarified in future UWMP/SMPs.

8.2 Connection to local and Main Drainage networks

This LWMS has made assumptions regarding connectivity to the CoB local drainage network and to the Water Corporation's CBMD. These assumptions are made based on the information available at the time of preparing this LWMS and may need to be revised pending feedback from these agencies. This could result in updates to surface runoff modelling (see **Section 8.3**).

8.3 Surface runoff modelling

It is acknowledged that the water management strategies documented in this LWMS are based upon broad-scale assumptions and to some extent regional data. These assumptions are considered

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adequate for development of this LWMS and are of an appropriate level of detail. However, verification of proposed subdivision drainage designs will be undertaken once the specific basin designs and extent of inclusion of finer scale WSUD elements are confirmed.

It is expected that future UWMP/SMPs will update surface runoff modelling as appropriate, and this may result in evolution of the spatial layout of the structure plan/future subdivisions or detailed civil design approach.

8.4 Implementation of water conservation strategies

The non-potable water needs from the Precincts are to be accommodated from the existing groundwater allocation and therefore, track water usage is a significant consideration. Notwithstanding licensed volumes available, there is minimal new open space areas proposed within the Precincts that would demand significant additional groundwater allocation, and it is therefore anticipated that non-potable water needs can be met by the existing licence held by Perth Racing.

A number of potential measures to conserve water have been presented within this LWMS. These water conservation strategies will be incorporated into design and the on-going maintenance of the Precinct A, B and C open spaces and where relevant. Landscape concept design measures that will be incorporated into the water conservation strategy will be further detailed within the future UWMP/SMPs produced for the development.

The manner in which the developer intends to promote water conservation measures discussed in this LWMS to future lot owners will also be discussed within the future UWMP/SMPs.

8.5 Non-structural water quality improvement measures

Guidance for the development and implementation of non-structural water quality improvement measures is provided within the *Stormwater Management Manual for Western Australia* (DWER 2022). Some measures will be more appropriately implemented by CoB for local roads, such as street sweeping, however many can be implemented relatively easily within the design and maintenance of the subdivision and the open space areas. It is expected that any privately managed development areas (e.g. Precinct A, Precinct B and Precinct C) will be managed by Perth Racing or another appropriate management body, and that the management of areas exposed to equine uses (Precinct C and the Racecourse) will continue to adopt contemporary best practice nutrient management.

Future UWMP/SMPs will provide an implementation plan/timing/responsibility for measures such as street sweeping, public education (through measures such as signage that may be implemented to raise awareness), etc.

8.6 Management and maintenance requirements

The management measures to be implemented to address surface water quality (such as the use of vegetation within WSUD assets) will require ongoing maintenance. It is therefore expected that the future UWMP/SMPs will detail management and maintenance procedures that will set out required maintenance actions (e.g. gross pollutant removal), timing (e.g. how often it will occur), locations (e.g. exactly where it will occur) and responsibilities (e.g. who will be responsible for carrying out the

actions). Given that approval from the CoB will be sought for the proposed measures, it is anticipated that consultation will be undertaken and referral to guiding policies and documents will be made.

8.7 Construction period management strategy

It is anticipated that the construction stage will require some management of various aspects (e.g. soil erosion, sedimentation of downstream water bodies, dust, surface runoff, noise, traffic etc.). The management measures undertaken for construction management will be addressed either in the future UWMP/SMPs or a separate Construction Management Plan (CMP).

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9 Monitoring

9.1 Post-development monitoring

The post-development monitoring of water quality should be undertaken within groundwater immediately upstream and downstream of BRAs within Precinct A, Precinct C and Precinct E. It should also be undertaken at the outlet to or adjacent to the subsurface detention system in Precinct D. This should be undertaken via shallow groundwater bores installed immediately upstream and immediately downstream based on local groundwater flow direction, based on information available at the time (or in the case of Precinct D it could be at the outlet from the subsurface storage cells).

The monitoring should also consider and be generally consistent in the approach with the monitoring undertaken to comply with conditions of Groundwater Licence GWL 178519.

The WSUD measures (BRAs) should also be monitored to ensure their continued effectiveness. This should occur at the outlets from BRAs prior to their discharge to the Wetland Lake. It is noted that this may be difficult to achieve as it will require a rainfall event > 15 mm and to be timed to occur when overflow is occurring or alternatively auto samplers could be employed.

Monitoring of the outlet to the Swan River from the Wetland Lake is not proposed to be undertaken given the infrequent nature of overflow from the Lake to the River. Further, the Lake intersects shallow groundwater and any discharge from the pipes to the River is likely to be influenced by local groundwater quality.

9.1.1 Trigger values

The water quality targets from the *National Water Quality Management Strategy* (ANZECC and ARMCANZ 2000) and the trigger criteria are acknowledged as long term targets for the site, being 1.2 mg/L for TN and 0.065 mg/L for TP. However, it is also recognised that recent site monitoring undertaken (and reported in **Section 3**) shows repeated exceedances of the NWQMS default trigger criteria. Therefore, short term trigger values are proposed based on the approximate average nutrient concentrations measured in groundwater, and these are shown in **Table 5**.

Table 5: Post-development trigger values

Analyte	pH	EC (uS/cm)	TN (mg/L)	TP (mg/L)
Value	6-7.5	1800	3.0	0.15

Monitoring should be undertaken on a quarterly basis and should include:

- pH
- Conductivity
- Dissolved oxygen
- Temperature
- Nutrients (TN, TP)
- Nutrient Species (Ammonium, NH₄, Oxides of nitrogen, NO_x ortho-phosphorous (ORP))

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9.1.2 Condition monitoring

It is proposed that the overall condition of the Precincts will be monitored on a bi-annual basis. This monitoring will be implemented after the completion of the civil and landscaping works and will continue for a period of two years.

A visual assessment will be undertaken to monitor the overall condition of the Precincts, with the aim to ascertain that the maintenance activities are achieving the overall management objectives for the development. The parameters that will be monitored include:

- Gross pollutants
- Terrestrial weeds
- Irrigation
- Vegetation density
- Paths, benches, walkways and other infrastructure.

The management and maintenance objectives will be detailed within future UWMPs along with details of the corresponding monitoring program.

9.1.3 Contingency Action Plan

If the results from the initial monitoring occasion indicate that nutrient concentrations exceed the nominated (short term) trigger values, a number of contingency measures may be employed.

The first action that should be undertaken if groundwater trigger criteria are exceeded is to repeat the monitoring to remove the potential for sampling error. If the repeat monitoring still shows results which breach the trigger value, the next action will be to compare the upstream (incoming) nutrient concentrations with the outgoing (downstream) nutrient concentrations. If the downstream nutrient concentrations are >50% higher than the upstream nutrient concentrations, the following actions should be undertaken:

- Review open space nutrient application practices to identify source if possible.
- Conduct surveillance of Precincts and drainage infrastructure to determine any other potential and obvious nutrient inputs.
- Remove source if possible (i.e. fertiliser input, etc.).
- Remove sediment-bound nutrients by removing basin sediments.
- Manual removal of plant material from BRAs to facilitate further nutrient uptake.

If the downstream nutrient concentrations are found to be generally consistent with the upstream concentrations the next action will be to conduct a site – specific comparison of long-term background data presented in this LWMS. There is some amount of variability (temporally) in nutrient concentrations experienced across the site, and this is the reason for the proposed short and long term trigger values. The comparison of measured values to trigger values and historical monitoring data should then be used as a management tool to determine if the trigger values should be revised.

Following the implementation of the above contingency measures the groundwater quality will be re – sampled. If the results of the analysis still show water quality characteristics which breach the trigger values an additional set of upstream/downstream monitoring bores may be installed. The

additional bores would be sampled as per the ongoing sampling regime already being undertaken for the first two bores. If the additional locations demonstrate results consistent with the initial monitoring, an assessment will be undertaken as to whether the results are representative of a broader site management concern, and whether any additional contingency actions need to be implemented onsite.

9.2 Reporting

A post-development monitoring report will be prepared on conclusion of the two-year monitoring period and will be provided to CoB on request. This will be undertaken per Precinct once development within the Precinct has occurred. Interim results (spreadsheet) can be provided to either CoB, DWER or DBCA on request during the monitoring program.

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10 Implementation

10.1 Roles and responsibility

The LWMS provides a framework that the proponent can utilise to assist in establishing stormwater management methods that have been based upon site-specific investigations, are consistent with relevant State and Local Government policies and have been endorsed by DWER, DBCA and CoB. The responsibility for working within the framework established within the LWMS rests initially with the proponent, although it is anticipated that a future UWMP/SMP will be developed in consideration of other relevant policies and documents. A summary of roles and responsibilities relevant to the current and future planning stages and ongoing management of the site is summarised in **Table 6**.

Table 6: Roles and responsibilities for various planning stages

Stakeholder	Perth Racing	City of Belmont	Water Corporation	DWER	DBCA	WAPC
LWMS preparation	✓					
LWMS review and advice		✓	✓	✓	✓	
LWMS approval				✓		✓
UWMP/SMP & civil design preparation	✓					
UWMP/SMP review and approval		✓				
Precinct implementation	✓					
Post development Precinct management	✓					
Public roads/open space ongoing management	✓	✓				

10.2 Funding

The proponent will fund all subdivision, civil and landscape works within the public realm (roads and open spaces) and within Precincts that are being privately managed (Precinct A, Precinct B and Precinct C). Development of individual lots will be the responsibility of the lot owner at the lot-scale development application stage.

10.3 Review

It is not anticipated that this LWMS will be reviewed unless the Ascot Racecourse Structure plan undergoes significant change post-lodgement of the LWMS. If the proposed layout of the

Local Water Management Strategy Ascot Racecourse Local Structure Plan



development is substantially modified, the surface runoff modelling undertaken for this LWMS may need to be reviewed and the criteria revised to ensure that all are still appropriate.

The next stage of water management for most of the Precincts is UWMP preparation to support subdivision (relevant to Precinct D) or SMP preparation to support Development Approval (relevant to all other precincts). The UWMP/SMP is largely an extension of the LWMS, as it should provide detail to the designs proposed within this LWMS and will demonstrate compliance with the criteria proposed in **Section 4**. Regardless of whether a UWMP or SMP is prepared, these should be prepared as per *Better Urban Water Management*.

The next stage of development following the UWMP is single lot development. It is recognised that certain elements of the LWMS and the UWMP will not be implemented until this late stage, and that there is little or no statutory control that can be applied to ensure the implementation of any remaining measures. While the remaining measures are unlikely to be enforced at this stage their implementation could be encouraged by the CoB through policy (or modification of these where necessary), building licence or awareness programs (such as the Water Corporation Waterwise program).

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11.2 Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 11.1**, with access date information provided in **Table R1**.

Table R1 Access dates for online references

Reference	Date accessed	Website or dataset name
(ABS 2013)	19/4/2024	ABS: Water Use and Conservation Data
(ABS 2014)	19/4/2024	ABS: Energy Use and Conservation Data
(DWER 2023a)	12/04/2024	Acid Sulfate Soil Risk Map
(BoM 2024)	12/04/2024	Climate Data
(Landgate 2023)	31/01/2024	Landgate Map Viewer Plus
(WAPC 2023a)	11/12/2023	Local Planning Scheme No. 15 Map
(DWER 2024a)	12/04/2024	Perth Groundwater Map
(DWER 2024b)	12/04/2024	Water Information Reporting
(DWER 2024c)	12/04/2024	Water Register
(DWER 2023c)	26/04/2024	FPM Floodplain Area (DWER-020)

Figures



Figure 1: Site Location

Figure 2: Topographic and Groundwater Contours

Figure 3: Geological Mapping

Figure 4: Acid Sulfate Soil Mapping

Figure 5: Environmental Assets

Figure 6: Hydrological Features

Figure 7: Ascot LSP Precinct Plan surface water management

Figure 7A: Precinct A Stormwater Management Plan

Figure 7B: Precinct C Stormwater Management Plan

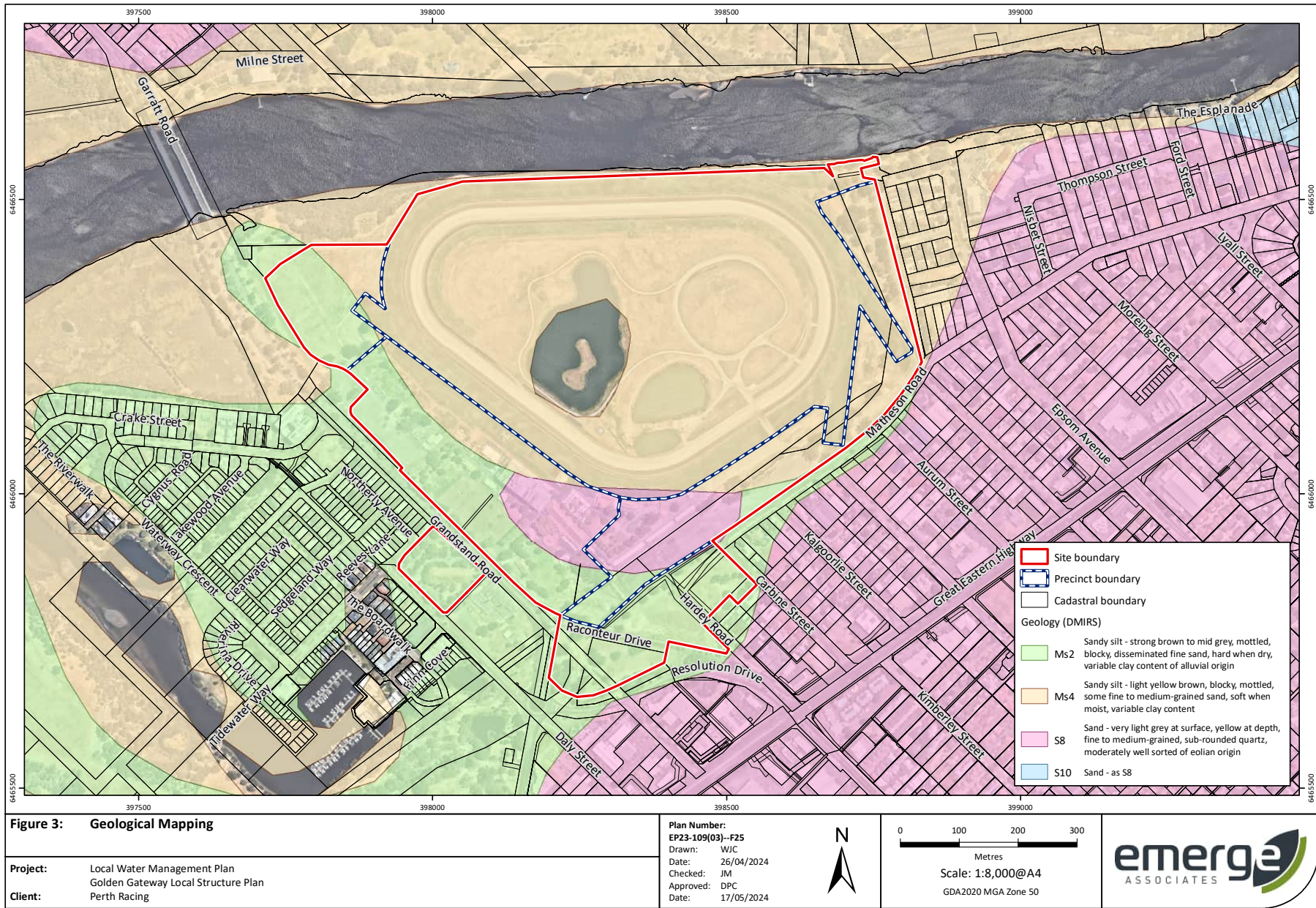
Figure 7C: Precinct D Stormwater Management Plan

Figure 7D: Precinct E Stormwater Management Plan





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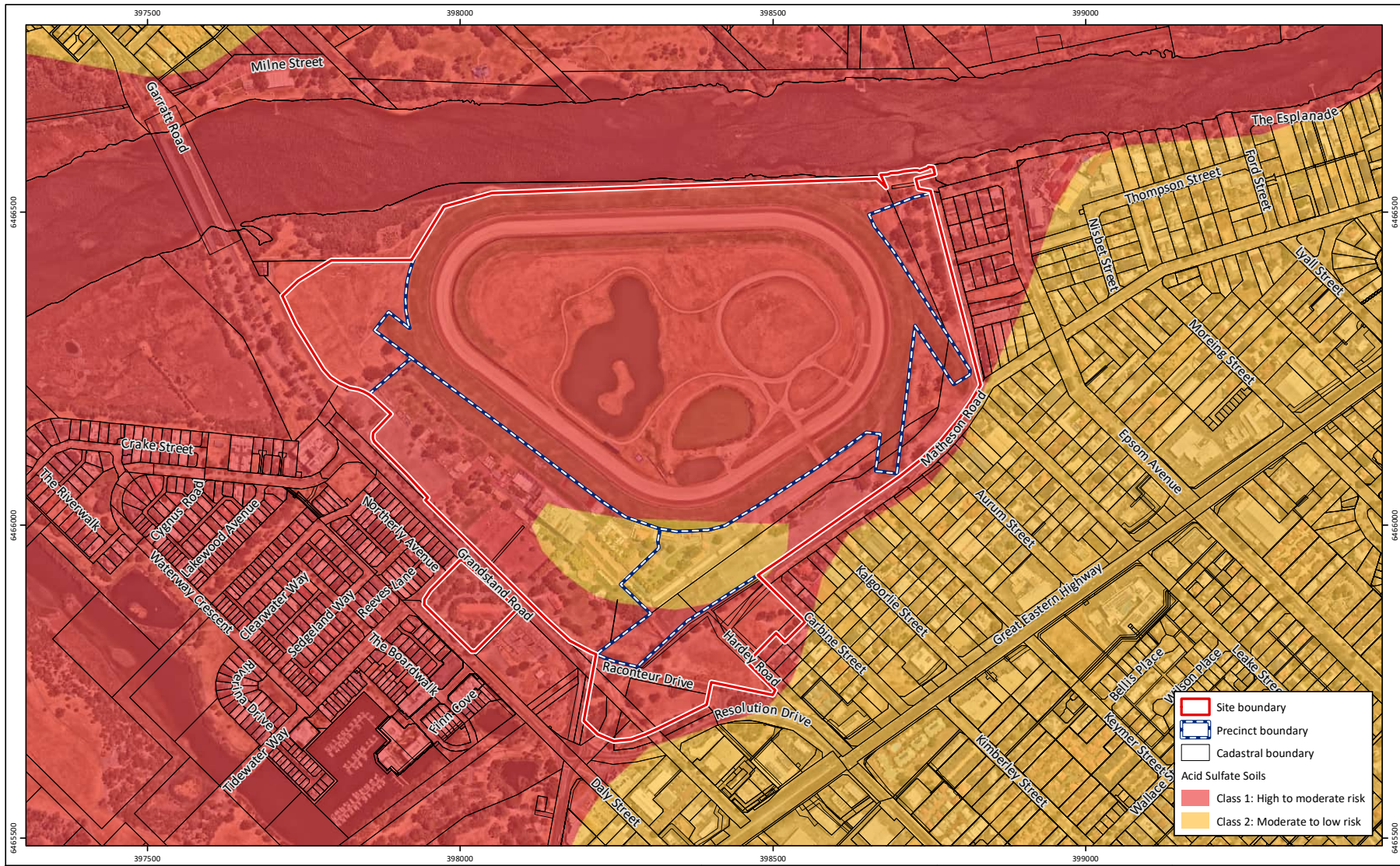


Figure 4: Acid Sulfate Soil Mapping

Project: Local Water Management Plan
Golden Gateway Local Structure Plan
Client: Perth Racing

Plan Number:
EP23-109(03)-F26
Drawn: WJC
Date: 26/04/2024
Checked: JM
Approved: DPC
Date: 17/05/2024



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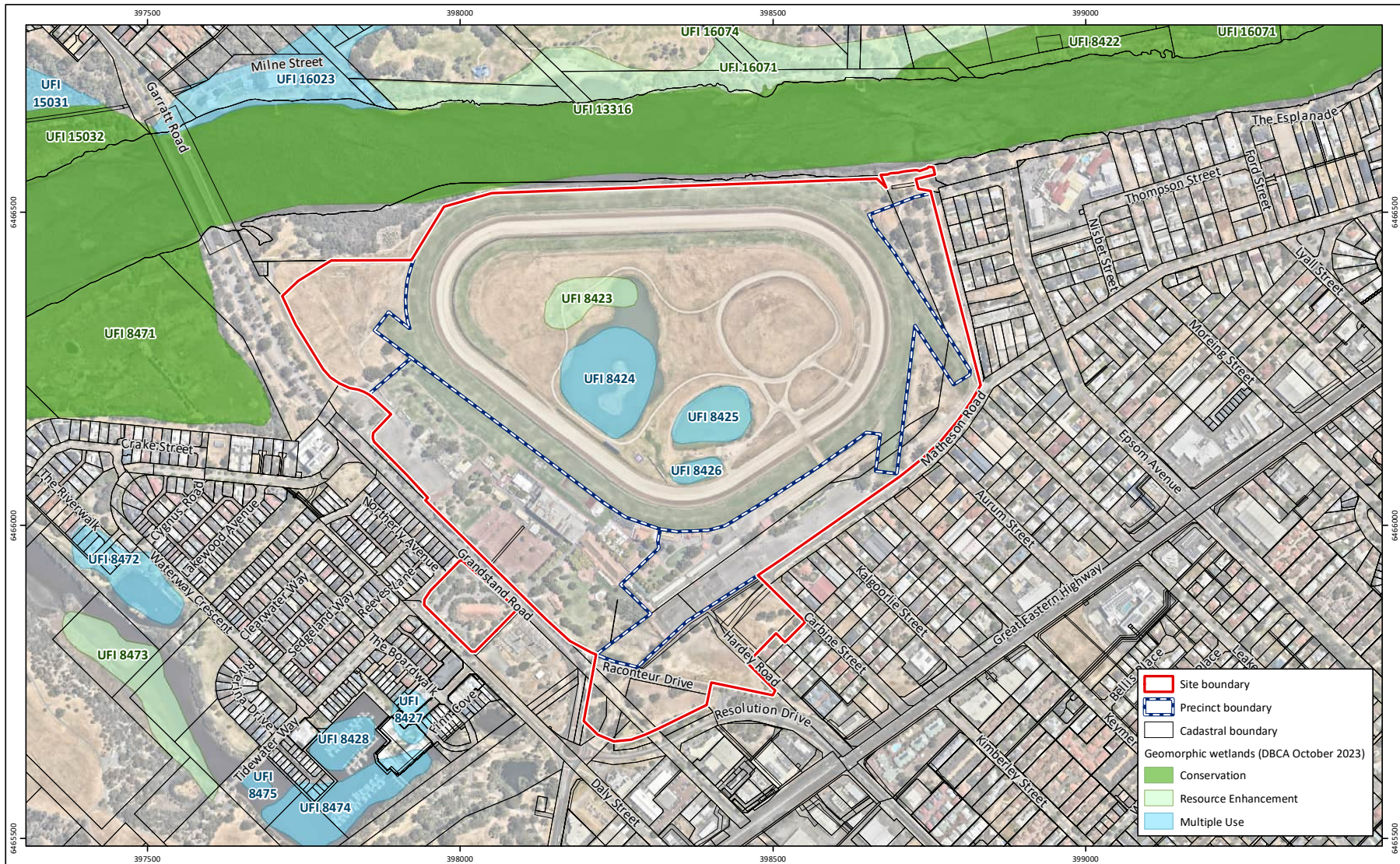


Figure 5: Environmental Assets

Project: Local Water Management Plan
Golden Gateway Local Structure Plan
Client: Perth Racing

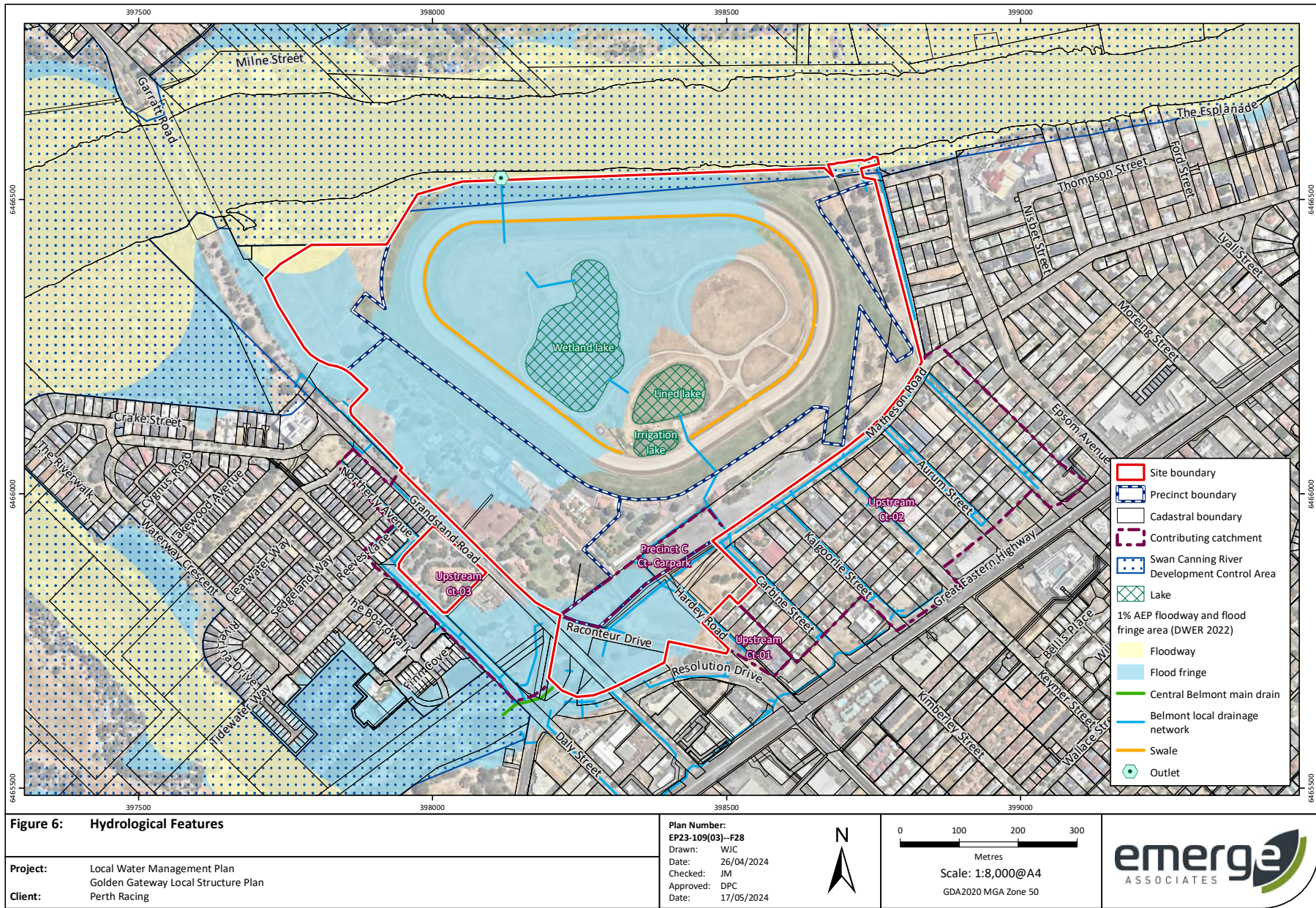
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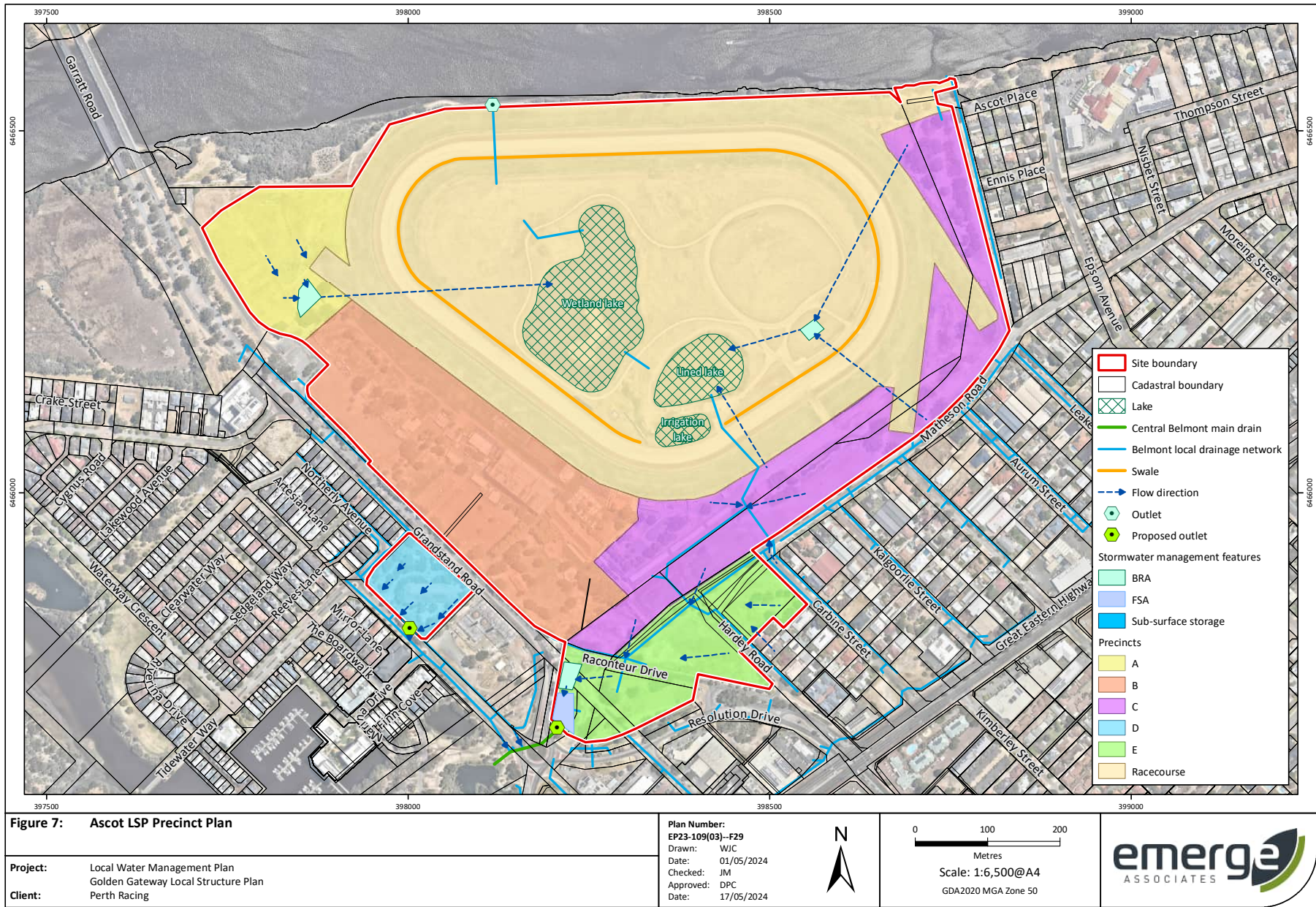


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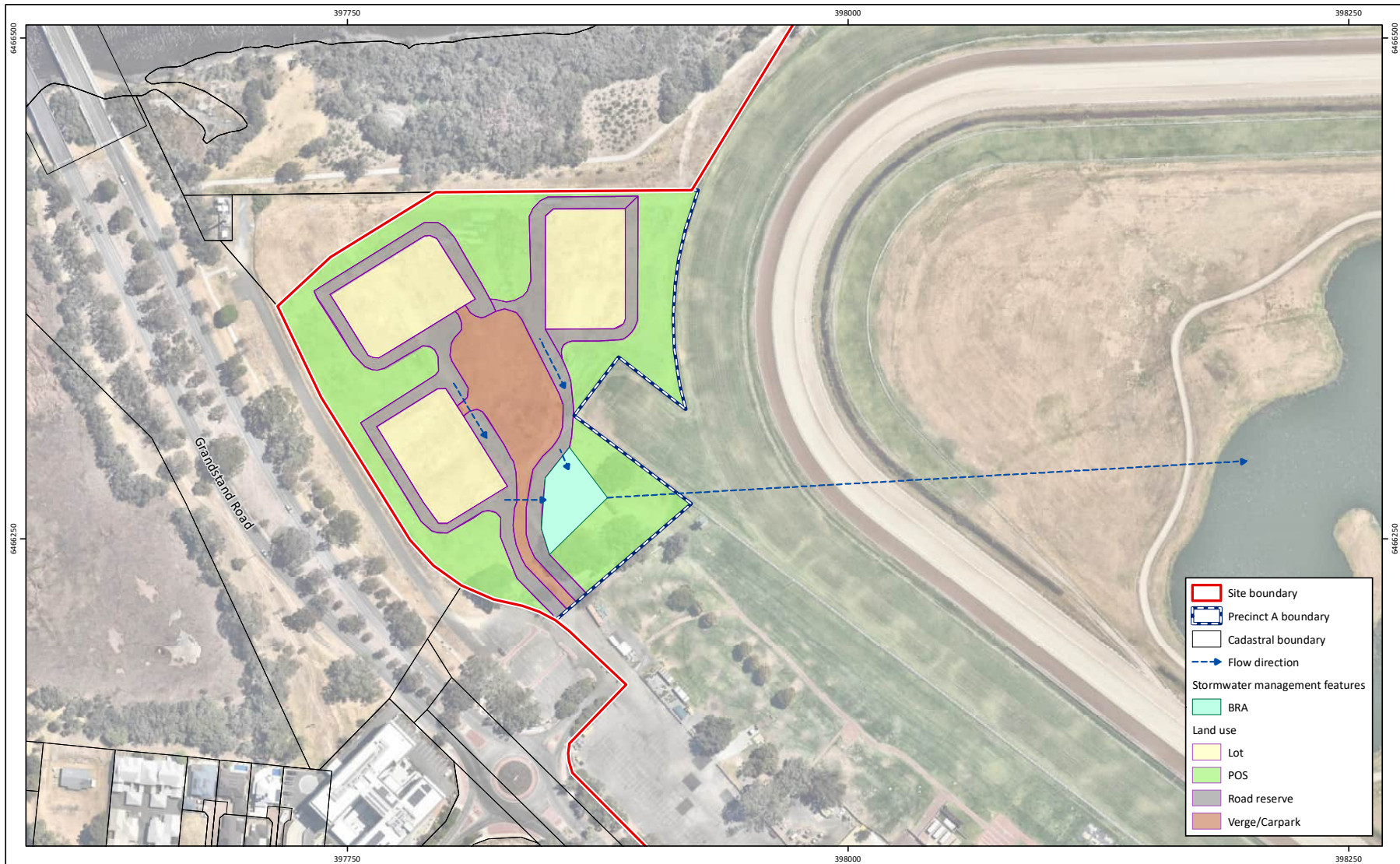


Figure 7A: Precinct A Stormwater Management Plan

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Golden Gateway Local Structure Plan
Client: Perth Racing

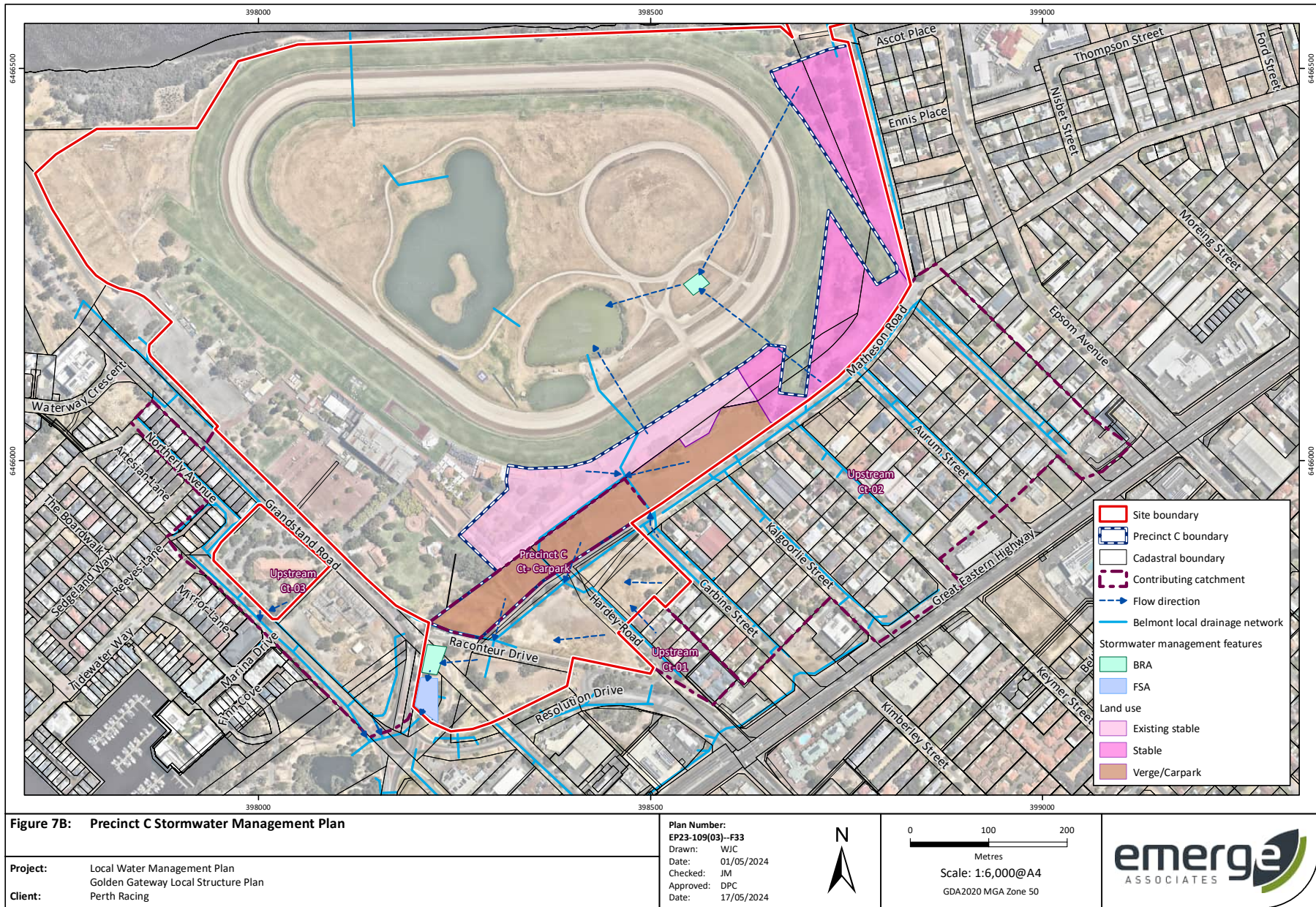
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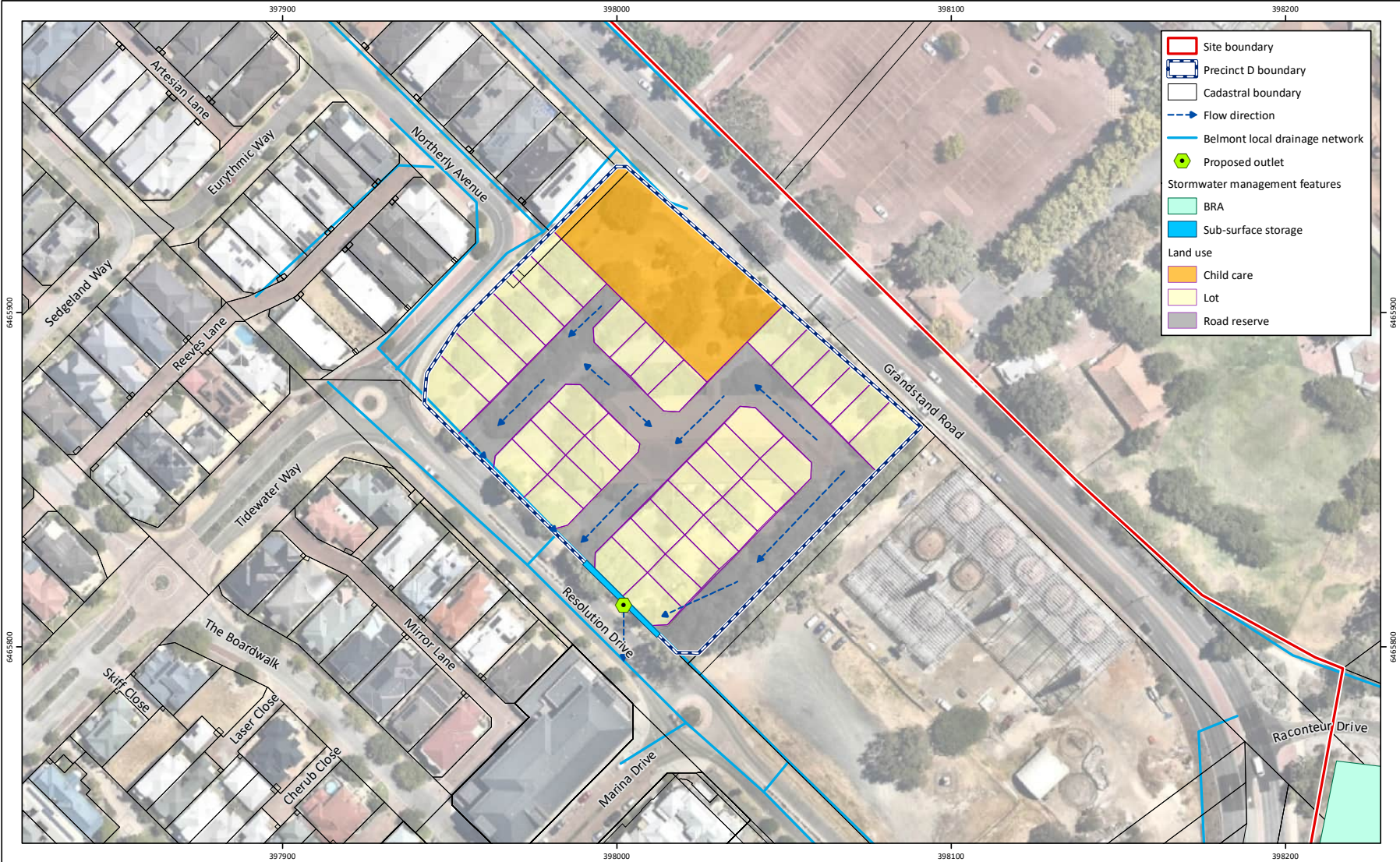


Figure 7C: Precinct D Stormwater Management Plan

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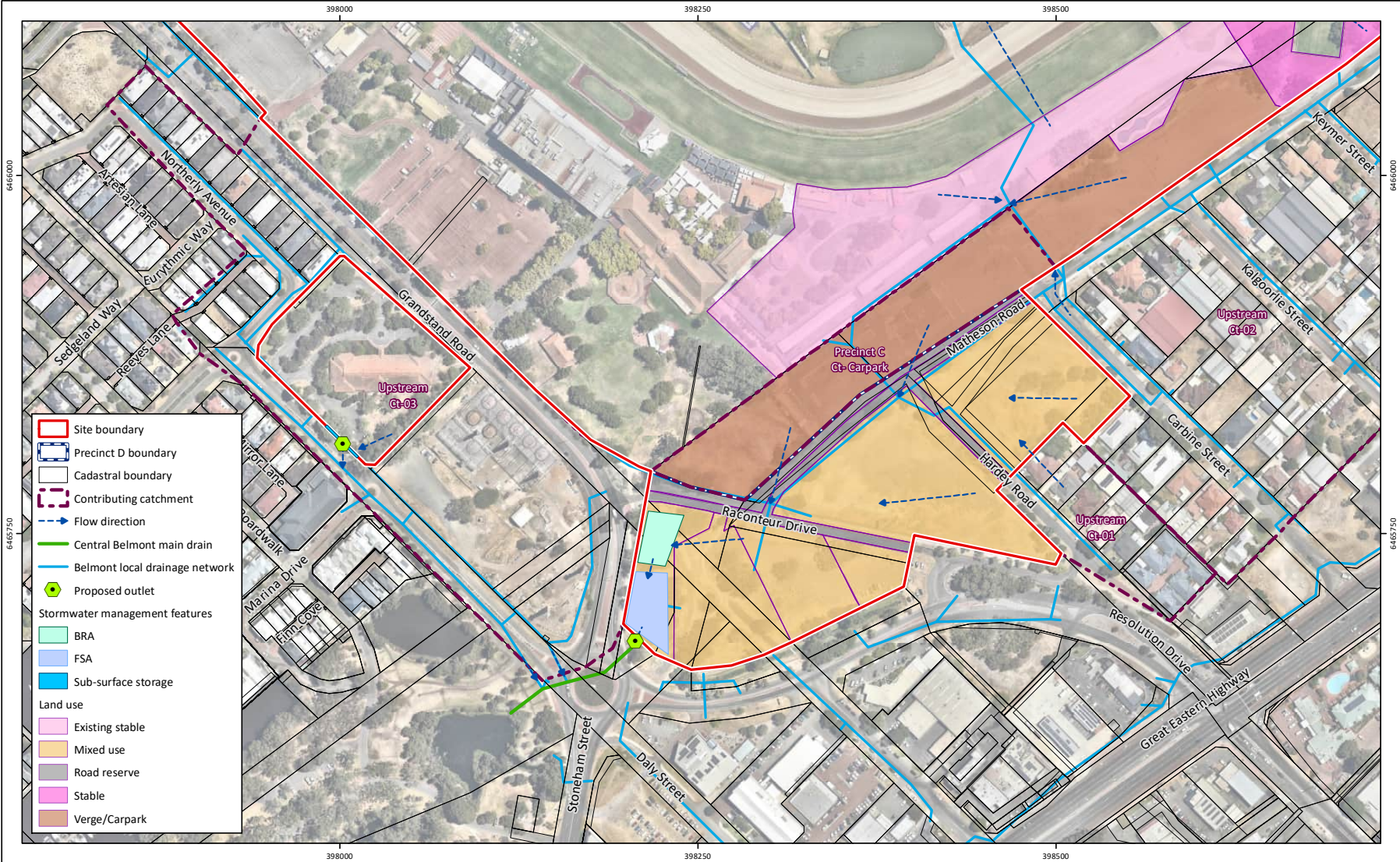


Figure 7D: Precinct E Stormwater Management Plan

Project: Local Water Management Plan
Golden Gateway Local Structure Plan
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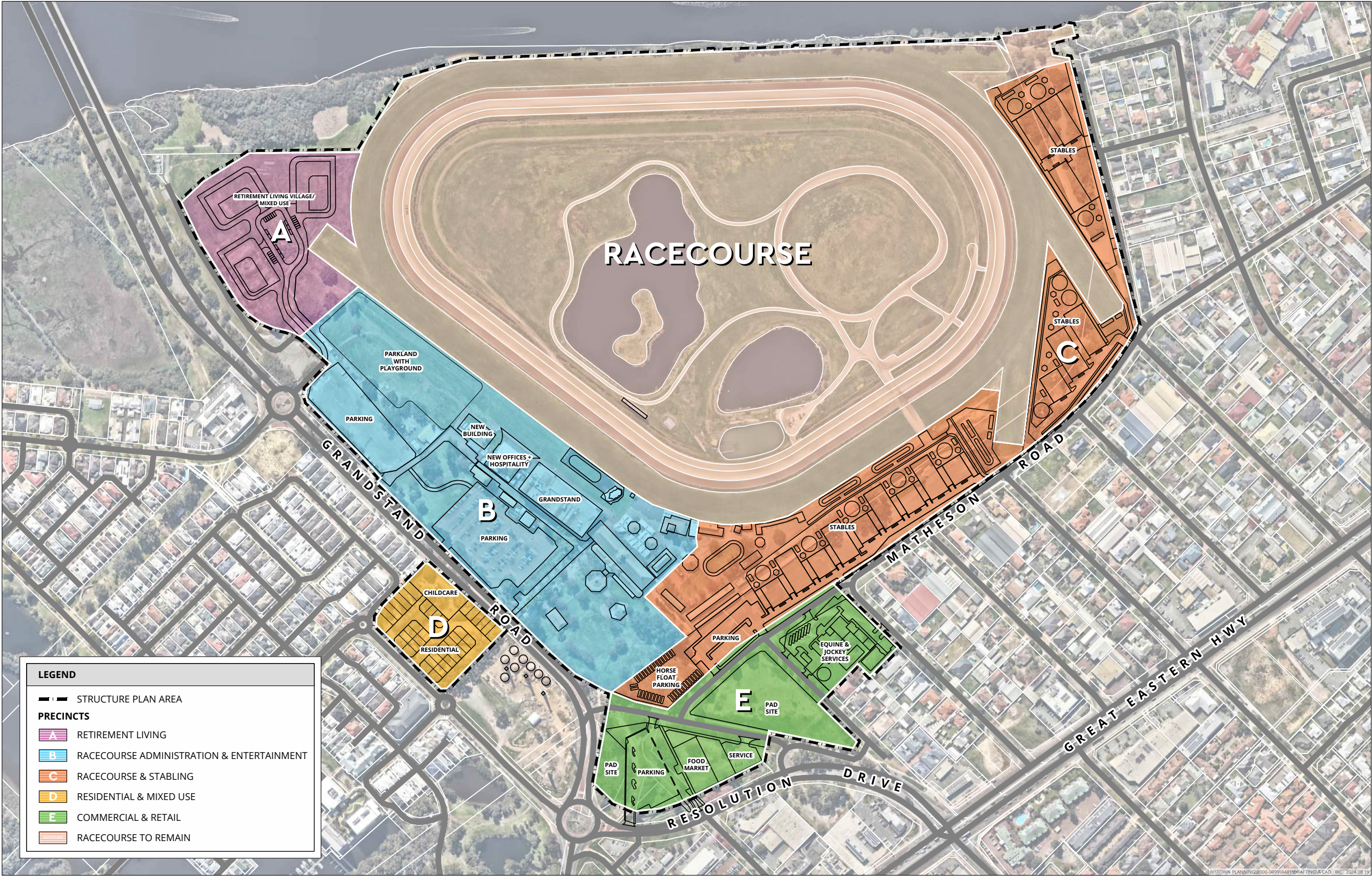
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Appendix A

Concept plan



ROWE Group Design (2023)



DRAFT MASTER PLAN CONCEPT
VARIOUS LOTS - ASCOT RACECOURSE
ASCOT

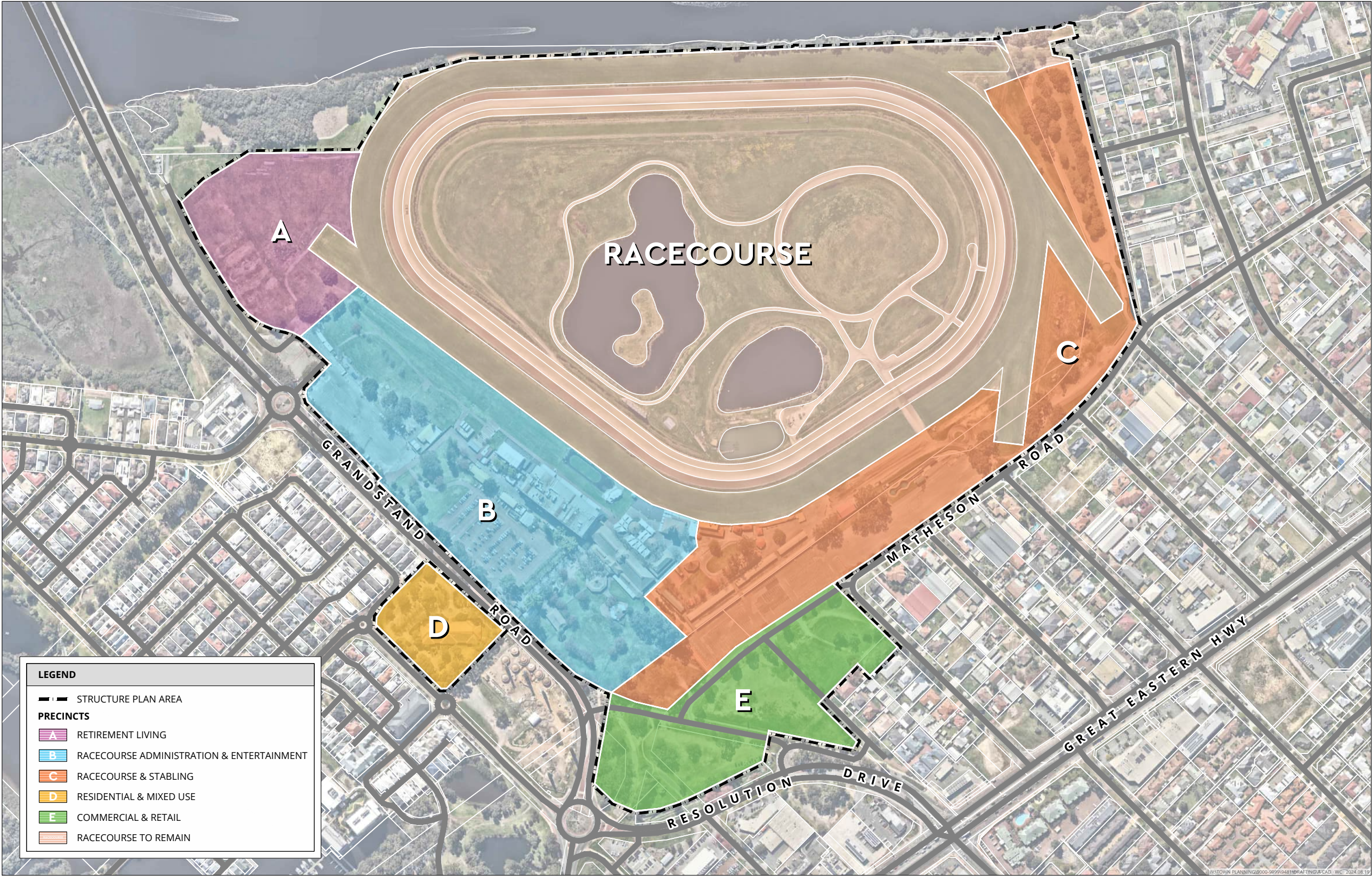


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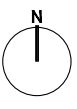
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DESIGN



STRUCTURE PLAN PRECINCTS
VARIOUS LOTS - ASCOT RACECOURSE
ASCOT



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Appendix B

Geotechnical Reports



Precinct A – Douglas Partners 2024

Precinct D – Galt 2024



GROUND
ED
EXPERTISE

**Report on Preliminary Geotechnical
Investigation**

Proposed Residential Development

**Part of Lot 9002 Grandstand Road, Ascot
WA**

Prepared for Perth Racing

Project 219164.03

25 January 2024



GROUND
ED
EXPERTISE

Douglas Partners Pty Ltd
ABN 75 053 980 117
douglaspartners.com.au
**36 O'Malley Street, Osborne
Park, WA 6017**
(08) 9204 3511

Document History Details

Project No.	219164.03
Document Title	Report on Preliminary Geotechnical Investigation
Site Address	Part of Lot 9002 Grandstand Road, Ascot WA
Report Prepared For	Perth Racing
Filename	219164.03.R.001.Rev0

Status and Review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Venkat Vallurapalli/Brendan Divilly	Frederic Verheyde	25 January 2024

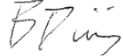

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Revision 0	Perth Racing

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature

Date

Author		25 January 2024
Reviewer		25 January 2024



Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

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Appendix A: About This Report

Appendix B: Test Location Plan



GROUND
ED
EXPERTISE

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Test Pit and Borehole Logs

CPT Results

Appendix C: Geotechnical Laboratory Test Certificates



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Report on Preliminary Geotechnical Investigation Proposed Residential Development Part of Lot 9002 Grandstand Road, Ascot WA

1. Introduction

This report presents the results of a preliminary geotechnical investigation undertaken for a proposed residential development across Part of Lot 9002 Grandstand Road, Ascot WA. The investigation was commissioned by Mr. James Oldring of Perth Racing in a signed order to proceed dated 8 August 2023 and was undertaken in accordance with Douglas' proposal dated 8 May 2023.

It is understood that Perth Racing is evaluating the feasibility of developing the northwest portion of Lot 9002 for possible residential use (the 'site').

The objective of the investigation is to assess the subsurface soil and groundwater conditions at across the site to provide preliminary comments on:

- The geotechnical suitability of the site for the proposed development.
- Geotechnical opportunities and constraints relevant to the proposed development.
- Areas of foundation risk including the presence of aggressive soils and strategies to address identified risks.
- Site preparation, including the possible reuse of existing soil as controlled fill.
- Excavation conditions.
- The likely site classification in accordance with the requirements of AS 2870-2011.
- Appropriate earthquake design factor for the site, in accordance with AS 1170.4-2007.
- Suitable foundation systems, including preliminary design parameters.
- Preliminary design parameters for the design of retaining structures and batter slopes.
- Depth to groundwater at the time of the investigation.
- Recommendations on additional geotechnical investigation at detailed design phase or to address specific ground conditions encountered.

The investigation included eight cone penetration tests, 16 test pits and one borehole excavated and drilled as a part of detailed site investigation (for contamination), and laboratory testing of selected samples. The details of the field work are presented in this report, together with comments and recommendations on the items listed above.

The investigation was conducted concurrently with a detailed site investigation (for contamination), which has been reported under separate cover (219164.01.R.001.Rev0). The detailed site investigation (for contamination) report should be read in conjunction with this report.

2. Site Description

The site comprises an irregular shaped area, approximately 36.2 ha in size, that covers a part of Lot 9002 Grandstand Road, within the Ascot Racecourse.

At the time of the field work, the majority of the site was vacant and vegetated with short grass. A few mature trees, about 5 m to 10 m in height, occupied the southern part of the site. A parking lot and small loading area were located at the south-western corner of the site. Some fly-tipped rubbish, including fences and posts, were observed at several locations across the site.

According to publicly available LiDAR data (DEM derived to 5 m), the topography across Lot 9002 is relatively flat with existing surface levels ranging from approximately RL 2 m relative to the Australian Height Datum (AHD) in the western part of the site to RL 3.5 in the north-eastern corner of the site.

The Perth 1: 50 000 Environmental Geology sheet indicates that shallow sub surface conditions beneath the western two thirds of the site comprise sandy silt of the Guildford Formation, and beneath the north-eastern corner and eastern corner of the site comprise alluvium.

The Perth Groundwater Atlas (2004) indicates that in May 2003, the groundwater level beneath the site was less than RL 1 m, or between approximately 1.0 m and 2.5 m below the existing surface level. The Atlas also indicates that the groundwater flow direction beneath the site in May 2003 was approximately northwest towards the Swan River.

The published acid sulfate soil risk mapping indicates that the site is located within an area which is mapped as *"high to moderate risk of acid sulfate soils occurring within 3 m of natural soil surface"*.

3. Field Work Methods

Field work for the investigation was carried out between 11 October and 9 November 2023 and comprised:

- The excavation of 16 test pits.
- The drilling of one borehole.
- Perth sand penetrometer (PSP) or Dynamic cone penetrometer (DCP) testing adjacent to each test pit or borehole location.
- The performance of cone penetration tests at 8 locations (CPT24 to CPT31A). A total of 14 CPTs were undertaken after repeating CPTs at some locations in attempt to achieve greater testing depth following shallow refusal in uncontrolled fill.

The test pits (locations 7 to 22) were excavated using a 5-tonne excavator, equipped with 450 mm toothed bucket, and the borehole (location 23) was drilled using a 250 mm diameter power auger attached to the same excavator. The ground conditions at each test pit and borehole were logged in accordance with Australian Standard (AS 1726, 2017) by a geo-environmental engineer from Douglas. Soil samples were recovered from selected locations for subsequent laboratory testing.

Dynamic cone penetrometer (DCP) and Perth sand penetrometer (PSP) tests were undertaken adjacent to the test pit and borehole locations in accordance with Australian Standards (AS 1289.6.3.3, 1997; AS 1289.6.3.2, 1997) to assess the in-situ density of the shallow soils.

The CPTs use a 36 mm diameter instrumented cone with a following 130 mm long friction sleeve attached to rods of the same diameter, pushed continuously at a rate of 20 mm/sec into the soil by hydraulic thrust from a truck rig. Strain gauges in the cone and sleeve measure resistance to penetration and friction along the sleeve during penetration. This data is recorded on a computer and analysed to assess the type, properties and condition of the materials penetrated. The CPT's were pushed to termination depths of up to 20.2 m. Upon withdrawing the CPT probe, each test hole was dipped in an attempt to measure groundwater levels. CPTs were repeated at several test locations to attempt achieving greater testing depth following shallow CPT refusal on inferred hard foreign inclusions in the uncontrolled fill.

Test locations were determined using a handheld GPS and site features and are marked on Drawing 1, Appendix B. Surface elevations were recorded using a differential GPS with a reported accuracy of 0.1 m.

4. Field Work Results

4.1 Ground Conditions

The logs of the ground conditions and results of the field testing are presented in Appendix B, together with notes defining descriptive terms and classification methods, in Appendix A.

- **Uncontrolled FILL**

- **Granular FILL - SAND, Organic SAND, Gravelly SAND, Silty SAND and Sandy GRAVEL (SP, SP-SM, SM and GP-GM)** – generally sandy fill (or gravelly material associated with pavement layers at location 23), uncontrolled (apart from the pavement layers), from surface to depths of between 0.6 m and 3.6 m depth, encountered at all locations. A layer of organic sandy fill layer was observed between 1.4 m and 1.8 m depth at location TP8. The sandy fill was generally loose to medium.
- **Cohesive FILL - Clayey SAND, Sandy CLAY, CLAY (SM, SC, CI and CL-CI)** – generally stiff to very stiff, either underlying the aforementioned sandy fill material or interbedded within layers of sandy fill, encountered at test pit locations 9, 20, 21, 23, and CPT locations 24, 24A, 29 and 29A.

A considerable amount of foreign inclusions such as fragments of brick, glass, timber, geofabric, concrete, plastic, rubber, scrap metal, terracotta pipes, redundant cables and PACMs were observed at all test pit locations, except location 22. A layer of asphalt was encountered at 0.95 m depth at TP9. The fill materials across the site are uncontrolled.

It is noted that the fill extended below groundwater level at many locations.

Overlying natural soils including:

- **Clayey soils including Clayey SAND and CLAY** – ranging between very soft to soft and stiff to very stiff, encountered under the fill materials at CPTs 25, 30 and 31A to depths between 4.2 m and 14.9 m.
- **Sandy soils including SAND and Silty SAND** – underlying and interbedded within the above clayey soils at CPTs 25, 30 and 31A. The sand was generally very loose and loose to medium dense to depths between 10.5 m and 14.9 m, becoming medium dense and dense below.

4.2 Groundwater

Groundwater level observations between 18 September and 9 November 2023 are summarised in Table 1 and are shown on the logs in Appendix B.

The test holes were immediately backfilled following sampling, which precluded longer-term monitoring of groundwater levels. Six monitoring wells (MW01 to MW06) were installed as part of the preliminary environmental investigation (reported separately) and groundwater observations available from these wells at the time of report writing have been included in Table 1.

Table 1: Summary of Groundwater Levels

Location	Date of Measurement	Ground Surface Level ^[1] (m AHD)	Groundwater Depth (m)	Groundwater Level ^[2] (RL m AHD)
MW01	18 September 2023	1.9	1.30	0.6
MW02		2.0	1.46	0.5
MW03		3.2	2.37	0.8
MW04		2.4	1.59	0.8
MW05		2.5	1.21	1.3
MW06		2.2	1.09	1.1
TP7	9 November 2023	2.9	2.30	0.6
TP9		2.1	2.10	0.0
TP12		2.1	2.10	0.0
TP13		2.8	2.50	0.3
TP15		2.2	2.40	-0.2
TP16		2.6	2.50	-0.1
TP17		2.2	2.10	0.1
TP19		2.2	1.80	0.4
TP20		2.0	2.10	-0.1
TP21		2.1	1.80	0.3
TP22		2.3	1.80	0.5
BH23		2.4	1.70	0.7
CPT25	11 October 2023	3.4	3.00	0.4
CPT28		1.9	1.30	0.6
CPT29A		2.3	2.20	0.1
CPT30		3.2	2.80	0.4
CPT31A		2.1	2.00	0.1

Notes for Table 1: [1]: Surface level measured using a differential GPS.

[2]: Groundwater Level = Surface Level – Groundwater Depth.

It should be noted that groundwater levels are affected by climatic conditions and land usage and will therefore vary with time. In addition, owing to the proximity of the Swan River, the groundwater levels are expected to be impacted by the tidal river conditions and river flood levels.

5. Laboratory Testing

A geotechnical laboratory testing programme was carried out by a NATA accredited laboratory and comprised:

- the particle size distributions on seven samples;
- the Atterberg Limits and linear shrinkage on three samples; and
- the organic content on four samples.

Results of the laboratory testing are summarised in Tables 2. The test certificates are presented in Appendix C.

Table 2: Results of Laboratory Testing for Soil Identification

Location	Depth (m)	Fines (%)	Sand (%)	Gravel (%)	LL (%)	PL (%)	PI (%)	LS (%)	OC (%)	Material
TP8	1.5	9	61	30	-	-	-	-	6.8	FILL / Organic SAND SP-SM, with gravel and silt
TP13	1.5	4	95	1	-	-	-	-	1.6	FILL / SAND SP, trace gravel and silt
TP19	2.5	5	83	12	-	-	-	-	1.5	FILL / SAND SP, trace gravel and silt
TP21	2.0	40	51	9	37	24	13	8.5	-	Sandy CLAY CI, medium plasticity, trace gravel
TP22	2.0	7	93	0	NO	NP	NP	-	-	SAND SP-SM, with silt
TP23	2.0	45	48	7	44	22	22	9.5	-	FILL / Sandy CLAY CI, medium plasticity, trace gravel
TP23	2.5	12	87	1	-	-	-	-	1.2	FILL / SAND SP-SM, with silt, trace gravel

Notes: Fines = Finer than 75 µm.

Sand = Between 2.36 mm and 75 µm.

Gravel = Larger than 2.36 mm.

LL – liquid limit PL – plastic limit PI – plasticity index

LS – linear shrinkage

OC – organic content NO – not obtainable NP – non plastic

6. Proposed Development

At the time of preparing this report, the details for the proposed development were not yet available. Notwithstanding, it is understood that the proposed development is likely to be residential and, given the location, is presumed would likely be multistorey and possibly include a basement level.

7. Comments

7.1 Site Suitability

The investigation indicates that the site is generally underlain by uncontrolled fill overlying very soft to stiff clayey materials and very loose sandy soils becoming medium dense and dense with depth as described in Section 4.1 above.

From a geotechnical standpoint, there are several significant geotechnical constraints that will adversely impact on any development of the site including;

- Deep uncontrolled fill, unsuitable to support shallow foundations, and will impact on construction activities associated with deep piled foundations.
- Deep very soft and very loose natural soils under the uncontrolled fill, unsuitable to support shallow foundations.
- Shallow groundwater which will make earthworks across the site any possible remediation works of the above difficult. It should be noted that the abovementioned uncontrolled fill and soft soils both extend below groundwater.

Owing to the significant geotechnical constraints, any possible development will likely require a piled foundation solution into the medium dense and dense sandy soils, encountered below depths of approximately 10 m to 15 m. Additional geotechnical investigation will be required to confirm the foundation design and suitable pile design parameters. Also, noting that any proposed additional loading of the ground (for instance from the placement of fill to raise site levels, if proposed) would generate further consolidation of the soft soils underlying the site and could result in some possible significant ground settlement. Therefore, surcharging areas (by placing temporary fill prior to construction of any structure) outside the proposed building envelopes might also be required during the site preparation to manage the risk of differential settlements between proposed buildings and adjacent ground, following their construction.

7.2 Site Classification

The shallow ground conditions beneath the site comprise uncontrolled fill materials and deep loose and soft soil deposits. Based on the results of the investigation and in accordance with Australian Standard (AS 2870, 2011), a site classification of 'Class P' applies to the site, owing to the presence of the uncontrolled fill and deep loose and soft soil.

7.3 Site Seismic Classification

Owing to the uncontrolled fill and deep very loose and very soft soil deposits across the site, an earthquake design soil sub-class of Ee is considered appropriate for this site in accordance with Australian Standard (AS 1170.4, 2007). The Hazard Factor (Z) for the site is 0.09, according to Australian Standard (AS 1170.4, 2007). Due to the deep loose soil below the water table, the site also has a significant potential for liquefaction. An assessment on the liquefaction potential of the site should be considered during any detailed investigation, when more details can be collected on the extent of deep loose soils.

7.4 Excavation Conditions

The encountered ground conditions generally comprise uncontrolled fill, with some large foreign inclusions within the fill, extending below groundwater. Conventional earthmoving equipment (such as large excavators, say at least 20 t) should be generally suitable for shallow excavations in the surficial uncontrolled fill. Shallow groundwater is likely to impact excavations across the site.

The majority of the uncontrolled fill encountered during this preliminary investigation is considered to be geotechnically unsuitable for re-use as structural fill in its current condition. Any further consideration to reuse the uncontrolled fill would require some specific geotechnical provisions, such as screening and disposing its unsuitable components. Separating the re-useable granular components (e.g. the sandy fill) from its cohesive components (e.g. clayey fill) might also prove to be practically difficult. Owing to the significant variability of uncontrolled fill materials across the site, any re-use potential from a geotechnical standpoint should be confirmed on-site by a geotechnical engineer. Some environmental considerations (i.e. contamination) are also anticipated to be required. Overall, at this stage of the study, the reuse of the encountered uncontrolled fill should be considered to be associated with some significant constraints that might preclude such reuse.

7.5 Slope Stability

During construction, it is recommended that temporary batter slopes across the site are maintained flatter than 2:1 (H:V) if not retained. This batter angle is valid provided no surcharge loads (including live loads such as vehicles and machinery) apply at the top of the slope. In uncontrolled fill materials, a safe batter angle not steeper than 3:1 (H:V) is recommended for design for slopes not greater than 3 m in height, however, owing to variability of the uncontrolled fill materials, this value should be adjusted during construction based on the encountered conditions.

The design of unpropped flexible or rigid walls should be undertaken using a triangular pressure distribution and the earth pressure parameters given in Table 4. In addition to the soil pressure, wall design should also allow for external loads such as buildings, live loads and hydrostatic pressure. Owing to the likely significant settlements associated with the uncontrolled fill and deep soft soils, the requirement to adopt a piles foundation system to support proposed retaining walls is anticipated.

Table 4: Preliminary Soil Parameters for Earth Retaining Design

Soil Type and Density	Soil Unit Weight Above Water γ (kN/m ³)	Submerged Soil Unit Weight γ' (kN/m ³)	Drained Angle of Friction Φ' (°)	Undrained Shear Strength C_u (kPa)	Coefficient of Earth Pressure – Active K_a	Coefficient of Earth Pressure – Passive K_p	Coefficient of Earth Pressure – at Rest K_0
Uncontrolled Fill Materials	16	6	28	-	0.36	2.7	0.5

It should be noted that the passive earth pressure coefficient (second last column of Table 4) is an ultimate value and does not incorporate a factor of safety. Because the stress-strain relationship curve for lateral loading is not linear, relatively large strains are required to mobilise full passive pressure, but only relatively small strains are required to mobilise half the passive pressure, therefore it would be prudent to incorporate a factor of safety of at least 2 for uncontrolled fill materials, to derive design values from the ultimate values.

7.6 Foundation Options

Shallow footings are not considered suitable across this site, owing to the significant thickness of uncontrolled fill and deep loose and soft soils.

7.6.1 Piles

It is anticipated that a piled foundation system, with deep bored piles that penetrate the deep loose and soft soils into the medium dense and dense sandy soils at depth, would likely be required for any foundations on-site.

Bored piles will require temporary or permanent casing throughout the uncontrolled fill materials, noting that possible obstructions within the uncontrolled might cause some difficulties when driving the casing or drilling the pile hole. This pile type will involve soil excavation to target founding level and hence would produce spoil that needs to be handled and disposed of in a suitable manner, which will need to also be considered from an environmental standpoint.

Installation through the uncontrolled fill materials could be affected by the possible presence of large, hard inclusions and the design of the pile installation methodology should take this possibility into consideration.

The settlement of the uncontrolled fill will exert negative skin friction on the piles, which the piles will need to be designed to accommodate or be constructed in sleeves.

Additional deep geotechnical boreholes will be required across the site to inform on the pile design.

7.6.1 Controlled Modulus Columns

Controlled modulus columns could be installed as an alternative to conventional pile foundations, allowing shallow footings to be used whilst controlling settlements to acceptable limits.

Installation of controlled modulus columns involves displacing a column of material using a reverse flight auger, densifying the soil around the auger, and backfilling the resulting hole with cement ground under moderate pressure to create a 'hard' inclusion in the ground. The columns are typically 250 mm to 500 mm in diameter. Column spacings of columns typically 1.8 m to 2.5 m but would need input from a specialist ground improvement contractor. Columns can be installed to depths of up to 50 m, so could penetrate to the base of the uncontrolled fill and deep loose and soft soils. However, if large hard inclusions such as concrete slabs or beams, are encountered then the auger may experience refusal, as the CPTs did at several locations during the preliminary geotechnical investigation.

A load transfer platform, such as a granular, well compacted fill layer, possibly reinforced with geogrid or geotextile, would be needed to transfer loads from shallow foundations to the columns.

One main benefit of this ground improvement option (compared to piling) would be to minimise differential settlement across the site and notably between buildings and surrounding grounds. However, it would likely be limited to low level development (say 2 to 3 level buildings), and this option is anticipated to likely be prohibitively expensive, with likely significant mobilisation and installation costs. The advice of a specialist ground improvement contractor, such as Menard Oceania, is suggested to be sought to further assess the suitability of this ground improvement to the proposed development.

7.7 Pavement Construction

The uncontrolled fill across the site does not form a suitable subgrade material for pavement in its current condition. Depending on the expected loading of proposed pavement, the requirement for some over-excavation of uncontrolled fill is likely. Construction should involve the use of a geo-composite layer (such as Global Synthetics' Combigrid) across the base of the over-excavation, overlain by a 500 mm thick layer of compacted crushed limestone, placement of a layer of geogrid (such as Global Synthetics' Secugrid), and a further 500 mm of compacted sand fill. The base of the constructed floating pavement footprint should be at least 2 m wider on each side than the total pavement width (4 m wider in total) to account for a suitable batter and transfer of load. Standard flexible pavements could then be constructed on the 1 m thick raft of stiffened subgrade. Placement of the initial base layer of composite geogrid may be difficult across areas of exposed uncontrolled fill. As such, depending on the site conditions, a 300 mm thick capping layer of clean fill may be required.

Regardless of the above site preparation, some settlement of the pavement should be expected over its service life and should be considered in the selection of the pavement surfacing. The use of pavers should be considered as such surfacing treatment would deform without cracking. Alternatively, a bituminous seal should be preferred over say an asphalt, owing to greater flexibility and to decrease maintenance and repair requirements, noting however that seals are less resistant than asphalt to shearing forces from tyres of turning heavy vehicles. The use of a specialised asphalt, such as a stone mastic asphalt, could also be considered, noting it would be less resistant to the risk of cracking than a seal. Some allowance for regular maintenance and repairs should be allowed during the serviceability of the pavement.

7.8 Stormwater Drainage

Owing to the occurrence of low permeability soils and groundwater at shallow depth, the site is considered unsuitable for on-site stormwater disposal. It is suggested that stormwater is controlled using positive drainage or a subsoil drainage network, connected to a suitable outflow.

7.9 Additional Geotechnical Investigation

Additional geotechnical investigation across the site, by way of deep geotechnical boreholes (as a minimum), further CPT and additional laboratory testing, should be undertaken to help refine the ground model, provide pile design parameters, confirm suitable bearing strata for piles, and assess the soil aggressivity and exposure classification for piles. It is recommended that the detailed investigation programme be developed once some details of the proposed development

are known, if possible, in order to target specific geotechnical issues associated with the development.

The investigation covered in this report should be considered preliminary and as noted in selected sections of the report, additional detailed geotechnical testing at a greater testing frequency is anticipated once the project design has progressed.

8. References

AS 1170.4. (2007). *Structural Design Actions, Part 4: Earthquake Actions in Australia*. Reconfirmed 2018. Incorporating Amendments 1 & 2: Standards Australia.

AS 1289.6.3.2. (1997). *Methods for testing soils for engineering purposes - Soil strength and consolidation tests - Determination of the penetration resistance of a soil - 9kg dynamic cone penetrometer test*. Reconfirmed 2013: Standards Australia.

AS 1289.6.3.3. (1997). *Methods for testing soils for engineering purposes - Soil strength and consolidation tests - Determination of the penetration resistance of a soil - Perth sand penetrometer test*. Reconfirmed 2013: Standards Australia.

AS 1726. (2017). *Geotechnical Site Investigations*. Standards Australia.

AS 2159. (2009). *Piling - Design and Installation*. Standards Australia.

AS 2870. (2011). *Residential Slabs and Footings*. Standards Australia.

9. Limitations

Douglas Partners (DP) has prepared this report for this project at Part of Lot 9002 Grandstand Road, Ascot WA in accordance with DP's proposal dated 8 May 2023 and acceptance received from Mr James Oldring in a signed services order dated 8 August 2023. The work was carried out under DP's Engagement Terms. This report is provided for the exclusive use of Perth Racing for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

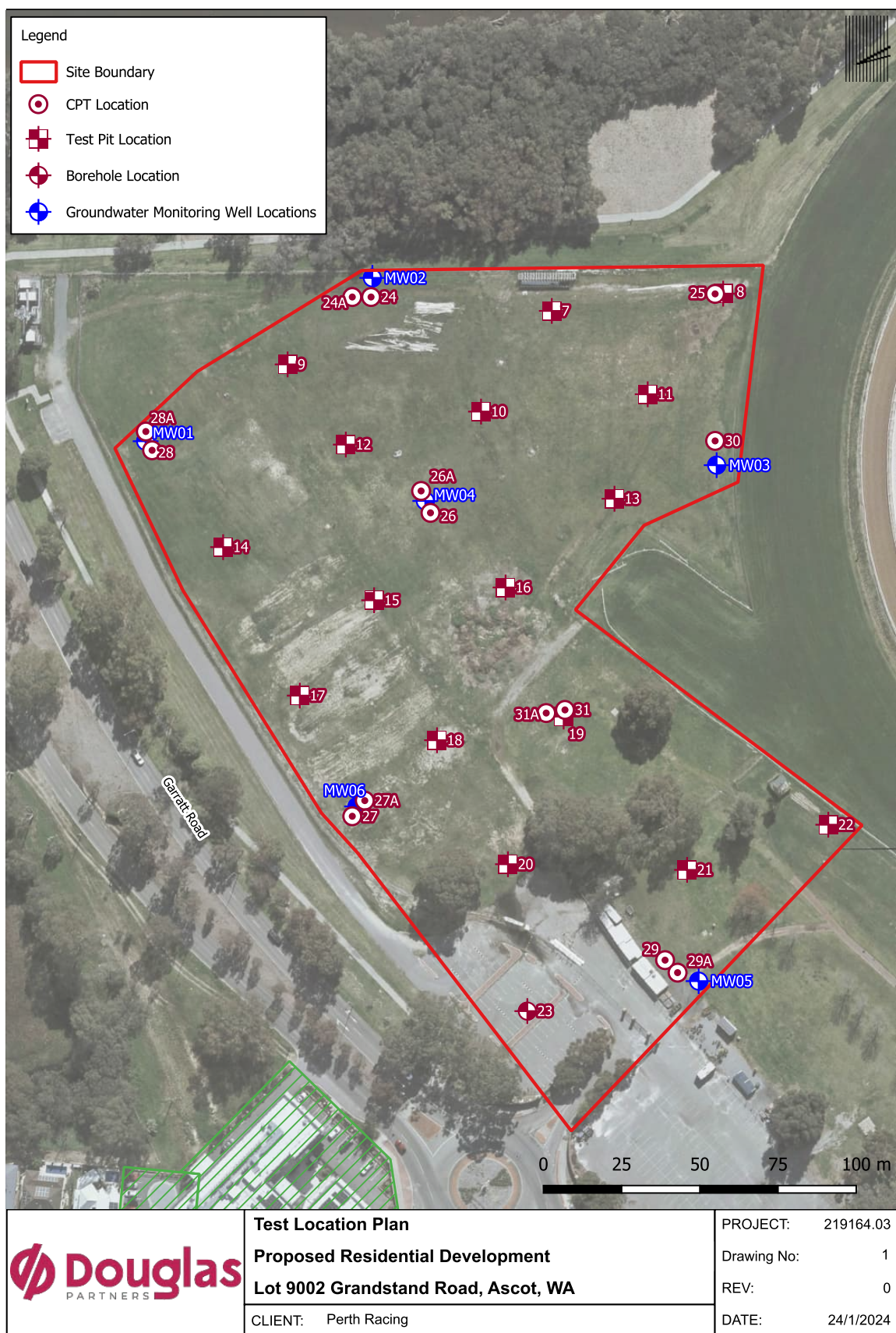
The scope of work for this investigation/report did not include the assessment of surface or sub-surface materials or groundwater for contaminants, within or adjacent to the site. Should evidence of fill of unknown origin be noted in the report, and in particular the presence of building demolition materials, it should be recognised that there may be some risk that such fill may contain contaminants and hazardous building materials.

Appendix B

Test Location Plan

Test Pit and Borehole Logs

CPT Results



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 1.9 AHD
COORDINATE: E:397722.0, N:6466365.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 01
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
RL (m)													
	0.40	FILL / SAND (SP-SM), with silt, trace rootlets: grey-brown; fine to medium; poorly graded.		FILL									
	0.50	FILL / SAND (SP-SM), with silt, trace rootlets: grey - brown; fine to medium.					M		ASS		0.50		
	1.00								ASS		1.00		
	1.50			FILL					ASS		1.50		
	2.00								ASS		2.00		
	2.10	SAND (SP), trace silt: grey; fine to medium.							ASS		2.10		
	2.50								ASS		2.50		
	3.00			ALV			W		ASS		3.00		
	3.50								ASS		3.50		
	3.60	Clayey SAND (CL-CI): grey; fine to medium; low to medium plasticity clay.		ALV					ASS		3.60		
	4.00	Borehole discontinued at 4.00m depth. Target Depth Reached.							ASS		4.00		
	5.00										5.00		

Ground Water Measured at 1.3 m

18/09/23

Backfill: Concrete

Well Pipe: 50mm Class 1B

NOTES ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.0 AHD
COORDINATE: E:3977795.0, N:6466418.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 02
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
RL (m)										
		FILL / SAND (SP-SM), with silt, trace gravel: grey; fine to medium.								
		From 0.40m: becoming orange-brown							ASS	0.50
	1	From 1.10m: becoming grey-brown, trace limestone gravel		FILL			M		ASS	1.00
		1.60m: trace brick, limestone gravel, wet @ 1.6 m							ASS	1.50
	2								ASS	2.00
	2.20	Sandy CLAY (CL-Cl): grey; low to medium plasticity; fine to medium sand.		ALV					ASS	2.50
	2.70	SAND (SP), trace rootlets, trace silt: grey; fine to medium.					W		ASS	3.00
	3			ALV					ASS	3.50
	4	Borehole discontinued at 4.00m depth. Target Depth Reached.							ASS	4.00
	5									

NOTES: *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 3.2 AHD
COORDINATE: E:397905.0, N:6466358.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 03
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY: ⁽¹⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
Ground Water Measured at 2.37 m 18/09/23	0.30	FILL / SAND (SP), trace silt: orange; fine to medium. From 0.30m: becoming grey, trace clay, limestone gravel		FILL							0.30				
	1.60	FILL / Clayey SAND (SC), trace gravel: grey; fine to medium; low to medium plasticity clay.		FILL							1.60				
	2.20	FILL / SAND (SP), trace silt: orange - grey; fine to medium. 2.80m: trace brick		FILL							2.20				
	3.00	FILL / Clayey SAND (SC): grey; fine to medium; low to medium plasticity clay. 3.30m-3.50m: with bitumen layer		FILL							3.00				
	3.60	FILL / CLAY (CL-CI), trace sand: grey - green; low to medium plasticity.		FILL							3.60				
	4.00	Borehole discontinued at 4.00m depth. Target Depth Reached.									4.00				
	5.00										5.00				

NOTES ⁽¹⁾ Soil origin is "probable" unless otherwise stated. ⁽²⁾ Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe 7822DT	OPERATOR: [REDACTED]
METHOD: Direct Push Probing	
REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.	

OPERATOR: DPP

LOGGED: W
CASING: Nil

Refer to explanatory notes for symbol and abbreviation definitions


































BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397812.0, N:6466346.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 04
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS																		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE														
Ground Water Measured at 1.59 m 18/09/23		0.60	FILL / SAND (SP-SM), with silt, trace rootlets: orange grey; fine to medium.		FILL						ASS		0.50																	
		1.00	FILL / SAND (SP), with gravel, trace clay: grey; fine to medium; fine to medium gravel.		FILL							ASS		1.00																
			1.50m: trace brick, wet																											
		2.00	2.00m: trace brick		FILL							ASS		2.00																
		3.00	3.00m: trace brick		FILL							ASS		2.50																
3.40		SAND (SP), trace silt: grey-orange; fine to medium.		ALV						ASS		3.50																		
		Clayey SAND (SC): orange-grey; fine to medium; low to medium plasticity clay.																												
3.60		Sandy CLAY (CL): grey; low to medium plasticity; fine to medium sand.		ALV						ASS		4.00																		
4.00		Borehole discontinued at 4.00m depth. Target Depth Reached.								ASS		4.00																		
5.00												5																		

Generated with CORE-GS by Cerec - Soil Log

NOTES ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface lvel surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.5 AHD
COORDINATE: E:397900.0, N:6466193.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 05
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
Ground Water Measured at 1.21 m 18/09/23			FILL / SAND (SP-SC), with rootlets, with silt: orange-grey, fine to coarse.		FILL					ASS		0.50			Concrete Bentonite 50mm Class 1B	50mm Class 1B
	0.60		FILL / Clayey SAND (SC): orange-grey, fine to medium; low to medium plasticity clay.		FILL					ASS		1.00				
	1.40		SAND (SP), trace silt: orange-grey, fine to medium.							ASS		1.50				
	2.00				ALV					ASS		2.00				
	2.60									ASS		2.50				
	3.10		Sandy CLAY (CL): grey-black; low to medium plasticity; fine to medium sand.		ALV					ASS		3.00				
	3.40		SAND (SP): grey; fine to medium.		ALV											
	3.40		Sandy CLAY (CL): grey-black; low to medium plasticity; fine to medium sand.		ALV					ASS		3.50				
	4.00		Borehole discontinued at 4.00m depth. Target Depth Reached.							ASS		4.00				

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397790.0, N:6466249.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 06
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED															SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE						
Ground Water Measured at 1.09 m 18/09/23	0.40		FILL / SAND (SP) : Sand, with rootlets, trace silt: orange-grey; fine to medium.		FILL																	
	0.40		FILL / SAND (SP), with gravel: grey-brown; fine to medium.							ASS		0.50										
	1		From 0.80m: becoming grey, no gravel									1										
	1		From 1.10m: becoming orange-grey																			
	2		From 1.80m: becoming grey and trace brick									2										
	2.20		FILL / Clayey SAND (CL): grey; fine to medium; low to medium plasticity clay; may be natural.		FILL																	
	2.60		SAND (SP): grey; fine to medium.		ALV							3										
	3		Sandy CLAY (CL): dark grey; low to medium plasticity; fine to medium sand.		ALV																	
	3.10																					
	4		Borehole discontinued at 4.00m depth. Target Depth Reached.										4									
	2																					
	5											5										
	5																					

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NOTES ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface lvel surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.9 AHD
COORDINATE: E:397852.9, N:6466410.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP07
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS						
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS		
<div>0.91/23</div> <div>▼</div>			FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium. From 0.17m: becoming orange		FILL		D to M		ES		0.10	PID			
			0.54m: trace geo-fabric						ES		0.40	PID	<1ppm		
	0.60		FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.									0.50			
			0.84m: trace geo-fabric												
	0.90		FILL / GRAVEL (GP-GM) : Gravel, with mulch, with sand: dark brown and dark grey-brown; with silt.								ES	1.00	PID	<1ppm	
	1											1.10			
	1.40		FILL / SAND (SP-SM), with silt: dark grey; fine to medium. 1.50m: trace PACM fragment From 1.60m-2.60m: with fragments of bricks, concrete and metal roofing sheetings						ASB9, ASB10, AF/FA		D	1.50	PID	<1ppm	
									ES		1.60				



Generated with CORE-GS by Geocore - Soil Log with Photo

NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.3 m depth.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 3.6 AHD
COORDINATE: E:397905.7, N:6466414.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP08
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
RL (m)									
		FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.			VD			ES	0.10
		From 0.43m: becoming pale grey, trace gravel						ES	0.50
		From 1.20m: becoming grey						ES	1.00
		FILL / organic SAND (SP-SM), with silt, with gravel: dark grey-brown; fine to medium; trace fragments of brick and concrete.			ND			D	1.50
		1.55m-2.00m: with fragments of brick, concrete and PVC						ES	1.60
		FILL / SAND (SP), trace gravel, fragments of brick and concrete, trace silt: dark grey; fine to medium.						D	2.00
		2.20m: trace metal sheet, PVC						ES	2.10
		2.40m: trace rubber pipe, metal bar						ES	2.50
		Test Pit discontinued at 2.70m depth. (Test Pit terminated due to slow digging).							2.60



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NOTES *Soil origin is "probable" unless otherwise stated. **Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.1 AHD
COORDINATE: E:397768.9, N:6466392.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP09
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
RL (m)									
	0.10	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL	D to D	D to M		ES	0.10
	0.45	FILL / Clayey SAND (SC): orange-brown; fine to medium; low to medium plasticity clay.		FILL	VD			D	0.50
	0.95	FILL / ASPHALTIC CONCRETE: black, 7 mm sized nominal aggregate.						ES	1.00
	0.98	FILL / Silty SAND (SM): brown; fine to medium. From 1.15m: becoming grey-brown medium. From 1.20m: with fragments of brick, concrete slab of 0.4 m in thickness, geo-fabric, metal bar and terracotta pipe 1.40m: trace metal sheet		FILL	ND	M		ES	1.50
	2.00	1.90m-2.10m: trace pockets of Clayey SAND SC						ES	2.10
	2.30	Test Pit discontinued at 2.30m depth. (Collapsing conditions).							



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket**OPERATOR:** SLE Earthmoving**LOGGED:** VV**METHOD:**

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
 PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397829.1, N:6466375.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP10
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
		FILL / SAND (SP-SM), with silt, trace rootlets: bands of grey, orange-brown and pale grey; fine to medium.		FILL	MD		DUP 2	ES	0.10
	2								
	0.80	0.70m: trace geo-fabric		FILL	MD			ES	0.50
	1	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL					0.60
	1.20								
		FILL / SAND (SP), trace rootlets, trace silt: grey-brown; fine to medium.							
		From 1.40m-1.80m: with fragments of brick and concrete		FILL	ND			ES	1.00
	2								1.10
		From 1.80m: becoming dark grey, trace fragments of brick and concrete							
								ES	1.50
									1.60
								ES	2.00
									2.10
		Test Pit discontinued at 2.15m depth. (Test Pit terminated due to slow digging).							



Generated with CORE-GS by Geocore - Soil Log with Photo

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:397881.2, N:6466387.1
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP11
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

		CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	3		FILL / SAND (SP-SM), with silt: grey and orange-brown; fine to medium.						ES		0.10		
			From 0.35m: becoming grey			VD	D to M						
									ES		0.50		
											0.60		
	1								D		1.00		
	2				FILL				ES		1.10		
						ND	M						
			From 1.60m: becoming dark grey, trace fragments of brick						D		1.60		
			From 1.70m-2.40m: with fragments of brick and concrete						ES		1.70		
	2		1.80m: piece of concrete boulder (1 m x 0.5 m) observed										
			2.10m: trace plastic bottle, glass bottle, concrete rubble						ES		2.00		
			2.30m: trace fragments of wooden plank and timer								2.10		
									D		2.30		
			Test Pit discontinued at 2.40m depth. (Test Pit terminated due to slow digging).										



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NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions





TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.1 AHD
COORDINATE: E:397785.4, N:6466366.6
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP12
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	2	FILL / SAND (SP-SM), with silt, trace gravel and rootlets: grey; fine to medium. From 0.20m: becoming yellow-brown		FILL	D to M		ES	0.10	PID	<1ppm	
	0.85 0.90	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL			ES	0.50 0.60	PID	<1ppm	
	1	FILL / SAND (SP), trace fragments of brick, scrap metal, timber and rubber cable, trace silt: dark grey-brown; fine to medium. 1.30m-1.80m: with fragments of plastic waste, insulation material, terracotta pipes and concrete, trace PACM fragments		FILL	M	AF/FA, ASB 6, ASB 7	D	1.00	PID	<1ppm	
	2	From 1.90m: becoming green-grey, trace pockets of CLAY CL-Cl		FILL			ES	1.50 1.60	PID	<1ppm	
					W		B	2.00	PID	<1ppm	
							ES	2.10	PID	<1ppm	
		Test Pit discontinued at 2.30m depth. (Collapsing conditions).									



NOTES ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

Generated with CORE-GS by GeroC - Soil Log with Photo

NOTES: ^(R) Soil origin is "probable" unless otherwise stated. ^(I) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.8 AHD
COORDINATE: E:397872.7, N:6466350.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP13
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
		FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium; 10% non-plastic fines. From 0.15m: becoming orange		FILL	VD to D	D to M		ES	0.10
	0.75	0.70m: trace geo-fabric		FILL				D	0.50
	1	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL				ES	0.60
	1.30	1.20m: trace geo-fabric							
		FILL / SAND (SP), trace gravel, fragments of brick and concrete, trace silt: dark grey; fine to medium.						D	1.00
		1.50m-2.40m: with fragments of bricks and concrete slab						ES	1.10
	2							D	1.50
								ES	1.60
								ES	2.00
								ES	2.10
								ES	2.50
								ES	2.60
		Test Pit discontinued at 2.70m depth. (Collapsing conditions).							



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.5 m depth.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397745.6, N:6466334.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP14
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED				SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
	0.25	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL	to D VD	D to M		ES	0.10
		FILL / Silty SAND (SM): brown and grey-brown; weakly to moderately cemented.							
	0.65m	trace fragments of brick and glass							
	0.72m-2.00m	with fragments of brick, metal sheet and insulation material							
	0.92m	trace fragments of plastic waste, glass and limestone boulders							
	1.00							ES	1.00
	1.10								
	1.50							ES	1.50
	1.60								
	2.00	2.00m: becoming green-grey, trace fragments of timber, brick and concrete blocks, with pockets of Clayey SAND SC						ES	2.00
	2.10								
	2.40	From 2.20m: with fragments of brick and scrap metal						D	2.40
		Test Pit discontinued at 2.50m depth. (Test Pit terminated due to slow digging).							



Generated with CORE-GS by Geocore - Soil Log with Photo

NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions



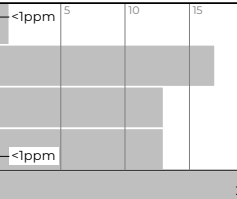
Douglas
 PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397794.3, N:6466319.4
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP15
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS							
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
 0.81/23	2	0.10	FILL / SAND (SP-SM), with silt, trace gravel and rootlets: orange-brown; fine to medium.		FILL	VD	D to M		ES	0.10	PID					
		0.50	From 0.24m: becoming grey									D	0.50	PID	<1ppm	
		0.60	From 0.42m: becoming pale grey							ES						
		0.75														
		0.95	FILL / Sandy GRAVEL (GP-GM), with silt: dark brown and grey; medium to coarse, angular to sub-angular; fine to medium sand.			FILL	ND		M	D	1.00	PID	<1ppm			
		1	FILL / SAND (SP), with fragments of brick and concrete, trace silt: grey; fine to medium.				ES			1.10						
		1.20	1.20m: trace fragments of timber, terracotta pipe and scrap metal													
		1.50	1.50m: trace redundant cable													
1.80	From 1.80m: becoming orange-brown		FILL	ND	ES	1.50	PID	<1ppm								
2	2.00m: trace PACM pipe															
2.10	2.10m: trace fragments of timer															
2.40	From 2.40m: becoming dark grey															
Test Pit discontinued at 2.70m depth. (Test Pit flooded with water seepage).																



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.4 m depth.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397837.5, N:6466321.2
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP16
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
RL (m)									
	0.34	FILL / SAND (SP-SM), with silt, trace gravel and rootlets: grey; fine to medium.		FILL				ES	0.10
	0.84	FILL / Sandy (GP-GM), with silt: grey; fine to medium sand.		FILL	ND	D to M		ES	0.50
	1.00	0.80m: trace fragments of plastic waste							
	1.10	FILL / SAND (SP), with fragments of brick and concrete, trace silt: grey; fine to medium.			MD to D			ES	1.00
	1.50	1.50m: trace fragments of plastic waste						D	1.50
	2.00	2.00m: trace metal plate (0.5 m x 0.5 m)						ES	2.00
	2.10	2.10m: with limestone boulders						ES	2.10
	2.50							D	2.50
	2.60	Test Pit discontinued at 2.60m depth. (Collapsing conditions).						ES	2.60



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NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.5 m depth.

Refer to explanatory notes for symbol and abbreviation definitions




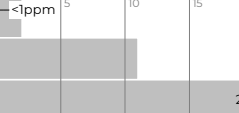
Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397775.7, N:6466289.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP17
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
 0.8/1.723 0	0.15	FILL / SAND (SP-SM), with silt, trace rootlets: orange - grey; fine to medium.		FILL		D to M		ES	0.10	PID	<1ppm	
		FILL / Sandy GRAVEL (GP-GM), with fragments of concrete, with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL				ES	0.50	PID	<1ppm	
	0.90	FILL / SAND (SP), with fragments of brick and concrete, trace silt: grey; fine to medium.		FILL				ES	1.00	PID	<1ppm	
	1	1.10m: trace fragments of plastic waste		FILL				ES	1.10	PID	<1ppm	
		1.60m: trace metal sheets		FILL	ND	M	ASB 3	ES	1.50	PID	<1ppm	
		1.90m: piece of concrete block observed		FILL			ASB 4	ES	2.00	PID	<1ppm	
									2.10			
		Test Pit discontinued at 2.50m depth. (Collapsing conditions).										



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NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397816.0, N:6466272.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP18
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS										
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
N	0	0.26	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium; weakly cemented.		FILL	ND	D to M	ASB 1	ES		0.10	PID	<1ppm						
		0.45	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL				ES		0.50	PID	<1ppm						
		1	FILL / SAND (SP), with fragments of brick and concrete, with clay: grey; fine to medium.		FILL				MD to VD		M	D	ES	0.60	PID	<1ppm			
			0.50m-1.50m: with fragments of tile and brick, trace PACM fragments														1.00	PID	<1ppm
			0.75m: trace metal bar																
		1.00m: trace fragments of redundant cables, glass, geo-fabric and limestone blocks	ND		ES				1.10		PID	<1ppm							
		From 1.20m: with limestone boulders																	
		2	0		Test Pit discontinued at 1.50m depth. (Test Pit terminated due to slow digging).				FILL		ES	1.40	PID	<1ppm					
															1.50	PID	<1ppm		



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions









TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397856.8, N:6466280.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP19
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	RESULTS AND REMARKS
 0.9m/2.3  1.90  2.0	0.20	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL			ND	DUP 1	PID <1ppm
	0.50	FILL / Sandy GRAVEL (GP-GM), with silt: orange-brown; medium to coarse; fine to medium sand; Gravel is crushed limestone.		FILL				D	PID <1ppm
	0.60							ES	PID <1ppm
	1.00	FILL / SAND (SP-SM), with silt, trace gravel: grey-brown; fine to medium. 0.75m: trace concrete slab, fragments of brick and terracotta pipes From 0.90m: with fragments of brick						ES	PID <1ppm
	1.10	From 1.20m: becoming grey, trace fragments of timber		MD					PID <1ppm
	1.50	From 1.60m: becoming grey-brown		FILL				ES	PID <1ppm
	1.60								
	2.00	FILL / SAND (SP), trace roots, trace silt: dark grey; fine to medium.						ES	PID <1ppm
	2.10			ND					PID <1ppm
	2.50	2.40m: trace fragments of sea shells		FILL				D	PID <1ppm
	2.60	Test Pit discontinued at 2.60m depth. (Collapsing conditions).						ES	PID <1ppm



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket**OPERATOR:** SLE Earthmoving**LOGGED:** VV**METHOD:**

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 Groundwater encountered at 1.8 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



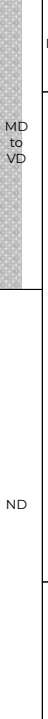
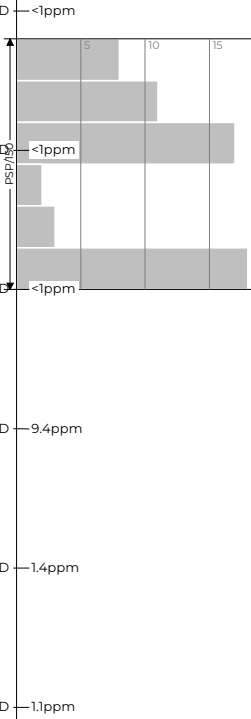




TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.0 AHD
COORDINATE: E:397838.6, N:6466231.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP20
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
<div>08/11/23</div> <div></div>	0.05	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL		D to M		ES		0.10	PID	<1ppm	
	0.34	FILL / Sandy GRAVEL (GP-GM), with silt: yellow-brown; medium to coarse; fine to medium sand.		FILL									
		FILL / SAND (SP-SM), with silt, trace gravel: grey and orange-brown; fine to medium. 0.50m: with fragments of brick and concrete						ES		0.50	PID	<1ppm	
		0.80m: trace fragments of rubber waste and scrap metal											
	1	From 1.20m: becoming dark grey, with fragments of brick						D		1.00	PID	<1ppm	
		1.30m-2.10m: with hydrocarbon odour						ES		1.10			
		1.50m: with pockets of Clayey SAND SC											
	1.80	FILL / Clayey SAND (SC): dark grey; fine to medium; low to medium plasticity clay.						D		1.50	PID	9.4ppm	
	2	From 2.10m: becoming green-grey						ES		2.00	PID	1.4ppm	
		Test Pit discontinued at 2.60m depth. (Collapsing conditions).						ES	2.50	PID	1.1ppm		
									2.60				



NOTES [°]Soil origin is "probable" unless otherwise stated. [°]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.1 AHD
COORDINATE: E:397896.5, N:6466231.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP21
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(†) DENSITY ^(†)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	2	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL		D to M		ES	0.10	PID	<1ppm	
	0.17	FILL / Sandy GRAVEL (GP-GM), with silt: grey; fine to coarse; fine to medium sand; Gravel is crushed limestone.		FILL				ES				
	0.70	FILL / SAND (SP-SM), with fragments of brick and concrete, with silt: grey; fine to medium.		FILL		M		ES	1.00	PID	<1ppm	
	1	1.20m: trace fragments of rubber waste and scrap metal		FILL				D				
	1.90	From 1.80m: trace pockets of CLAY CL-CI		FILL		ND		ES	1.60	PID	<1ppm	
	2	FILL / Sandy CLAY (CI), trace fragments of brick and timber, trace gravel: dark grey; medium plasticity; fine to medium sand.		FILL				B				
	0	Test Pit discontinued at 2.10m depth. (Collapsing conditions).						ES	2.10			

0.8/1.7/2.3

0

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(†)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 Groundwater encountered at 1.8 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.3 AHD
COORDINATE: E:397941.6, N:6466244.9
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP22
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

[illegible]

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NOTES: ^(a) Soil origin is "probable" unless otherwise stated. ^(f) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 1.8 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397844.9, N:6466181.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP23
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TEST TYPE
	0.05	ASPHALT: black, 7 mm sized nominal aggregate.		FILL			D		
	0.15	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand; BASECOURSE, gravel is crushed rock.		FILL	ND				
	0.30	FILL / Sandy GRAVEL (GP-GM), with silt: red-brown; medium to coarse, angular to sub-angular; fine to medium sand; SUB-BASE, gravel is granitic and lateritic.		FILL			M		
	0.65	FILL / Silty SAND (SM), trace gravel: brown; fine to medium; with pockets of Clayey SAND SC. 0.90m: trace fragments of brick		FILL	MD				
	1	FILL / Clayey SAND (SC): orange-grey; fine to medium; low to medium plasticity clay.		FILL	D to D		M		
	1.40	FILL / SAND (SP), trace silt: grey; fine to medium; trace pockets of Clayey SAND SC.		FILL					
	1.80m: trace fragments of brick								
	1.90	FILL / Sandy CLAY (CI), trace gravel: dark grey; medium plasticity; fine to medium sand.		FILL	ND		W		
	2	FILL / SAND (SP-SM), with silt: dark grey; fine to medium.		FILL					
	2.20								
	2.60	Borehole discontinued at 2.60m depth. (Collapsing conditions).							

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NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

CASING: Nil

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 1.7 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



Appendix C

Geotechnical Laboratory Test Certificates



SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - ASTM D2974-14 (Test Method C)

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18256-18262_1_ORG
Project:	Proposed Residential Development	Sample No.	WG23.18256-18262
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	Various See Below	Date Tested:	15/11/2023

TEST RESULTS - Organic Content

Sampling Method: Sampled by Client, Tested as Received
Testing Completed By: WGLS-LC
Furnace Temperature (°C): 440

Sample Number	Sample Identification	Ash Content (%)	Organic Content (%)
WG23.18256	TP13/1.5	98.4	1.6
WG23.18257	TP8/1.5 m	93.2	6.8
WG23.18258	TP19/2.5	98.5	1.5
WG23.18262	BH23/2.5 m	98.8	1.2

Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 16/November/2023



Accreditation No. 20599

Accredited for compliance

with ISO/IEC 17025 - Testing

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SOIL | AGGREGATE | CONCRETE | CRUSHING

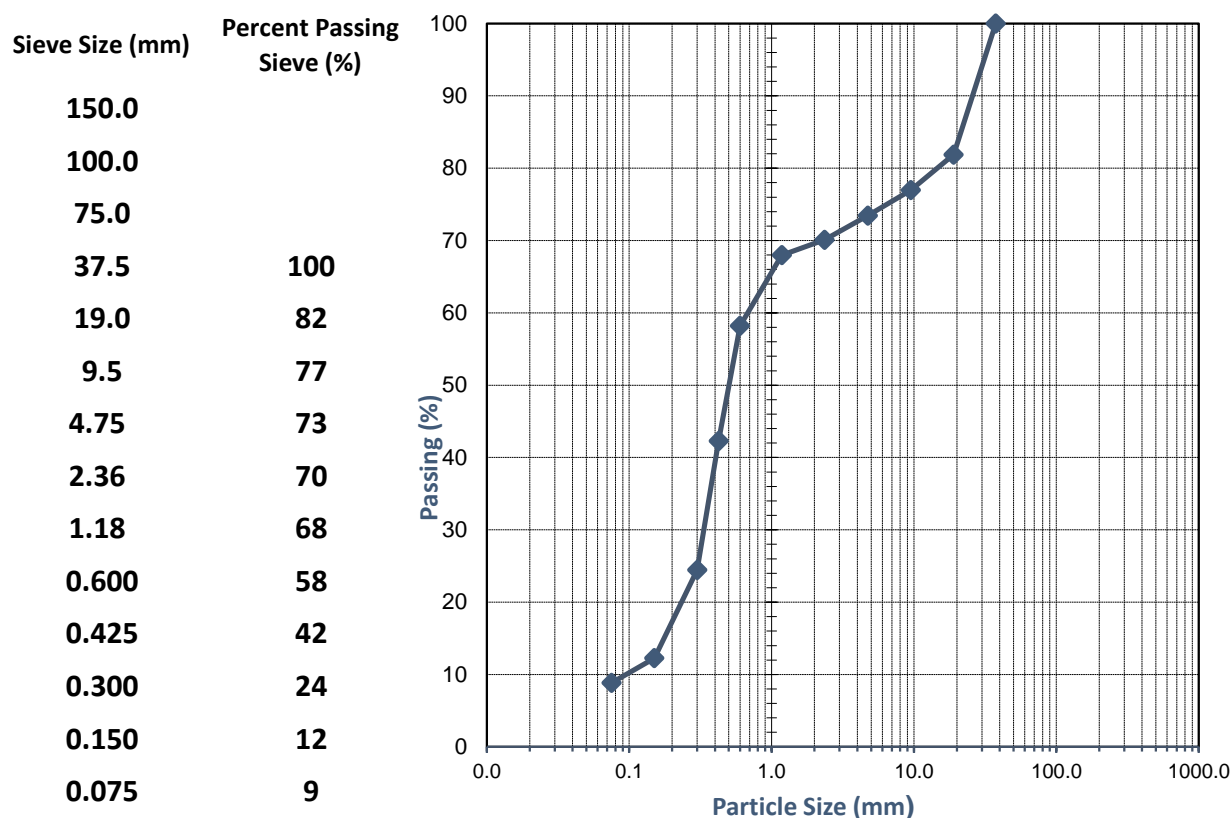
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18257_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18257
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP8/1.5 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



Accreditation No. 20599

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SOIL | AGGREGATE | CONCRETE | CRUSHING

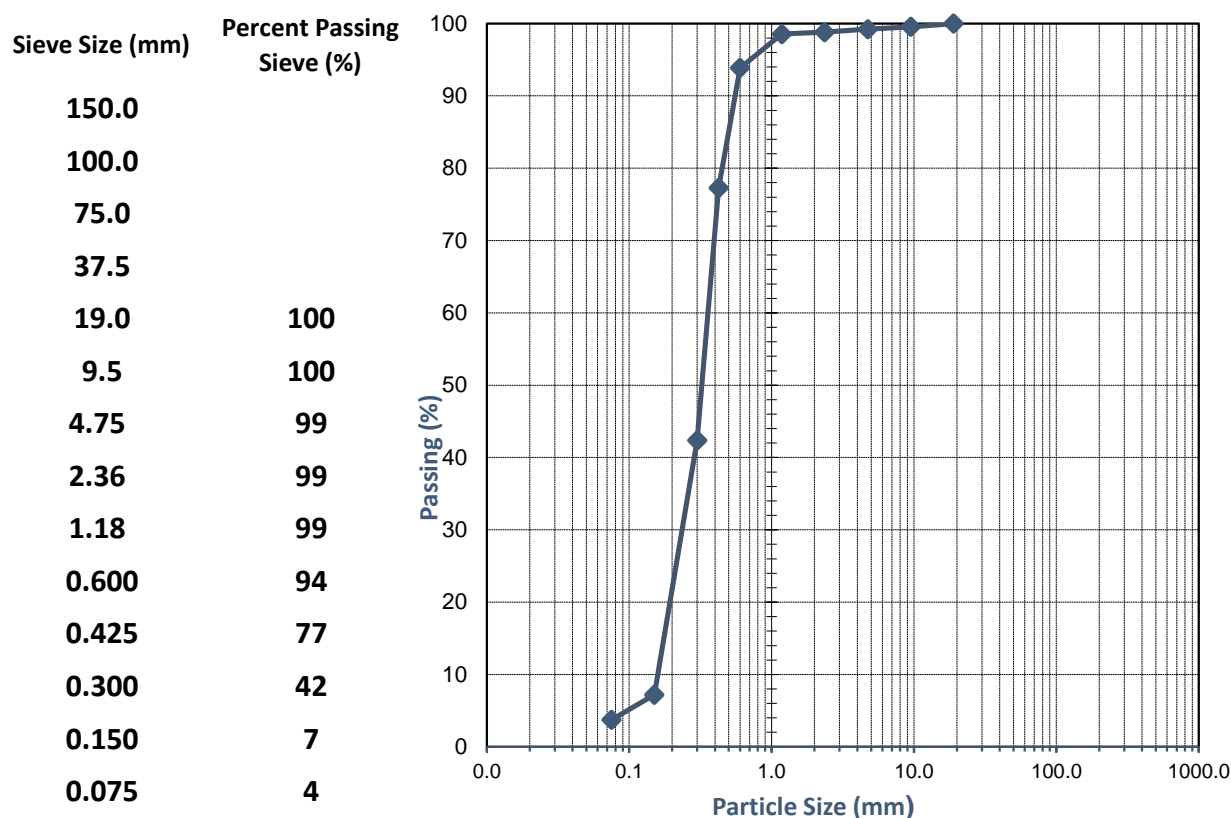
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18256_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18256
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP13/1.5	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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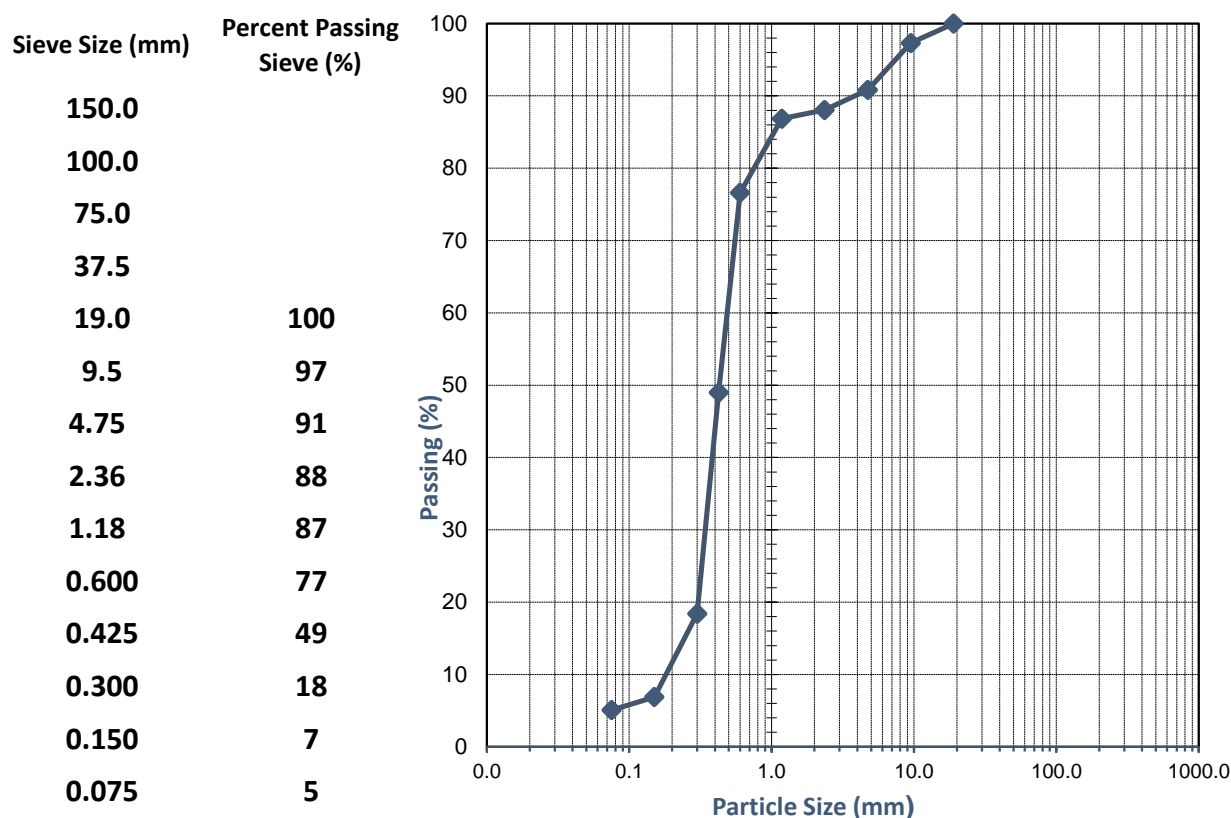
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18258_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18258
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP19/2.5	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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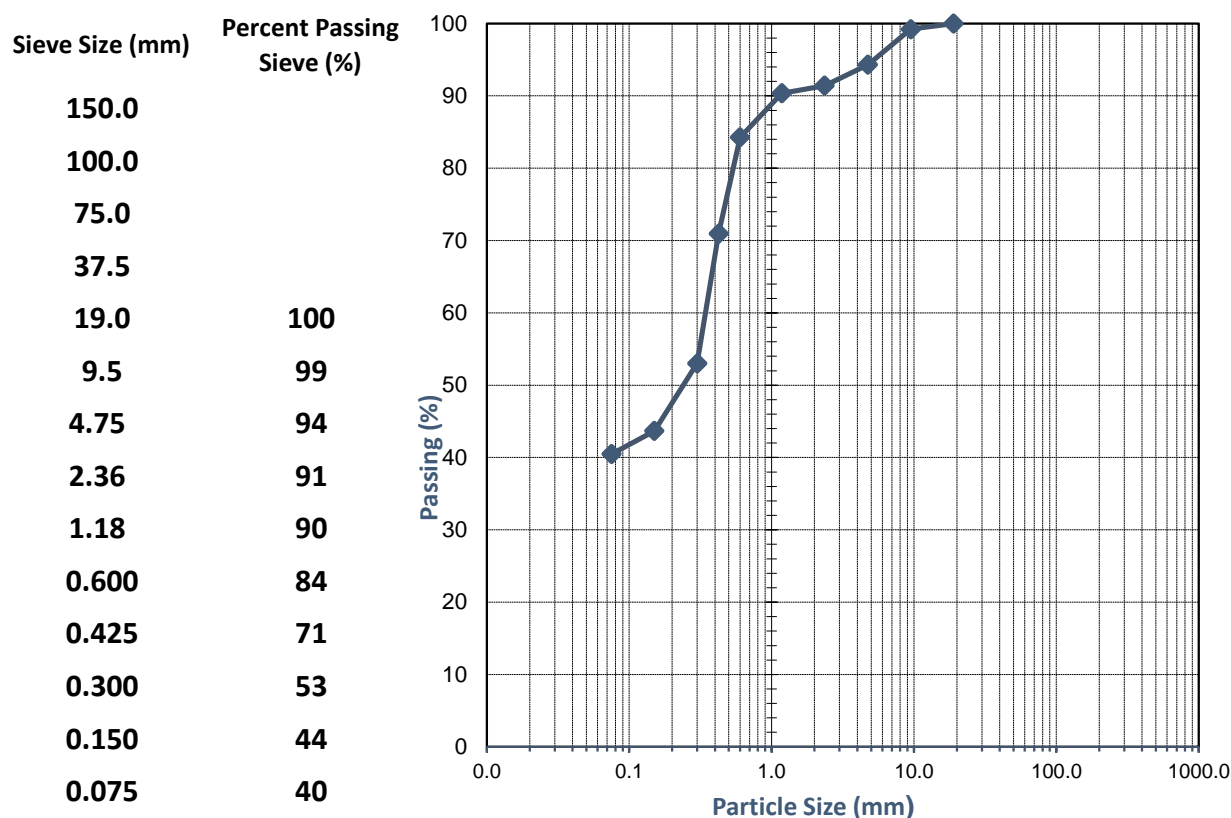
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18259_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18259
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP21/2.0 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18259_1_PI
Project:	Proposed Residential Development	Sample No.	WG23.18259
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP21/2.0 m	Date Tested:	17/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	Sampled by Client, Tested as Received
History of Sample:	Oven Dried <50°C
Method of Preparation:	Dry Sieved

AS 1289.3.1.1 **Liquid Limit (%)** **37**

AS 1289.3.2.1 **Plastic Limit (%)** **24**

AS 1289.3.3.1 **Plasticity Index (%)** **13**

AS 1289.3.4.1 **Linear Shrinkage (%)** **8.5**

AS 1289.3.4.1 **Length of Mould (mm)** **250**

AS 1289.3.4.1 **Condition of Dry Specimen:** **Curled**

Comments:

Approved Signatory:

Name: Madhav Basnet

Date: 20/November/2023



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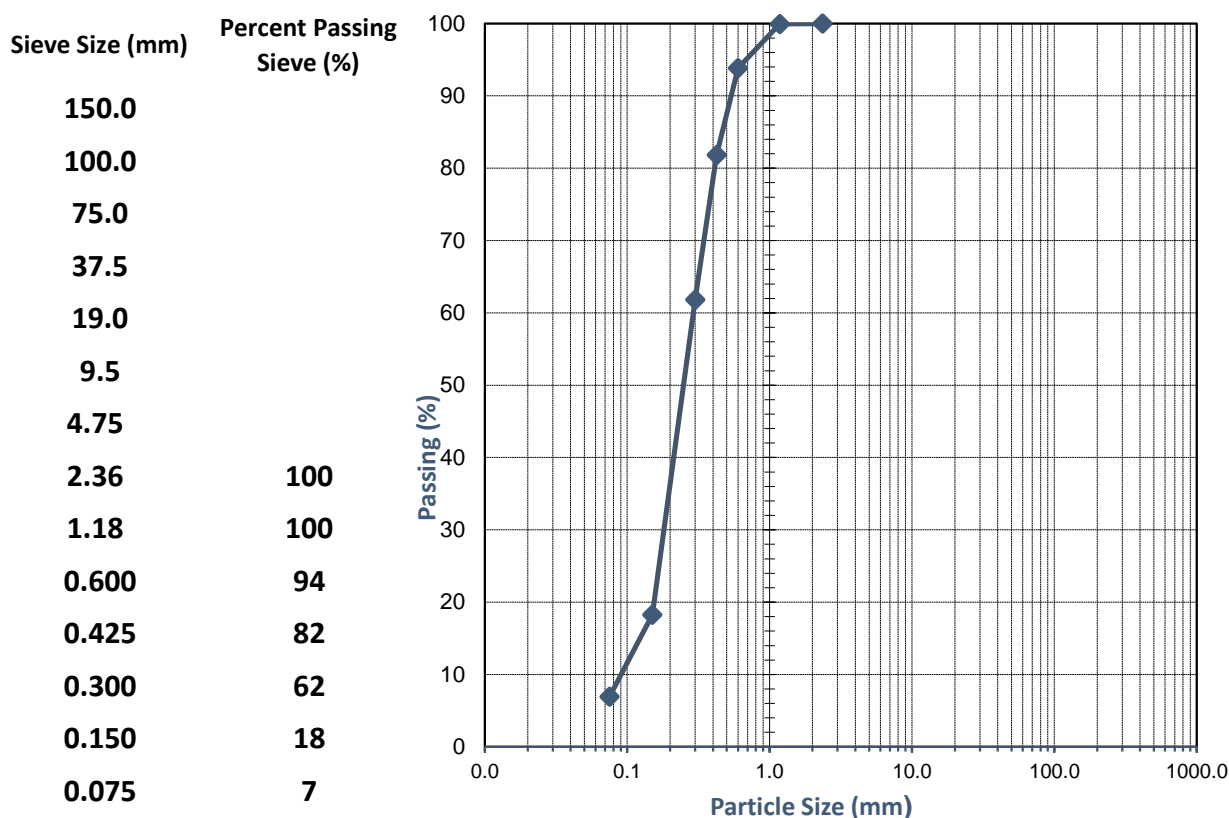
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18260_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18260
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/2023
Sample Identification:	TP22/2.0	Date Tested:	22/11 - 23/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Natasha Bielawski

Date: 23/November/2023



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18260_1_PI
Project:	Proposed Residential Development	Sample No.	WG23.18260
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP22/2.0	Date Tested:	23/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	Sampled by Client, Tested as Received
History of Sample:	Oven Dried <50°C
Method of Preparation:	Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	Not Obtainable
AS 1289.3.2.1	Plastic Limit (%)	Non-Plastic
AS 1289.3.3.1	Plasticity Index (%)	Non-Plastic
AS 1289.3.4.1	Linear Shrinkage (%)	0.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

Name: Matthew Lichon

Date: 24/November/2023



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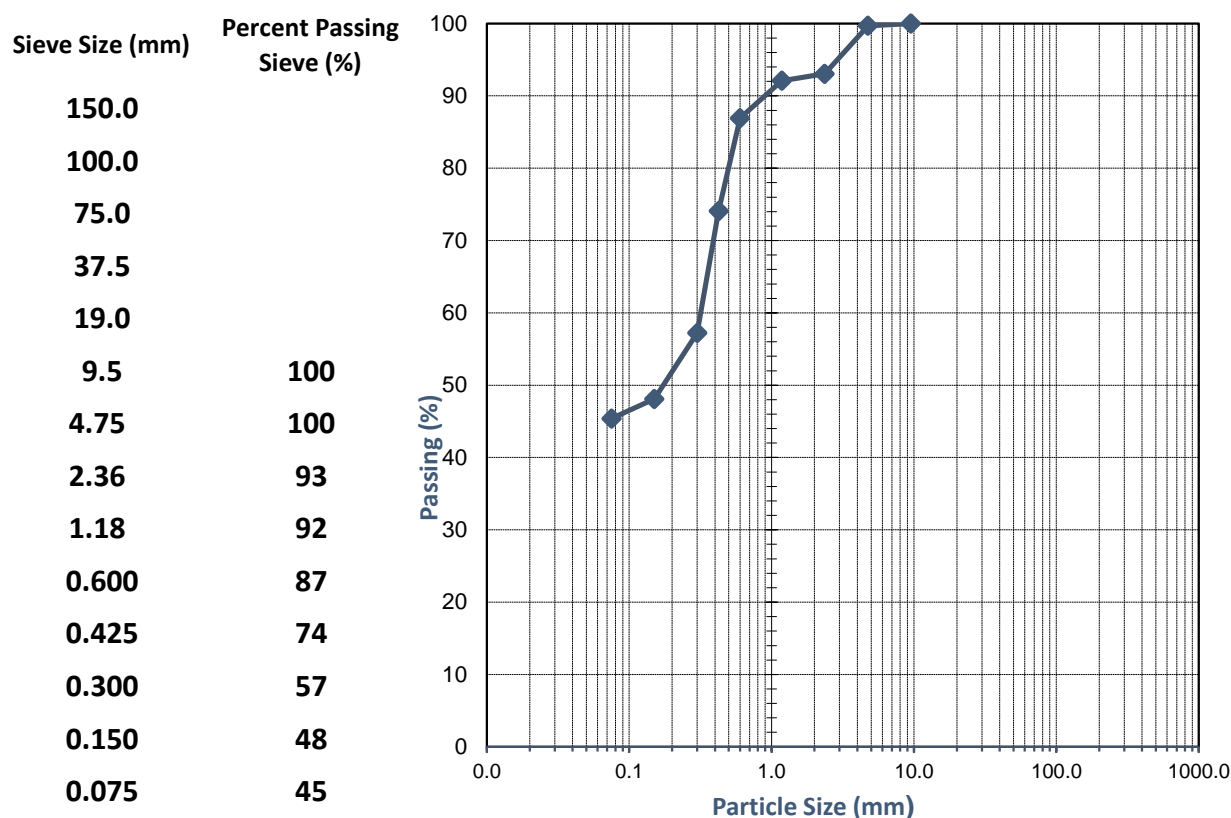
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18261_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18261
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	BH23/2.0 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18261_1_PI
Project:	Proposed Residential Development	Sample No.	WG23.18261
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	BH23/2.0 m	Date Tested:	17/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	Sampled by Client, Tested as Received
History of Sample:	Oven Dried <50°C
Method of Preparation:	Dry Sieved

AS 1289.3.1.1 **Liquid Limit (%)** **44**

AS 1289.3.2.1 **Plastic Limit (%)** **22**

AS 1289.3.3.1 **Plasticity Index (%)** **22**

AS 1289.3.4.1 **Linear Shrinkage (%)** **9.5**

AS 1289.3.4.1 **Length of Mould (mm)** **250**

AS 1289.3.4.1 **Condition of Dry Specimen:** **Curled**

Comments:

Approved Signatory:

Name: Madhav Basnet

Date: 20/November/2023



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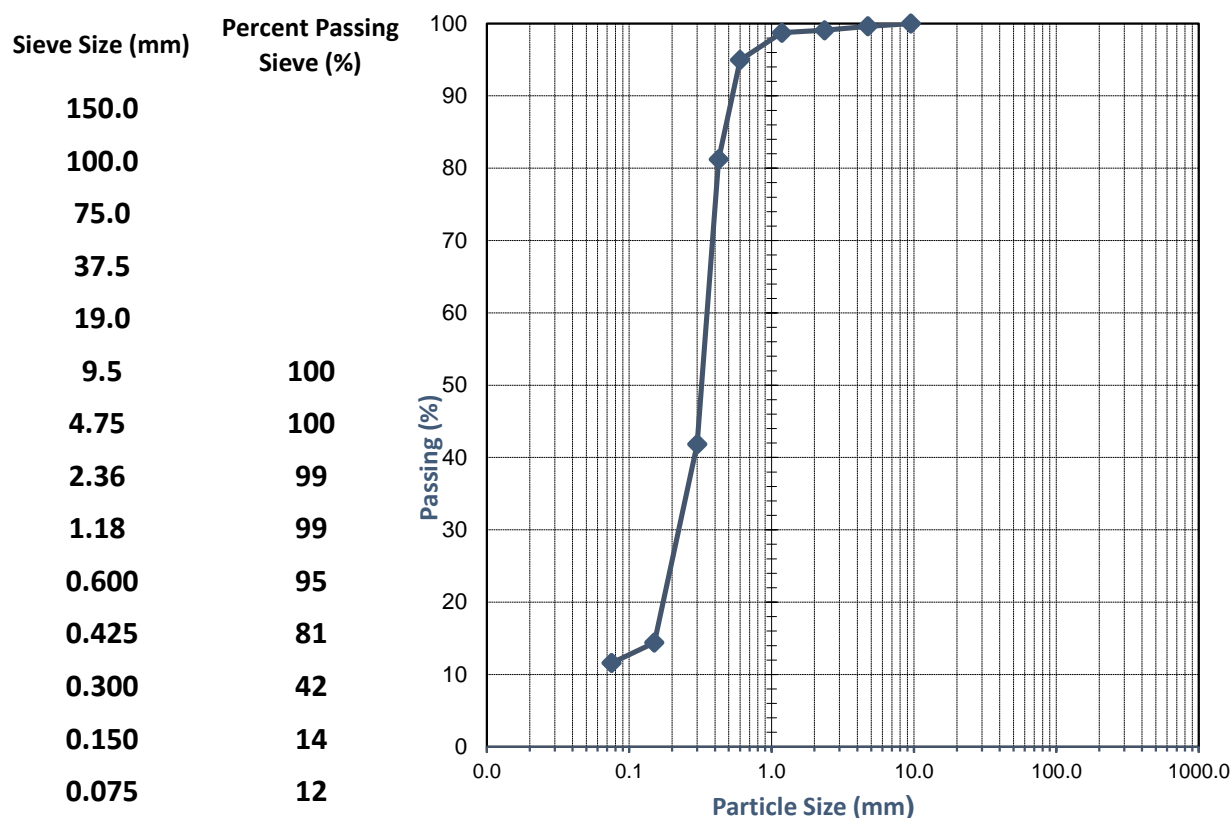
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18262_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18262
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	BH23/2.5 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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Report on:

**GEOTECHNICAL STUDY
PROPOSED DEVELOPMENT
LOT 452 RESOLUTION DRIVE
ASCOT WA**

WAG230750-01 002 R Rev0

Submitted to:

Tabec Pty Ltd
PO Box 409
West Perth WA 6872

12 March 2024

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Figure 1: Site and Location Plan

Appendix A: Site Photographs
Appendix B: Cone Penetration Test Results
Appendix C: Machine Borehole and Monitoring Well Logs
Appendix D: Laboratory Test Results

Standard Geotechnical Definitions, Recommendations, Requirements and Limitations

1. INTRODUCTION

This report presents the outcomes of Galt Geotechnics' (Galt's) geotechnical study for the proposed development at Lot 452 Resolution Drive, Ascot ("the site").

This report is to be read in conjunction with the appended "Geotechnical Definitions, Recommendations, Requirements and Limitations". 'Clause GDR1', etc. refer to this Appendix, found at the back of this report.

2. KEY FINDINGS

Site Description

Table 1: Summary of Site

Item	Comment
Site Extent	Refer Figure 1.
Site Area	About 1.14 Ha.
Current Site Surface Levels ¹	About RL 3 m AHD.
Vegetation	Mature trees, shrubs and lawn in landscaped areas covering a large portion of the site.
Existing Infrastructure	Single Storey building (used by Perth Racing Security Services) with surrounding accessways, car parking and landscaped areas.
Site History ²	<p>Prior to 1953: two residences in northern portion of site. Remainder of site relatively clear.</p> <p>1953 to 1985: Relatively unchanged. Undeveloped portion of site used as laydown area, car park area, and to stockpile materials at different times.</p> <p>1989: Existing Perth Racing Security Services development (as described above) is present</p> <p>1989 to Present: Site relatively unchanged.</p>

- NOTES:**
1. Site level based on correspondence with client.
 2. Site history based on aerial imagery (Landgate).

3. PROPOSED DEVELOPMENT

Table 2: Summary of Proposed Development

Item	Comment
Proposed Development	Unknown, assumed subdivision for commercial/residential purposes.
Proposed Finished Level	Assumed within about 1 m of current ground levels.
Cut/Fill	Assumed ± 1 m with up to 5 m excavation to connect development to existing sewer.
Assumed Foundation Type	Shallow Footings.
Assumed Retaining Walls	Gravity walls up to 1 m in height.
Assumed Stormwater Disposal	Off site into council network.
Assumed Sewage Disposal	Off site via reticulated sewer.

- NOTES:**
1. FFL – finished floor level
 2. Proposed development details based on supplied information.

4. PROJECT OBJECTIVES

The objectives of the study were to:

- Assess the geotechnical suitability of the site for the proposed development;

- Geotechnical opportunities and constraints relevant to the proposed development;
- Areas of foundation risk including the presence of aggressive soils and strategies to address identified risks;
- Site preparation including possible reuse of existing soil as controlled fill;
- Excavation conditions;
- The likely site classification;
- Suitable foundation systems including preliminary design parameters;
- Preliminary design parameters for the design of retaining structures and batter slopes;
- Depth to groundwater at time of investigation; and
- Recommendations on additional geotechnical investigation at detailed design phase or to address specific ground conditions encountered.

5. FIELDWORK

Fieldwork was carried out in the presence of a representative from Galt between the 8 and 14 February 2024 and comprised:

Table 3: Summary of Field Data

Type	Results Appendix	Summary	GDR Clause	Equipment Used	No. Tests	Depth Range (m)
Site Plan	Figure 1	-	-	Hand held GPS ¹	-	-
Photographs	A	-	-	-	-	-
Cone Penetration Tests (CPTs)	B	Section 8	GDR3.2	14-tonne truck	5	1.6 to 10.1
Machine Auger Boreholes (BH)	C	Section 8	GDR3.3	AMS Power Probe	4	0.7 to 6.5
Monitoring Well (MW)	C	Section 8	GDR3.3	AMS Power Probe	1	6.0

NOTES: 1. Hand held GPS is accurate to ± 5 m.

6. LABORATORY TESTING

Laboratory test certificates are presented in Appendix D, and summarised in Attached Tables 1 and 2.

7. SITE CONDITIONS

7.1. Geology

Table 4: Summary of Geology Mapping

Map Sheet	Map Scale	Mapped Soils	Typical Site Findings
Perth	50K	Guildford Formation, described as: "SANDY SILT - strong brown to mid grey, mottled, blocky, disseminated fine sand, hard when dry, variable clay content of alluvial origin."	Thin topsoil (landscaped areas) and pavement materials (car parks / access ways) over FILL: SAND / SAND to about 0.4 m to 0.9 m depth, over Sandy CLAY / CLAY.

7.2. Groundwater

Table 5: Summary of Groundwater Levels

Item	Date	Depth Range (m)	Elevation Range (m AHD)	Comment
Perth Groundwater Atlas	1997	-	3.0	Historical maximum
Department of Water and Environmental Regulation (DWER) Flood Mapping	-	-	2.7 to 2.9 (DWER mapped 1% AEP flood event level)	Portion of site along southern and south western site boundaries, and the northern side of Grandstand road are mapped as being part of flood fringe by DWER. Advice on development within the defined flood event (DFE) floodplain is provided by DWER on a case by case basis. DWER recommends a minimum building floor level of 0.50 metres above this level (RL 3.4 m AHD).
Site observations in MW01	February 2024	3.03	-	Based on highest recorded water levels in monitoring well.
Site observations in CPT test probes	February 2024	1.90 to 2.80	-	CPT probes may not have had sufficient time to recharge to hydrostatic levels.
Recommended Design	-	-	2.7 to 2.9	Groundwater likely to perch on clay soils at site. Proposed development must be designed for DWER DFE flood event.

NOTES: 1. Depths for site observations based on the site surface level at the time of investigation.

8. GROUND MODEL

The encountered subsurface conditions are summarised as comprising:

- **Surficial Topsoil (in landscaped areas)** up to 0.3 m thick **and Hardstand Fill Layers** (in carparks and access ways); **overlying**
- **FILL: SAND / SAND (SP)**, fine to medium grained, sub-rounded to sub-angular, yellow / brown / grey layers, includes trace gravel / Sandy GRAVEL layers, trace / with fines, some typically medium dense to dense, extending to depths of about 0.4 m to 0.9 m; **overlying**
- **In BH03 and BH04 only: Silty SAND / Clayey SAND (SM/SC)** fine to medium grained, sub-rounded to sub-angular, brown / grey, low to medium plasticity fines, some typically medium dense to dense, extending to depths of about 0.7 m to 1.2 m; **overlying**
- **Sandy CLAY / CLAY (CI)**, medium plasticity, brown / orange / grey, trace sand to sandy, trace gravel in some zones, desiccated, CPT traces indicate presence of occasional sand layers, typically very stiff to hard, extending to the maximum depth investigated of 10 m.

Geotechnical design parameters for the generalised subsurface units described above are presented in Table 6.

Table 6: Geotechnical Model Units and Design Parameters

Unit Name	γ_{bulk} (kN/m ³)	ϕ' (°)	c' (kPa)	S_u (kPa)	E_v (MPa)	ν	k_0	Wall Friction=0		Wall Friction=0.5 ϕ	
								k_a	k_p	k_a	k_p
Compacted Approved FILL	18	36	-	-	50	0.25	0.41	0.26	3.85	0.22	6.54
SAND / Silty SAND / Clayey SAND	18	35	-	-	25	0.3	0.43	0.27	3.69	0.24	6.08
Sandy CLAY / CLAY	18	21	0 to 5	150	30	0.45	Earth pressure coefficients can be calculated for undrained or drained conditions as outlined in GDR11.2.2 using Firm parameters (undrained) or Fines Content >35% & PI 40% (drained).				

- NOTES:**
1. These units are a generalization of results from individual tests, which should be referred to for more information.
 2. Conditions at CPT locations below depth of soil sample recovery are inferred (refer to clause GDR3.2)
 3. Surficial topsoil and hardstand layers are not included as discrete units.
 4. Compacted approved fill is as described in Table 7.
 5. For all earth pressure coefficients (retaining wall design) refer to clause GDR11.2 for more detail and interpretation. Unit weights for retaining structure design should be as per GDR11.2 or 1 kN/m³ greater than the values in the table above.
- γ_{bulk} – bulk unit weight
 ϕ' – effective friction angle
 S_u – undrained shear strength
 c' – effective cohesion
 E_v – vertical elastic modulus
 ν – Poisson's Ratio
 k_a – coefficient of active earth pressure (Coulomb – AS4678-2002, Appendix E)
 k_p – coefficient of passive earth pressure (Coulomb – AS4678-2002, Appendix E)
 k_0 – coefficient of at-rest earth pressure (Jaky)

9. GEOTECHNICAL ASSESSMENT

9.1. Summary

Table 7: Summary of Geotechnical Assessment

Type	Clause	Parameter	Comment
Site Suitability	-	-	We consider the site to be geotechnically suitable for the proposed subdivision development. Standard site preparation measures will apply. However, groundwater could impact construction if it occurs during winter. Flood levels will impact site levels (refer Table 5).
Construction Methodology and Suitability	-	-	Shallow footings in accordance with AS2870-2011 will be suitable for this site. Mass retaining will be suitable for retaining however, must be designed for potential flooding of the site. Stormwater disposal via infiltration is not suitable.
Site Classification (AS2870)	GDR5	S	Where no less than 0.7 m of sand (including insitu silty sand and clayey sand layers encountered in BH03 and BH04) is present over in situ CLAY / Sandy CLAY .
Site Subsoil Class (AS1170.4)	-	Ce	Base of superficial formation mapped to be about 25 m below ground.
Site Preparation	GDR6	-	GDR6.2.1 Common Measures followed by GDR6.2.4 Clayey Sites followed by GDR6.2.5 Sand Topping Layer .
Approved Fill	GDR8	-	Approved Fill for this site is to comprise Permeable Sand . Only relatively thin surficial layers of sand at the site (excluding topsoil) are suitable as approved fill. If additional fill is required, imported Permeable Sand will be needed. Although not classed as 'approved fill', where clay is encountered in trench excavations, this material could possibly be reused to backfill the same portion of the trench (excluding any special fill materials required around buried elements). However, this material will be difficult to work and moisture condition to near optimum (particularly if removed from below the groundwater table).
Compaction Control	GDR7	-	A PSP may be used for compaction control on Permeable Sand . Deemed to comply values for 'Tamala' sand in GDR7.4 are applicable. Where filling with clay is done (in trenches, etc), compaction control must be done with the NDG as outlined in GDR7.3 Nuclear Density Gauge.
Shallow Footings	GDR9	$q_{all} = 100 \text{ kPa to } 250 \text{ kPa}$	Design tables for shallow footings are presented in Section 9.2. Estimated settlements are not considered excessive. 70% of the settlement is expected to occur during construction.
Earth Pressure Coefficients	GDR11	Table 6	Earth pressure coefficients are presented in Table 6.
Unsaturated Hydraulic Conductivity	GDR13	-	On site disposal of stormwater unlikely to be suitable due to shallow depth to clay and potential for flooding adjacent the site. Off site disposal of stormwater likely to be required.
Pavement Subgrade CBR	GDR16	CBR = 10%	Subgrade to comprise compacted Approved Fill no less than 0.6 m thick .
Soil Aggressivity	GDR17	-	Refer Section 9.3
Batters	GDR12	Temporary: Sand: 1V:2H Clay: 1V:1H Permanent: 1V:3H	Batter angles apply to soil units (refer Table 6) above the water table, as per GDR12.3. Dewatering and possibly retention (i.e. shoring) required below the groundwater table.
Excavations	GDR12.1	20 Ton Excavator	Potential for obstructions (buried concrete, Soakwells etc...), cemented soils and surficial pavement layers must be considered when selecting earthmoving plant.

NOTES: 1. q_{all} – allowable bearing pressure (maximum for all footings, refer to footing tables for further details)

9.2. Shallow Footings

Table 8: Isolated Pad Footing Allowable Bearing Pressures and Estimated Settlements

d_e (m)	b (m)	q_{all} (kPa)	s (mm)
0.5	0.5	120	< 5
0.5	1.0	130	< 5
1.0	1.0	240	5 - 10
1.0	2.0	250	10 - 15
1.0	3.0	250	20 - 25

NOTES:

- d_e – minimum embedment depth (below finished ground level or floor slab)
- b – Footing breadth (footings assumed approximately square)
- q_{all} – allowable bearing pressure (peak). Limited to keep estimated settlements less than 25 mm. Higher q_{all} may be possible if higher settlements can be tolerated – refer queries to us.
- s – estimated settlement (excludes shrink/swell from site class)
- Refer to GDR9
- Groundwater assumed to be at ground level.

Table 9: Isolated Strip Footing Allowable Bearing Pressures and Estimated Settlements

d_e (m)	b (m)	q_{all} (kPa)	s (mm)
0.5	0.5	100	< 5
0.5	1.0	130	5 - 10
1.0	1.0	190	10 - 15
1.0	2.0	250	20 - 25

NOTES:

- d_e – minimum embedment depth (below finished ground level or floor slab)
- b – Footing breadth (footings assumed long relative to breadth)
- q_{all} – allowable bearing pressure (peak). Limited to keep estimated settlements less than 25 mm. Higher q_{all} may be possible if higher settlements can be tolerated – refer queries to us.
- s – estimated settlement (excludes shrink/swell from site class)
- Refer to GDR9
- Groundwater assumed to be at ground level.

9.3. Soil Aggressivity

Results of aggressivity testing on clay samples is summarised in Attached Table 2. The results indicate the clay is 'non aggressive' to concrete and steel (in accordance with AS2159-2009) with a AS3600-2009 classification of 'A1'.

Based on regional experience, we anticipate the sand will have the same aggressivity classifications as the underlying clay where above the groundwater. However, for concrete in sand below the water table, an AS2159-2009 'mild' classification, and AS3600-2009 'A2' classification is appropriate.

Groundwater was not tested.

10. CLOSURE

GALT GEOTECHNICS PTY LTD



Owen Woodland CPEng
Geotechnical Engineer



Tyrone Mardesic CPEng
Geotechnical Engineer

[https://galtgeo.sharepoint.com/sites/wag230750/shared documents/01 tabec si/03 correspondence/wag230750-01 002 r rev0.docx](https://galtgeo.sharepoint.com/sites/wag230750/shared%20documents/01%20tabec%20si/03%20correspondence/wag230750-01%20002%20r%20rev0.docx)



Attached Table 1: Summary of Geotechnical Index Test Results

Test Name	Sample Depth (m)	Soil Class (AS1726 2017)	Fines (%)	Sand (%)	Gravel (%)	LL (%)	PI (%)	LS (%)
BH03	1.5 - 2.2	CLAY (CI)	89	11	0	46	28	12.5
BH04	1.0 - 1.3	Sandy CLAY (CI)	54	43	3	34	20	8.5

- Notes**

1. Particle size distribution (by mass)
Gravel: 2.36 mm – 63 mm

2. Atterberg Limits
LL: Liquid limit
NO: Not obtainable

Sand: 0.075 mm – 2.36 mm

PI: Plasticity index
NP: Non-plastic

Fines: <0.075 mm

LS: Linear shrinkage

Attached Table 2: Summary of Chemical Test Results and Exposure Classification

Location	Sample Depth (m)	Soil Description	Soil Condition	pH	SO ₄ (ppm)	Cl (ppm)	AS2159 Steel EC	AS2159 Concrete EC	AS3600 Concrete EC
BH03	1.5 - 2.2	CLAY (CI)	B	8.8	100	210	Non-Aggressive	Non-Aggressive	A1
BH04	1.0 - 1.3	Sandy CLAY (CI)	B	7.5	170	94	Non-Aggressive	Non-Aggressive	A1

NOTES:

1. Soil condition

A – high permeability soils (sands and gravels) which are below water table.

B – Low permeability soils (silts and clays) and all soils above water table

2. Sulfate expressed as SO₄

3. Cl – Chloride

4. ER – Electrical Resistivity

5. EC – Exposure Classification

5. Exposure Classification for AS2159-2009 (for steel and concrete piles)

[Exposure Classification for AS3600-2009 (for buried concrete structures)]

Non-aggressive [A1]	Mild [A2]	Moderate [B1]	Severe [B2]	Very Severe [C2]
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Figures



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Appendices

Appendix A: Site Photographs

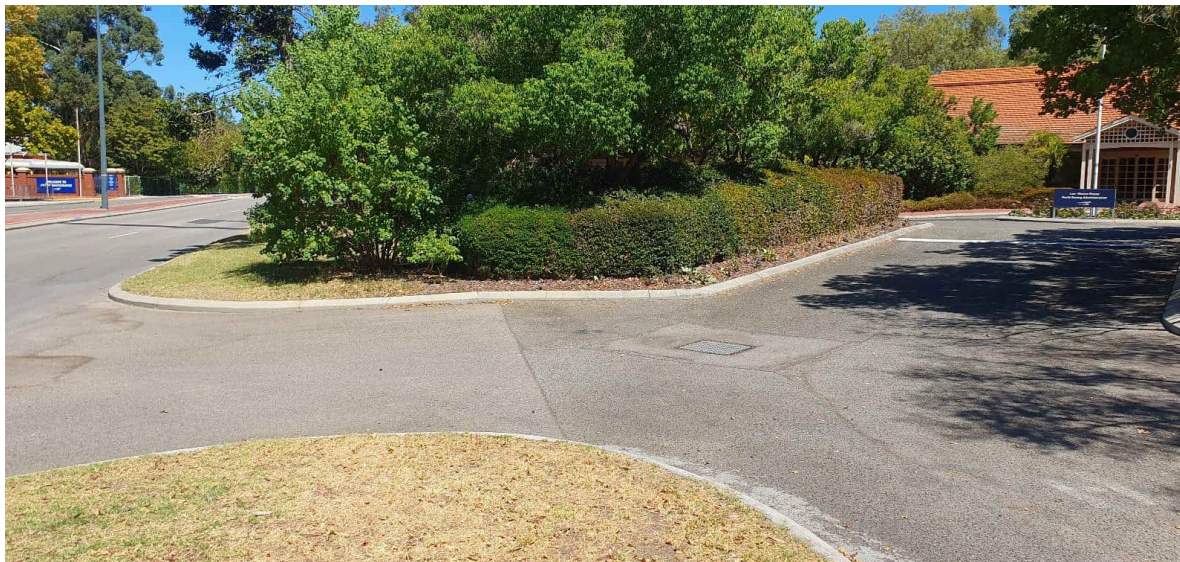
Photograph 1: Near CPT02 facing south




Photograph 2: Near CPT02 facing south west



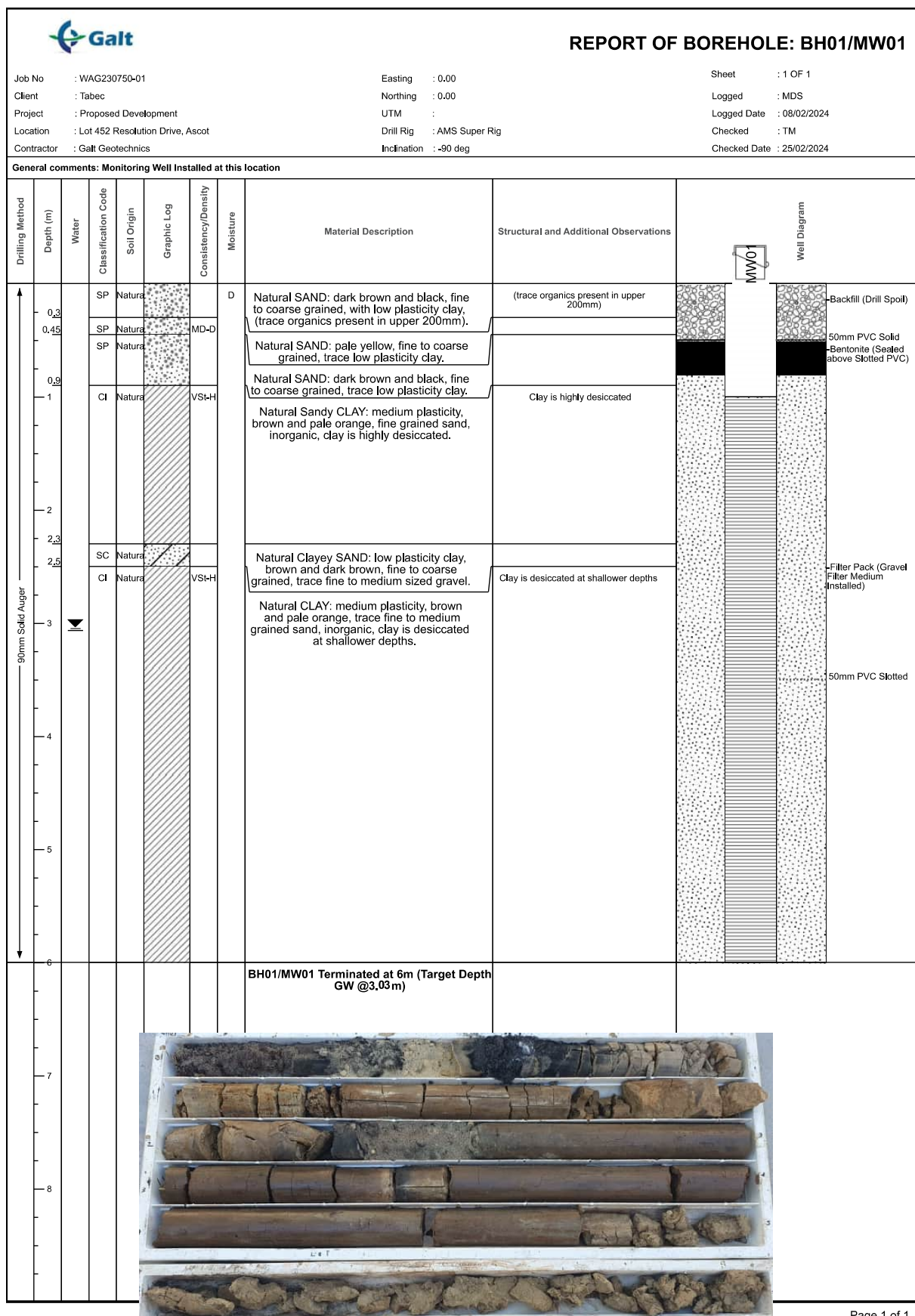
Photograph 3: Site photo from near northern portion of site






Appendix C: Machine Borehole and Monitoring Well Logs










EXPLANATORY NOTES TO BE READ WITH					
BOREHOLE AND TEST PIT REPORTS					
					
METHOD OF DRILLING OR EXCAVATION					
AC	Air Core	E	Excavator	PQ3	PQ3 Core Barrel
AD/T	Auger Drilling with TC-Bit	EH	Excavator with Hammer	PT	Push Tube
AD/V	Auger Drilling with V-Bit	HA	Hand Auger	R	Ripper
AT	Air Track	HE	Hand Excavation	RR	Rock Roller
B	Bulldozer Blade	HQ3	HQ3 Core Barrel	SON	Sonic Rig
BH	Backhoe Bucket	N	Natural Exposure	SPT	Driven SPT
CT	Cable Tool	NMLC	NMLC Core Barrel	WB	Washbore
DT	Diatube	PP	Push Probe	X	Existing Excavation
SUPPORT					
T	Timbering				
PENETRATION EFFORT (RELATIVE TO THE EQUIPMENT USED)					
VE	Very Easy	E	Easy	F	Firm
H	Hard	VH	Very Hard		
WATER					
►	Water Inflow	▼	Water Level		
◄	Water Loss (complete)				
◁	Water Loss (partial)				
SAMPLING AND TESTING					
B	Bulk Disturbed Sample	P	Piston Sample		
BLK	Block Sample	PBT	Plate Bearing Test		
C	Core Sample	U	Undisturbed Push-in Sample		
CBR	CBR Mould Sample		U50: 50 mm diameter		
D	Small Disturbed Sample	SPT	Standard Penetration Test		
ES	Environmental Soil Sample		Example: 3, 4, 5 N=9		
EW	Environmental Water Sample		3,4,5: Blows per 150 mm		
G	Gas Sample		N=9: Blows per 300 mm after		
HP	Hand Penetrometer		150 mm seating interval		
LB	Large Bulk Disturbed Sample	VS	Vane Shear; P = Peak		
M	Mazier Type Sample		R = Remoulded (kPa)		
MC	Moisture Content Sample	W	Water Sample		
ROCK CORE RECOVERY					
TCR = Total Core Recovery (%) = $\frac{CRL}{TCL} \times 100$					
RQD = Rock Quality Designation (%) = $\frac{ALC > 100}{TCL} \times 100$					
TCL	Length of Core Run				
CRL	Length of Core Recovered				
ALC>100 Total Length of Axial Lengths of Core Greater than 100 mm Long					

METHOD OF SOIL DESCRIPTION					
BOREHOLE AND TEST PIT REPORTS					
GRAPHIC LOG & SOIL CLASSIFICATION SYMBOLS					
Graphic	USCS	Soil Name	Graphic	USCS	Soil Name
		FILL (various types)		SM	Silty SAND
		COBBLES / BOULDERS		ML	SILT (low liquid limit)
	GP	GRAVEL (poorly graded)		MH	SILT (high liquid limit)
	GW	GRAVEL (well graded)		CL	CLAY (low plasticity)
	GC	Clayey GRAVEL		CI	CLAY (medium plasticity)
	GM	Silty GRAVEL		CH	CLAY (high plasticity)
	SP	SAND (poorly graded)		OL	Organic SILT (low liquid limit)
	SW	SAND (well graded)		OH	Organic SILT (high liquid limit)
	SC	Clayey SAND		Pt	PEAT
NOTE: Dual classification given for soils with a fines content between 5% and 12%.					
SOIL CLASSIFICATION AND INFERRED STRATIGRAPHY					
Soil descriptions are based on AS1726-2017. Material properties are assessed in the field by visual/tactile methods in combination with field and laboratory testing techniques (where used).					
NOTE: AS 1726-2017 defines a fine grained soil where the total dry mass of fine fractions (<0.075 mm particle size) exceeds 35%.					
PARTICLE SIZE			PLASTICITY - MODIFIED CASAGRANDE CHART - AS1726-2017		
Soil Name	Particle Size (mm)				
BOULDERS	>200				
COBBLES	63 to 200				
GRAVEL	Coarse	19 to 63			
	Medium	6.7 to 19			
	Fine	2.3 to 6.7			
SAND	Coarse	0.6 to 2.36			
	Medium	0.21 to 0.6			
	Fine	0.075 to 0.21			
FINES	SILT	0.002 to 0.075			
	CLAY	<0.002			
RESISTANCE TO EXCAVATION			MOISTURE CONDITION		
Symbol	Term	Description	Symbol	Term	
VE	Very easy	All resistances are relative to the selected method of excavation	D	Dry	
E	Easy		M	Moist	
F	Firm		W	Wet	
H	Hard				
VH	Very hard				
CEMENTATION			ORGANIC SOILS		
Cementation		Description	Material	Organic Content % of dry mass	
Weakly cemented		Soil may be easily disaggregated by hand in air or water	Inorganic soil	<2%	
Moderately cemented		Effort is required to disaggregate the soil by hand in air or water	Organic soil	2% to 25%	
CONSISTENCY			DENSITY		
Symbol	Term	Undrained Shear Strength (kPa)	Symbol	Term	Density Index (%)
VS	Very Soft	0 to 12	VL	Very Loose	<15
S	Soft	12 to 25	L	Loose	15 to 35
F	Firm	25 to 50	MD	Medium Dense	35 to 65
St	Stiff	50 to 100	D	Dense	65 to 85
VSt	Very Stiff	100 to 200	VD	Very Dense	>85
H	Hard	>200			



 REPORT OF BOREHOLE: BH02											
Job No : WAG230750-01		Easting : 0.00		Sheet : 1 OF 1							
Client : Tabec		Northing : 0.00		Logged : MDS							
Project : Proposed Development		UTM :		Logged Date : 08/02/2024							
Location : Lot 452 Resolution Drive, Ascot		Drill Rig : AMS Super Rig		Checked : TM							
Contractor : Galt Geotechnics		Inclination : -90 deg		Checked Date : 25/02/2024							
Drilling Method	DCP graph	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Remarks	Sample
90mm Solid Auger				Natural		SP	Natural SAND: dark grey and black, fine to coarse grained, trace low plasticity clay, (trace organics present in upper 200mm).	M-D	MD-D		
			1				BH02 refusal at 0.7m (Refusal on Desiccated Clay Groundwater not encountered)				
			2								
			3								
			4								
			5								
			6								
			7								
			8								

<div><div></div><div>REPORT OF BOREHOLE: BH03</div></div>											
Job No : WAG230750-01		Easting : 0.00		Sheet : 1 OF 1							
Client : Tabec		Northing : 0.00		Logged : PA							
Project : Proposed Development		UTM :		Logged Date : 14/02/2024							
Location : Lot 452 Resolution Drive, Ascot		Drill Rig : AMS Super Rig		Checked : TM							
Contractor : Galt Geotechnics		Inclination : -90 deg		Checked Date : 25/02/2024							
Drilling Method	DCP graph	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Remarks	Sample
<div><div>90mm Solid Auger</div><div></div></div>			0.1	Topsoil	SP		Topsoil SAND: dark grey, fine to medium grained, trace medium plasticity clay, with roots / organics.	D			
			0.25	Fill	SP		Fill SAND: brown, medium dense to dense, fine to medium grained, trace low plasticity clay.		MD-D		
			0.4	Fill	GP		Fill Sandy GRAVEL: grey, medium dense to dense, fine to medium sized, fine to medium grained sand, trace low to medium plasticity clay.				
			0.7	Natural	SM		Natural Silty SAND: grey brown, fine to medium grained.				
			1	Natural	CI		Natural CLAY: medium plasticity, grey, with fine to medium grained sand, inorganic, trace organics, clay is desiccated at shallow depths.		VSI-H		
			1.5	Natural	CI		As above, brown, trace organics.				
			2								
			3								
			4	Natural	CI		As above,	M			
			5								
		6									
			BH03 Terminated at 6m (Target depth, Groundwater not encountered)								
											
			7								
			8								

<div>Galt</div>				REPORT OF BOREHOLE: BH04								
Job No : WAG230750-01		Easting : 0.00		Sheet : 1 OF 1								
Client : Tabec		Northing : 0.00		Logged : PA								
Project : Proposed Development		UTM :		Logged Date : 14/02/2024								
Location : Lot 452 Resolution Drive, Ascot		Drill Rig : AMS Super Rig		Checked : TM								
Contractor : Galt Geotechnics		Inclination : -90 deg		Checked Date : 25/02/2024								
Drilling Method	DCP graph	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density		Remarks	Sample
<div><div>90mm Solid Auger</div><div></div></div>			0.25	Topsoil		SP	Topsoil SAND: grey, fine to medium grained, trace medium plasticity clay, trace / with organics.	D				
			0.5	Fill		SP	Fill SAND: brown, fine to medium grained, trace low plasticity clay.					
			1	Natural		SC	Natural Clayey SAND: medium plasticity clay, brown, fine to medium grained.					
			1.2	Natural		CI	Natural Sandy CLAY: medium plasticity, brown mottled red, fine to medium grained sand, trace fine to medium sized gravel, inorganic, clay is desiccated.	VSI-H				
			1.5	Natural		CI	Natural CLAY: medium plasticity, brown, with fine to medium grained sand, inorganic, clay is desiccated at shallow depths.					
			3	Natural		CI	As above.	M				
			4.5	Natural		CI	As above.	W				
BH04 Terminated at 6.5m (Target depth. Groundwater possibly at 4.5 m depth)												
			7									

Page 1 of 1

Appendix C

Preliminary Civil Drawing



Tabec 2024



Appendix D

Modelling Assumption Report



Emerge Associates 2024

Modelling Assumptions Report

Golden Gateway Local Structure Plan

Project No: EP23-109(03)

**Prepared for Perth Racing
May 2024**

Prepared for Perth Racing

Doc No.: EP23-109(03)--008 JM | Version: 1

Modelling Assumptions Report
Golden Gateway Local Structure Plan



Document Control

Doc name: Modelling Assumptions Report Golden Gateway Local Structure Plan					
Doc no.: EP23-109(03)--008 JM					
Version	Date	Author		Reviewer	
1	May 2024	Joyti Mabruk	JM	David Coremans	DPC
	Appendix to the LWMS				

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Modelling Assumptions Report Golden Gateway Local Structure Plan



1 Background

Perth Racing (the 'proponent') proposed to progress a local structure plan (LSP) over its landholdings in Ascot. The area is bounded by the Swan River to the North, Grandstand Road to the west and south, Matheson Road and Resolution Drive to the south and residential areas to the east, referred to herein as 'the site'. The structure plan area also includes the Ascot Racecourse area. The site is located approximately 8.5 km east of Perth central business district (CBD) and is approximately 62 ha in size, within City of Belmont (CoB). The LSP consists of six precincts: Precinct A, Precinct B, Precinct C, Precinct D, Precinct E, and the racecourse.

Modelling Assumptions Report

Golden Gateway Local Structure Plan



2 Methodology

XPSWMM hydrologic and hydraulic modelling software (v21.3) was used to calculate the surface water runoff volumes within the road reserves and lots associated with the development of Ascot Racecourse.

The hydrologic component of the software uses the Laurensen non-linear runoff-routing method to simulate runoff from design storm events. Key assumptions regarding the hydrologic model include:

- Runoff is proportional to slope, area, infiltration and percentage of imperviousness of a catchment.
- Sub-catchment areas and slopes are determined from surveyed topographical data and earthworks plans.
- Infiltration rates and percentage imperviousness have been selected based on experience with model preparation for similar soil conditions.

Runoff from each sub-catchment is routed through the catchment using the hydraulic component of XPSWMM. Generally, assumptions associated with the hydraulic component of the model include:

- Virtual links (i.e. purely for model construction, not equivalent to flow path onsite) between nodes within a sub-catchment are given the length of 10 m and slope of 0.05 to minimise the lag time of conveying the water from a sub-catchment node to a 'storage' node, a 'dummy intermediate' node or a conduit/link.
- Links between sub-catchment storages act as conveyance channels (e.g. sheet flow within roads in a 1% annual exceedance probability (AEP)). These links are given lengths and slopes that are representative of the site conditions and actual pathway lengths between catchments.
- All channels are designed with a width of 5 m, roughness of 0.014 (Manning's n) and are trapezoidal in shape. This allows for easy conveyance and represents concrete pipes and road surfaces within the model.
- Where relevant median swales, bio-retention areas (BRAs), and flood storage areas (FSAs) are modelled as nodal-reservoirs with infiltration depth-rating curves to account for differential infiltration rates with changing depth.

2.1 Rainfall

The ensemble temporal patterns obtained from the Australian Rainfall and Runoff (AR&R) Data Hub (AR&R 2019) were used for the rainfall analysis.

Durations ranging between 15 min and 72 hours were tested, with the peak flood elevation being assessed as the determining result.

Following the process suggested by AR&R (Ball J et al. 2019), the highest mean duration was selected as the critical duration. AR&R also recommends that when it is not practical to run the entire ensemble array, the ensemble that produces the result closest to the mean (for the critical duration) should be adopted and provided in **Table 1**.

Table 1: Critical Duration Analysis

Catchment	Critical Duration (20% AEP)	Critical Duration (10% AEP)	Critical Duration (1% AEP)
Precinct A	3 hour duration ensemble 4	3 hour duration ensemble 1	3 hour duration ensemble 1
Precinct C	30 min duration ensemble 6	30 min duration ensemble 7	30 min duration ensemble 8
Precinct D	1 hour duration ensemble 1	30 min duration ensemble 5	30 min duration ensemble 1
Precinct E	45 min duration ensemble 6	30 min duration ensemble 5	30 min duration ensemble 8

3 Pre-development model

The catchment parameters determined for Precinct D within the LWMS for the initial loss – continuous loss model have been adopted to account for catchment losses. The pre-development loss parameters used are given in **Table 2**.

Table 2: Pre-development loss parameters

Land type	Initial loss (mm)	Continual loss (mm)	Roughness
Existing residential/Carpark	15	0.1	0.014

Catchment analysis for pre-development scenario was based on topographic contour data, site visit and aerial photography. Pre-development catchment area within Precinct D is 1.145 ha.

Modelling Assumptions Report

Golden Gateway Local Structure Plan



4 Post-development model

An initial loss continuing loss model was adopted to account for post-development catchment losses. The post-development catchment area, land types and loss values were based on the structure plan design, typical infiltration rates for the soils which occur onsite and based on project team experience. Post-development catchment areas and land types within the site were informed by subdivision plan provided by LPD surveyors. **Table 3** summarises the loss parameters used within the post-development model.

Table 3: Post-development loss parameters

Land type	Initial loss (mm)	Continual loss (mm)	Roughness
Road Surface	1	0.1	0.02
Road Verge	9	1.5	0.05
Fully Impervious	1	0.1	0.02
Roof	1	0.1	0.02
Lot IMP	1	0.1	0.02
Gardens	25	2	0.05
POS	25	2	0.05
Precinct E Lots	15	0.1	0.014

A summary of post-development catchment information is provided in **Table 4** with the catchment plan and basin location shown in Figure 08 of the LWMS.

Table 4: Post-development catchment areas (ha)

Road reserve	Lots	Road Reserve	POS	Fully Impermeable	Child Care
Precinct A	0.714	0.606	1.360	0.330	-
Precinct C	-	5.903	-	-	-
Precinct D	0.526	0.421	-	-	0.199
Precinct E	3.622	0.365	0.219	-	-

The following assumptions were incorporated into the model:

- Precinct A
 - Lots will have 100% roof areas and road reserve contains 5% pervious verge and 95% impervious bitumen areas.
 - POS will be 100% pervious.
 - There is no current connection point for drainage to be exported from Precinct A.
 - 1 single basin/Flood storage area (FSA) for both treatment and flood mitigation.
 - Base of the FSA will need to be vegetated with reeds/rushes as per a biofilter.
 - FSA will have 1:6 side slopes and maximum depth 1.2m in a 1% AEP – to avoid the need for fencing or access control.

Modelling Assumptions Report Golden Gateway Local Structure Plan



- A hydraulic conductivity of 1m/day is assumed.
- Precinct C
 - The existing portion of Precinct C already connected to the centre of the track (existing buildings and stables) and no change has been assumed.
 - Rest of the Precinct C were modelled as two separate catchments i.e., carpark and stables which are 95% impervious and 5% pervious.
 - 1m deep sub-surface storage has been designed to accommodate 1% AEP event.
 - A hydraulic conductivity of 1m/day is assumed.
 - The storage configuration could be changed/modified to suit site layout/constraints.
 - The carpark in Precinct C that discharges to the southwest will discharge to Precinct E.
- Precinct D
 - Lots will have 50% roof areas, 45% paved areas and 5% pervious garden areas, the childcare has roof areas and Road reserve contains 20% pervious verge and 80% impervious bitumen areas.
 - 1m deep sub-surface storage has been designed to accommodate and detain upto 1% AEP events that will mimic pre-development flow of 0.4.
 - A hydraulic conductivity of 1m/day is assumed.
 - The storage configuration could be changed/modified to suit site layout/constraints.
- Precinct E
 - The carpark in Precinct C discharges to Precinct E.
 - Outflow of pre-development Water Corporation (WC) drain is 0.95 m³/s as per WC modelling.
 - All lots of Precinct E retain 15mm of rainfall.
 - Runoff above 15 mm rainfall up to the 1% AEP will be managed by a detention basin which will mimic pre-development 1% AEP peak flow of 0.463 m³/s.
 - The basin will have 1:6 side slopes and maximum depth 1.2m in a 1% AEP – to avoid the need for fencing or access control.
 - A hydraulic conductivity of 1m/day is assumed.

Modelling Assumptions Report Golden Gateway Local Structure Plan



5 References

5.1 General references

The references listed below have been considered as part of preparing this document.

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M and Testoni I (Editors)
2019, *Australian Rainfall and Runoff: A Guide to Flood Estimation*, Commonwealth of
Australia (Geoscience Australia).

5.2 Online references

Australian Rainfall and Runoff (AR&R) 2021, ARR Data Hub, viewed 1 December 2021, Available from:
<<https://data.arr-software.org/>>.

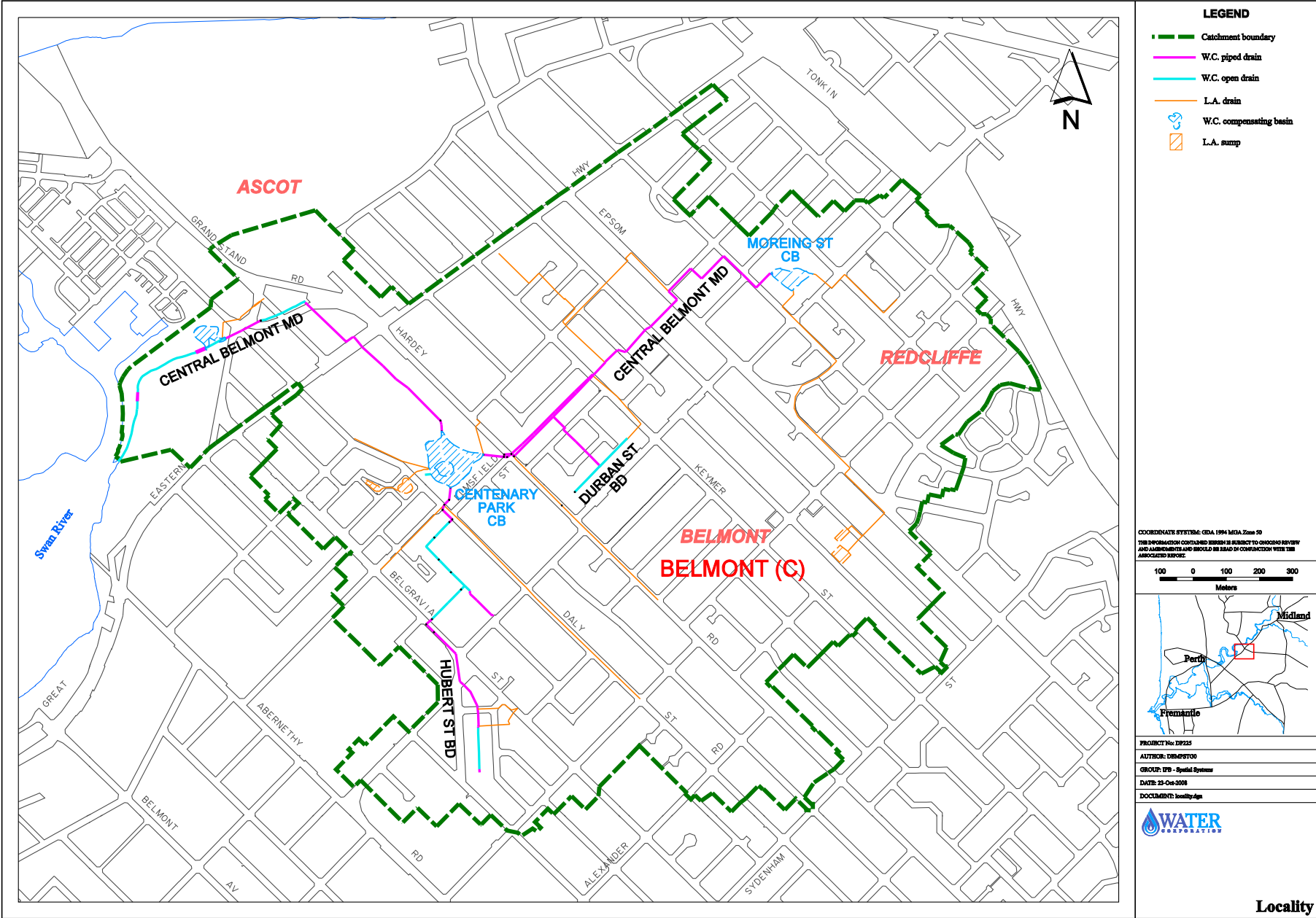
Bureau of Meteorology (BoM) 2021a, Climate Data Online, viewed 1 December 2021, Available from,
<<http://www.bom.gov.au/water/designRainfalls/revised-ifd/>>.

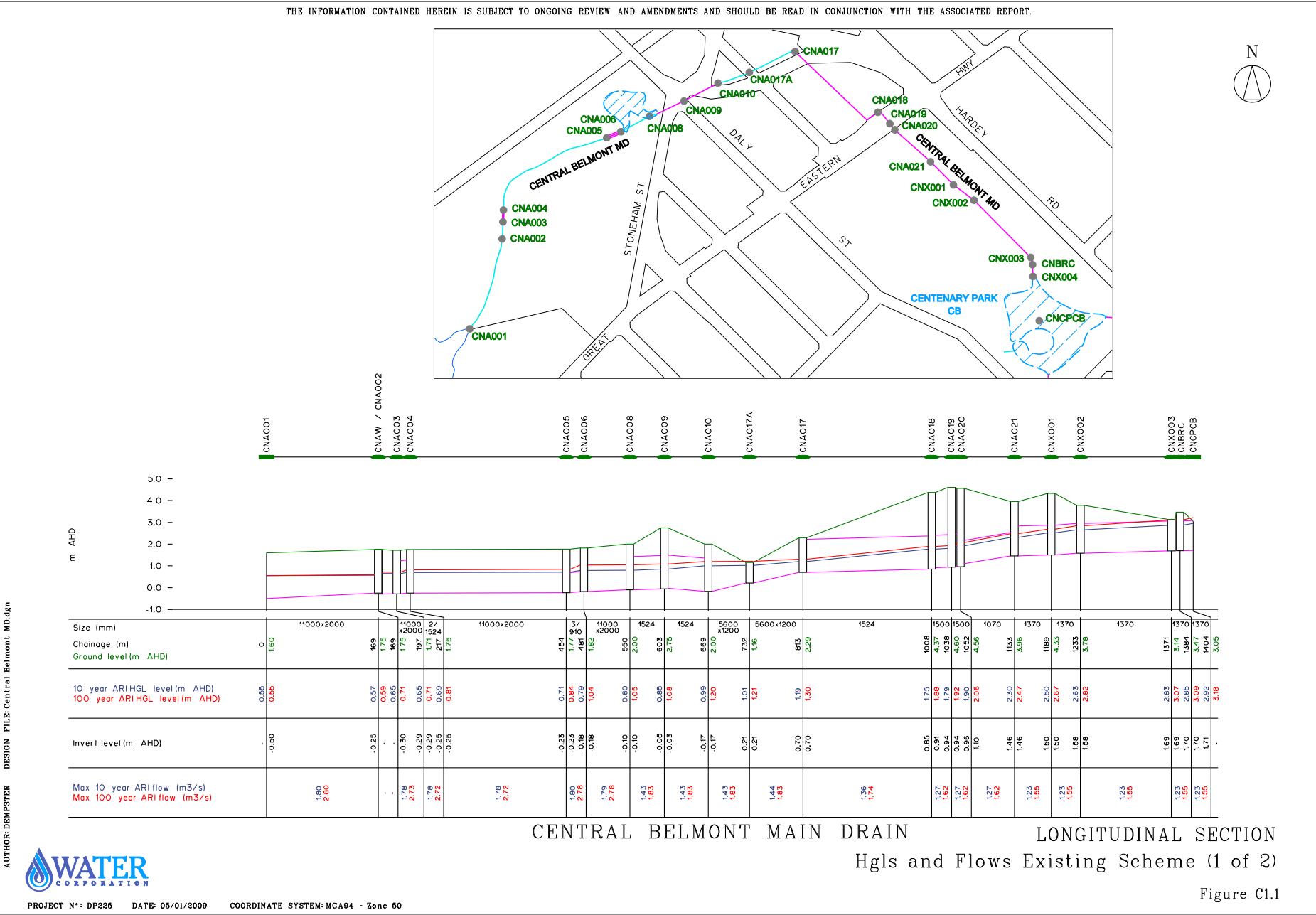
Bureau of Meteorology (BoM) 2021b, Design Rainfall Data System (2016), viewed 1 December 2021,
Available from, <<http://www.bom.gov.au/water/designRainfalls/revised-ifd/>>.

Appendix E

Central Belmont Main Drain Water Corporation





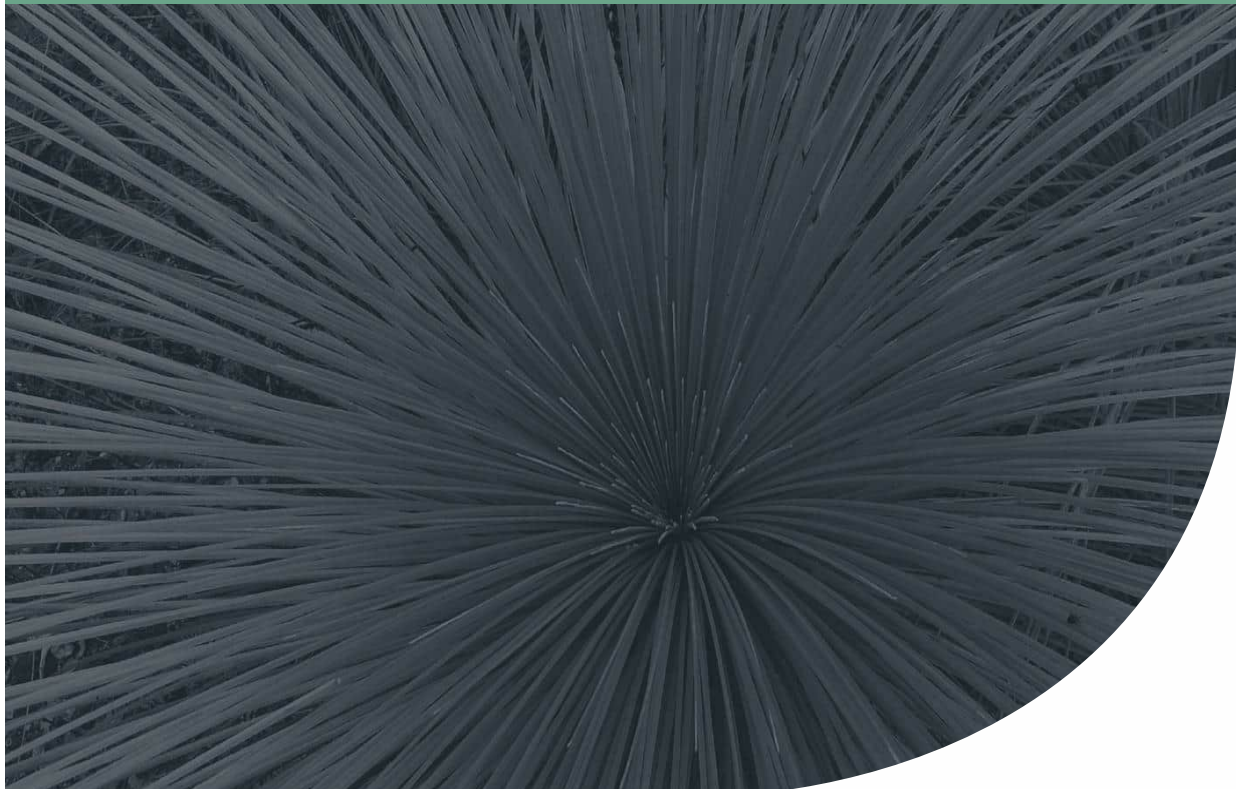


Environmental Assessment Report

Ascot Racecourse Structure Plan

Project No: EP23-109(05)

**Prepared for Perth Racing
July 2024**



Environmental Assessment Report

Ascot Racecourse Structure Plan



Document Control

Doc name:		Environmental Assessment Report Ascot Racecourse Structure Plan			
Doc no.:		EP23-109(05)—004 GAB			
Version	Date	Author		Reviewer	
1	May 2024	Georgia Bayley	GAB	Jason Hick	JDH
		Emma Bentley	EKB		
	Submitted for client review.				
A	July 2024	Emma Bentley	EKB	Jason Hick	JDH
	Submitted for client review.				

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Environmental Assessment Report

Ascot Racecourse Structure Plan



Executive Summary

Perth Racing (the ‘proponent’) propose to progress a structure plan (SP) over an area of land in Ascot. The area is bounded by the Swan River to the north, Grandstand Road to the west and south, Matherson Road to the south and existing residential areas to the east, and is referred to herein as ‘the site’. The site includes the Ascot Racecourse area. The site is located approximately 8.5km east of Perth central business district (CBD) and is approximately 62 ha in size, within the City of Belmont (CoB). The SP consists of six precincts: Precinct A, Precinct B, Precinct C, Precinct D, Precinct E, and the racecourse. The proponent additionally intends to progress a local planning scheme amendment for the site in parallel with the structure plan process.

The site is currently zoned ‘Urban’, ‘Parks and Recreational’, and ‘Private Recreation’ under the Metropolitan Regional Scheme (MRS). Under the Local Planning Scheme No. 15 (LPS 15), the site is currently zoned as ‘Place of Public Assembly’ and ‘Mixed Use’. A small portion of the site is ‘Parks and Recreation: water supply sewerage and drainage’.

This Environmental Assessment Report (EAR) supports the SP and is the principal supporting environmental document for the scheme amendment and SP process for the site. It includes a preliminary assessment of the proposed SP land uses, future management considerations and associated predicted environmental outcomes, against the applicable environmental factors as defined by the Environmental Protection Authority (EPA) policy framework.

The proponent has taken a range of measures to provide for the accommodation of environmental values within the Ascot SP. This is primarily achieved through the strategic location of public open space (POS) in the northern area of the site to retain intact native vegetation, as well as retention of existing wetland features located centrally within the site.

In this context, the SP has considered the identified environmental values within the site, including the proposed future retention of:

- Subtropical and temperate coastal saltmarsh TEC/PEC
- Native vegetation
- Fauna habitat.

As part of the future development process, considerations, approvals and management plans are likely to be necessary for individual proponents of development proposals within the Ascot SP, which would further minimise environmental impacts that have the potential to arise through development in accordance with the SP. The management framework and relevant considerations are summarised in **Table 1**.

Environmental Assessment Report

Ascot Racecourse Structure Plan



Table 1: Summary of environmental management framework and relevant considerations

Environmental Factor	Management Framework and considerations		
	Local Structure Plan	Subdivision and/or Development	Construction
Flora and Vegetation	Environmental Assessment Report including preliminary investigations (Emerge Associates 2024a) (Appendix D).	<ul style="list-style-type: none"> Native Vegetation Clearing permit pursuant to Part V of the EP Act if clearing is required within the SP area and clearing is not exempt. Preparation of a Conservation and Environment Management Plan (CEMP), where required. 	Clearing Permit and compliance with approval conditions and management plans, in accordance with the EP Act.
Terrestrial Fauna	Environmental Assessment Report including preliminary investigations (Emerge Associates 2024a) (Appendix D).	<ul style="list-style-type: none"> Potential impacts to MNES (listed black cockatoo species) in relation to the EPBC Act and the need to consider referral in accordance with the <i>Matters of National Environmental Significance Significant Impact Guidelines</i> (DotE 2013). Preparation of a fauna management plan, where required, to minimise impacts to fauna through the clearing and construction works. 	Compliance with approval conditions and management plans, in accordance with the EP Act and EPBC Act, where required.
Acid Sulfate Soils	Environmental Assessment Report including preliminary investigations.	<ul style="list-style-type: none"> Detailed ASS Investigation and Management Plan for intrusive works in areas mapped as 'Class 1: High to moderate risk' will likely be required in accordance with the WAPC's <i>Acid Sulfate Soils Planning Guidelines</i> (2008). 	Implementation of ASS Management Plan.
Inland Waters	The LWMS prepared for the SP by Emerge Associates (2024b) (Appendix E).	<ul style="list-style-type: none"> Detailed UWMPs will be required (most relevant to Precinct D) to support individual subdivision applications. Other precincts may be developed under Development Approval and therefore water management will likely be documented through Stormwater Management Plans (SMs). Both UWMPs and SMPs will be prepared in accordance with the <i>Better Urban Water Management Framework</i>. Protection of the Swan River and associated Conservation Category Wetland (CCW) through consideration of hydrological processes and water quality management into design of future development areas to protect the adjacent Swan River and associated values. Development Control Area (DCA) permit application for works within or affecting the DCA to the DBCA in accordance with the <i>Swan and Canning Rivers Management Act 2006</i> and the <i>Swan and Canning River Management Regulations 2007</i>. 	Compliance with UWMP/SMP and DCA permit if necessary.

Environmental Assessment Report

Ascot Racecourse Structure Plan



Table 1: Summary of environmental management framework and relevant considerations (continued)

Environmental Factor	Management Framework and considerations		
	Local Structure Plan	Subdivision	Construction
Social Surroundings	<p>Preliminary investigations for Aboriginal Cultural Heritage.</p> <p>Transport Noise Assessment for the proposed SP (Lloyd George Acoustics 2023) in accordance with SPP 5.4.</p>	<ul style="list-style-type: none"> Detailed Acoustic Assessment and Management Plan (where required) or 'Quiet House Package A' implemented to upper floors of noise sensitive dwellings within Precinct E. 	<p>Section 18 approval may be required pursuant to the <i>Aboriginal Heritage Act 1972</i> prior to ground disturbing works.</p> <p>Compliance with noise management plan and appropriate house packages applied where appropriate.</p>

Overall, a range of environmental impact mitigation measures (primarily impact avoidance and minimisation) are proposed within the SP layout and through the future environmental management framework. In this context, it is anticipated that implementation of the proposed SP can be suitably managed through future stages of the land use planning processes (including development) such that the EPA objectives for the relevant environmental factors can be achieved.

Environmental Assessment Report

Ascot Racecourse Structure Plan



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Appendices

Appendix A

Ascot Racecourse Structure Plan (ROWE Group Design, 2024)

Appendix B

Ascot Racecourse Precinct Plan (ROWE Group Design, 2024)

Appendix C

Draft Master Plan Concept (ROWE Group Design, 2024)

Appendix D

Flora, Vegetation and Fauna Assessment (Emerge Associates 2024a)

Appendix E

Local Water Management Strategy (Emerge Associates 2024b)

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Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
CoB	City of Belmont
DEC	Department of Environment and Conservation (now DER)
DEP	Department of Environmental Protection (now DER)
DER	Department of Environment Regulation
DFES	Department of Fire and Emergency Services
DoE	Department of Environment (now DER)
DoW	Department of Water
DPLH	Department of Planning, Lands and Heritage
EPA	Environmental Protection Authority
WAPC	Western Australia Planning Commission

Table A2: Abbreviations – General terms

General terms	
AHEF	Aboriginal Heritage Enquiry Form
BPA	Bushfire prone area
CBD	Central Business District
CCW	Conservation category wetland
EAR	Environmental Assessment Report
ESA	Environmentally sensitive area
MUW	Multiple use wetland
PEC	Priority ecological community
P3	Priority 3
REW	Resource enhancement wetland
SP	Structure Plan
SPP	State Planning Policy
T	Threatened
TEC	Threatened ecological community
UFI	Unique feature identifier

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Table A3: Abbreviations –Legislation

Legislation	
AH Act	<i>Aboriginal Heritage Act 1972</i>
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</i>
CS Act	<i>Contaminated Sites Act 2003</i>
EP Act	<i>Environmental Protection Act 1986</i>
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i>

Table A4: Abbreviations – units of measurement

Units of measurement	
ha	Hectare
m	Metre
m AHD	m in relation to the Australian height datum
mBNS	m below natural surface

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1 Introduction

1.1 Background

Perth Racing (the proponent) proposes to progress a structure plan (SP) over an area of land in Ascot to support and guide future development (the Ascot SP; referred to herein as 'the SP'). The SP area includes the existing Ascot Racecourse and is bounded by the Swan River to the north, Grandstand Road to the west and south, Matherson Road to the south and existing residential areas to the east (referred to herein as 'the site'; see **Figure 1**). The site is located approximately 8.5 km east of Perth central business district (CBD) and is approximately 62 ha in size, within the City of Belmont (CoB). The SP layout is shown in **Appendix A** and consists of six precincts: Precinct A, Precinct B, Precinct C, Precinct D, Precinct E, and the racecourse, as demonstrated below on **Plate 1, Figure 1**, and provided in **Appendix B**.

The proponent additionally intends to progress a local planning scheme amendment as well as the structure planning process in parallel for the site. The site is currently zoned 'Urban', 'Parks and Recreation', and 'Private recreation' under the Metropolitan Regional Scheme (MRS). Under the Local Planning Scheme No. 15 (LPS 15), the site is currently zoned as 'Place of Public Assembly' and 'Mixed Use'.

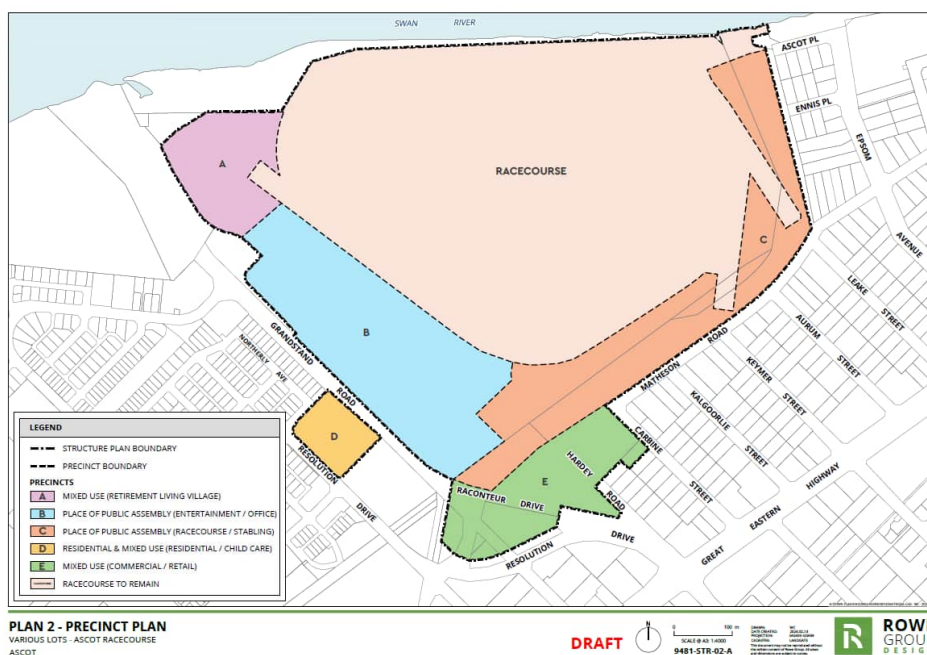


Plate 1: Ascot Racecourse Precinct Plan with proposed uses (draft)

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1.2 Purpose of this report

The proponent engaged Emerge Associates (Emerge) to prepare an Environmental Assessment Report (EAR), with the intent to be the principal supporting environmental document for the local scheme amendment and SP process for the site. The EAR supports the structure planning process and provides a synthesis of information regarding the environmental values and attributes of the site. The EAR is consistent with the Western Australia Planning Commission's (WAPC) *Structure Plan Framework* (WAPC 2015) and:

- Identifies and assesses the existing environmental values and attributes of the site (**Section 2**).
- Discusses the land use planning context and the proposed SP, in the context of applicable statutory requirements under applicable legislation (**Section 3**).
- Provides an assessment of the proposed SP layout and land uses and predicted environmental outcomes against the applicable Environmental Protection Authority (EPA) environmental factors and objectives (**Section 4**).

1.3 Previous surveys and assessments

The following surveys, investigations and assessment reports were prepared to support preparation of the SP and are relevant to this EAR:

- Reconnaissance Flora, Vegetation, Fauna and Targeted Black Cockatoo Habitat Assessment (Emerge 2024a) (Appendix D)
- Ascot Racecourse Local Water Management Strategy (Emerge 2024b) (Appendix E)
- Transport Noise Assessment (Lloyd George Acoustics 2023).

An Environmental Report was prepared for the Draft Golden Gateway Local Structure Plan (LSP) in 2018 by Essential Environmental for the CoB (Essential Environmental 2018). The Draft Golden Gateway LSP is located immediately south of the site and is being progressed but has not been finalised. The Golden Gateway LSP no longer includes the site, and this SP is proposed to progress on Perth Racings landholdings exclusively. A review of the Golden Gateway LSP was undertaken as part of the preparation of this report to understand background information and context for the proposed SP.

The Draft Golden Gateway LSP provides contextual information for the proposed SP due to the proximity, and specifically through the following documents:

- Golden Gateway Bushfire Management Plan (Urbaqua 2018)
- Golden Gateway Local Structure Plan Environmental Report (Essential Environmental 2018)
- Golden Gateway Local Water Management Strategy (Essential Environmental 2018).

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2 Existing Environment

The outcomes of desktop and site-specific investigations undertaken by Emerge and others have informed the identification and assessment of the existing environmental attributes and values within the site and are discussed in the below **Section 2.1** to **Section 2.8**.

The Environmental Protection Authority (EPA) identifies a number of environmental principles, factors and objectives within the *Statement of Environmental Principles, Factors and Objectives* (EPA 2018), which are used to guide the determination of significant environmental impacts and whether impacts can be appropriately mitigated or managed. Existing environmental values have been described according to the applicable EPA environmental factor (where applicable to the site), which include:

- Landforms
- Terrestrial environmental quality
- Flora and vegetation
- Terrestrial fauna
- Inland waters
- Social surroundings.

2.1 Landforms

2.1.1 Landform, soils and geology

The site occurs on the Swan Coastal Plain, the geomorphic unit that characterises much of the Perth metropolitan area. The site is within the Pinjarra System with a portion of the site within the Bassendean System. The Pinjarra System is described as *poorly drained coastal plain with variable alluvial and aeolian soils*, whilst the older Bassendean Dune system is characterised by lower relief, with variable depth to groundwater, consisting of lower sandy hills interspersed with permanent and seasonal wetlands (Churchward and McArthur 1980; Gozzard 2011).

Geological Survey of Western Australia (Gozzard 2007) indicates that the site lies within the Swan River Terraces system having Guildford formation of Alluvial and leached yellow sand. As shown on **Figure 2**, the site soil types include:

- **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, disseminated fine sand, hard when dry, variable clay content of alluvial origin.
- **Ms4** – Sandy Silt: light yellow brown, blocky, mottled some some fine to medium sand, soft when moist, variable clay content.
- **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin.

2.1.2 Topography

The site is generally flat with a slightly higher elevation in its eastern extent. The northern portion of the site, adjacent to the Swan River, lies at 0 m Australian Height Datum (mAHD). The remainder of the site is slightly elevated, ranging from 1 mAHD to the northwest to 7 mAHD to the east.

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The topographic contours of the site are shown on **Figure 3**.

2.2 Terrestrial Environmental Quality

2.2.1 Acid sulfate soils

Acid sulfate soils (ASS) refers to naturally occurring soils and sediment containing iron sulphide (iron pyrite) materials. In their natural state, present in waterlogged and/or anoxic conditions, ASS generally do not present any risk to the environment. However, when oxidised, ASS can pose issues through sulphuric acid production, which can present a range of risks for the surrounding environment, infrastructure, and human health.

The Department of Water and Environmental Regulation (DWER) provides broad-scale mapping indicating areas of potential ASS risk (DWER 2023). A review of the DWER mapping indicates that the majority of the site is considered to have 'high to moderate' risk of ASS occurrence and a small portion in the south is considered to have 'moderate to low' risk of ASS occurring within the 3 m of the natural surface.

The DWER ASS risk mapping is shown on **Figure 4**.

2.2.2 Potential site contamination

A review of the publicly available DWER Contaminated Sites Database indicates that no areas within the site are registered as a 'contaminated site' pursuant to the *Contaminated Sites Act 2003*. A basic summary of records (BSR) of Lot 9002 on DP60342 was requested from DWER which shows that Lot 9002 (including the racecourse, Precinct A and Precinct B) is classified as "possibly contaminated – investigation required" and the extent of which is shown on **Figure 4**. The contamination is associated with the sites historical land use for horse racing and runoff from animal storage on the site and agistment in the surrounding areas causing the potential for contamination, including nutrient runoff. Monitoring and investigation is required to be reviewed by DWER and potentially re-classified and the proponent has commenced investigations to address this. The BSR notes that if groundwater is to be abstracted, analytical testing should be undertaken to determine if groundwater is suitable for its intended use.

2.2.3 Historical context

Historical aerial images available from 1953 and onwards (Landgate 2023) were reviewed and show that Ascot Racecourse has existed since prior to 1953 (**Plate 2**) and the associated racecourse infrastructure, including grandstands and stables were established between 1953 and 1977. Residential development to the south east of the site steadily increased between 1953 to 1995 and majority of residential development to the south west occurred between 1995 and 2005 (see **Plate 2** to **Plate 4**).

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Plate 2: 1953 aerial (Landgate 2023)



Plate 3: 2005 aerial (Landgate 2023)

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Plate 4: 2024 aerial (Landgate 2023)

2.3 Flora and Vegetation

2.3.1 Regional Context

Native vegetation within the site can be classified based on regional vegetation mapping. Heddlé *et al.* (1980) mapping shows the site as comprising the 'Guildford' complex, which is described as 'open forest to tall open forest and woodland'. The site is within 'Bassendean association 1009', typically comprising a combination of *Corymbia calophylla*, *Eucalyptus wandoo* and *Eucalyptus marginata* (DPIRD 2021). This association was determined to have 16.4% remaining of its original pre-European extent within the Swan Coastal Plain, of which 0.02% is protected for conservation purposes (Government of Western Australia 2019).

The EPA's *Environmental Guidance for Planning and Development Studies* (EPA 2008) states that the loss of biodiversity caused by habitat fragmentation is significantly greater once a habitat type falls below 30% of its original extent. The Guidance also references the biodiversity conservation national objective and target of retaining 30% of the original extent of each vegetation association, and the states' minimum target of 10% for constrained urban areas such as the Swan Coastal Plain. The percentage remaining of the Bassendean vegetation association (16.4%) is below the 30% retention objective but above the 10% minimum retention target for the Swan Coastal Plain.

Vegetation is typically considered to represent an intact occurrence of its overarching vegetation complex when it is in 'good' or better condition. As outlined in **Section 2.3.4**, vegetation in some portions of the site has been assessed to be in 'good' or 'very good' condition; therefore, this indicates that these areas of remnant native vegetation within the site, is consistent with vegetation associations of the 'Guildford' formation.

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2.3.2 Site-specific investigations

Emerge completed a reconnaissance flora and vegetation survey for the site on 27 March 2023 in accordance with EPA's *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016; Emerge Associates 2024a). The survey boundary incorporated the entire site.

The survey included traversing the site on foot and recording composition and condition of vegetation. Photographs were taken during the survey to show particular site conditions. Prior to the field survey, information on the habitat preferences of threatened and priority flora species and communities were reviewed. Areas of potentially suitable habitat for threatened and priority flora species were opportunistically traversed along transects and searched for conservation significant species, as required.

The findings of the survey and the associated assessment report (Emerge Associates 2024a) is summarized below and is contained within **Appendix D**.

2.3.3 Vegetation units

Four vegetation units were identified within the site during the field survey and descriptions of each is provided below in **Table 2**. The associated vegetation mapping is shown in **Figure 5**.

Table 2: Description and extent of vegetation type identified within the site

Vegetation Community	Description	Area (ha)
Er	Woodland <i>Corymbia calophylla</i> over closed grass/forbland of pasture weeds and scattered native species (or absent).	1.12
Cc	Woodland <i>Eucalyptus rudis</i> over closed grass/forbland of pasture weeds and scattered native species (or absent)..	0.28
ErJkSt	Open woodland <i>Eucalyptus rudis</i> and occasional <i>Melaleuca raphiophylla</i> over sedgeland <i>Juncus kraussii</i> and <i>Schoenoplectus tabernaemontani</i> over low shrubland <i>Suaeda australis</i> over forbland <i>Apium prostratum</i> subsp. <i>prostratum</i> var. <i>prostratum</i> and <i>Heliotropium curassavicum</i> over grassland * <i>Avena</i> sp., <i>Cynodon dactylon</i> and * <i>Paspalum vaginatum</i> (or absent).	0.17
To	Fringing rushland of <i>Typha orientalis</i> , with occasional planted native and non-native trees, shrubs and/or non-woody vegetation, over closed grass/forbland of pasture weeds.	0.46
Non-native	Heavily disturbed areas comprising bare ground and weeds with occasional native trees and forbs and/or sealed ground and buildings.	56.62

2.3.4 Vegetation condition

The majority of the site was heavily disturbed with limited intact native vegetation present. The vegetation was therefore mostly determined to be in 'degraded – completely degraded' and 'completely degraded' condition with a small portion determined to be 'very good – good'. Vegetation condition is shown in **Figure 6** and detailed below in **Table 3**.

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Table 3: Vegetation condition categories within the site

Condition category (Keighery (1994))	Size (ha)
Pristine	0
Excellent	0
Very good	0
Good – very good	0.07
Good	0
Degraded	1.04
Degraded – completely degraded	0.98
Completely degraded	56.57

2.3.5 Threatened and Priority Ecological Communities

Threatened Ecological Communities (TECs) are recognised as ecological communities that are rare or under threat and therefore warrant special protection.

At a Commonwealth level, TECs are afforded statutory protection under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and at a State level, TECs are afforded statutory protection under the *Biodiversity Conservation Act 2016* (BC Act). Under both Acts, TECs are listed as either ‘critically endangered’, ‘endangered’ or ‘vulnerable’, noting listing status may be different between Commonwealth and State frameworks.

Ecological communities that are not listed as threatened, but are otherwise considered rare or under threat, may be added to the Department of Biodiversity, Conservation and Attractions (DBCA) priority list (DBCA 2022, 2023). PECs are classified as either ‘priority 1’ (P1), ‘priority 2’ (P2), ‘priority 3’ (P3) or ‘priority 4’ (P4). Whilst PECs are not afforded statutory protection under the BC Act, they are recognised and categorised by the DBCA and are considered through State environmental approval processes.

The ‘subtropical and temperate coastal saltmarsh’ ecological community is listed as a TEC (‘vulnerable’) under the EPBC Act and as a PEC (P3) under the BC Act. The TEC/PEC was identified within a portion of the ErJkSt vegetation unit, located in a small part of the site to the north (**Figure 7**). A total of 0.07 ha of this TEC/PEC was mapped within the site. Only part of the ErJkSt vegetation unit represents the TEC/PEC with the remaining ErJkSt vegetation unit representing canopy overhang into the site with limited to no understorey vegetation, which is not characteristic of the TEC/PEC.

2.3.6 Conservation significant flora

Flora species that are considered to be rare or under threat warrant special protection under Commonwealth and/or State legislation. At a Commonwealth and State level, flora species may be listed as ‘threatened’ pursuant to the EPBC Act and BC Act. However, listing status may be different between Commonwealth and State levels. Flora species that are not listed as threatened, but are otherwise considered rare or under threat, may be added to the DBCA priority list (DBCA 2022, 2023). Priority flora are classified as either ‘priority 1’ (P1), ‘priority 2’ (P2), ‘priority 3’ (P3) or ‘priority

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4' (P4). Whilst priority flora are not afforded statutory protection under the BC Act, they are recognised and categorised by the DBCA and are considered through approval processes.

The desktop search results identified a total of 100 flora species including 25 threatened and 75 priority flora species as occurring or potentially occurring within a 9 km radius of the site. Of these, two priority flora species (*Angianthus micropodioides* (P3) and *Aponogeton hexatepalus* (P4)) were considered to have 'high' or 'moderate' likelihood of occurrence within the site (Emerge Associates 2024a).

No threatened or priority flora species were recorded during the survey and suitable habitat for threatened or priority species was not considered to be present (Emerge Associates 2024a). The two threatened and priority flora species identified in the desktop assessment were not considered likely to occur due to lack of suitable habitat.

2.3.7 Weeds

The term 'weed' can refer to any plant that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. At a State level, a particularly invasive or detrimental weed species may be listed as a 'declared pest' pursuant to the *Biosecurity and Agriculture Management Act 2007* (BAM Act), indicating that it warrants special management to limit its spread. At a Commonwealth level, the Australian government has compiled a list of 32 Weeds of National Significance (WoNS) (DoEE 2019c).

A total of 58 weed species were recorded during the field survey. One weed species recorded, (**Tamarix aphylla* (athel pine)), is listed as a declared pest. Athel pine is listed in the exempt keeping category, meaning management is not obliged.

2.3.8 Environmentally Sensitive Areas

Environmentally sensitive areas (ESAs) are prescribed protection under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* and have been identified to protect native vegetation values of areas surrounding significant, threatened or scheduled flora, vegetation communities or ecosystems.

Within an ESA, no exemptions under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* apply and would indicate that the site is likely to support significant environmental values. However, exemptions under Schedule 6 of the *Environmental Protection Act 1986* (EP Act) apply, including any clearing in accordance with a subdivision approval under the *Planning and Development Act 2005* (a recognised exemption under the Schedule 6 of the *Environmental Protection Act 1986*).

The Swan River, located adjacent to the site, is also considered a "Conservation Category Wetland" and as such, a portion of the site (3.4 ha) is listed as an ESA (**Figure 8**).

A total of 1.10 ha of vegetation meeting the definition of 'native vegetation' pursuant to the EP Act occurs within the site, as shown in **Figure 7**. This is comprised of scattered flooded gum (*Eucalyptus rudis*) and marri (*Corymbia calophylla*) trees, and fringing vegetation (vegetation type ErJkSt).

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2.3.9 Bush Forever

The Government of Western Australia's *Bush Forever Policy* (Government of WA 2000) is a strategic plan for conserving regionally significant bushland within the Swan Coastal Plain portion of the Perth Metropolitan Region. The objective of Bush Forever is to protect comprehensive representations of all original vegetation complexes by targeting a minimum of 10% of each for protection. Bush Forever areas represent regional ecosystems and habitat and have a vital role in conserving Perth's biodiversity.

No Bush Forever Sites occur within the site. The closest Bush Forever Site is Bush Forever Site 313 – Swan River Saltmarshes, Bayswater/Maylands, located approximately 100 m to the northwest of the site, separated by Grandstand and Garrett Road (see **Figure 8**).

2.3.10 Ecological linkages

Ecological linkages are linear landscape elements that allow the movement of fauna, flora and genetic material between areas of remnant habitat. The Perth Biodiversity Project, supported by the Western Australian Local Government Association have identified and mapped regional ecological linkages within the Perth Metropolitan Region (WALGA and PBP 2004). While the linkages generally align with areas of vegetation and Bush Forever areas, in many locations these linkages are not contiguous with vegetation coverage.

Ecological linkage ID 35 (Swan River) partially overlaps the northern portion of the site. However, most of the northern portion of the site does not support native vegetation due to historical clearing, and only a small portion remains within the northeast of the site.

Broadscale identified ecological linkages are shown in **Figure 8**.

2.3.11 City of Belmont Collective Local Biodiversity Strategy

In partnership with Town of Bassendean and City of Bayswater, the CoB developed a collective Local Biodiversity Strategy (LBS) as a commitment to the protection and enhancement of a network of local natural areas (LNAs).

LNAs across the three councils were ranked by viability using the Natural Area Initial Assessment templates detailed in the Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region (WALGA, 2004). The viability assessment was used to determine the reserves of high biodiversity value that would benefit from increased protection status. The highest viability areas within the CoB were as follows:

- Goodwood Parade Estuarine Dampland
- Signall Hill
- Tomato Lakes Bushland.

No reserves deemed to have high biodiversity value, as outlined in the LBS, were identified as occurring within the site. As such, no LNAs need to be considered as part of future development within the site.

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2.4 Terrestrial Fauna

2.4.1 Site-specific surveys and investigations

In conjunction with the flora and vegetation assessment, Emerge Associates undertook a basic fauna and targeted black cockatoo survey, and the assessment boundary encompassed the entire site. The targeted black cockatoo survey extended beyond the SP area, and three potential habitat trees located adjacent to the site were identified outside the SP area. These trees are located beyond the SP area however the location of the trees are shown in Figure 7 of **Appendix D**.

Transects were traversed across the site, during the day, and the characteristics of fauna habitat and presence of fauna species was recorded. Microhabitats such as logs, rocks and leaf litter were investigated and evidence of species presence such as tracks, scats, skeletal remains, foraging evidence or calls was also noted. An opportunistic fauna species list was compiled and fauna habitat values were described, with particular reference to conservation significant fauna species that have the potential to occur within the site.

The findings of the survey and the associated assessment report (Emerge Associates 2024a) is summarised below and contained within **Appendix D**.

2.4.2 Fauna habitat

Emerge (2024) identified four habitat types within the site with most of the site (52.64 ha) described as 'cleared' (see **Table 4**). Habitat values in the site are limited by historical disturbance and are primarily suited to widespread fauna species with non-specific habitat requirements.

The fringing woodland fauna habitat, associated with the **ErJkSt** vegetation unit, was noted to provide a cover of native trees and understory cover of riparian vegetation that offers habitat for ground dwelling fauna. The fringing woodland is associated with the Swan River and extends into the northeast of the site. The scattered trees and shrubs habitat type comprised of large native trees was associated with vegetation units **Cc** and **Er** would provide value to native birds and other arboreal fauna (see **Figure 5**).

Table 4: Fauna habitats identified within the site

Fauna habitat	Description	Area (ha)
Fringing woodland	Native fringing vegetation consisting of a native tree overstorey and an understorey of sedges/rushes.	0.07
Wetland	Wetland waterbodies and associated riparian sedgeland/rushland.	3.72
Scattered trees and shrubs	Scattered native and non-native trees and shrubs, providing habitat mainly for avifauna.	5.45
Cleared	Predominantly grassy weeds, bare ground and built form.	52.64

Twenty-four fauna species were recorded within the site including two conservation significant fauna species.

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2.4.3 Conservation significant fauna

Fauna species that are considered to be rare or under threat warrant special protection under Commonwealth and/or State legislation. At a Commonwealth and State level, fauna species may be listed as 'threatened' pursuant to the EPBC Act and BC Act, respectively. However, listing status may be different between Commonwealth and State levels. Fauna species that are not listed as threatened, but are otherwise considered rare or under threat, may be added to the DBCA priority list (DBCA 2022, 2023). Priority fauna are classified as either 'priority 1' (P1), 'priority 2' (P2), 'priority 3' (P3) or 'priority 4' (P4). Whilst priority fauna are not afforded statutory protection under the BC Act, they are recognised and categorised by the DBCA and are considered through environmental approval processes.

A total of 77 conservation significant fauna species were identified as occurring or potentially occurring within a 10 km radius of the site (Emerge Associates 2024a). Of these, 11 species were considered to have a 'moderate' or 'high' likelihood of occurrence within the site, including six migratory and/or specifically protected bird species, two threatened bird species, one priority bird species and two priority mammal species **Table 5**.

The field survey confirmed the 11 species identified from the desktop assessment have the potential to occur within the site. Based on observations of fauna habitat for migratory species, it was noted that occurrences of migratory species within the site are likely to be a flyover or for marginal foraging habitat due to the site and surrounding area lacking suitable habitat.

Rakali may utilise the Swan River and are likely to occasionally occur in the northern most portion of the site associated with the fringing woodland habitat type. Quenda may occur in understorey vegetation or where grasses provide dense cover.

One threatened species, *Zanda banksii naso* (forest red-tailed black cockatoo (FRTBC)) and one P4 species (*Oxyura australis* (blue-billed duck)) were recorded at the time of survey (Emerge Associates 2024a). FRTBC were observed foraging in the southern portion of the site in cape lilac (*Melia azedarach*), which were overhanging from adjacent private properties.

Table 5: Conservation significant fauna species with potential to occur within the site

Taxa	Common name	Conservation Status	
		EP Act	EPBC Act
Birds			
<i>Zanda banksii naso</i> ¹	Forest red-tailed black cockatoo	VU	VU
<i>Zanda latirostris</i> ²	Carnaby's black cockatoo	EN	EN
<i>Oxyura australis</i>	Blue-billed duck	P4	-
<i>Pandion haliaetus</i>	Osprey	MI	MI
<i>Apus pacificus</i>	Pacific swift	MI	MI

¹ Previously *Calyptorhynchus*

² Previously *Calyptorhynchus*

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Table 5: Conservation significant fauna species with potential to occur within the site (continued)

Taxa	Common name	Conservation Status	
		EP Act	EPBC Act
<i>Calidris ruficollis</i>	Red-necked stint	MI	MI
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI
<i>Thalasseus bergii</i>	Crested tern	MI	MI
<i>Falco peregrinus</i>	Peregrine falcon	OS	-
Mammals			
<i>Hydromys chrysogaster</i>	Rakali	P4	-
<i>Isodon fusciventer</i>	Quenda	P4	-

2.4.3.1 Black Cockatoos

Three threatened species of black cockatoo occur in the south-west of WA:

- *Zanda³ latirostris* (Carnaby's black cockatoo) (CBC) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Zanda⁴ baudinii* (Baudin's black cockatoo) (BBC) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) (FRTBC) which is listed as 'vulnerable' under the EPBC Act and the BC Act.

The site is within the modelled distribution of CBC and FRTBC (DAWE 2022) and are therefore these species have been considered further in this section. Additionally, FRTBC were observed during the survey, in cape lilac (*Melia azedarach*) overhanging the site boundary (Emerge Associates 2024a). The site does not lie within the modelled distribution of BBC and therefore, the species is not likely to occur and have not been considered further.

Black cockatoo habitat consists of breeding, roosting and foraging categories. Foraging and breeding habitat for CBC and FRTBC was identified. No roosts or evidence of roosts were observed. However, tall trees within the site have the potential to be roosting trees. Foraging and breeding habitat for CBC and FRTBC was identified.

Foraging habitat was identified and classified as either 'primary' or 'secondary' based on black cockatoo foraging preferences. Primary food plants were defined as those with historical and contemporary records of regular consumption by a black cockatoo species. Secondary food plants were defined as plant species that black cockatoo species have been recorded consuming occasionally or that, based on their limited extent or agricultural origin, should not be considered a sustaining resource.

A total of 1.27 ha of foraging habitat for CBC was recorded, of which 0.35 ha comprised primary foraging habitat. Primary foraging habitat included 0.28 ha of primary native foraging habitat

³ Previously *Calyptorhynchus*

⁴ Previously *Calyptorhynchus*

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associated with *Corymbia calophylla*, 0.07 ha of primary non-native foraging habitat associated with *Pinus pinaster*. A total of 0.92 ha of secondary foraging habitat was recorded, including 0.41 ha of secondary native foraging habitat associated with *Acacia saligna*, *Jacksonia furcellata* and *Xanthorrhoea* spp. and 0.51 ha of secondary non-native habitat associated with *Eucalyptus gomphocephala* (**Figure 9**).

A total of 0.84 ha of foraging habitat for FRTBC was recorded in the site, which comprises 0.28 ha of primary native habitat associated with *Corymbia calophylla*, 0.07 ha of secondary native foraging habitat associated with *Jacksonia furcellata* and 0.49 ha of non-native secondary habitat associated with *Eucalyptus gomphocephala* and *Eucalyptus camaldulensis* (see **Figure 10**).

The extent of foraging habitat by value category is detailed in **Table 6**.

Table 6: Foraging habitat recorded within the site

Foraging habitat	Black cockatoo species and area of foraging habitat (ha)	
	Carnaby's	Forest red-tailed
Primary native	0.28	0.28
Primary non-native	0.07	0
Secondary native	0.41	0.07
Secondary non-native	0.51	0.49
Total	1.27	0.84

Breeding habitat was identified through 'habitat trees' which are typically defined as a native eucalypt that is known to support (or with the potential to support) black cockatoo breeding. Habitat trees include species such as marri, jarrah, blackbutt, tuart, wandoo, salmon gum or to a lesser extent flooded gum, with a diameter at breast height (DBH) of greater than 50 cm (or DBH greater than 30 cm for wandoo or salmon gum). A total of 66 habitat trees were recorded during the fauna survey. Of these, 5 trees contained hollows potentially suitable for black cockatoo breeding and the remaining 61 habitat trees did not contain hollows potentially suitable for black cockatoo breeding. Hollow potential for breeding habitat was based on inspection from ground level, which could be further verified through more detailed hollow inspections (Emerge Associates 2024a). The location of the habitat trees within the site are shown on **Figure 11**.

2.5 Inland Waters

2.5.1 Surface water

The surface hydrology within the site is dominated by the Swan River, which is located adjacent to the site. During summer, the influence of the river is limited to the riverine fringe, while in winter levels rise and can extend inland. The 1 in 100-year flood and fringe level area (see **Figure 12**) shows that the north east corner and the north west corner of the site is within the floodway and the flood fringe area extends into the site.

Within the centre of the racecourse there are three lakes including an irrigation lake, a lined lake for overflow from the irrigation lake and a wetland lake, which is the largest lake and allows excess

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water to flow under the grass track to the Swan River (Emerge Associates 2024b). The irrigation lake is filled from an adjacent production bore and provides irrigation for the racetrack and surrounding landscaped areas. The lined lake is sealed with a natural clay liner and is used to provide irrigation for landscaped areas and water features.

2.5.2 Groundwater

2.5.2.1 Regional groundwater

The *Water Register* (DWER 2023) indicates that groundwater beneath the site is a multi-layered system comprised of the following:

- City of Bayswater – Perth Superficial Swan unconfined aquifer
- Perth South – Perth Leederville confined aquifer
- Perth South – Perth Yarragadee confined aquifer.

The Perth Groundwater Map indicates (DWER 2023) that the groundwater level sits at 0.5 mAHD across the site. The groundwater clearance from southeast to northwest of the site ranges from 6.5 m to 0.5 m (**Figure 12**).

2.5.2.2 Site-specific groundwater monitoring

Groundwater monitoring has been undertaken within the SP area. There are two groundwater level and quality monitoring bores and one production bore within the Racecourse, which are monitored by Perth Racing.

Groundwater depth monitoring undertaken by D.C. Blandford & Associates Pty Ltd in 2001 (D.C. Blandford & Associates 2001) indicated groundwater depths ranging between 2.03 mAHD to 0.16 mAHD at the site. Additional results from bore monitoring of the Ascot Racecourse undertaken by JDA in 2022 indicated that groundwater levels ranged from 2.06 m below natural surface (mBNS) to 0.34 mBNS.

Groundwater depth monitoring was undertaken within Precinct A where six monitoring wells were installed for the geotechnical investigation by Douglas Partners (2024). The groundwater depth varied from 1.09 m below ground level (mBGL) to 2.37 mBGL during January 2024 (Douglas Partners 2024). Groundwater depth monitoring was undertaken within Precinct D by Galt Geotechnics during the geotechnical investigation. The highest groundwater level was reported as 3.03 mBGL during February 2024 (Galt 2024).

Groundwater quality monitoring was also undertaken by D.C. Blandford & Associates Pty Ltd in 2001. Concentrations of total nitrogen, nitrate, total phosphorus, as well as pH indicated minor fluctuations throughout the year, but trends were generally consistent with previous results. Results indicated metals concentrations below laboratory detection limits, with the exception of one elevated nickel concentration detected.

Groundwater quality monitoring undertaken by JDA Consulting Hydrologists in 2022 (JDA 2022) indicated similar conditions to the 2001 results. Groundwater salinity and pH levels were below the trigger value and within the guideline limits. Concentrations of total nitrogen and total phosphorous were in exceedance but were generally consistent with historical trends at the site.

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2.5.3 Wetlands

Wetlands include “*areas of seasonally, intermittently or permanently waterlogged soils or inundated land, whether natural or otherwise, fresh and saline, e.g. waterlogged soils, ponds, billabongs, lakes, swamps, tidal flats, estuaries, rivers and their tributaries*” (Wetlands Advisory Committee 1977).

Wetlands can further be recognised by the presence of vegetation associated with waterlogging or the presence of hydric soils such as peat, peaty sand or carbonate mud (Hill *et al.* 1996).

Wetlands of international significance (such as Ramsar wetlands) are afforded protection under the EPBC Act. No such wetlands occur within or in close proximity to the site.

At a regional level, DBCA maintains the Geomorphic Wetlands of the Swan Coastal Plain dataset (DBCA 2023), which categorises wetland features into management categories to guide land use and conservation, as outlined in **Table 7**. Wetland types are based on landform shape and water permanence, whilst management categories of wetlands are determined based on hydrological, biological and human use features.

Table 7: Geomorphic wetland management categories

Management Category	Description of wetland	Management objectives
Conservation Category Wetland (CCW)	Support high levels of attributes	Preserve wetland attributes and functions through reservation in national parks, crown reserves and state owned land. Protection provided under environmental protection policies.
Resource Enhancement Wetland (REW)	Modified or degraded but still supporting substantial attributes and functions	Restore wetland through maintenance and enhancement of wetland functions and attributes. Protection via crown reserves, state or local government owned land, environmental protection policies and sustainable management on private properties.
Multiple Use Wetland (MUW)	Few remaining important wetland attributes and functions but still provide important hydrological functions	Use, development and management considered in the context of water, town and environmental planning through land care.

The Geomorphic Wetlands of the Swan Coastal Plain dataset indicates three Multiple Use Category Wetland (MUW) areas (UFI 8424, UFI 8425 and UFI 8426) and one Resource Enhancement Wetland (REW) area (UFI 8423) are present within the site. After review of local surface water hydrology, the Geomorphic Wetlands of the Swan Coastal Plain dataset mapping and field observations (refer to **Figure 5** and **Figure 6** of Emerge Associates 2024b), it was determined that the area designated as an REW in the Geomorphic Wetlands of the Swan Coastal Plain dataset does not accurately reflect the conditions observed on ground.

The Swan River Estuary, situated outside the northern boundary of the site, is recognised as a “Conservation Category Wetland” (CCW) (UFI 1316 - Estuary waterbody) within the Geomorphic Wetlands of the Swan Coastal Plain dataset and has additional significant ecological, cultural and heritage values (DEC 2011). The riparian vegetation identified in Emerge Associates (2024a) is associated with the Swan River and extends into the northeast of the site. Riparian vegetation would provide habitat for waterbirds, including birds which nest in dense stands of sedges and rushes and those waterbirds which forage in mud flats along the river. In addition, the fringing vegetation would

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provide habitat for both terrestrial and aquatic fauna species, including reptiles, small mammals, fish and invertebrates.

The location of the geomorphic wetlands is shown on **Figure 12**.

2.5.4 Public drinking water source areas

DWER proclaims Public Drinking Water Source Areas (PDWSAs) to protect identified drinking water sources, including surface water and groundwater sources (DoW 2009). They are proclaimed under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947* as Water Reserves, Catchment Areas or Underground Water Pollution Control Areas.

No PDWSAs exist within or surrounding the site.

2.6 Social Surroundings

2.6.1 Aboriginal cultural heritage

An enquiry was submitted to the Department of Planning, Lands and Heritage (DPLH) through the Aboriginal Heritage Enquiry Form (AHEF), which identified Site 3753 partially intersects with the western edge of the site and Site 3756 is located immediately adjacent to the site (**Figure 13**). Details on these sites are shown below:

- Site ID 3753 – Registered site, Name: Perth, Type: Historical, mythological, hunting place, named place, natural feature.
- Site ID 3536 – Registered site, Name: Swan River, Type: Creation / Dreaming Narrative.

It should be noted that the Site 3753 boundary is a broader area and the exact area is not defined (**Figure 13**). Therefore, it is possible that the exact location of Site 3753 is outside the site boundary.

2.6.2 Non-Indigenous heritage

A review of the State Heritage Office database (Heritage Council WA 2022) was undertaken to determine presence of sites or features of non-indigenous heritage significance within the site at a federal, state and local government level.

The Ascot Racecourse Complex (place number 06123) is listed at a local level with the CoB and occurs across the racecourse itself, which is excluded from any development areas within the SP. A portion of the Ascot Racecourse Complex is also mapped across the site (Precinct A, B and C) and comprises original buildings and newly established buildings.

The following places occur in the surrounding area and are state or local listed places:

- Bristle Kilns (fmr), Belmont (place number 00868) (state)
- Garratt Road Bridge (place number 11342) (state)
- Ascot Residential & Stables Precinct (place number 16779) (local).

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2.6.3 Surrounding land uses

The surrounding area is mostly residential, with the exception of commercial land and some public open space to the south and the Swan River and public open space to the north (**Figure 13**). A Parks and Recreation Reserve (reserved under the MRS), associated with the Swan River foreshore, extends along the northern boundary of the site and intersects with a portion of the site. This area includes part of the racecourse itself and vegetation within the northeast of the site. Both of these areas are planned to be retained as part of the SP.

No surrounding land uses are likely to cause amenity impacts associated with dust, gaseous or odour emissions.

Great Eastern Highway is less than 300 m south of the southern boundary of the SP which will require consideration of transport noise and management/mitigation in line with the State Planning Policy (SPP) 5.4 *Road and Rail Noise*. Precinct E falls within the SPP 5.4 area and requires further consideration regarding potential noise impacts.

2.7 Other Considerations

2.7.1 Bushfire hazards

Review of the Department of Fire and Emergency Services (DFES) Bushfire Prone Area (BPA) mapping (DFES 2021) indicated no Bushfire Prone Areas (BPA) within the site. The nearest BPA is greater than 500 m to the west of the site and therefore no further consideration to bushfire hazards is required.

2.8 Summary of Existing Environmental Values

Table 8 below summarises the existing environmental values occurring within the site, as identified and discussed previously in **Sections 2.1 to 2.7**.

Table 8: Summary of existing environmental values within the site relevant to EPA factors

EPA factor	Summary of existing environmental values within the site
Landforms	<ul style="list-style-type: none"> No restricted landforms or unique geological features have been identified within the site. The Swan River is located adjacent to the site.
Terrestrial environmental quality	<ul style="list-style-type: none"> The majority of the site is considered to have high to moderate risk of ASS occurrence and a small portion in the south is considered to have moderate to low risk of ASS occurring within the 3 m of the natural surface. Lot 9002 (including Precinct A and Precinct B) is classified as “possibly contaminated – investigation required” pursuant to the <i>Contaminated Sites Act 2003</i>.

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Table 8: Summary of existing environmental values within the site relevant to EPA factors
(continued)

EPA factor	Summary of existing environmental values within the site
Flora and vegetation	<ul style="list-style-type: none"> No threatened or priority flora species were recorded in the site. The threatened and priority flora species identified in the desktop assessment are not considered to occur in the site due to lack of suitable habitat. The majority of the site is heavily disturbed (degraded to completely degraded) and limited native intact native vegetation is present. One small patch of vegetation (vegetation community type ErJkSt) was identified in 'good – very good' condition. A total of 0.07 ha of the 'subtropical and temperate coastal saltmarsh' TEC/PEC (listed as Vu under the EPBC Act and listed as P3 under the EP Act) occurs within the northern portion of the site adjacent to the Swan River. A total of 1.1 ha of native vegetation as classified under the EP Act was mapped within the site.
Terrestrial fauna	<ul style="list-style-type: none"> Eleven conservation significant fauna species were considered to have a 'moderate' or 'high' likelihood of occurrence within the site including six migratory and/or specifically protected bird species, two threatened bird species, one priority bird species and two priority mammal species. One priority listed species, blue-billed duck (P4) was recorded during the survey (Emerge Associates 2024a). As a result of historical disturbance, the site contains limited fauna habitat and is likely only utilised by fauna traversing through the wider area, especially birds. However, the small patch of 'Fringing Woodland' in the site's northeast may provide habitat value for smaller ground-dwelling fauna. <p>Black cockatoos</p> <ul style="list-style-type: none"> CBC (EN) and FRTBC (VU) have the potential to occur within the site based on the desktop assessment undertaken. FRTBC was observed foraging in the southern portion of the site in cape lilac (<i>Melia azedarach</i>), which were overhanging from adjacent private properties (Emerge Associates 2024a). 66 potential black cockatoo habitat trees were recorded within the site. A total of 1.27 ha of foraging habitat for CBC was recorded, of which 0.35 ha comprised primary foraging habitat. A total of 0.84 ha of foraging habitat for FRTBC was recorded, of which 0.28 ha comprised primary foraging habitat.
Inland waters	<ul style="list-style-type: none"> No CCWs have been identified within the site; however, the Swan River is a CCW and occurs immediately north of the site. Three MUWs (UFI 8424, UFI 8425, UFI 8426) are mapped across the site. One REW (UFI 8423) is mapped across the site, however, after review of local surface water hydrology, the Geomorphic Wetlands of the Swan Coastal Plain dataset mapping and field observations (refer to Figure 5 and Figure 6 of Emerge Associates 2024b), it was determined that the area designated as an REW in the Geomorphic Wetlands of the Swan Coastal Plain dataset does not accurately reflect the conditions observed on ground.
Social surroundings	<ul style="list-style-type: none"> Aboriginal Cultural Heritage Site 3753 partially overlaps with a portion of the west of the site and Site ID 3536 (Swan River) is located immediately north of the site. These places are associated with creation/dreaming narrative and is also associated with a mythological value. The Ascot Racecourse Complex, place number 06123, occurs across the racecourse itself and Precinct A, B and C. Noise and acoustic impact from Great Eastern Highway must be considered for Precinct E residential development.
Other considerations	<ul style="list-style-type: none"> No Bushfire Prone Areas exist within the site.

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3 Proposed Land Use and the Planning and Approval Framework

3.1 Ascot Racecourse Proposed Development

The proposed zoning for the SP is in line with existing zoning in adjacent areas and aims to provide a framework of what might be considered appropriate from a land use planning perspective, and provides a framework for the future land use, subdivision and development within the site. Additionally, a master plan has been prepared which provides a detailed conceptual layout for proposed residential and commercial areas, the road network, public open spaces and other facilities (**Appendix C**). The master plan (**Appendix C**) indicates the following future land use per precinct as:

- The racecourse is proposed to remain, within which there is expected to be minimal future additional development.
- Precinct A is proposed to include a retirement living village.
- Precinct B includes the existing car parking and racecourse grandstand and is proposed to include additional car parking spaces and provide new buildings for offices/hospitality.
- Precinct C includes proposed stables, horse float parking and car parking.
- Precinct D includes a proposed residential area and childcare centre.
- Precinct E includes proposed equine and jockey services, car parking and pad site and potential retail and bulky goods.

The SP has been developed through an iterative and collaborative design process involving a variety of stakeholders, including a multi-disciplinary design team providing expertise in the following fields:

- Town planning and urban design
- Environmental planning
- Aboriginal heritage
- Hydrology
- Civil and geotechnical engineering
- Traffic engineering
- Economic analysis.

3.1.1 Environmental considerations of the structure plan

Environmental values and considerations have been addressed as part of the SP design process, which has culminated in the proposed SP and master plan layout provided in **Appendix A** and **Appendix C**.

As outlined above, the primary structural basis of the SP layout has generally been informed by the location and extent of the various existing district-scale land uses. This has provided a level of restriction to the ability for the SP layout to strategically respond to environmental values within the site. Notwithstanding, the proponent has taken a range of measures to provide for the future retention of significant environmental values where possible (i.e. where there remains flexibility in the layout design process).

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3.1.1.1 Public Open Space

The area reserved for Parks and Recreation in the northern extent of the SP, along the foreshore of the Swan River, has been retained as Parks and Recreation as part of the proposed land uses within the SP. Retention of this vegetation avoids direct impacts to the 0.07 ha of subtropical and temperate coastal saltmarsh TEC/PEC. In addition, this vegetation was identified as being in good to very good condition with potential to provide canopy cover and habitat for avian species as well as riparian vegetation for ground dwelling fauna.

3.1.1.2 Hydrology

To address the proximity of the Swan River and support the SP design and process, a Local Water Management Strategy (LWMS) has been prepared by Emerge Associates (2024b) to consider water sensitive urban design principles, flood storage requirements and a water conservation strategy. The principal management objective for hydrology within the site is to ensure that post-development environmental flows and/or hydrological cycles are maintained or improved upon pre-development conditions, especially regarding the Swan River located adjacent to the site and lake features within the site. Specifically, the LWMS has aimed to:

- Protect water quality in the Swan River by providing appropriate water quality treatment at source.
- Mitigate potential flooding within the SP area and immediate surrounds.
- Take account of existing drainage infrastructure capacity and ensure that sufficient land is set aside to manage stormwater.
- Provide a broad level stormwater management framework to support future urban development.
- Incorporate appropriate best management practices into the drainage systems that address the environmental and stormwater management issues identified.
- Minimise transport of nutrients/pollutants to groundwater.
- Develop a non-potable water conservation strategy that will accommodate existing groundwater allocation constraints for the area.
- Gain support from DWER, DBCA, CoB and Water Corporation for the proposed method to manage stormwater within the site.

3.1.1.3 Wetlands

A total of three MUW as per the Geomorphic Wetlands of the Swan Coastal Plain dataset exist within the site, specifically within the boundary of the Ascot Racecourse track. No considerations are required for MUWs however the planning and design of the SP does not intend to disturb the MUW.

One REW (UFI 8423) is mapped across the site, however, after review of local surface water hydrology, the Geomorphic Wetlands of the Swan Coastal Plain dataset mapping and field observations (refer to **Figure 5** and Figure 6 of Emerge Associates 2024b), it was determined that the area designated as a REW is unlikely represent a REW. Regardless, the planning and design of the SP has avoided the REW and no disturbance to the REW is anticipated.

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3.1.1.4 Conservation significant fauna

The SP design retains the most suitable fauna habitat, the fringing woodland habitat type which is associated with the remnant vegetation along the foreshore reserve. This vegetation was noted to provide habitat for conservation significant fauna species, including rakali and will be retained in the current SP design.

The black cockatoo foraging habitat identified by the field survey is patchily distributed across the site and interspersed with plant species not used by CBC or FRTBC. No signs of use were identified during the targeted black cockatoo survey, such as chew marks, droppings or moulted feathers within any of the habitat trees with hollow(s) in the site.

The potential foraging habitat and habitat trees for CBC and FRTBC within the site is unlikely to represent critical foraging or breeding habitat, given its small extent within an urban setting with minimal potentially suitable hollows and no evidence of use by CBC or FRTBC. Potential black cockatoo habitat trees identified will be opportunistically retained. The potential foraging and breeding habitat in the SP occurs within the 'Place of public assembly,' where future development is permitted to occur. Black cockatoo habitat will need to be considered as part of future subdivision and development approvals.

3.1.1.5 Aboriginal cultural heritage

Whilst not identified as occurring within the precinct areas, the Swan River (Site ID 3536) is a key Aboriginal cultural heritage site for consideration. The SP design retains the Parks and Recreation Reserve which excludes future development adjacent to the Swan River and protects this place of cultural heritage significance from potential development impacts.

No works associated with SP development are currently proposed to directly impact the Swan River, however, should any future proposed works impact the riverbank, foreshore or any other Aboriginal cultural heritage site, approval for the proposed works under Section 18 of the *Aboriginal Heritage Act 1972* would be required.

3.1.1.6 Non-Indigenous heritage

The Ascot Racecourse Complex (place 06123) includes the racecourse itself and the surrounding proposed precincts, excluding Precinct D, as outlined in the SP. The SP design proposes to retain the racecourse itself and does not propose development within the racecourse. The remaining part of the Ascot Racecourse Complex (place 06123) is within Precinct A, B, C and E. The SP design for these precincts allows for the development of additional facilities and renovation of current facilities.

3.2 Future planning and environmental approvals process

A key component of implementing the future development of any area is the relevant environmental management framework. Subject to approval and endorsement of the structure plan by the WAPC, development of the site will be progressed through subdivision and/or development approval/s. Where required, the environmental management requirements can be implemented through

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applicable subdivision and/or development approval conditions. The future planning and environmental approvals process is discussed in this section.

3.2.1 Metropolitan Region Scheme

The site is currently zoned a combination of 'Urban,' 'Private Recreation' and 'Parks and Recreation' under the Metropolitan Region Scheme (MRS). The majority of surrounding land is zoned as 'Urban,' and land abutting the Swan River reserved for 'Parks and Recreation'. The MRS zoning of Precinct A area is currently 'Private Recreation' and lodgment of an MRS amendment may be required with the Western Australian Planning Commission (WAPC) to rezone the Precinct A area from 'Private Recreation' to be consistent with finalised land uses. Correspondingly, LPS 15 could be amended either through a concurrent or subsequent local scheme amendment (see further details regarding LPS 15 in **Section 3.2.2**).

Any scheme amendment request received and initiated by the responsible authority (WAPC), would be formerly referred to the EPA under Section 48A of the EP Act (unless exempt under Section 48AAA of the EP Act). This is discussed further in **Section 3.2.4**.

3.2.2 Local Planning Scheme No. 15

The site is currently zoned 'Public place of assembly' and 'Mixed Use' under the CoB LPS 15. The existing Ascot Racecourse covers the majority of the site, which attributes the 'Place of public assembly' zoning and the south of the site within part of Precinct E is zoned 'Mixed Use'.

The current LPS 15 zonings are inconsistent with the proposed land uses within Precinct A and Precinct D. As such, a local scheme amendment will be required to rezone Precinct A from 'place of public assembly' to 'retirement living/mixed use' and to rezone Precinct D from 'Place of Public Assembly' to 'Mixed Use'.

The Swan River foreshore is also subject to the *City of Belmont Foreshore Precinct Plan* (CoB 2018) which guides the future use and management of the Belmont foreshore and the development interface with the Parks and Recreation reserve.

3.2.3 *Environmental Protection Act 1986* - Section 38 proposals

Section 38 of the EP Act enables any person to refer a 'proposal' (as opposed to a planning scheme, as per Section 48) likely to have a significant impact on the environment to the EPA, who then decide whether or not to assess the proposal. The SP area, or part thereof, will need to be considered in relation to Section 38 of the EP Act.

A preliminary assessment of the anticipated environmental outcomes as a result of the anticipated future urban development (based on the SP layout) has been undertaken against relevant EPA factors and objectives, which is outlined in **Section 4**. Based on this assessment, it is not considered likely that any future development within the SP would require referral to the EPA pursuant to Section 38 of the EP Act.

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3.2.4 *Environmental Protection Act 1986 - Section 48 scheme amendment referral*

An amendment to a planning scheme (regional or local) is required to be referred to the EPA (unless exempt under Section 48AAA of the EP Act) to determine whether environmental assessment is required, pursuant to Section 48 of the EP Act. All amendments to a planning scheme are required to be referred to the EPA by the responsible authority (in this case, the WAPC) unless the amendment is exempt under Section 48AAA of the EP Act. Exemptions under Section 48AAA relate to amendments that seek changes to the planning scheme that do not relate to the environment and will not impact the environment and therefore do not require EPA consideration. Exemptions include:

- Amendments seeking to correct an administrative or minor error, amend a definition or correct a title in the planning scheme if it will not impact the operation of the scheme.
- Amendments seeking to classify an area of land as a reserve for Parks and Recreation or Regional Open Space.
- Amendments seeking to zone an area of land as a reserve if the land has been subdivided and developed by an approved redevelopment scheme and the redevelopment scheme no longer applies and the amendment is required to reflect a zone or reserve created in accordance with the approved redevelopment scheme.
- Amendments seeking to create, alter or remove a road reserve of a regional road if a clearing permit under Part V of the EP Act has been granted or if the impacts associated with construction of the road has been assessed under Part IV of the EP Act and a decision has been made that the proposal can be implemented.

The required scheme amendment for the SP will not be exempt under Section 48AAA of the EP Act. Upon referral on an amendment to a planning scheme, the EPA will make a decision on whether the proposed scheme amendment requires formal assessment and often consider significance in their assessment. The EPA may also provide informal advice on the proposed scheme amendment without formally assessing the scheme or determine that the proposed amendment is not capable of being environmentally acceptable. Areas of the SP area not assessed under Section 48A will need to be considered and referred under Section 38 of the EP Act if impacts to the environment are considered significant. As stated above, a preliminary assessment of the anticipated environmental outcomes as a result of the anticipated future urban development (based on the SP layout) has been undertaken against relevant EPA factors and objectives and is outlined in **Section 4**.

Section 48A outlines that any proposal likely to have a significant impact on the environment, but which is within an area and for a land use that is subject to an assessed scheme (i.e. a scheme for which a determination has been made by the EPA under Section 48A), is not required to be referred to the EPA under Section 38 of the EP Act.

Section 48A will only apply to the SP area which has undergone a scheme amendment (regional or local) through the Section 48A process and where the potential environmental impacts were considered by the EPA. The EPA may choose to provide advice at this time and defer assessment of environmental factors to subsequent stages of the planning process, which would mean Section 48A would not apply and referral under Section 38 would be required. Based on the assessment undertaken and the nature/layout of the SP it is unlikely that any future development within the SP extent would require referral to the EPA pursuant to Section 38 of the EP Act.

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3.2.5 Environmental Protection Act 1986 – Part V Clearing Permits

Where native vegetation is required to be cleared within the site, this will likely be undertaken in accordance with a subdivision approval and associated authorised subdivision works, which will provide an exemption from the requirements for a native vegetation clearing permit. Should bulk earthworks or any other works be commenced within the site that requires clearing of native vegetation before subdivision approvals are gained, a clearing permit pursuant to Part V of the EP Act will be required.

In addition, and as part of subdivision, the WAPC may include a standard condition (model subdivision condition EN2) which requires:

Prior to the commencement of subdivisional works, measures being undertaken to identify any vegetation on the site worthy of retention, including any potential habitat or foraging trees for threatened fauna species, and protection measures implemented to ensure such vegetation is not impacted by subdivisional works (Local Government).

This can be used to ensure that vegetation retention opportunities (likely to be limited to mature trees) are considered through the subdivisional works process.

3.2.6 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides statutory protection for listed Matters of National Environmental Significance (MNES). The CBC is listed as endangered and FRTBC is listed as vulnerable under the EPBC Act. Any future development proposals within the SP should consider the requirements of the EPBC Act in relation to CBC and FRTBC and their habitat, which will primarily be in relation to the potential breeding habitat.

The subtropical and temperate coastal saltmarsh TEC is listed as vulnerable under the EPBC Act. TEC's listed in the vulnerable category are not considered matters of national environmental significance (MNES) for the purposes of Part 3 of the EPBC Act and therefore no further considerations to the TEC/PEC are required in relation to the EPBC Act.

Individual proponents of future development within the site will need to consider their obligations under the EPBC Act and the potential need to refer any proposed action that may have a significant impact on MNES. This would largely be limited to the consideration of potential impacts on listed black cockatoo species. While this would be considered on a proposal-by-proposal basis (and potentially progressed by different proponents), it is unlikely that the potential impacts on black cockatoo would be considered significant.

3.2.7 Swan and Canning River Development Control Area

The northern boundary of the site falls within the Swan Canning Development Control Area (DCA) (CoB 2018) and the Swan Canning River Park. Any proposed development on land adjacent to the river within the DCA and/or partly within DCA would be subject to assessment and approval by the DBCA through a permit application, under Part 5 of the *Swan and Canning Rivers Management Act 2006* and the *Swan and Canning River Management Regulations 2007*.

4 Assessment of Predicted Environmental Outcomes

The predicted environmental outcomes that will need to be accommodated in the implementation of the proposed SP, through future development, have been assessed against the EPA objectives for each environmental factor relevant to the site (as listed in **Section 2**).

This is provided in **Table 9**, which considers the spatial layout responses of the SP and provision of POS intended to provide for the protection and conservation of existing environmental assets within the site. In addition, **Table 9** also outlines the future management of environmental values or considerations that will require further specific attention as part of the future development of the site.

A range of environmental impact mitigation measures (primarily impact avoidance and minimisation) are proposed within the SP layout and through the future environmental management framework. In this context, it is anticipated that implementation of any future development within the proposed SP can be suitably managed through future stages of the land use planning processes (including subdivision and development) such that the EPA objectives for the relevant environmental factors can be achieved.

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Table 9: Summary of EPA environmental factors and objectives relevant to the proposed future land use

Environmental factor	EPA objective	Ascot Local Structure Plan spatial response	Future management considerations	Predicted environmental outcome
Landforms	To maintain the variety and integrity of distinctive physical landforms so that environmental values are protected.	The Swan River is located immediately adjacent to the north of the site. No development is proposed within the Swan River foreshore Reserve. Additionally, retention of the riparian vegetation associated with the Swan River in the northern portion of the site allows for protection of biological diversity and ecological integrity along the Swan River foreshore. Further responses associated with the Swan River in regard to hydrology are discussed below.	Future management considerations for the Swan River in regard to inland waters are discussed below.	No significant impacts likely
Terrestrial environmental quality	To maintain the quality of land and soils so that environmental values are protected.	<p>There are no SP spatial responses to terrestrial environmental quality considerations, which primarily relate to ASS risk.</p> <p>To address Lot 9002 which is classified as “potentially contaminated – investigation required”, investigations have been commenced by the proponent in preparation of anticipated subdivision or development approval conditions.</p>	<p>To facilitate development within the site, ASS investigations and management considerations for the site will likely be required (as a portion of the site is mapped as Class 1 ‘high to moderate’ risk of ASS occurring within 3 m of the natural soil surface). Given the relatively shallow depths to groundwater within portions of the site, any dewatering that may be required for development works would likely trigger the need for a dewatering and ASS management plan.</p> <p>If required, any future ASS considerations will be identified and suitably managed by each proponent as part of the future development process in accordance with the WAPC’s <i>Acid Sulfate Soils Planning Guidelines</i> (2008).</p> <p>Any future development within Lot 9002 will need to resolve the current CS Act classification, and this would involve the completion of investigations and any remediation that is identified as being required.</p>	<p>Any potential impacts associated with ASS can be suitably minimised at future development stages within the site. If determined to be required, an ASS management plan and dewatering management plans would be prepared and implemented as part of any works associated with subdivision or development works.</p> <p>Site contamination will be adequately investigated and remediation completed (if required) to resolve any site contamination risk.</p>

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Table 9: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Ascot Structure Plan spatial response	Future management considerations	Predicted environmental outcome
Flora and vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.	<p>The SP layout has been designed to maintain the northern vegetated area within Parks and Recreation Reserve. This includes 0.07 ha of the subtropical and temperate coastal saltmarsh TEC/PEC. Retention of this vegetation in the northern portion of the site allows for protection of flora, vegetation, biological diversity and ecological integrity along the Swan River foreshore.</p> <p>Remaining vegetation within the site was recorded in 'degraded' to 'completely degraded' condition with minimal environmental value. As such, no additional SP vegetation retention provisions are considered necessary.</p>	<p>Should any works within the site that require clearing of native vegetation prior to subdivision approvals, a clearing permit pursuant to Part V of the EP Act will be required, unless otherwise exempt from a clearing permit. Subdivision approval and associated authorised subdivision works will provide an exemption from the requirements for a clearing permit. Future subdivision and/or development applications and approval conditions would consider vegetation retention where possible.</p> <p>Conditions associated with subdivision and/or development approvals often require the preparation of a Conservation and Environment Management Plan, which would further minimise potential impacts to retained flora and vegetation values during proposed construction in development stages.</p>	Overall, the SP layout responds to flora and vegetation values where possible, primarily associated with retention of established vegetation along the Swan River foreshore. Protection of an area of subtropical and temperate coastal saltmarsh TEC/PEC is also a key outcome of this response.

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Table 9: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Ascot Structure Plan spatial response	Future management considerations	Predicted environmental outcome
Terrestrial fauna	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	<p>The SP layout has been designed to maintain the northern vegetated area within POS. Retention of this vegetation in the northern portion of the site allows for protection of biological diversity and ecological integrity along the Swan River foreshore.</p> <p>A total of 66 habitat trees potentially suitable for black cockatoo breeding were identified within the site, of which five contain potentially suitable hollows for black cockatoo breeding habitat. A total of 1.27 ha and 0.84 ha of foraging habitat (primary and secondary) for CBC and FRTBC, respectively, was recorded within the site. Of this, primary foraging habitat (native and non-native) comprised a total of 0.35 ha and 0.27 ha for CBC and FRTBC, respectively. The remaining area consisted of secondary foraging habitat.</p> <p>The foraging habitat is patchily distributed and is interspersed with plant species not used for CBC or FRTBC for foraging. No signs of use were identified during the targeted black cockatoo survey, such as chew marks, droppings or moulted feathers within any of the habitat trees with potential hollow(s).</p> <p>The potential foraging habitat and habitat trees for threatened black cockatoo species mapped within the site are unlikely to represent critical foraging or breeding habitat, given its small extent within an urban setting with minimal potentially suitable hollows and no evidence of use by CBC or FRTBC.</p>	<p>Where future development works within the site will result in potential impacts to MNES (including CBC and FRTBC), proponents will need to consider their EPBC Act obligations and need for referral, based on the specific impacts of their proposed action. Individual proposed actions can be addressed through preliminary self-assessment against the <i>Matters of National Environmental Significance Significant Impact Guidelines</i> (DotE 2013) in relation to any potential impacts on MNES.</p> <p>As part of future subdivision, there may be requirements to prepare a fauna management plan prior to works commencing for development involving clearing of native vegetation or any fauna habitat in order to minimise impacts to fauna during clearing and construction works. Fauna management plans can be prepared as required as part of future subdivision works and are often associated with conditions of subdivision and/or development approval.</p> <p>Conditions associated with subdivision and/or development approvals often require the preparation of a Conservation and Environment Management Plan, which would further minimise potential impacts to fauna during proposed construction in development stages.</p>	Overall, the SP layout responds to terrestrial fauna values, primarily associated with retention of intact native vegetation along the northern border of the site, providing potential habitat for terrestrial fauna. Notwithstanding, impacts to MNES such as CBC and FRTBC are possible and EPBC Act obligations will need to be considered by proponents before development, depending on the nature and extent of the development and magnitude of likely impacts. In general, the extent of impact on black cockatoo is not likely to be considered significant.

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Table 9: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Ascot Local Structure Plan spatial response	Future management considerations	Predicted environmental outcome
Inland waters	To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.	<p>The <i>State Water Strategy for Western Australia</i> (Government of WA 2003) and <i>Better Urban Water Management</i> (WAPC 2008) endorses the promotion of integrated water cycle management and application of water sensitive urban design (WSUD) principles to provide improvements in the management of stormwater, and to increase the efficient use of other existing water supplies. Whilst not a spatial response, a Local Water Management Strategy (LWMS) has been prepared by Emerge Associates for the site in line with water sensitive urban design principles, flood storage requirements and a water conservation strategy. The principal management objective for hydrology within the site is to ensure that post-development environmental flows and/or hydrological cycles are maintained or improved upon pre-development conditions, especially regarding the Swan River adjacent to the site and lake features retained within the site. Specifically, the LWMS has aimed to:</p> <ul style="list-style-type: none"> • Protect water quality in the Swan River by providing appropriate water quality treatment at source. • Mitigate potential flooding within the SP area and immediate surrounds. • Take account of existing drainage infrastructure capacity and ensure that sufficient land is set aside to manage stormwater. • Provide a broad level stormwater management framework to support future urban development. • Incorporate appropriate best management practices (BMPs) into the drainage systems that address the environmental and stormwater management issues identified. 	<p>A LWMS has been prepared to support the SP process. Detailed Urban Water Management Plans (UWMP) will be required in support of individual subdivision applications in accordance with the <i>State Water Strategy for Western Australia</i> (Government of WA 2003) and <i>Better Urban Water Management</i> (WAPC 2008). UWMPs will be most relevant most relevant to Precinct D. Other precincts may be developed under a Development Approval and therefore water management will likely be documented within a Stormwater Management Plan (SMP) also in accordance with <i>Better Urban Water Management</i> (WAPC 2008).</p> <p>Should any future developments propose to impact the Swan River CCW and as such impact the mapped ESA associated with the Swan River, wetland buffers and separation distances should be implemented in accordance with the draft <i>Guideline for the Determination of Wetland Buffer Requirements</i> (WAPC 2005) for protection of wetland values, habitat protection, edge effects and water quality management with relevant guidelines to protect wetland values, habitat and water quality.</p> <p>Where proposed development is within or adjacent to the Swan and Canning River Development Control Area (DCA), proponents will be required to submit a DCA permit application to the DBCA in accordance with the <i>Swan and Canning Rivers Management Act 2006</i> and the <i>Swan and Canning River Management Regulations 2007</i>.</p>	The SP does not specifically respond to the inland waters environmental factor. However, the LWMS defines the intended hydrological management approach, which will be implemented during future development.

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Table 9: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Ascot Local Structure Plan spatial response	Future management considerations	Predicted environmental outcome
Inland waters (continued)	To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected (continued).	<ul style="list-style-type: none"> Minimise transport of nutrients/pollutants to groundwater. Develop a non-potable water conservation strategy that will accommodate existing groundwater allocation constraints for the area. <p>Three MUWs and one REW will be retained in the current SP design. Although an REW is mapped within the site, after review of local surface water hydrology, aerial imagery and field observations (refer to Figure 5 and Figure 6 of Emerge Associates 2024b), it was determined that the area designated as an REW in the Geomorphic Wetlands of the Swan Coastal Plain dataset does not accurately reflect the conditions observed on ground. However, the REW will be retained in the current SP design.</p> <p>The Swan River is a CCW and is located immediately adjacent to the site. The SP design avoids the CCW and associated ESA by retaining the Parks and Recreation Reserve which encompasses the CCW buffer area and values associated with the Swan River.</p>		

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Table 9: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Ascot Local Structure Plan spatial response	Future management considerations	Predicted environmental outcome
Social Surroundings	To protect social surroundings from significant harm.	<p>Aboriginal Cultural Heritage (ACH) site 3536 (Swan River) is located immediately north of the site and ACH Site3753 has a minor overlap with the western boundary of the site. These sites are not considered to be potentially impacted by the proposed SP layout. However, should any future development propose to impact these sites, further consultation and AH Act requirements would be required.</p> <p>The Ascot Racecourse Complex (place 06123) is a non-indigenous heritage place, located within the site. The SP design proposes to retain the racecourse itself and excludes the racecourse from proposed development. The remaining part of the Ascot Racecourse Complex (place 06123) is within Precinct A, B and C. The SP design of these precincts allows for the development of additional facilities and renovation of current facilities.</p> <p>No responses are required in regard to noise and acoustics.</p>	<p>The Swan River is associated with Site 3536 and as such any future proposed works that may impact the riverbank and/or the foreshore will require approval under Section 18 of the <i>Aboriginal Heritage Act 1972</i>. Further requirements and consultation would be required to identify the extent of Site 3753 within the SP area and if future consideration is required in accordance with the <i>Aboriginal Heritage Act 1972</i>.</p> <p>Future development would need to consider the Ascot Racecourse Complex heritage site and can be addressed as part of any Development Approval process.</p> <p>A Transport Noise Assessment for the proposed SP was undertaken by Lloyd George Acoustics in November 2023 (Lloyd George Acoustics 2023) to understand the spatial responses that might be required to address potential noise and acoustic impacts in the SP from the adjacent Great Eastern Hwy. Based on the results, future proponents undertaking noise sensitive development in Precinct E could undertake further noise assessments to quantify actual noise levels from Great Eastern Highway, rather than using the screening assessment criteria. Alternatively, the screening assessment procedure could be adopted, resulting in requirements for a 'Quiet House Package A' to upper floors of noise sensitive dwellings within Precinct E.</p> <p>Future development would need to consider noise impacts from the racecourse and can be addressed as part of any Development Approval process.</p>	Any potential impacts to social surroundings can be suitably mitigated through a range of impact avoidance and minimisation measures such that it is unlikely any significant residual impacts will occur.

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5 Conclusions

The proponent has taken a range of measures to provide for the future retention of relevant environmental values within the Ascot SP. This is primarily achieved through the strategic location of the Parks and Recreation Reserve in the northern area of the site to preserve intact native vegetation.

In this context, the SP has been designed to respond to the identified environmental values within the site where possible, including the proposed retention of:

- Subtropical and temperate coastal saltmarsh TEC/PEC
- Fauna habitat
- Native vegetation.

A local scheme amendment will be required to rezone Precinct A from 'place of public assembly' to 'retirement living/mixed use' and to rezone Precinct D from 'Place of Public Assembly' to 'Mixed Use'.

Considerations, approvals and management plans may be necessary for each individual proponent for future development works, which would further minimise environmental impacts through development within the SP area. Environmental factors and the management framework considerations are summarised in **Table 10**.

Overall, a range of environmental impact mitigation measures (primarily impact avoidance and minimisation) are proposed within the SP layout and through the future environmental management framework. In this context, it is anticipated that implementation of the proposed SP can be suitably managed through future stages of the land use planning processes (including development) such that the EPA objectives for the relevant environmental factors can be achieved.

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Table 10: Summary of Environmental Management Framework Considerations

Environmental Factor	Management Framework and considerations		
	Local Structure Plan	Subdivision and/or Development Approval	Construction
Flora and Vegetation	Environmental Assessment Report including preliminary investigations (Emerge Associates 2024a) (Appendix D).	<ul style="list-style-type: none"> Native Vegetation Clearing permit pursuant to Part V of the EP Act if clearing is required within the SP area and clearing is not exempt. Preparation of a Conservation and Environment Management Plan (CEMP), where required. 	Clearing Permit and compliance with approval conditions and management plans.
Terrestrial Fauna	Environmental Assessment Report including preliminary investigations (Emerge Associates 2024a) (Appendix D).	<ul style="list-style-type: none"> Potential impacts to MNES in relation to the EPBC Act and need to consider the need for referral in accordance with the <i>Matters of National Environmental Significance Significant Impact Guidelines</i> (DotE 2013). Preparation of a fauna management plan for any development within the SP area prior to works commencing for development involving clearing of native vegetation or any fauna habitat. 	Compliance with approval conditions and management plans, in accordance with EPBC Act, where required.
Acid Sulfate Soils	Environmental Assessment Report including preliminary investigations.	<ul style="list-style-type: none"> Detailed ASS Investigation and Management Plan for areas mapped as 'Class 1: High to moderate risk' will likely be required in accordance with the WAPC's <i>Acid Sulfate Soils Planning Guidelines</i> (2008). 	Implementation of ASS Management Plan.
Inland Waters	The LWMS prepared for the SP by Emerge Associates (2024b) (Appendix E).	<ul style="list-style-type: none"> Detailed UWMPs will be required (mostly relevant to Precinct D) to support individual subdivision applications. Other precincts may be developed under Development Approval and therefore water management will likely be documented through SMPs. Both UWMPs and SMPs will be prepared in accordance with the <i>Better Urban Water Management Framework</i>. Protection of the Swan River CCW and ESA through consideration of hydrological processes and water quality management into design of future development areas to protect the adjacent Swan River and associated values. DCA permit application for works within or affecting the DCA to the DBCA in accordance with the Swan and Canning Rivers Management Act 2006 and the Swan and Canning River Management Regulations 2007. 	Compliance with UWMP/SMP and approved DCA permit.

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Table 10: Summary of Environmental Management Framework Considerations (continued)

Environmental Factor	Management Framework and considerations		
	Local Structure Plan	Subdivision and/or Development Approval	Construction
Social Surroundings	<p>Preliminary investigations for Aboriginal Cultural Heritage.</p> <p>Transport Noise Assessment for the proposed SP (Lloyd George Acoustics 2023) in accordance with SPP 5.4.</p>	<ul style="list-style-type: none"> Detailed Acoustic Assessment and Management Plan (where required) or 'Quiet House Package A' implemented to upper floors of noise sensitive dwellings within Precinct E. Completion of any contamination investigations and identification of any remediation requirements within Lot 9002. 	<p>Approval pursuant to Section 18 of the <i>Aboriginal Heritage Act 1972</i> will be required prior to ground disturbing works if impacts to known sites are likely.</p> <p>Compliance with noise management plan and appropriate house packages applied where appropriate.</p> <p>Completion of remediation works (if required) for Lot 9002.</p>

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6 References

6.1 General references

The references listed below have been considered as part of preparing this document.

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Figures



Figure 1: Site Location

Figure 2: Site Geology

Figure 3: Topographic Contours

Figure 4: Acid Sulfate Soils

Figure 5: Vegetation Types

Figure 6: Vegetation Condition

Figure 7: Threatened Ecological Community and Native Vegetation under the EP Act

Figure 8: Bush Forever, Ecological Linkages and Environmental Sensitive Areas

Figure 9: Carnaby's Black Cockatoo Foraging Habitat

Figure 10: Forest Red-tailed Black Cockatoo Foraging Habitat

Figure 11: Black Cockatoo Habitat Trees

Figure 12: Hydrological Features

Figure 13: Social Surroundings



Figure 1: Site Location

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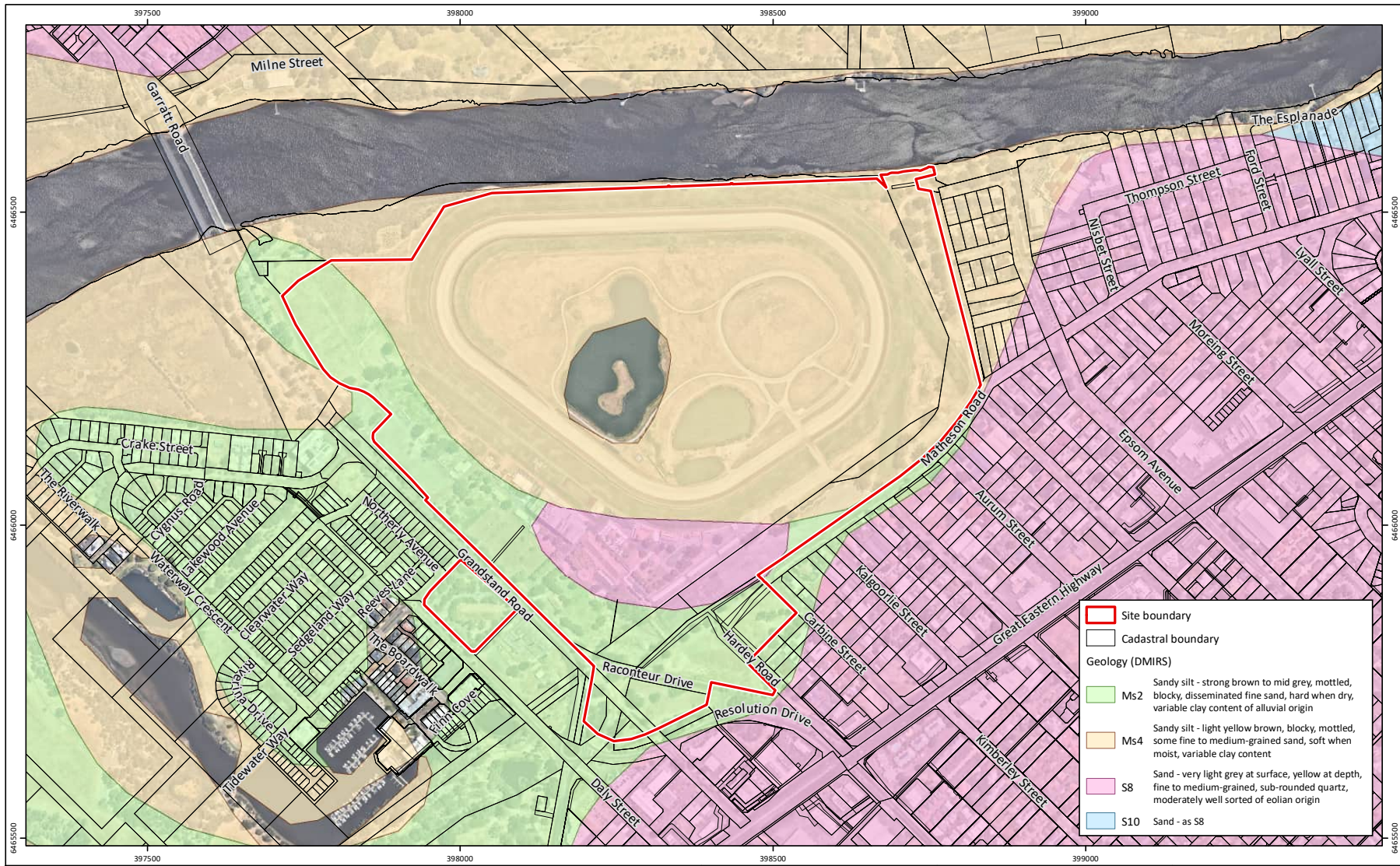
Plan Number:
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Date: 03/04/2024
Checked: EKB
Approved: JDH
Date: 29/04/2024



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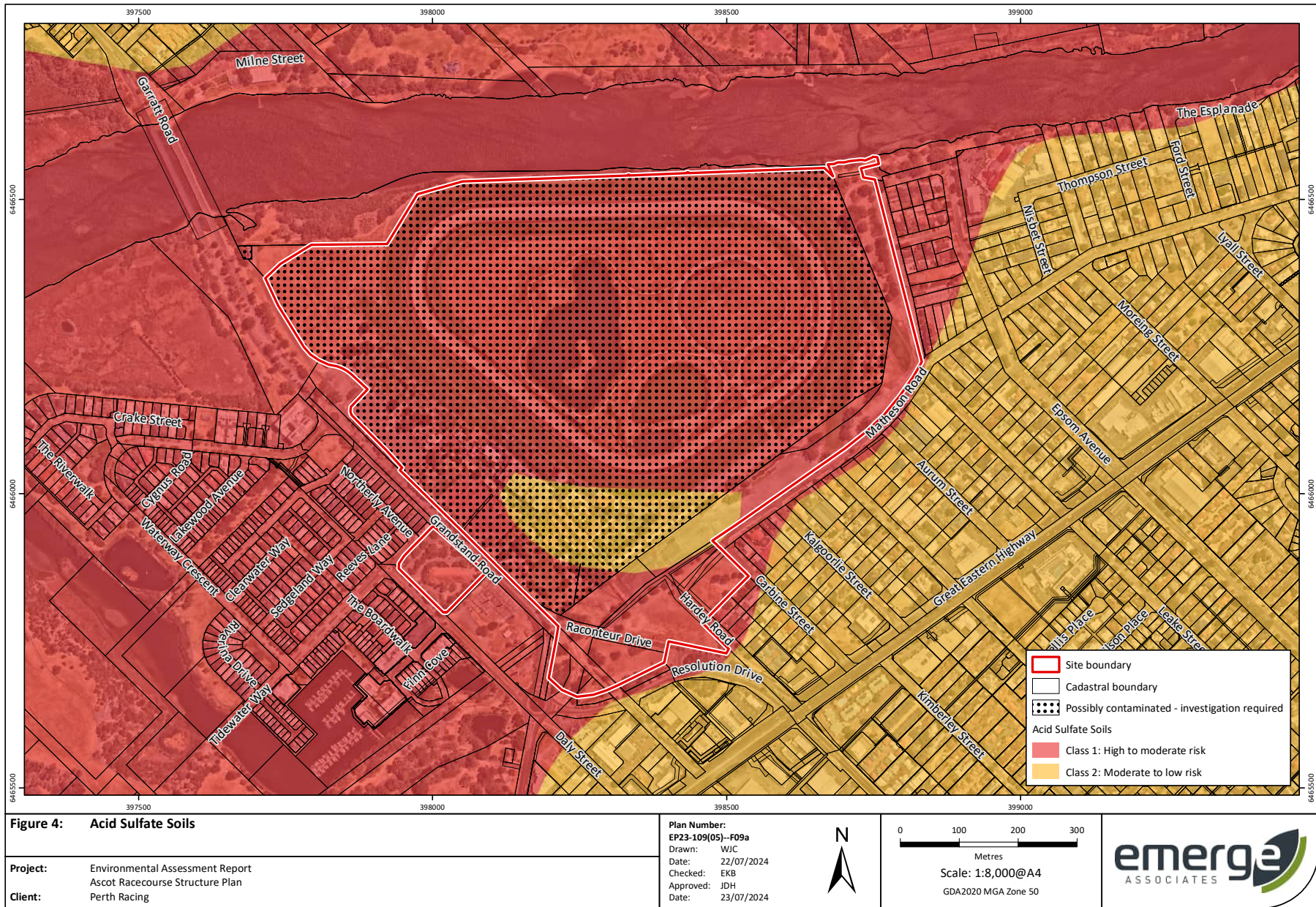


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Figure 5: Vegetation Types

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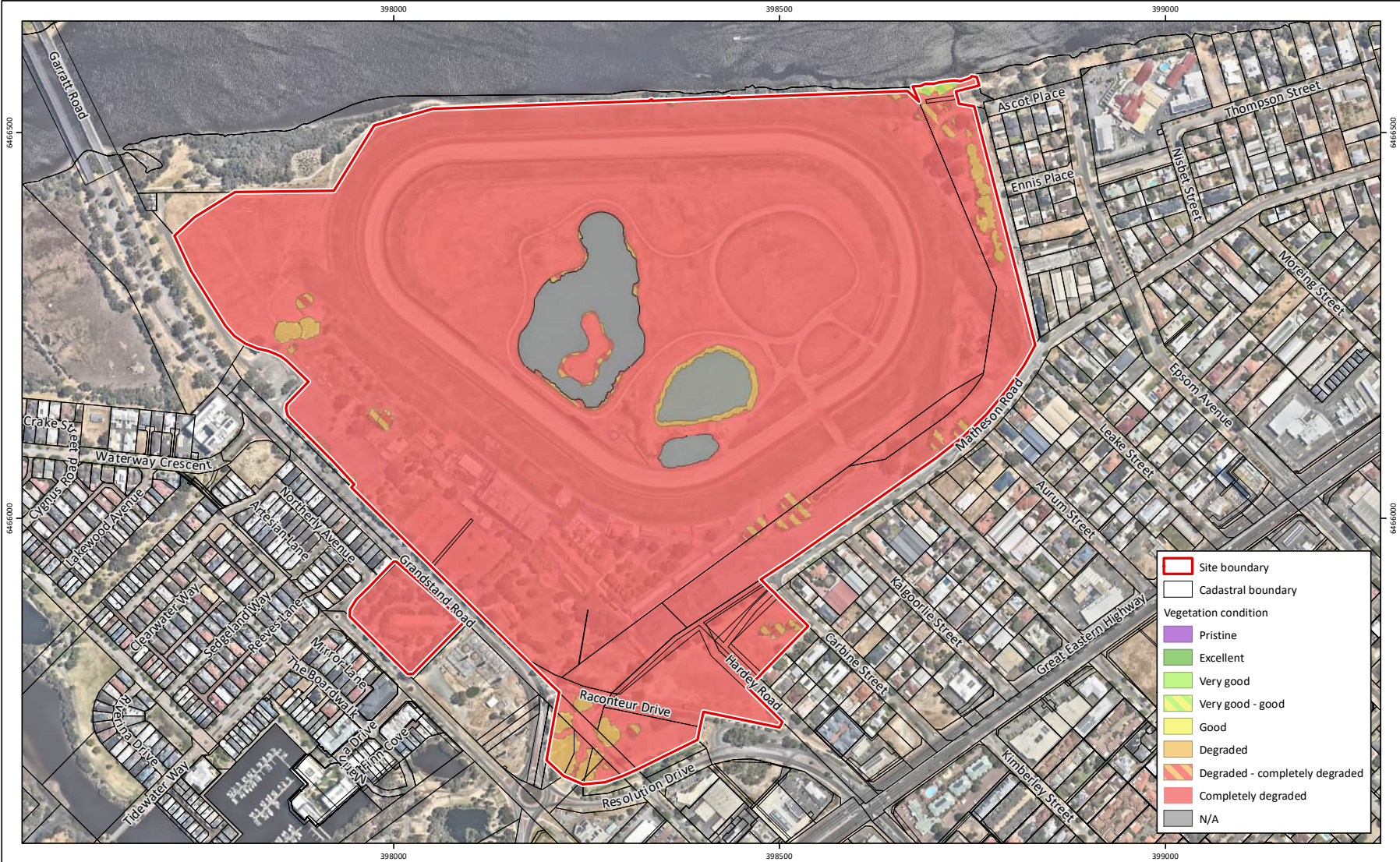


Figure 6: Vegetation Condition

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Figure 7: Threatened and Priority Ecological Community and Native Vegetation under the EP Act

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EP23-109(05)-F12
Drawn: WJC
Date: 03/04/2024
Checked: EKB
Approved: JDH
Date: 01/05/2024



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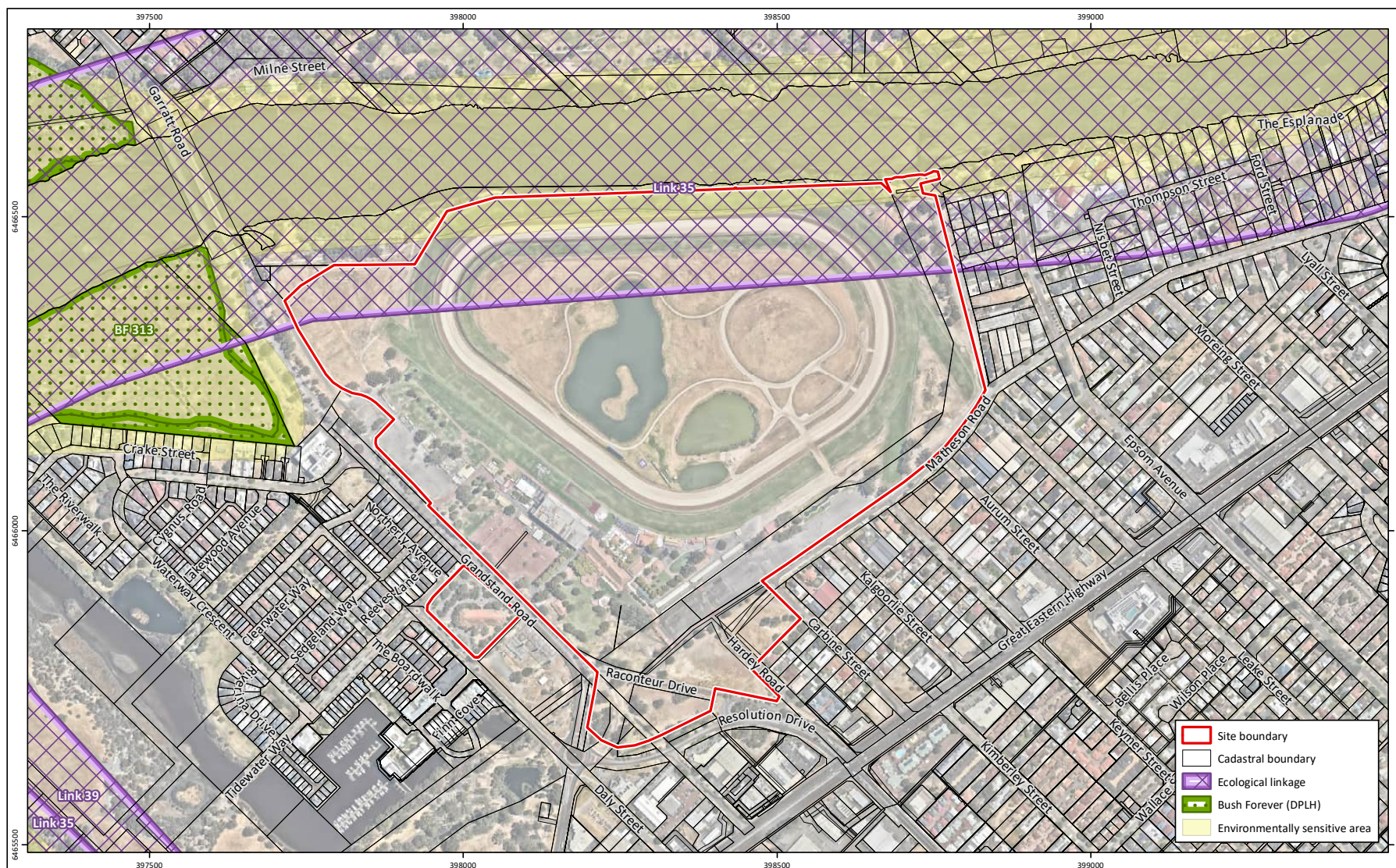
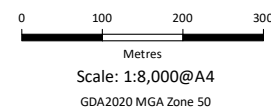


Figure 8: Bush Forever, Ecological Linkages and Environmentally Sensitive Areas

Project:	Environmental Assessment Report Ascot Racecourse Structure Plan
Client:	Perth Racing

Plan Number:
EP23-109(05)--F13
Drawn: WJC
Date: 03/04/2024
Checked: EKB
Approved: JDH
Date: 29/04/2024



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Figure 9: Carnaby's Black Cockatoo Foraging Habitat

Project: Environmental Assessment Report
Ascot Racecourse Structure Plan
Client: Perth Racing

Plan Number:
EP23-109(05)-F20
Drawn: WJC
Date: 08/04/2024
Checked: EKB
Approved: JDH
Date: 29/04/2024



0 100 200
Metres
Scale: 1:6,500@A4
GDA2020 MGA Zone 50



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Figure 10: Forest Red-tailed Black Cockatoo Foraging Habitat

Project: Environmental Assessment Report
Ascot Racecourse Structure Plan

Client: Perth Racing

Plan Number:
EP23-109(05)-F21
Drawn: WJC
Date: 08/04/2024
Checked: EKB
Approved: JDH
Date: 29/04/2024



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Metres
Scale: 1:6,500@A4
GDA2020 MGA Zone 50



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Figure 11: Black Cockatoo Habitat Trees

Project: Environmental Assessment Report
Ascot Racecourse Structure Plan
Client: Perth Racing

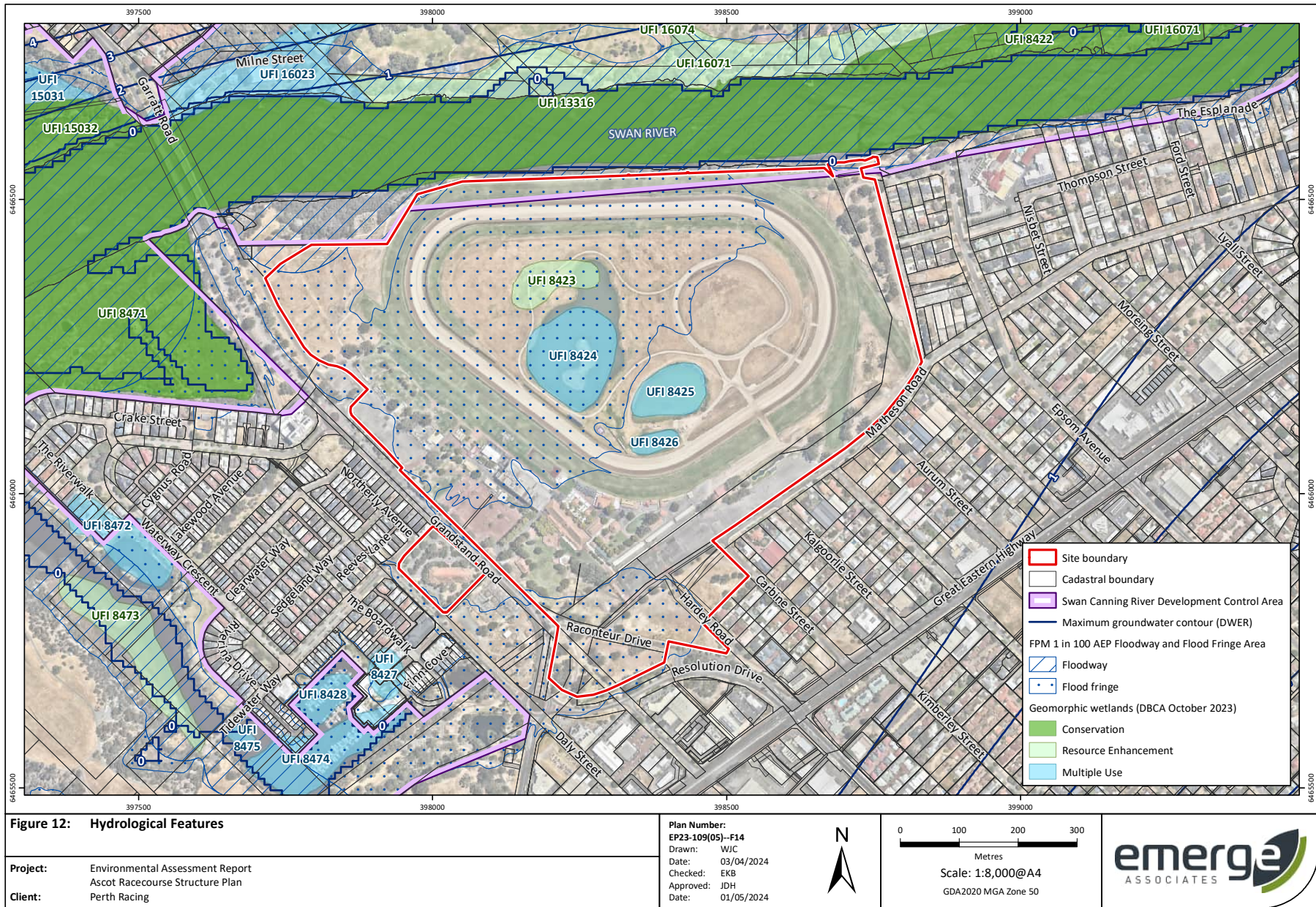
Plan Number: EP23-109(05)-F22a
Drawn: GAR
Date: 28/06/2024
Checked: TDP
Approved: RAW
Date: 01/07/2024



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Metres
Scale: 1:6,500@A4
GDA2020 MGA Zone 50



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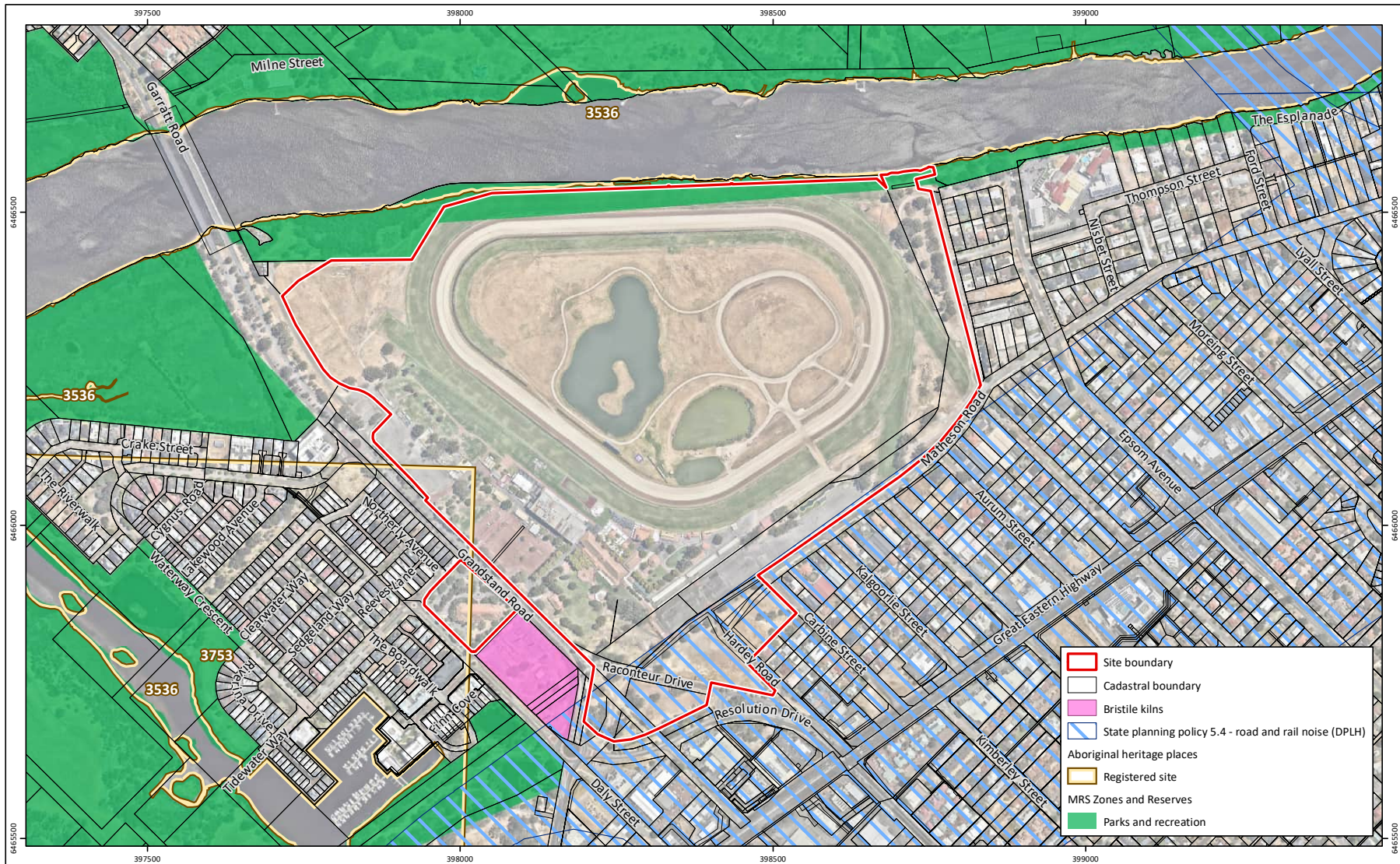
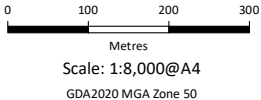


Figure 13: Social Surroundings

Project: Environmental Assessment Report
Ascot Racecourse Structure Plan
Client: Perth Racing

Plan Number: EP23-109(05)-F15a
Drawn: WJC
Date: 08/05/2024
Checked: EKB
Approved: JDH
Date: 09/05/2024

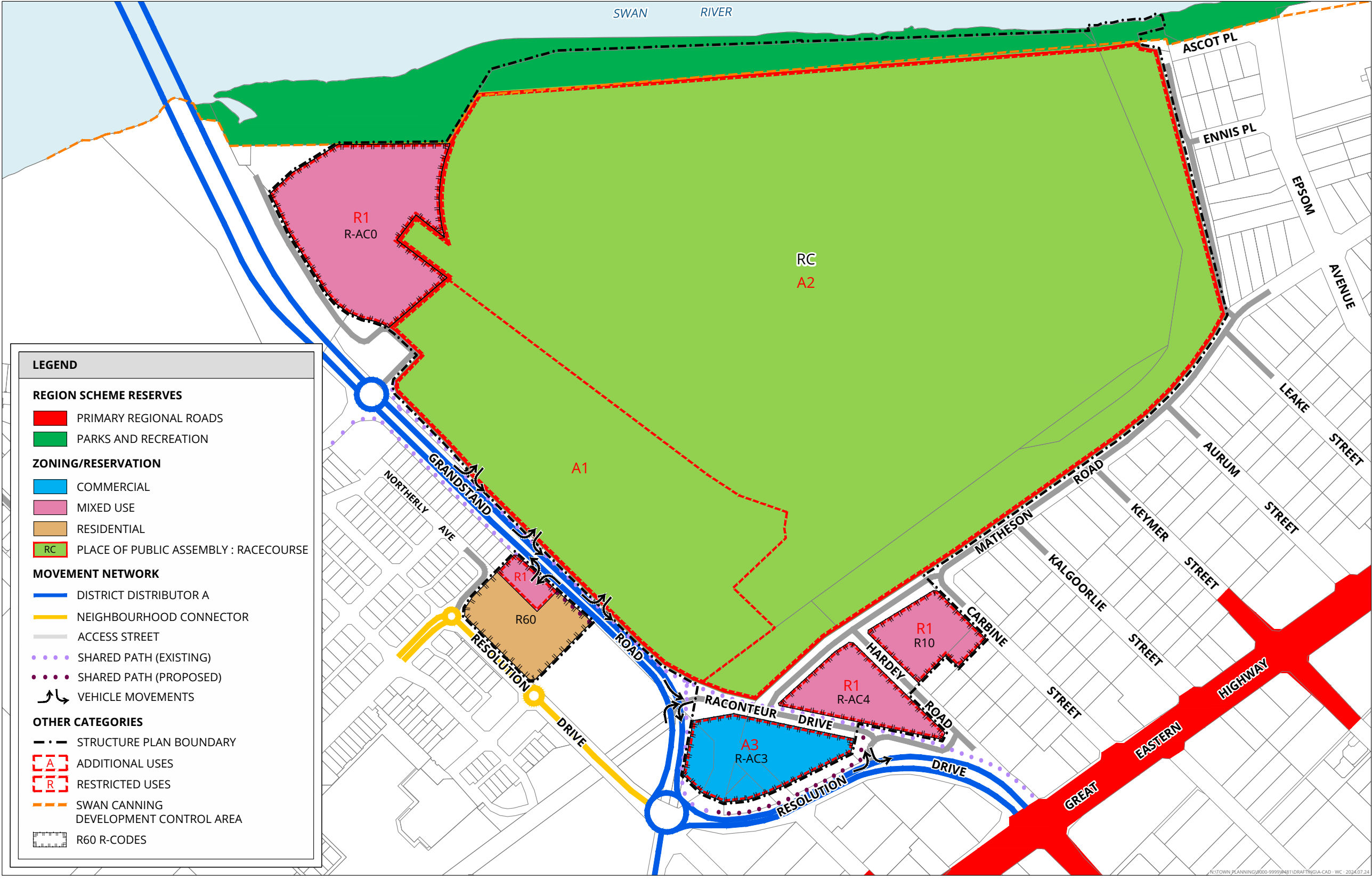


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Appendix A

Ascot Racecourse Structure Plan (ROWE Group Design, 2024)

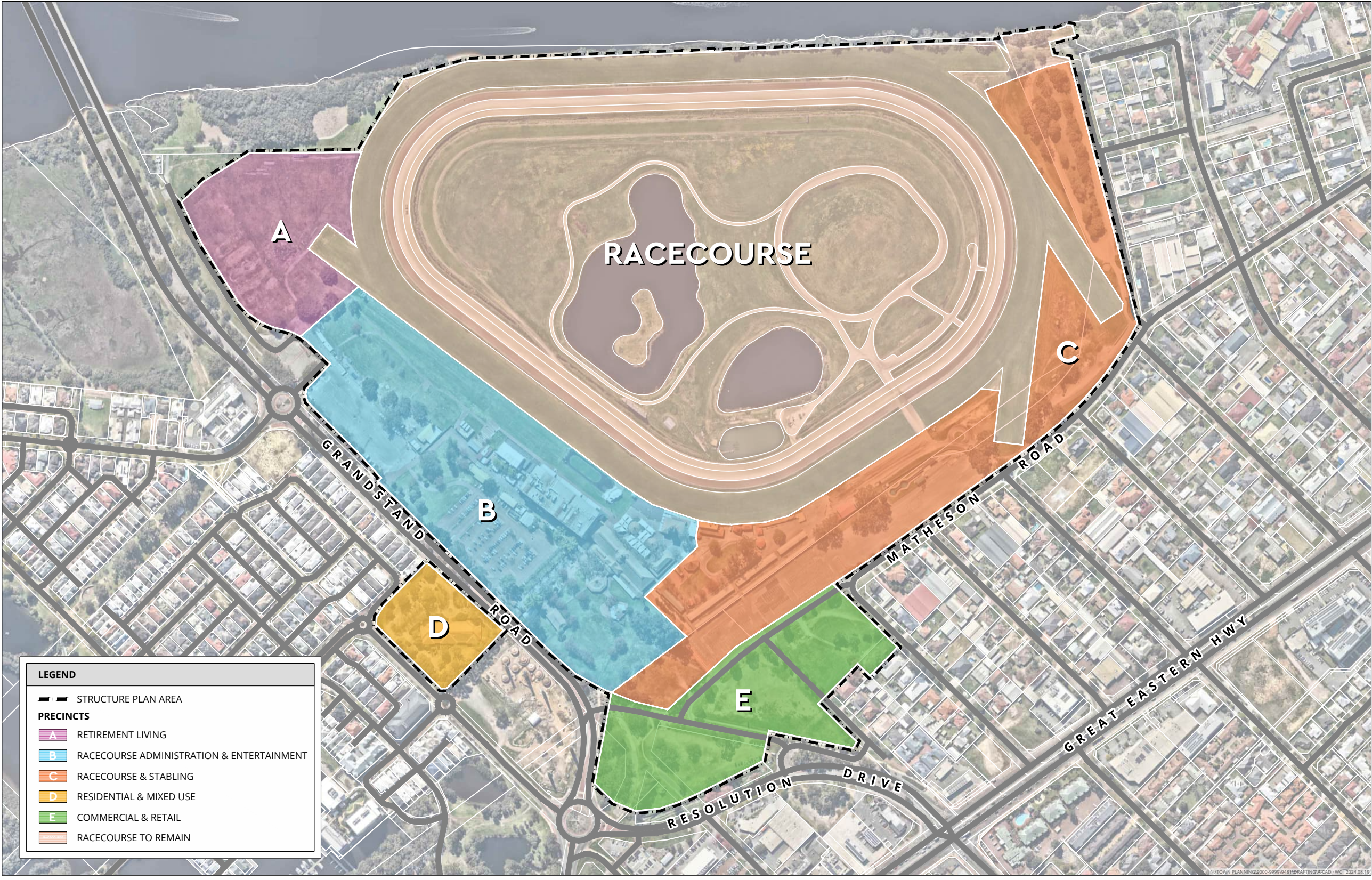




Appendix B

Ascot Racecourse Precinct Plan (ROWE Group Design, 2024)





STRUCTURE PLAN PRECINCTS
VARIOUS LOTS - ASCOT RACECOURSE
ASCOT

0 100 m

SCALE @ A3: 1:4000

9481-FIG-02-C

DRAWN:
DATE CREATED:
PROJECTION:
CADASTRE:
AERIAL:

WC
2024.08.19
MGA50 GDA94
LANDDATE
NEARMAP 20230831

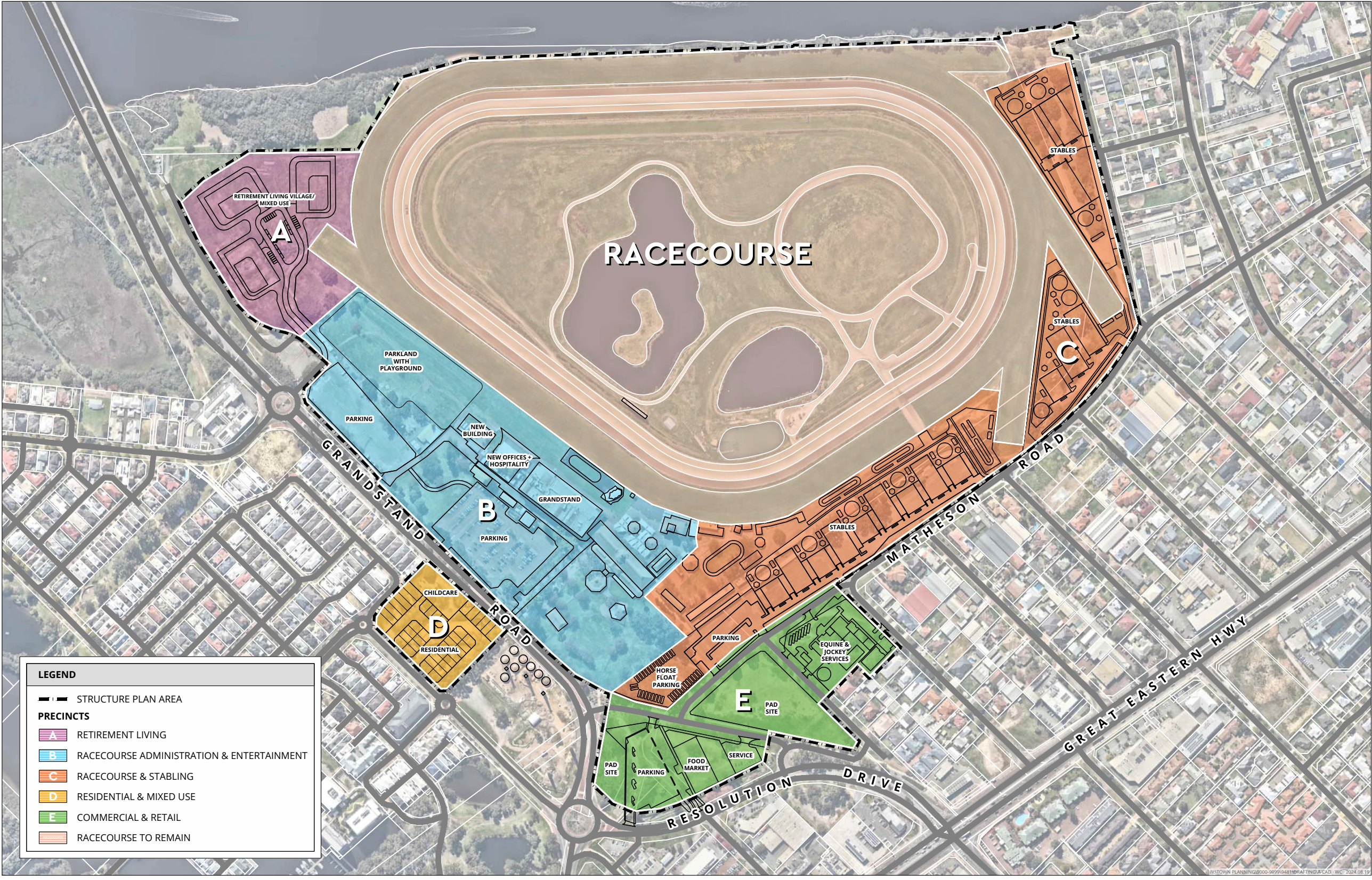
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Appendix C

Draft Master Plan Concept (ROWE Group Design, 2024)





Appendix D

Flora, Vegetation and Fauna Assessment (Emerge Associates 2024a)





TECHNICAL MEMORANDUM

Flora, Vegetation and Fauna Assessment

Various lots, Grandstand Rd and Raconteur Dr, Ascot

PROJECT NUMBER	EP23-109(06)	DOC. NUMBER	EP23-109(06)—003A TDP
PROJECT NAME	Ascot Local Structure Plan	CLIENT	Perth Racing
AUTHOR	TDP/AJU	REVIEWER	RAW
VERSION	A	DATE	11/07/2024

1. INTRODUCTION

1.1. Project background

Emerge Associates (Emerge) were engaged by Perth Racing to undertake a flora, vegetation and fauna assessment at Lots 1, 3, 13, 50, 452, 7705 and 9002 Grandstand Rd and Lots 51 and 100 Raconteur Dr, Ascot, in the City of Belmont (herein referred to as the 'site').

The site is located approximately 5.5 kilometres (km) east of the Perth Central Business District within the City of Belmont. The site extends over approximately 61.8 hectares (ha) and is bounded by Matheson Rd to the east, Grandstand Rd to the west, Resolution Dr to the south, and the Swan River to the north. The location of the site is shown in **Figure 1**.

1.2. Purpose and scope of work

The flora, vegetation and fauna assessment was required to support the development of a Local Structure Plan (LSP) within the site. Specifically, the scope of work was to provide sufficient detail on the flora, vegetation and fauna values within the site to inform this process.

As part of the scope of work the following tasks were completed:

- Desktop review of relevant background information pertaining to the site and surrounds, including database searches for conservation significant flora, fauna and communities.
- A field survey to record flora, vegetation and fauna values.
- Identification of potential habitat for conservation significant flora and vegetation.
- Documentation of the desktop assessment, methodology, field surveys and results into a report.

2. Desktop assessment

A search was conducted for threatened, specially protected and priority flora and fauna that may occur or have been recorded within a 10 km radius of the site using NatureMap (DBCA 2023), *Protected Matters Search Tool* (DCCEEW 2023), *Atlas of Living Australia* (ALA 2023) and the Department of Biodiversity, Conservation and Attraction's (DBCA) conservation significant fauna and flora databases (reference no. FAUNA#8125/53-0323FL).

2.1. Likelihood of occurrence method

2.1.1. Flora and vegetation

The distribution and habitat preferences of threatened flora species and ecological communities listed in **Section 2** were reviewed against site context information¹ and preliminary survey results. Likelihood of occurrence of threatened flora species and ecological communities within the site was classified as 'high', 'moderate', 'low' or 'negligible' as outlined below in **Table 1**.

Table 1: Decision matrix for likelihood of occurrence of threatened and priority flora and ecological communities

		Distribution ¹	
		Reliable record within search area	No reliable record within search area (20 km)
Habitat	Suitable	High	Negligible
	Potentially suitable	Moderate	
	Unsuitable	Low	

¹Reliable record defined as validated, recent (within the last ~40 years) and spatially accurate (refer DBCA search meta data) in order to exclude unverified range or habitat projections.

2.1.2. Fauna

The distribution and habitat preferences of the threatened and specially protected fauna species identified from **Section 2** was reviewed against site context¹ information and preliminary survey results. Likelihood of occurrence of threatened and specially protected fauna species within the site was classified as 'high', 'moderate', 'low', 'negligible' or 'nil' as outlined in **Table 2**. Noting some marine species were excluded due to lack of suitable habitat.

Table 2: Decision matrix for likelihood of occurrence of threatened, specially protected and priority fauna

		Reliable record ¹		Unreliable record ²
		Access to site not impeded	Access to site impeded	
Habitat	Suitable	High	Low	Nil
	Potentially suitable	Moderate		
	Unsuitable	Negligible		

¹Reliable record defined as DBCA or validated ALA record from the last ~20 years, ²Unreliable record defined as record >20 years old or PMST prediction.

2.2. Likelihood of occurrence results

2.2.1. Threatened and priority flora

A total of 100 conservation significant flora species were identified from database searches as occurring or potentially occurring within 9km of the site. Based on background information available for the site and habitat preferences of the species, two priority flora species were considered to have a high or moderate likelihood of occurring within the site, as outlined in

¹ Including relevant Commonwealth documentation such as approved conservation advice, listing advice and other relevant literature.

Table 3. The complete likelihood of occurrence assessment is provided as **Appendix A**.

Table 3: Threatened or priority flora species with a high or moderate likelihood occurrence in the site

Species	Status		Life strategy	Flowering period
	WA	EPBC Act		
<i>Angianthus micropodioides</i>	P	P3	-	Nov-Dec or Jan-Feb
<i>Aponogeton hexatepalus</i>	P	P4	-	Jul-Oct

2.2.2. Vegetation

The database search results identified 13 TECs and 6 PECs as occurring or potentially occurring within a 10 km radius of the site. Information on these communities is provided in **Appendix C**.

Due to historical disturbance the likelihood of occurrence of any TEC or PEC was considered negligible.

2.2.3. Threatened, specially protected and priority fauna

A total of 77 conservation significant fauna species were identified from database searches as occurring or potentially occurring within 10 km of the site.

Two threatened, six specially protected and three priority species were classified as having a 'high' or 'moderate' likelihood of occurrence. The legislative or policy status and habitat preferences of these species are shown in **Table 4**.

The remainder of the conservation significant fauna species identified in the desktop assessment (66 species) were considered as having a 'low', 'negligible' or 'nil' likelihood of occurrence. Refer to **Table 4** and **Appendix D** for detail on individual species likelihood of occurrence.

Table 4: Summary of conservation significant fauna species with potential to occur in the site

Species name	Common name	Status		Habitat description
		WA	EPBC Act	
Birds				
<i>Apus pacificus</i>	Pacific swift	MI	MI	Aerial, migratory species that is most often seen over inland plains and sometimes above open areas, foothills or in coastal areas. Sometimes occurs over settled areas, including towns, urban areas and cities.
<i>Calidris ruficollis</i>	Red-necked stint	MI	MI	Tidal mudflats, saltmarshes, sandy or shelly beaches, saline and freshwater wetlands (coastal and inland), saltfields, sewage ponds.
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	VU	VU	Eucalypt and Corymbia forests, often in hilly interior. More recently also observed in more open agricultural and suburban areas including Perth metropolitan area. Attracted to seeding <i>Corymbia calophylla</i> , <i>Eucalyptus marginata</i> , introduced <i>Melia azedarach</i> and <i>Eucalyptus</i> spp. trees.
<i>Falco peregrinus</i>	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes.
<i>Oxyura australis</i>	Blue-billed duck	P4	-	Mainly deeper freshwater swamps and lakes; occasionally saltlakes and estuaries freshened by flood waters.

Species name	Common name	Status		Habitat description
		WA	EPBC Act	
<i>Pandion haliaetus</i>	Osprey	MI	MI	Coasts, estuaries, bays, inlets, islands, and surrounding waters; coral atolls, reefs, lagoons, rock cliffs, stacks.
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI	Well-vegetated wetlands, wet pasture, ricefields, floodwaters, floodplains, brackish or occasionally saline wetlands, mangroves, mudflats and occasionally dry grassland.
<i>Thalasseus bergii</i>	Crested tern	MI	MI	Mainly blue-water seas (especially within 3 km of land), including southern estuaries in summer and autumn (when free of silt); also tidal creeks in north, but not penetrating far into larger estuaries.
<i>Zanda latirostris</i>	Carnaby's black cockatoo	EN	EN	Mainly proteaceous scrubs and heaths and adjacent eucalypt woodlands and forests; also plantations of <i>Pinus</i> spp. Attracted to seeding <i>Banksia</i> spp., <i>Hakea</i> spp., <i>Eucalyptus</i> spp., <i>Corymbia calophylla</i> , <i>Grevillea</i> spp., and <i>Allocasuarina</i> spp.
Mammals				
<i>Hydromys chrysogaster</i>	Rakali	P4	-	Areas with permanent water, fresh, brackish or marine. Likely to occur in all major rivers and most of the larger streams as well as bodies of permanent water in the lower south-west. Intact riparian vegetation and associated bank stability is critical to their survival.
<i>Isoodon fusciventer</i>	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high.

3. Methods

3.1.1. Vegetation

Vegetation units were identified from information collected during the field survey in January 2024. The vegetation was described according to the dominant species present using the structural formation descriptions of the *National Vegetation Inventory System* (NVIS) (NVIS Technical Working Group 2017). The identified vegetation units were mapped on aerial photography during the field survey and boundaries were interpreted from aerial photography and notes taken in the field. Vegetation condition was mapped on aerial photography based on notes recorded during the field survey to define areas with differing condition and using the Keighery (1994) scale **Table 5**.

Table 5: Vegetation condition scale applied during the field assessment

Condition	Definition (Keighery 1994)
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very good	Vegetation structure altered obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation

Condition	Definition (Keighery 1994)
	structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

3.1.2. Threatened and priority ecological community

Areas of native vegetation potentially representing a TEC were assessed against key diagnostic characteristics and, if available, size and/or vegetation condition thresholds.

3.1.3. Native vegetation under the EP Act

Vegetation within the site that meets the definition of 'native vegetation' under the *Environmental Protection Act 1986* (EP Act) was mapped on aerial imagery.

3.1.4. Fauna habitat

Transects were traversed across the site, during the day, and the characteristics of fauna habitat and presence of fauna species was recorded. Microhabitats such as logs, rocks and leaf litter were investigated and secondary evidence of species presence such as tracks, scats, skeletal remains, foraging evidence or calls was also noted.

3.1.5. Black cockatoo habitat

Black cockatoo foraging, breeding and roosting habitat was assessed and mapped within the site.

Foraging habitat

Foraging habitat was identified by assessing vegetation in the site for plant species known to provide food for black cockatoos (Davies 1966; Saunders 1980; Johnstone and Storr 1998; Johnstone and Kirkby 1999; Groom 2011; Johnstone *et al.* 2011; DAWE 2022). Foraging habitat was classified as either 'native' or 'non-native' based on the predominant vegetation's naturalised status and in accordance with DAWE (2022).

It was also classified as either 'primary' or 'secondary' based on black cockatoo foraging preferences. Primary food plants were defined as those with historical and contemporary records of regular consumption by a black cockatoo species. Secondary food plants were defined as plants that black cockatoo species have been recorded consuming occasionally or that, based on their limited extent or agricultural origin, should not be considered a sustaining resource. A list of plant species classified as primary or secondary food plants is provided as **Appendix E**.

Each patch of foraging habitat was assigned a foraging value for each species of black cockatoo likely to occur within the site. As it is not always possible to separate out food plants from non-food plants,



mapped foraging habitat may also include vegetation comprising non-food plants. The proportion of non-food plants in mapped foraging habitat was minimised as far as practicable.

Evidence of black cockatoo foraging, such as chewed fruits, was searched for within the site and allocated to a black cockatoo species where possible.

Breeding habitat

Breeding habitat comprises 'habitat trees' which was defined as a native eucalypt that is typically known to support black cockatoo breeding such as marri, jarrah, blackbutt, tuart, wandoo, salmon gum or to a lesser extent flooded gum, with a DBH ≥ 50 cm or DBH ≥ 30 cm for wandoo or salmon gum.

All native eucalypts within the site that met the required DBH were recorded. Occasionally, native eucalypts were encountered that met DBH requirements but did not contain a trunk/branch of a sufficient size to support a hollow suitable for use by black cockatoos. For example, the tree may have been less than 3 m tall or had a trunk that forked between 1.3 m and 3 m in height and after the fork no limbs had a diameter of ≥ 50 cm or ≥ 30 cm for wandoo or salmon gum. These trees were not recorded as habitat trees as the likelihood they would form a suitable hollow was low.

Habitat trees were individually identified and the attributes outlined in **Table 6** were recorded for each tree.

Table 6: Attributes recorded for each habitat tree in the site

Attribute	Description
GPS location	The location was recorded using a handheld GPS unit
Tree species	Species and common name were identified
Diameter at breast height (DBH) (cm)	DBH was measured at breast height (1.3 m) using a diameter tape
Hollows potentially suitable for breeding by a black cockatoo	Number of hollows potentially suitable for breeding by a black cockatoo recorded (assessed from ground level only)

Each habitat tree was assigned to a category listed in **Table 7** based on current black cockatoo guidelines (DAWE 2022).

Table 7: Habitat tree categories (DAWE 2022)

Category	Specifications
Known nesting tree	Trees (live or dead but still standing) which contains a hollow where black cockatoo breeding has been recorded or which demonstrates evidence of breeding (i.e. showing evidence of use through scratches, chew marks or feathers).
Suitable nesting tree	Trees with suitable nesting hollows present [^] , although no evidence of use. Note that any species of tree may develop suitable hollows for breeding.
Potential nesting tree	Trees that have a suitable DBH to develop a nest hollow, but do not currently have suitable nesting hollows. Trees suitable to develop a nest hollow in the future are 300-500 mm DBH. Note that many species of eucalypt may develop suitable hollows for breeding.

[^]Hollow determined to be suitable for use as breeding habitat by black cockatoos.

Roosting habitat



If present, groups of tall native and non-native trees were assumed to provide roosting habitat. The presence of active or historical roosts in these trees was determined through evidence of roosting activity, such as branch clippings, droppings or moulted feathers.

4. Results

4.1. Flora

4.1.1. Flora species inventory

A total of 58 weed species and 21 native species were recorded in the site during the field surveys. This comprises a total of 29 families and 60 genera. The dominant families containing native taxa were Myrtaceae (three native taxa) and Fabaceae (three native taxa). The family containing the most non-native taxa was Poaceae (thirteen non-native species).

A complete species list is provided in **Appendix B**.

4.1.2. Threatened and priority flora

No threatened or priority flora were recorded and none are considered likely to occur in the site due to the lack of suitable habitat.

4.1.3. Declared pests

One species listed as a declared pest (pursuant to s22(2) of the *Biosecurity and Agriculture Management Act 2007*), **Tamarix aphylla* (athel pine), was recorded within the site. Athel pine is listed in exempt keeping category meaning management is not obliged.

4.2. Vegetation

4.2.1. Vegetation units

Four vegetation units were identified within the site: Cc, Er, ErJkSt, and non-native.

A description and the area of each vegetation unit is provided in **Table 8** and representative photographs of each are provided in **Plate 1** to **Plate 4**. The location of each vegetation unit is shown in **Figure 2**.

Table 8: Vegetation unit present within the site

Vegetation Unit	Description	Area (ha)
Er	Woodland <i>Corymbia calophylla</i> over closed grass/forbland of pasture weeds and scattered native species (or absent) (Plate 1).	1.12
Cc	Woodland <i>Eucalyptus rudis</i> over closed grass/forbland of pasture weeds and scattered native species (or absent) (Plate 2).	0.28
ErJkSt	Open woodland <i>Eucalyptus rudis</i> and occasional <i>Melaleuca raphiophylla</i> over sedgeland <i>Juncus kraussii</i> and <i>Schoenoplectus tabernaemontani</i> over low shrubland <i>Suaeda australis</i> over forbland <i>Apium prostratum</i> subsp. <i>prostratum</i> var. <i>prostratum</i> and <i>Heliotropium curassavicum</i> over grassland <i>*Avena</i> sp., <i>Cynodon dactylon</i> and <i>*Paspalum vaginatum</i> (or absent) (Plate 3).	0.17

Vegetation Unit	Description	Area (ha)
To	Fringing rushland of <i>Typha orientalis</i> , with occasional planted native and non-native trees, shrubs and/or non-woody vegetation, over closed grass/forbland of pasture weeds.	0.46
Non-native	Heavily disturbed areas comprising bare ground and weeds with occasional native trees and forbs and/or sealed ground and buildings (Plate 4).	56.62



Plate 1: Vegetation unit **Er** in 'degraded' condition



Plate 2: Vegetation unit **Cc** in 'degraded' condition



Plate 3: Vegetation unit **ErJkSt** in 'good – very good' condition



Plate 4: Vegetation unit **Non-native** in 'completely degraded' condition

4.2.2. Vegetation condition

The vegetation in the site occurred in 'good – very good', 'degraded', 'degraded - completely degraded' and 'completely degraded condition. The extent of vegetation by condition category is detailed in **Table 9** and shown in **Figure 3**.

Table 9: Vegetation condition categories within the site

Condition category (Keighery (1994))	Size (ha)
Pristine	0
Excellent	0
Very good	0
Good – very good	0.07
Good	0
Degraded	1.04
Degraded – completely degraded	0.98
Completely degraded	56.57

4.2.3. Threatened and priority ecological communities

The ‘subtropical and temperate coastal saltmarsh’ TEC which is listed as vulnerable under the EPBC Act was identified within a patch of ErJkSt the northern portion of the site as shown in **Figure 5**. A total of 0.07 ha of this TEC/PEC was mapped. Not all of the ErJkSt represents the TEC as some patches represent canopy overhang into the site with limited to no understory vegetation.

The 0.07 ha of coastal saltmarsh TEC vegetation mapped in the site also represents the State listed Priority 3 (P3) PEC of the same name.

4.2.4. Native vegetation under the EP Act

A total of 1.10 ha of vegetation meeting the definition of ‘native vegetation’ pursuant to the EP Act occurs within the site, as shown in **Figure 4**. This comprises of scattered flooded gum (*Eucalyptus rudis*) and marri (*Corymbia calophylla*) trees, and fringing vegetation ErJkSt (**Table 8**).

4.3. Fauna

4.3.1. Fauna habitat

Habitat values in the site are limited by historical disturbance and are primarily suited to widespread fauna species with non-specific habitat requirements.

The ErJkSt vegetation provides a cover of native trees and understory cover of riparian vegetation that would offer cover for ground dwelling fauna.

Large native trees associated with plant communities Cc and Er would also provide value to native birds and other arboreal fauna. The extent of fauna habitat is detailed in **Table 10** and shown in **Figure 5**.

Table 10: Fauna habitats identified within the site

Fauna habitat	Description	Area (ha)
Fringing woodland	Native fringing vegetation consisting of a native tree overstorey and an understory of sedges/rushes.	0.07
Wetland	Wetland waterbodies and associated riparian sedgeland/rushland.	3.72



Scattered trees and shrubs	Scattered native and non-native trees and shrubs, providing habitat mainly for avifauna.	5.45
Cleared	Predominantly grassy weeds, bare ground and built form.	52.64

4.3.2. Fauna species inventory

Twenty-four fauna species were recorded within the site:

- *Aix sponsa* (wood duck)
- *Anas gracilis* (grey teal)
- *Anas superciliosa* (Pacific black duck)
- *Anhinga novaehollandiae* (Australasian darter)
- *Cacatua sanguinea* (little corella)
- *Calyptorhynchus banksii* (forest red-tailed black cockatoo)
- *Columba livia* (feral pigeon)
- *Corvus coronoides* (Australian raven)
- *Cygnus atratus* (black swan)
- *Eolophus roseicapilla* (galah)
- *Equus ferus* (horse)
- *Fulica atra* (Eurasian coot)
- *Grallina cyanoleuca* (magpie-lark)
- *Gymnorhina tibicen* (Australian magpie)
- *Malacorhynchus membranaceus* (pink-eared duck)
- *Microcarbo melanoleucos* (little pied cormorant)
- *Oxyura australis* (blue-billed duck)
- *Pelecanus conspicillatus* (Australian pelican)
- *Phalacrocorax sulcirostris* (little black cormorant)
- *Porphyrio porphyria* (purple swamphen)
- *Rhipidura leucophrys* (willie wagtail)
- *Spilopelia chinensis* (spotted dove)
- *Tadorna tadornoides* (Australian shelduck)
- *Threskiornis moluccus* (Australian white ibis)
- *Trichoglossus moluccanus* (rainbow lorikeet)

4.3.3. Conservation significant fauna

One threatened (forest red-tailed black cockatoo, (VU)) and one priority (blue-billed duck, (P4)) fauna species were recorded at the time of survey.

Zanda latirostris (Carnaby's black cockatoo (EN)) is considered to have a high likelihood of occurring in this site and is discussed further below in **Section 4.3.4**. Six additional conservation significant bird species not recorded during the survey have potential to occur within the site:

Apus pacificus (Pacific swift (MI)), and *Falco peregrinus* (peregrine falcon (OS)) are both highly mobile species that are sometimes recorded over urbanised areas. Any occurrence of these species is likely



to be a flyover or brief forage as the site and surrounding area lacks suitable habitat for breeding or persistence of any other kind. *Calidris ruficollis* (red-necked stint (MI)), and *Thalasseus bergii* (crested tern (MI)) are both shorebirds which may briefly utilise the site as marginal foraging habitat. *Plegadis falcinellus* (glossy ibis (MI)) are known to forage in wet grassland areas when nearby to water sources but this type of habitat is likely to provide a marginal foraging resource. *Pandion haliaetus* (osprey (MI)), have been recorded nesting nearby and are therefore likely to forage near or within the site.

Two priority 4 mammal species not recorded during the survey, *Hydromys chrysogaster* (rakali) and *Isodon fusciventer* (quenda), could also occur in the site. Rakali may utilise the Swan River and so could occasionally occur in the northern most portion of the site associated with the ErJkSt vegetation. Quenda commonly occur in urban areas, particularly where understorey vegetation or grasses provide dense cover.

4.3.4. Black cockatoos

Forest red-tailed black cockatoo was observed foraging in the site in cape lilac (*Melia azedarach*) overhanging the site. The site lies within the modelled distribution of Carnaby's black cockatoo and therefore they may also occur. The site does not lie within the modelled distribution of Baudin's black cockatoo and therefore they are not likely to occur and have not been considered further.

4.3.4.1. Breeding habitat

A total of 66 black cockatoo habitat trees were recorded, of which five contained hollows potentially suitable for black cockatoo breeding based on inspection from ground level. Internal hollow inspection using a camera pole or drone would be required to confirm if hollows are suitable for breeding by black cockatoos. The remaining 61 habitat trees did not contain hollows suitable for black cockatoo breeding.

The habitat trees comprised four tuarts, eight marris and 54 *Eucalyptus rudis* (flooded gum) trees.

A summary of the habitat trees recorded within the site is provided in **Table 11** and the locations of habitat trees are shown in **Figure 7**.

Table 11: Habitat trees

Category	No. trees
Known nesting trees	0
Suitable nesting trees	5
Potential nesting trees	61
Total nesting trees	66

4.3.4.2. Roosting habitat

No roosts or evidence of roosting was observed in the site. Tall trees within the site represent potential roosting trees.

4.3.4.3. Foraging habitat

A total of 1.27 ha of foraging habitat for Carnaby's black cockatoo was recorded in the site, which comprised 0.28 ha of primary native foraging habitat associated with *Corymbia calophylla*, 0.07 ha of



primary non-native foraging habitat associated with *Pinus pinaster*, 0.41 ha of secondary native foraging habitat associated with *Acacia saligna*, *Jacksonia furcellata* and *Xanthorrhoea* spp. and 0.51 ha of secondary non-native habitat associated with *Eucalyptus gomphocephala*.

A total of 0.84 ha of foraging habitat for forest red-tailed black cockatoo was recorded in the site, which comprises 0.28 ha of primary native habitat associated with *Corymbia calophylla*, 0.07 ha of secondary native foraging habitat associated with *Jacksonia furcellata* and 0.49 ha of non-native secondary habitat associated with *Eucalyptus gomphocephala* and **Eucalyptus camaldulensis*.

The extent of foraging habitat by value category is detailed in **Table 12** and shown in **Figure 8** and **Figure 9**.

Table 12: Foraging habitat recorded within the site

Foraging habitat	Black cockatoo species and area of foraging habitat (ha)	
	Carnaby's	Forest red-tailed
Primary native	0.28	0.28
Primary non-native	0.07	0
Secondary native	0.41	0.07
Secondary non-native	0.51	0.49
Total	1.27	0.84



5. CONCLUSIONS

Outcomes of the assessment include the following:

- No threatened or priority flora species were recorded in the site. None of the threatened and priority flora species identified in the desktop assessment are considered to occur in the site due to lack of suitable habitat and/or because they were not recorded during the field survey.
- The majority of the site is heavily disturbed (degraded to completely degraded) and limited native intact native vegetation is present. One small patch of vegetation (ErJkSt) is identified in 'good – very good' condition.
- A total of 0.07 ha of the 'subtropical and temperate coastal saltmarsh' TEC/PEC occurs within the northern portion of the site adjacent to the Swan River.
- One threatened, forest red-tailed black cockatoo (EN), and one priority, blue-billed duck (P4), species were recorded in the site. A further nine conservation significant fauna species also have potential to occur in the site.
- As a result of historical disturbance, the site contains limited high-quality fauna habitat and is likely only utilised by fauna traversing through the wider area, especially birds. However, the small patch of 'fringing woodland' fauna habitat in the site's northeast (associated with vegetation type ErJkSt) may provide value for smaller ground-dwelling fauna.
- A total of 66 black cockatoo habitat trees were recorded of which five contained hollows potentially suitable for breeding. Internal hollow inspection would be required to confirm if these hollows are suitable for black cockatoo breeding.
- No evidence of roosting was recorded in the site. Tall trees in the site may represent potential roosting trees.
- A total of 1.27 ha of foraging habitat for Carnaby's black cockatoo and 0.84 ha of foraging habitat for forest red-tailed black cockatoo exists in the site.



6. REFERENCES

6.1. General references

- Atlas of Living Australia (ALA) 2023, *Atlas of Living Australia - Spatial Portal*, <<http://www.ala.org.au/>>.
- Department of Biodiversity, Conservation and Attractions (DBCA) 2023, *NatureMap*, <<https://static.dbca.wa.gov.au/pages/naturemap.html>>.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2022, *Referral guideline for 3 WA threatened black cockatoo species*.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023, *Protected Matters Search Tool*, <<https://pmst.awe.gov.au/#/map>>.
- Keighery, B. 1994, *Bushland Plant Survey: A guide to plant community survey for the community*, Wildflower Society of WA (Inc), Nedlands.
- NVIS Technical Working Group 2017, *Australian Vegetation Attribute Manual: National Vegetation Information System*, Department of the Environment and Energy, Canberra.

6.2. Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 6.1**, with access date information provided in **Table R 1**.

Table R 1 Access dates for online references

Reference	Date accessed	Website or dataset name
DCCEEW (2023)	24 January 2024	Protected Matters Search Tool
DBCA (2023)	28 March 2023	NatureMap
ALA(2023)	24 January 2024	Spatial Portal - Atlas of Living Australia



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Figures



Figure 1: Site Location

Figure 2: Vegetation Units

Figure 3: Vegetation Condition

Figure 4: Threatened Ecological Community

Figure 5: Native Vegetation Under the EP Act

Figure 6: Fauna Habitat

Figure 7: Black Cockatoo Habitat Trees

Figure 8: Carnaby's Black Cockatoo Foraging Habitat

Figure 9: Forest Red-tailed Black Cockatoo Foraging Habitat



Figure 1: Site Location

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan
Client: Perth Racing

Plan Number:
EP23-109(06)-F01
Drawn: AS
Date: 13/02/2024
Checked: AIJ
Approved: RAW
Date: 08/04/2024



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Metres
Scale: 1:8,000@A4
GDA2020 MGA Zone 50



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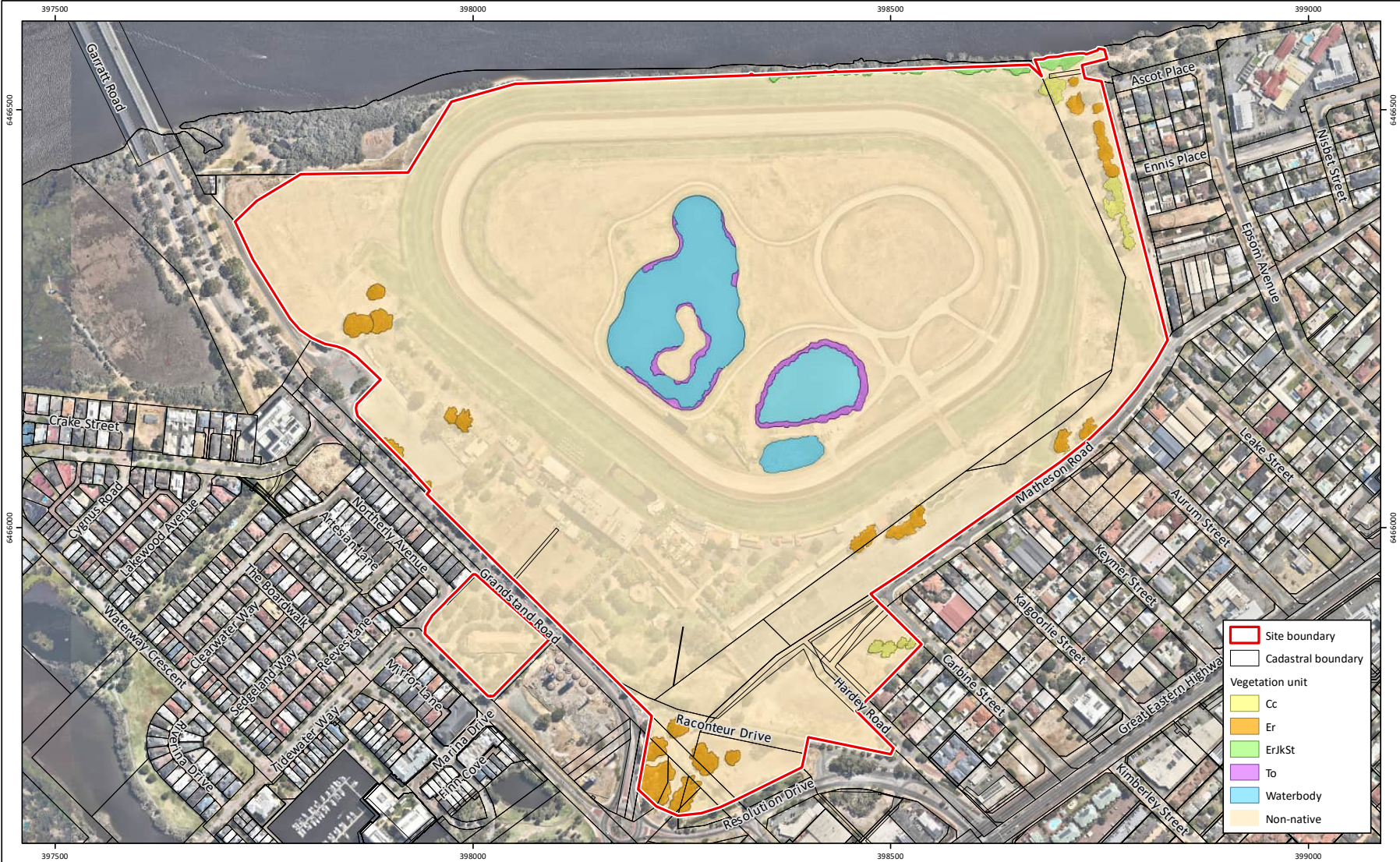


Figure 2: Vegetation Units

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan

Client: Perth Racing

Plan Number:
EP23-109(06)-F02
Drawn: AS
Date: 13/02/2024
Checked: AIJ
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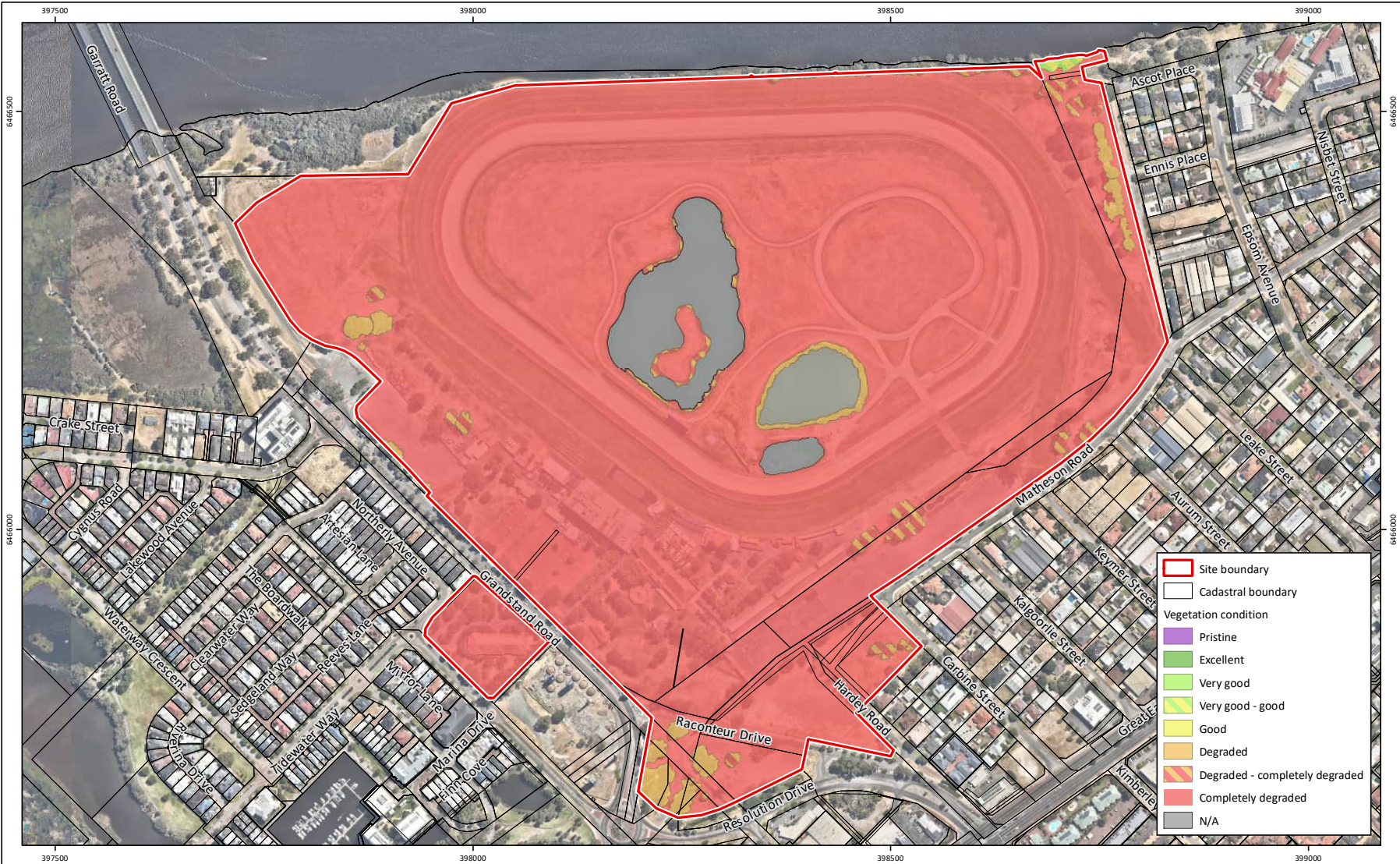


Figure 3: Vegetation Condition

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan

Client: Perth Racing

Plan Number:
EP23-109(06)-F03

Drawn: AS

Date: 13/02/2024

Checked: AIU

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Date: 08/04/2024



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Scale: 1:6,000@A4
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Figure 4: Threatened and Priority Ecological Community

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan

Client: Perth Racing

Plan Number: EP23-109(06)-F04
Drawn: AS
Date: 13/02/2024
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Figure 5: Native Vegetation Under the EP Act

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Golden Gateway Structure Plan
Client: Perth Racing

Plan Number:
EP23-109(06)-F16
Drawn: WJC
Date: 04/04/2024
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Figure 6: Fauna Habitat

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan
Client: Perth Racing

Plan Number: EP23-109(06)-F05
Drawn: AS
Date: 13/02/2024
Checked: AIJ
Approved: RAW
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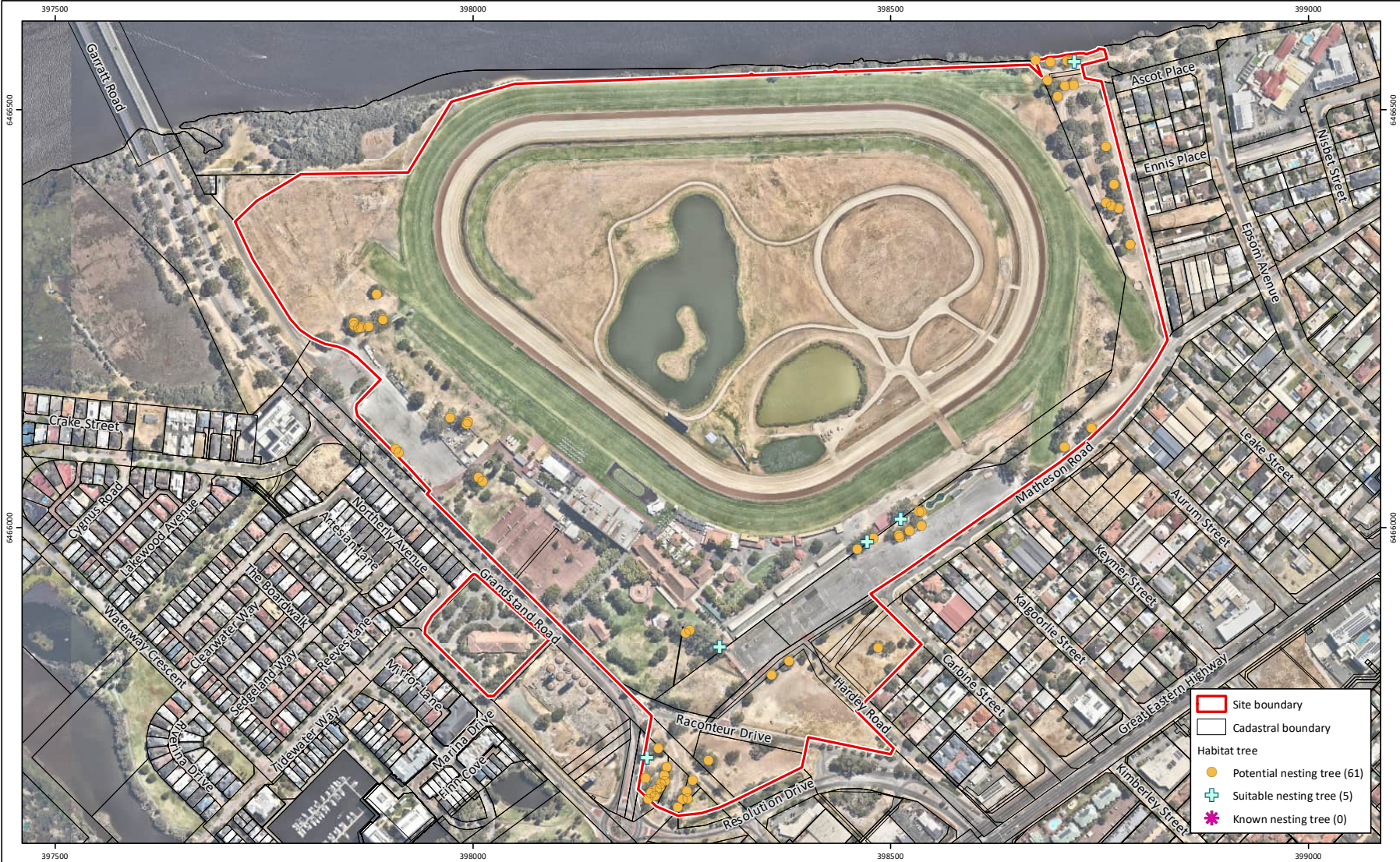


Figure 7: Black Cockatoo Habitat Trees

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan
Client: Perth Racing

Plan Number:
EP23-109(06)-F19a
Drawn: GAR
Date: 28/06/2024
Checked: TDP
Approved: RAW
Date: 01/07/2024



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Figure 8: Carnaby's Black Cockatoo Foraging Habitat

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan
Client: Perth Racing

Plan Number: EP23-109(06)-F17
Drawn: WJC
Date: 04/04/2024
Checked: AJU
Approved: RAW
Date: 08/04/2024



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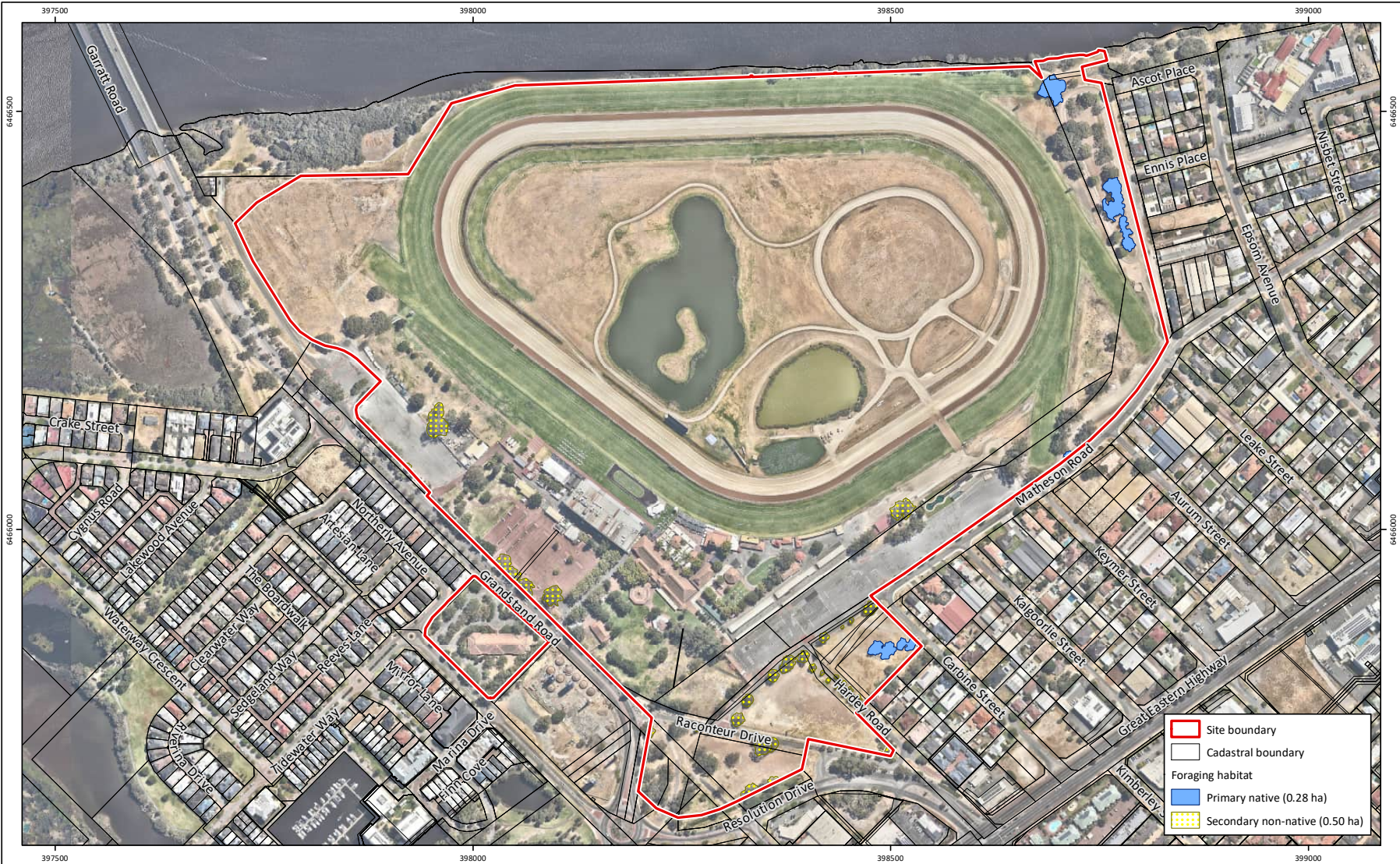


Figure 9: Forest Red-tailed Black Cockatoo Foraging Habitat

Project: Flora, Vegetation and Fauna Assessment
Golden Gateway Structure Plan
Client: Perth Racing

Plan Number:
EP23-109(06)-F18
Drawn: WJC
Date: 04/04/2024
Checked: AJU
Approved: RAW
Date: 08/04/2024



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Appendix A

Conservation Significant Flora Likelihood of Occurrence





Conservation Significant Flora Likelihood of Occurrence
Perth Racing Golden Gateway Structure Plan

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Species name	Level of		Life strategy	Habitat	Flowering period	Likelihood of occurrence
	WA	EPBC Act				
<i>Calectasia cyanea</i>	CR	CR	P	Heathland on white sand or laterite gravel over laterite. Known only from one population near Albany.	Jun-Oct	Low
<i>Grevillea thelemanniana</i>	CR	CR	P	Sand, sandy clay. Winter-wet low-lying flats.	May-Nov	Low
<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	CR	CR	P	Low woodland on grey, clayey sand with lateritic pebbles (Pinjarra Plain) near winter wet flats.	Sep-Nov	Low
<i>Caladenia huegelii</i>	CR	EN	PG	Well-drained, deep sandy soils in lush undergrowth in a variety of moisture levels.	Sep-early Nov	Low
<i>Calytrix breviseta</i> subsp. <i>breviseta</i>	CR	EN	P	Seasonally wet sandy-clay soil on swampy flats	Oct-Nov	Low
<i>Drakaea elastica</i>	CR	EN	PG	Bare patches of sand within otherwise dense vegetation in low-lying areas alongside winter-wet swamps. Typically in banksia woodland or thickets of <i>Kunzea glabrescens</i> .	late Sep-Oct/Nov, survey Jul-Aug	Low
<i>Eucalyptus x balanites</i>	CR	EN	P	Light coloured sandy soils over laterite. Habitat consists of gently sloping heathlands; open mallee woodland over shrubland (Population 2) or heathland with emergent mallees (population 1)	Oct - Feb	Low
<i>Trithuria occidentalis</i>	CR	EN	A	Partly submerged on the edge of shallow winter-wet clay pans in very open shrubland.	Oct-Nov	Low
<i>Diuris purdiei</i>	EN	EN	PG	Sand to sandy clay soils in areas subject to winter inundation.	late September to mid-October, but only after a summer or early autumn fire (Brown et al., 1998)	Low
<i>Grevillea curviloba</i> subsp. <i>incurva</i>	EN	EN	P	Sand, sandy loam. Winter-wet heath.	Aug-Sep	Low
<i>Macarthuria keigheryi</i>	EN	EN	P	Low-lying winter-wet damp grey/white sands in open patches.	Sep-Dec or Feb-Mar	Low



Conservation Significant Flora Likelihood of Occurrence
Perth Racing Golden Gateway Structure Plan

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	WA	EPBC Act	strategy		period	occurrence
<i>Thelymitra stellata</i>	EN	EN	PG	Sandy loam, clay or gravel over laterite or gravel.	Sep-Nov	Low
<i>Andersonia gracilis</i>	VU	EN	P	Seasonally damp, black sandy clay flats near or on the margins of swamps.	Sep-Nov	Low
<i>Banksia mimica</i>	VU	EN	P	Flat to gentle slopes in grey and white sand in open woodlands.	Dec-Jan	Low
<i>Drakaea micrantha</i>	EN	VU	PG	Open sandy patches often adjacent to winter-wet swamps.	Sept- early Oct	Low
<i>Acacia denticulosa</i>	VU	VU	P	Sand, loam, clay. Granite outcrops, rarely on sandplains.	Sep-Oct	Low
<i>Anigozanthos viridis</i> subsp. <i>Terraspectans</i>	VU	VU	P	Grey sand, clay loam. Winter-wet depressions.	Aug-Sep	Low
<i>Conospermum undulatum</i>	VU	VU	P	Sand and sandy clay soils, on flat or gently sloping sites between the Swan and Canning Rivers	May-Oct	Low
<i>Diuris drummondii</i>	VU	VU	PG	In low-lying depressions in peaty and sandy clay swamps.	Nov-Jan	Low
<i>Diuris micrantha</i>	VU	VU	PG	Dark grey-black sandy clay-loam in winter wet depressions or swamps. Often in shallow standing water.	Aug/Sep- early Oct	Low
<i>Eleocharis keigheryi</i>	VU	VU	P	Clay or sandy loam in freshwater creeks and transient waterbodies such as seasonally wet clay pans.	Aug-Dec	Low
<i>Eucalyptus rhodantha</i> var. <i>rhodantha</i>	VU	VU	P	Grey/yellow/red sand over laterite. Undulating country, hillslopes.	Jul-Sep or Dec-Jan	Low
<i>Morelotia australiensis</i>	VU	VU	P	Sand over clay, winter wet depressions and drainage lines.	Nov-Dec	Low
<i>Eremophila glabra</i> subsp. <i>chlorella</i>	EN	-	P	Sandy clay. Winter-wet depressions.	Jul-Nov	Low
<i>Hypocalymma magnificum</i>	EN	-	P	Sandy loam, granite.	Aug-Nov (limited information)	Low
<i>Bolboschoenus fluviatilis</i>	P1	-	P	Floodplain with grey/brown wet sand.	Nov	Moderate
<i>Calandrinia</i> sp. Bayswater (C. Andrews s.n. 11/1902)	P1	-	Unknown	Unknown	Unknown	Low



	WA	EPBC Act	strategy		period	occurrence
<i>Drosera patens</i>	P1	-	P	Sandy soils on margins of winter-wet depressions, swamps and lakes.	Aug-Dec	Low
<i>Drosera x sidjamesii</i>	P1	-	P	Along lake margins, close to winter high-water line	Nov-Dec or Jan-Mar	Low
<i>Haloragis scoparia</i>	P1	-	P	Clay in winter-wet areas.	May	Low
<i>Hydrocotyle striata</i>	P1	-	A	Sand and clay in springs and creeklines.	Nov	Low
<i>Levenhookia preissii</i>	P1	-	A	Grey or black, peaty sand. Swamps	Sep-Dec/Jan	Low
<i>Ptilotus sericostachyus subsp. roseus</i>	P1	-	P	Unknown. Seem to be associated with wetlands/rivers.	Sep-Dec	Moderate
<i>Senecio gilbertii</i>	P1	-	P	Peaty sand in swamps and on slopes.	Sep-Nov	Low
<i>Thelymitra magnifica</i>	P1	-	PG	Gravelly soil on stony ridges.	Sep-Oct	Low
<i>Typhonium peltandroides</i>	P1	-	P	Shallow sand amongst rough sandstone, red clay. Sides of gorges, vine thickets, rocky sites or along watercourses.	Dec or Jan-Feb	Low
<i>Acacia benthamii</i>	P2	-	P	Sand, typically on limestone breakaways	Aug - Sept	Low
<i>Calothamnus macrocarpus</i>	P2	-	P	Rocky quartzite soils, sand. Slopes.	Feb or Aug-Dec	Low
<i>Chamelaucium floriferum subsp. diffusum</i>	P2	-	P	Sand, clay. Frequently with outcropping granite.	Jan-Dec	Low
<i>Eucalyptus educta</i>	P2	-	P	Shallow soils. Granite rocks.	Apr	Low
<i>Grevillea manglesii subsp. ornithopoda</i>	P2	-	P	Red-brown loam over clay	Sep-Nov	Low
<i>Hypocalymma inopinatum</i>	P2	-	P	White sand on laterite. Shallow sandy loam Slopes and rises (limited information).	Nov? (limited information)	Low
<i>Johnsonia pubescens subsp. cygnorum</i>	P2	-	P	Grey white yellow sands on flats and seasonally wet areas.	Sep	Low
<i>Lepyrodia curvescens</i>	P2	-	P	Sand, laterite. Seasonally inundated swampland.	Sep-Nov	Low
<i>Melaleuca viminalis</i>	P2	-	P	Sand, clay in creeklines and wetlands.	Oct-Dec	Moderate
<i>Phyllangium palustre</i>	P2	-	A	Winter-wet claypans, low-lying seasonal wetlands on clay	Oct-Nov	Low
<i>Poranthera moorokatta</i>	P2	-	A	Sandy or clay soils. Dampland or low sandy dunes.	Oct or Feb	Low
<i>Thelymitra variegata</i>	P2	-	P	Sandy clay, sand, laterite.	Jun-Sep	Low



	WA	EPBC Act	strategy		period	occurrence
<i>Thysanotus brachiatus</i>	P2	-	P	Grey sand	Nov-Dec	Low
<i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i>	P3	-	P	Grey sand, lateritic gravel.	Jul or Sep to Dec or Jan	Low
<i>Alyogyne</i> sp. Great Victoria Desert (D.J. Edinger 6212)	P3	-	P	Unknown	Unknown	Low
<i>Angianthus micropodioides</i>	P3	-	A	Saline sandy soils on edge of rivers, depressions and clay pans.	Nov-Dec or Jan-Feb	Moderate
<i>Babingtonia urbana</i>	P3	-	P	Grey sand, lateritic gravel.	Jan-Mar	Low
<i>Banksia pteridifolia</i> subsp. <i>vernal</i>	P3	-	P	White/grey sand over laterite.	Sep-Oct	Low
<i>Beaufortia purpurea</i>	P3	-	P	Lateritic or granitic soils on rocky slopes.	Oct-Feb	Low
<i>Byblis gigantea</i>	P3	-	P	Sandy-peat swamps. Seasonally wet areas.	Sep-Jan	Low
<i>Carex tereticaulis</i>	P3	-	P	Black peaty sand.	Sep-Oct	Low
<i>Conostylis bracteata</i>	P3	-	P	Sand, limestone. Consolidated sand dunes	Aug-Sep	Low
<i>Cyathochaeta teretifolia</i>	P3	-	P	Grey sand, sandy clay in swamps and creek edges.	Oct-Jan	Low
<i>Dampiera triloba</i>	P3	-	P	Damp peat/loam soil.	Aug-Dec	Low
<i>Dicrastylis micrantha</i>	P3	-	P	Red sand. Sandplains.	Sep-Dec	Low
<i>Eryngium</i> sp. <i>Subdecumbens</i> (G.J. Keighery 5390)	P3	-	A	Clay in seasonal wetlands.	Sep-Nov	Low
<i>Haemodorum loratum</i>	P3	-	P	Grey or yellow sand, gravel.	Nov	Low
<i>Halgania corymbosa</i>	P3	-	P	Gravelly soils, soils over granite.	Aug-Nov	Low
<i>Hibbertia leptotheca</i>	P3	-	P	Brown to white sand with limestone.	Aug-Sep	Low
<i>Hypocalymma quadrangulare</i>	P3	-	P	Sandy loam in depressions (limited info)	Jul-Sep (limited information)	Low
<i>Isopogon autumnalis</i>	P3	-	P	Yellow-grey sand.	Feb, Mar, Apr, May or June	Low
<i>Jacksonia gracillima</i>	P3	-	P	Sand, often adjacent to winter wet areas	Sep-Dec	Low
<i>Lasiopetalum glutinosum</i> subsp. <i>glutinosum</i>	P3	-	P	Brown clay loam on slopes	Sep-Dec	Low
<i>Lasiopetalum membranaceum</i>	P3	-	P	Sand over limestone	Sep-Dec	Low



	WA	EPBC Act	strategy		period	occurrence
<i>Meionectes tenuifolia</i>	P3	-	P	Clay loam in seasonally wet areas.	Oct-Dec	Low
<i>Myriophyllum echinatum</i>	P3	-	A	Clay in winter-wet flats.	Nov	Low
<i>Platysace ramosissima</i>	P3	-	P	Sandy soils.	Oct-Nov	Low
<i>Schoenus benthamii</i>	P3	-	P	White, grey ands, sandy clay in winter wet flats and swamps	Oct-Nov	Low
<i>Schoenus pennisetis</i>	P3	-	A	Grey or peaty sand in swamps and winter-wet depressions.	Aug-Sep	Low
<i>Stylidium aceratum</i>	P3	-	A	Sandy soils in swamp heathland.	Oct-Nov	Low
<i>Stylidium asteroideum</i>	P3	-	P	Sand, clay, loam in winter wet areas.	Sep-Nov	Low
<i>Stylidium paludicola</i>	P3	-	P	Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland	Oct-Dec	Low
<i>Styphelia filifolia</i>	P3	-	P	Brown over pale yellow sand.	Feb-Apr	Low
<i>Thysanotus anceps</i>	P3	-	P	White or grey sand, lateritic gravel, laterite.	Oct-Dec	Low
<i>Verticordia venusta</i>	P3	-	P	Yellow sand, sandy gravel. Sandplains.	Sep-Dec or Jan	Low
<i>Aponogeton hexatepalus</i>	P4	-	P	Mud. Freshwater: ponds, rivers, claypans.	Jul-Oct	Moderate
<i>Calothamnus accedens</i>	P4	-	P	Sandy soils over laterite.	Sep-Jan	Low
<i>Calothamnus graniticus subsp. leptophyllus</i>	P4	-	P	Clay over granite, lateritic soils. Hillsides.	Jun-Aug	Low
<i>Cyanothamnus tenuis</i>	P4	-	P	Laterite, stony soils, granite.	Aug-Nov	Low
<i>Dodonea hackettiana</i>	P4	-	P	Sand, outcropping limestone.	Jul-Oct	Low
<i>Drosera occidentalis</i>	P4	-	P	Flat, brown/white/yellow moist sand/clay/peat, often near swamps.	Oct-Dec/Jan	Low
<i>Eucalyptus caesia subsp. caesia</i>	P4	-	P	Loam. Granite outcrops.	May-Sep	Low
<i>Eucalyptus caesia subsp. magna</i>	P4	-	P	Loam. Granite outcrops.	May-Sep	Low
<i>Eucalyptus kruseana</i>	P4	-	P	Sandy loam. Granite outcrops & hills.	Jun-Sep	Low
<i>Grevillea pimeleoides</i>	P4	-	P	Gravelly soils over granite. Rocky hillsides.	May-Nov	Low
<i>Hydrocotyle lemnoides</i>	P4	-	A	Floating in swamps.	Aug-Oct	Low



Conservation Significant Flora Likelihood of Occurrence
Perth Racing Golden Gateway Structure Plan

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	WA	EPBC Act	strategy		period	occurrence
<i>Jacksonia sericea</i>	P4	-	P	Calcareous and sandy soils on Swan Coastal Plain	Dec-Feb	Low
<i>Lasiopetalum bracteatum</i>	P4	-	P	Sandy clay, clay, lateritic gravel along drainage lines, creeks, gullies, granite outcrops.	Aug-Nov	Low
<i>Ornduffia submersa</i>	P4	-	A	Sandy clay in inundated wetland/creek.	Aug-Nov	Low
<i>Schoenus griffinianus</i>	P4	-	P	White sand	Sep-Oct	Low
<i>Schoenus natans</i>	P4	-	A	Aquatic, in winter-wet depressions.	Oct	Low
<i>Stylidium longitubum</i>	P4	-	A	Sandy clay, clay. Seasonal wetlands.	Oct-Dec	Low
<i>Stylidium striatum</i>	P4	-	P	Brown clay over laterite on hill slopes.	Oct-Nov	Low
<i>Verticordia lindleyi</i> subsp. <i>Lindleyi</i>	P4	-	P	Sand and sandy clay in winter wet areas.	May or Nov-Jan	Low
Note: CR=critically endangered, EN=endangered, VU=vulnerable, P1=Priority 1, P2=Priority 2, P3=Priority 3, P4=Priority 4, P=perennial, PG=perennial geophyte, A=annual.						

Appendix B

Flora Species Inventory





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Family	Status	Species
Amaranthaceae	*	<i>Amaranthus viridis</i>
	*	<i>Atriplex prostrata</i>
		<i>Suaeda australis</i>
Anacardiaceae	*	<i>Schinus terebinthifolia</i>
Apiaceae		<i>Apium prostratum</i> subsp. <i>prostratum</i> var. <i>prostratum</i>
Araliaceae	*	<i>Schefflera arboricola</i>
Araucariaceae	*	<i>Araucaria heterophylla</i>
Arecaceae	*	<i>Arecaceae</i> sp.
	*	<i>Phoenix canariensis</i>
	*	<i>Syagrus romanzoffiana</i>
	*	<i>Washingtonia filifera</i>
Asphodelaceae	PI	<i>Xanthorrhoea</i> sp.
Asteraceae	*	<i>Erigeron</i> sp.
	*	<i>Hypochaeris glabra</i>
	*	<i>Lactuca serriola</i>
	*	<i>Ursinia anthemoides</i>
Bignoniaceae	*	<i>Jacaranda mimosifolia</i>
Boraginaceae		<i>Heliotropium curassavicum</i>
Casuarinaceae		<i>Casuarina ?cunninghamiana</i>
		<i>Casuarina obesa</i>
	PI	<i>Casuarina</i> sp.
Cyperaceae		<i>Bolboschoenus caldwellii</i>
	*	<i>Cyperus ?tenuiflorus</i>
	*	<i>Cyperus congestus</i>
	*	<i>Cyperus polystachyos</i>
		<i>Lepidosperma longitudinale</i>
		<i>Schoenoplectus tabernaemontani</i>
Fabaceae		<i>Acacia saligna</i>
	*	<i>Acacia iteaphylla</i>
		<i>Kennedia prostrata</i>
	*	<i>Tipuana tipu</i>
	*	<i>Trifolium michelianum</i>
		<i>Viminaria juncea</i>
Fabaceae	*	<i>Erythrina indica</i>



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Juncaceae	<i>Juncus kraussii</i>
Malvaceae	* <i>Brachychiton populneus</i>
	* <i>Malva sp.</i>
Moraceae	* <i>Ficus macrophylla</i>
Myrtaceae	Pl <i>Agonis flexuosa</i>
	Pl <i>Callistemon sp.</i>
	<i>Corymbia calophylla</i>
	* <i>Corymbia citriodora</i>
	* <i>Corymbia cladocalyx</i>
	* <i>Eucalyptus ?leptopoda</i>
	* <i>Eucalyptus botryoides</i>
	* <i>Eucalyptus camaldulensis</i>
	* <i>Eucalyptus cladocalyx</i>
	Pl <i>Eucalyptus gomphocephala</i>
	* <i>Eucalyptus grandis</i>
	* <i>Eucalyptus leucoxylon</i>
	* <i>Eucalyptus maculata</i>
	<i>Eucalyptus rudis</i>
	* <i>Eucalyptus sideroxylon</i>
	* <i>Eucalyptus sp.</i>
	<i>Melaleuca raphiophylla</i>
	* Myrtaceae sp.
Onagraceae	* <i>Oenothera drummondii</i>
Pinaceae	* <i>Pinus sp.</i>
Plantaginaceae	* <i>Plantago lanceolata</i>
Plantanaceae	* <i>Platanus xhispanica</i>
Poaceae	* <i>Avena barbata</i>
	* <i>Bambusa sp.</i>
	* <i>Briza maxima</i>
	* <i>Cenchrus ciliaris</i>
	* <i>Cortaderia selloana</i>
	* <i>Cynodon dactylon</i>
	* <i>Ehrharta calycina</i>
	* <i>Ehrharta longiflora</i>
	* <i>Eragrostis curvula</i>
	* <i>Melinis repens</i>
	* <i>Paspalum dilatatum</i>
	* <i>Paspalum vaginatum</i>
	* <i>Setaria verticillata</i>
Polygonaceae	



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	* <i>Persicaria ?decipiens</i>
	* <i>Polygonum aviculare</i>
Rosaceae	
	* <i>Rosa sp.</i>
Solanaceae	
	* <i>Solanum nigrum</i>
Tamaricaceae	
	* <i>Tamarix aphylla</i>
Typhaceae	
	<i>Typha sp.</i>

*=non-native, Pl=planted

Appendix C

Conservation Significant Communities Likelihood of Occurrence





Code	Community name	TEC/ PEC	Level of significance		Likelihood of occurrence
			State	EPBC Act	
SCP10a	Shrublands on dry clay flats (floristic community type 10a as originally described in Gibson et al. (1994))	TEC	EN	CR	Low
SCP07	Herb rich saline shrublands in clay pans (floristic community type 7 as originally described in Gibson et al. (1994))	TEC	VU	CR	Low
Tuart woodlands	Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain	TEC/ PEC	P3	CR	Low
SCP3a	<i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils, Swan Coastal Plain (floristic community type 3a as originally described in	TEC	CR	EN	Moderate
SCP3c	<i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands, Swan Coastal Plain (floristic community type 3c as originally described in Gibson et al. (1994))	TEC	CR	EN	Moderate
SCP20c	Shrublands and woodlands of the eastern side of the Swan Coastal Plain (floristic community type 20c as originally described in Gibson et al. (1994))	TEC	CR	EN	Low
SCP20b	<i>Banksia attenuata</i> and/or <i>Eucalyptus marginata</i> woodlands of the eastern side of the Swan Coastal Plain (floristic community type 20b as originally described in Gibson et al. (1994))	TEC	EN	EN	Low
SCP20a	<i>Banksia attenuata</i> woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994))	TEC	EN	EN	Low
Muchea Limestone	Shrublands and woodlands on Muchea Limestone of the Swan Coastal Plain	TEC	EN	EN	Low
Banksia WL SCP	<i>Banksia</i> Woodlands of the Swan Coastal Plain ecological community	TEC/ PEC	P3	EN	Low
Coastal Saltmarsh	Subtropical and Temperate Coastal Saltmarsh	TEC/ PEC	P3	VU	High
SCP02	Southern wet shrublands, Swan Coastal Plain (floristic community type 2 as originally described in Gibson et al. (1994))	TEC	EN	-	Low
SCP3b	<i>Corymbia calophylla</i> - <i>Eucalyptus marginata</i> woodlands on sandy clay soils of the southern Swan Coastal Plain (floristic community type 3b as originally described in Gibson et al. (1994))	TEC	VU	-	Moderate
SCP22	<i>Banksia ilicifolia</i> woodlands	PEC	P3	-	Low
SCP21c	Low lying <i>Banksia attenuata</i> woodlands or shrublands	PEC	P3	-	Low
SCP23b	Swan Coastal Plain <i>Banksia attenuata</i> - <i>Banksia menziesii</i> woodlands	PEC	P3	-	Low
Note: TEC=threatened ecological community, PEC=priority ecological community, CR=critically endangered, EN=endangered, VU=vulnerable, P3=priority 3					

Appendix D

Conservation Significant Fauna





**Conservation Significant Fauna Likelihood of Occurrence
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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Birds					
<i>Actitis hypoleucos</i>	Common sandpiper	MI	MI	Edge of sheltered waters salt or fresh, e.g. estuaries, mangrove creeks, rocky coasts, near-coastal saltlakes (including saltwork ponds), river pools, lagoons, claypans, drying swamps, flood waters, dams and sewage ponds. Preferring situations where low perches are available (Johnstone & Storr 1998).	Nil
<i>Anous tenuirostris melanops</i>	Australian lesser noddy	EN	VU	Very common in blue-water seas around the Abrolhos (endemic to this area, accidental occurrences on lower west coast of Australia) (Johnstone and Storr 1998).	Nil
<i>Apus pacificus</i>	Pacific swift	MI	MI	Aerial, migratory species that is most often seen over inland plains and sometimes above open areas, foothills or in coastal areas. Sometimes occurs over settled areas, including towns, urban areas and cities (Pizzey & Knight 2012).	Moderate
<i>Botaurus poiciloptilus</i>	Australasian bittern	EN	EN	In or over water, in tall reedbeds, sedges, rushes, cumbungi, lignum. Also occurs in ricefields, drains in tussocky paddocks and occasionally in saltmarshes and brackish wetlands (TSSC 2019).	Negligible
<i>Cacatua pastinator pastinator</i>	Muir's corella	CD	-	Wheat and sheep farming country with remnant native forest. Species is restricted to the south-west corner of WA, near Lake Muir (DPaW 2015).	Nil



**Conservation Significant Fauna Likelihood of Occurrence
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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	VU (MI)	VU (MI)	Occurs in tidal mudflats, saltmarshes and mangroves, as well as, shallow fresh, brackish or saline inland wetlands. It is also known from floodwaters, irrigated pastures and crops, sewage ponds, saltfields (Pizzey & Knight 2012).	Nil
<i>Calidris alba</i>	Sanderling	MI	MI	Mainly steeply shelving sandy beaches exposed to ocean swell. Also sandy inlets, estuarine sandbanks and near-coastal saltlakes (including saltwork ponds) (Johnstone & Storr 1998).	Nil
<i>Calidris canutus</i>	Red knot	EN	EN (MI)	Mud and sand flats in estuaries and on sheltered coasts. Also near-coastal saltlakes, including saltwork ponds (Pizzey & Knight 2012).	Nil
<i>Calidris ferruginea</i>	Curlew sandpiper	CR	CR (MI)	Mainly shallows of estuaries and near-coastal saltlakes (including saltwork ponds) and drying near-coastal freshwater lakes and swamps. Also beaches and near-coastal sewage ponds (Johnstone & Storr 1988).	Negligible
<i>Calidris melanotos</i>	Pectoral sandpiper	MI	MI	Mainly fresh waters (swamps, lagoons, river pools, irrigation channels and sewage ponds); also samphire flats around estuaries and saltlakes (Johnstone & Storr 1998).	Nil
<i>Calidris ruficollis</i>	Red-necked stint	MI	MI	Tidal mudflats, saltmarshes, sandy or shelly beaches, saline and freshwater wetlands (coastal and inland), saltfields, sewage ponds (Pizzey and Knight 2012).	Moderate



**Conservation Significant Fauna Likelihood of Occurrence
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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Calidris subminuta</i>	Long-toed stint	MI	MI	Mainly freshwater swamps (especially when drying and where vegetation is short), river pools, lagoons and claypans; also brackish pools, sewage ponds and samphire flats around estuaries and saltlakes (Johnstone & Storr 1988).	Nil
<i>Calidris tenuirostris</i>	Great knot	CR	CR (MI)	Mud or sand flats in estuaries and on sheltered coasts. Also near-coastal saltlakes, including saltwork ponds (Johnstone & Storr 1988).	Negligible
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	VU	VU	Eucalypt and Corymbia forests, often in hilly interior. More recently also observed in more open agricultural and suburban areas including Perth metropolitan area. Attracted to seeding Corymbia calophylla, Eucalyptus marginata, introduced Melia azedarach and Eucalyptus spp. trees (Johnstone et al. 2013).	High
<i>Charadrius leschenaultii</i>	Great sand plover	VU	VU (MI)	Wide sandy or shelly beaches, sandpits, tidal mudflats, reefs, sand cays, mangroves, saltmarsh, dune wilderness, bare paddocks, seldom far inland (Pizzey & Knight 2012).	Negligible
<i>Dasyornis longirostris</i>	Western bristlebird	EN	EN	Dense, low, closed coastal heaths. Open heaths with dense clumps of shrubs, eucalypt thickets and tall swampy heaths. Much reduced by fire, draining for agriculture, but may need fire for optimal status over 50-10+ years. Current range in WA confined to south coast from Albany to Hopetoun (Pizzey and Knight 2012).	Nil



**Conservation Significant Fauna Likelihood of Occurrence
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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Diomedea amsterdamensis</i>	Amsterdam Island albatross	CR	EN (MI)	The Amsterdam albatross is a marine, pelagic seabird. It nests in open patchy vegetation (among tussocks, ferns or shrubs) near exposed ridges or hillocks (Weimerskirch et al. 1985). It sleeps and rests on ocean waters when not breeding (Marchant and Higgins 1990)	Nil
<i>Diomedea epomophora</i>	Southern royal albatross	VU	VU (MI)	Rare visitor to Western Australian seas; it breeds on subantarctic islands south of New Zealand (Johnstone and Storr 1998).	Nil
<i>Diomedea exulans</i>	Wandering albatross	VU	VU (MI)	Marine, pelagic and aerial species. It breeds on Macquarie Island and feeds in Australian portions of the Southern Ocean (DoE 2018).	Nil
<i>Elanus scriptus</i>	Letter-winged kite	P4	-	Open to sparsely wooded country and grassland near tree-lined streams or watercourses (Johnstone and Storr 1998).	Nil
<i>Falco hypoleucos</i>	Grey falcon	VU	-	Species occurs in arid and semi-arid Australia, where it inhabits timbered lowland plains. In particular Acacia shrublands and that are crossed by tree-lined water courses. Species has also been observed hunting in treeless areas and frequenting tussock grassland and open woodlands (TSSC 2020).	Nil
<i>Falco peregrinus</i>	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes (Johnstone and Storr 1998).	Moderate



Conservation Significant Fauna Likelihood of Occurrence
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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Hydroprogne caspia</i>	Caspian tern	MI	MI	Mainly sheltered areas, estuaries (when not laden with silt) and tidal creeks; occasionally near-coastal saltlakes (including saltwork ponds) and brackish pools in lower courses of rivers; rarely fresh waters (DCCEEW 2023).	Negligible
<i>Ixobrychus dubius</i>	Australian little bittern	P4	-	Dense vegetation surrounding/within freshwater pools, swamps and lagoons, well screened with trees. Shelters in dense beds of Typha spp., Baumea spp. and tall rushes in freshwater swamps around lakes and along rivers (Johnstone and Storr 1998).	Negligible
<i>Ixobrychus flavicollis australis</i>	Black bittern	P2	-	Freshwater pools, swamps and lagoons, well-screened with trees. Occasionally feeding by day but mainly sheltering in dense waterside vegetation (Melaleuca spp., Eucalyptus camaldulensis, Pandanus spp. and long grass) (Johnstone and Storr 1998).	Nil
<i>Leipoa ocellata</i>	Malleefowl	VU	VU	Scrubs and thickets of Eucalyptus spp., Melaleuca lanceolata and Acacia linophylla; also other dense litter-forming shrublands. Attracted to fallen wheat in stubbles and along roads (Johnstone and Storr 1998).	Nil
<i>Limosa lapponica</i>	Bar-tailed godwit	MI	MI	Estuarine sand and mudflats and sandy beaches with loads of seaweed; also reef flats and near-coastal saltlakes (including saltwork and sewage ponds) (Johnstone and Storr 1998).	Nil



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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Limosa limosa</i>	Black-tailed godwit	EN MI	EN (MI)	Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures, airfields (Pizzey & Knight 2012).	Nil
<i>Macronectes giganteus</i>	Southern giant-petrel	MI	EN (MI)	Breeds on southern subantarctic and antarctic islands. May visit Western Australian waters from February to December (mostly June to September) (Johnstone and Storr 1998).	Nil
<i>Macronectes halli</i>	Northern giant petrel	MI	VU (MI)	Breeds on subantarctic islands. May visit Western Australian water from February to September (Johnstone and Storr 1998).	Nil
<i>Numenius madagascariensis</i>	Eastern curlew	CR	CR (MI)	Mainly tidal mudflats; also reef flats, sandy beaches and rarely near-coastal lakes (including saltwork ponds) (Johnstone and Storr 1998).	Nil
<i>Oxyura australis</i>	Blue-billed duck	P4	-	Mainly deeper freshwater swamps and lakes; occasionally saltlakes and estuaries freshened by flood waters (Johnstone and Storr 1998).	High
<i>Pachyptila turtur subantarctica</i>	Fairy prion	-	VU	Breeds on subantarctic islands and is presumed to frequent subtropical waters during non-breeding period (TSSC 2015).	Nil
<i>Pandion haliaetus</i>	Osprey	MI	MI	Coasts, estuaries, bays, inlets, islands, and surrounding waters; coral atolls, reefs, lagoons, rock cliffs, stacks (Pizzey & Knight 2012).	High



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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Phoebastria fusca</i>	Sooty albatross	EN	VU (MI)	Marine, pelagic species that tolerates a wide range of sea surface temperatures and salinities. breeds on subtropical and subantarctic islands in the Indian and Atlantic Oceans, on vegetated cliffs and steep slopes that are sheltered from prevailing winds, often amongst tussock grass (Pizzey & Knight 2012).	Nil
<i>Platycercus icterotis xanthogenys</i>	Western rosella (inland)	P4	-	Open eucalypt woodlands with heath understorey (Pizzey & Knight 2012).	Negligible
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI	Well-vegetated wetlands, wet pasture, ricefields, floodwaters, floodplains, brackish or occasionally saline wetlands, mangroves, mudflats and occasionally dry grassland (Pizzey & Knight 2012).	Moderate
<i>Pluvialis fulva</i>	Pacific golden plover	MI	MI	Estuaries, mudflats, saltmarshes, mangroves; rocky reefs and stranded seaweed on ocean shores; margins of shallow open inland swamps; sewage ponds, short-grass paddocks, sportsgrounds, airfields, ploughed land (Pizzey & Knight 2012).	Nil
<i>Pluvialis squatarola</i>	Grey Plover	VU (MI)	VU (MI)	Mudflats, saltmarsh, tidal reefs and estuaries, rarely inland (Pizzey and Knight 2012).	Negligible
<i>Rostratula australis</i>	Australian painted snipe	EN	EN	Mainly shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans (Marchant and Higgins 1993).	Negligible
<i>Sternula nereis nereis</i>	Australian fairy tern	VU	VU	Sheltered blue-water seas close to land, estuaries (when free of silt) and near-coastal lakes (Johnstone and Storr 1998).	Negligible



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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Thalassarche cauta</i>	Shy albatross	VU	VU (MI)	Scarce visitor (late May to mid-October) to southwestern and western seas. Breeds on islands off Tasmania and south New Zealand (Johnstone and Storr 1998).	Nil
<i>Thalassarche impavida</i>	Campbell albatross	VU	VU (MI)	Scarce visitor to south-western and western Australian seas. Breeds on Campbell Island (Pizzey & Knight 2012).	Nil
<i>Thalassarche melanophris</i>	Black-browed albatross	EN	VU (MI)	Seas of south and west coasts. Visitor to Western Australian mainland from January to early November (mostly May to September). Breeds on southern subantarctic and Antarctic islands (Johnstone and Storr 1998).	Nil
<i>Thalassarche steadi</i>	White-capped albatross	VU	VU (MI)	Scarce visitor (late May to mid-October) to southwestern and western seas. Breeds on islands off Tasmania and south New Zealand (Johnstone and Storr 1998).	Nil
<i>Thalasseus bergii</i>	Crested tern	MI	MI	Mainly blue-water seas (especially within 3 km of land), including southern estuaries in summer and autumn (when free of silt); also tidal creeks in north, but not penetrating far into larger estuaries (DCCEEW 2023).	Moderate
<i>Tringa glareola</i>	Wood sandpiper	MI	MI	Mainly shallow fresh waters (lagoons, swamps, claypans, river pools, dams, bore overflows and sewage ponds); occasionally brackish swamps, rarely saltlakes and estuaries (Pizzey & Knight 2012).	Nil



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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Tringa nebularia</i>	Common greenshank	EN (MI)	EN (MI)	Mudflats, estuaries, saltmarshes, margins of lakes, wetlands, claypans (fresh and saline), commercial saltfields, sewage ponds (Pizzey & Knight 2012).	Nil
<i>Tyto novaehollandiae novaehollandiae</i>	Australian masked owl	P3	-	Forests, open woodlands, farmlands with large trees. E.g. river red gums, adjacent cleared country, timbered watercourses, paperbark woodlands and caves (Pizzey & Knight 2012).	Nil
<i>Zanda baudinii</i>	Baudin's black cockatoo	EN	EN	Mainly eucalypt forests. Attracted to seeding <i>Corymbia calophylla</i> , <i>Banksia</i> spp., <i>Hakea</i> spp., and to fruiting apples and pears (Johnstone and Storr 1998).	Negligible
<i>Zanda latirostris</i>	Carnaby's black cockatoo	EN	EN	Mainly proteaceous scrubs and heaths and adjacent eucalypt woodlands and forests; also plantations of <i>Pinus</i> spp. Attracted to seeding <i>Banksia</i> spp., <i>Hakea</i> spp., <i>Eucalyptus</i> spp., <i>Corymbia calophylla</i> , <i>Grevillea</i> spp., and <i>Allocasuarina</i> spp. (Johnstone and Storr 1998).	High
Invertebrates					
<i>Euoplos inornatus</i>	Inornate trapdoor spider	P3	-	Has previously been recorded in jarrah forest, including near clay banks and granite outcrop. Most records are from the Darling scarp/Jarrah Forest Region, with limited records from the Swan Coastal Plain (DBCA 2020).	Nil
<i>Hylaeus globuliferus</i>	Woollybush bee	P3	-	Males are territorial and may be found perched on the growing tips of <i>Adenanthos</i> sp., <i>Banksia</i> sp. or <i>Jacksonia</i> sp. Has also been recorded visiting the flowers of <i>Grevillea</i> sp. (PaDIL 2022).	Nil



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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	P3	-	Widely distributed in sandy areas on the Swan Coastal Plain and on Rottnest Island (Prince 2003). Species predominantly recorded from remnant banksia woodland vegetation and heath on sandy soils (Rix et. al 2018).	Negligible
<i>Leioproctus contrarius</i>	a short-tongued bee	P3	-	Life history and habits are poorly documented/ unknown. It has been recorded only on flowers of Goodeniaceae and possibly Lechenaultia stenosepala (Bamford 2003).	Nil
<i>Leioproctus douglasiellus</i>	a short-tongued bee	EN	CR	Life history and habits are poorly documented/ unknown. It has been recorded only on the flowers of Goodenia filiformis and Anthotium junciforme (Houston 2000).	Negligible
<i>Neopasiphae simplicior</i>	a short-tongued bee	EN	CR	This species of native bee has been collected on flowers of Goodenia filiformis, Lobelia tenuior, Angianthus preissianus and Velleia sp. (Houston 2000).	Nil
<i>Synemon gratiosa</i>	Graceful sun-moth	P4	-	Coastal heathland on Quindalup dunes where it is restricted to secondary sand dunes due to the abundance of the preferred host plant Lomandra maritima. Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant L. hermaphrodita is widespread (DEC 2011).	Negligible



**Conservation Significant Fauna Likelihood of Occurrence
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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Westralunio carteri</i>	Carter's freshwater mussel	VU	VU	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots. Also occupies lentic systems including large water supply dams and even on-stream farm dams. Salinity tolerance quite low (Morgan et al. 2011).	Nil
Mammals					
<i>Bettongia penicillata ogilbyi</i>	Woylie	CR	EN	Woodlands and adjacent heaths with a dense understorey of shrubs, particularly <i>Gastrolobium</i> spp. (TSSC 2018).	Nil
<i>Dasyurus geoffroii</i>	Chuditch	VU	VU	Wide range of habitats from woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. Appears to utilise native vegetation along roadsides in the wheatbelt (DEC 2012).	Low
<i>Dasyurus hallucatus</i>	Northern quoll	EN	EN	Most abundant in rocky eucalypt woodland but occurs in range of vegetation types, mostly within 200 km of the coast (Menkhorst & Knight 2011).	Nil
<i>Falsistrellus mackenziei</i>	Western false pipistrelle	P4	-	High rainfall forests dominated by jarrah, karri, marri, and tuart. Occupies hollow logs for breeding and resting (Van Dyck and Strahan 2008). Also known to utilise <i>Banksia</i> woodland on the Swan Coastal Plain (Hosken and O'Shea 1995).	Nil



**Conservation Significant Fauna Likelihood of Occurrence
Perth Racing Golden Gateway Structure Plan**

Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Hydromys chrysogaster</i>	Rakali	P4	-	Areas with permanent water, fresh, brackish or marine. Likely to occur in all major rivers and most of the larger streams as well as bodies of permanent water in the lower south-west (Christensen et al. 1984). Intact riparian vegetation and associated bank stability is critical to their survival (DWER 2023).	Moderate
<i>Isoodon fusciventer</i>	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high (DEC 2012)	Moderate
<i>Macrotis lagotis</i>	Bilby	VU	VU	Open tussock grassland on uplands and hills, mulga woodland/shrubland growing on ridges and rises and hummock grassland (spinifex) growing on sandplains and dunes, drainage systems, salt lake systems and other alluvial areas (DBCA 2017).	Nil
<i>Myrmecobius fasciatus</i>	Numbat	EN	EN	Generally dominated by Eucalyptus spp. that provide hollow logs and branches for shelter and termites for food (van Dyck & Strahan 2008).	Nil
<i>Notamacropus irma</i>	Western brush wallaby	P4	-	Dry sclerophyll forest, Banksia spp. woodlands and shrublands, typically favouring dense low vegetation that provides dense cover (Christensen and Strahan 1983).	Negligible
<i>Phascogale tapoatafa wambenger</i>	South-western brush-tailed phascogale	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover (Triggs 2003).	Negligible



**Conservation Significant Fauna Likelihood of Occurrence
Perth Racing Golden Gateway Structure Plan**

Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Pseudocheirus occidentalis</i>	Western ringtail possum	CR	CR	On the Swan Coastal Plain in <i>Agonis flexuosa</i> woodlands and <i>Agonis flexuosa</i> / <i>Eucalyptus gomphocephala</i> forests. Also <i>Eucalyptus marginata</i> forests (DBCWA 2017).	Nil
Reptiles					
<i>Ctenotus delli</i>	Dell's skink	P4	-	Jarrah and marri woodland with a shrub dominated understorey, sheltering in dense vegetation, inside grass trees and beneath rocks, sometimes in burrows (Nevill 2005).	Nil
<i>Ctenotus gemmula</i>	-	P3	-	Pale soils supporting heathlands and usually in association with <i>Banksia</i> spp. (Bush et al. 2010)	Nil
<i>Ctenotus ora</i>	Coastal plains skink	P3	-	Sandy substrates with low vegetation (including heath) in open <i>Eucalyptus</i> spp. and <i>Corymbia calophylla</i> woodland over <i>Banksia</i> spp. (Kay and Keogh 2012).	Nil
<i>Lerista lineata</i>	Perth slider	P3	-	Sandy coastal heath and low scrubland. <i>Banksia</i> spp. woodland, <i>Eucalyptus gomphocephala</i> open woodland over deep sands, and coastal dunes immediately adjacent to the beach (Wilson and Swan 2021).	Nil
<i>Neelaps calonotos</i>	Black-striped snake	P3	-	Coastal and near-coastal dunes, sandplains supporting heathlands and <i>Banksia</i> spp. woodlands (Bush et al. 2010).	Negligible
<i>Pseudemydura umbrina</i>	Western swamp tortoise	CR	CR	Clay based ephemeral swamps (Bush et al. 2010).	Negligible



**Conservation Significant Fauna Likelihood of Occurrence
Perth Racing Golden Gateway Structure Plan**

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Species name	Common name	Level of		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Pseudonaja affinis exilis</i>	Rottnest Island dugite	P4	-	Subspecies found on Rottnest Island. Found in a wide range of habitats including coastal dunes, heathlands, scrublands, and woodlands, but tend to prefer sandy areas. More urban spaces that have been degraded also make an attractive habitat for these shy reptiles, with golf courses, industrial parks and agricultural country among areas listed as potential home environments (Wilson and Swan 2021).	Nil
Note: CR=critically endangered, EN=endangered, VU=vulnerable, CD=conservation dependent, MI=migratory, OS=other specially protected, P1=Priority 1, P2=Priority 2, P3=Priority 3, P4=Priority 4. Species with a high or moderate likelihood to occur within the site are shaded green.					



Conservation Significant Fauna Likelihood of Occurrence Perth Racing Golden Gateway Structure Plan

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Conservation Significant Fauna Likelihood of Occurrence Perth Racing Golden Gateway Structure Plan

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Appendix E

Black Cockatoo Foraging Plant Species List





Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Acacia baileyana</i>	Cootamundra wattle	Secondary	-	-	Groom 2011
<i>Acacia pentadenia</i>	Karri wattle	Secondary	-	-	Groom 2011
<i>Acacia saligna</i>	Orange wattle	Secondary	-	-	Groom 2011
<i>Agonis flexuosa</i>	Peppermint tree	Secondary	-	-	Groom 2011
<i>Allocasuarina fraseriana</i>	Sheoak	Secondary	Secondary	Secondary	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Johnstone 2017; DoEE 2017
<i>Allocasuarina spp.</i>		Secondary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Anigozanthos flavidus</i>	Tall kangaroo paw	-	Secondary	-	Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017
<i>Araucaria heterophylla</i>	Norfolk island pine	Secondary	-	-	Groom 2011; DoEE 2017
<i>Banksia ashbyi</i>	Ashby's banksia	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia attenuata</i>	Slender banksia	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia baxteri</i>	Baxter's banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia carlinoides</i>	Pink dryandra	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia coccinea</i>	Scarlet banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia dallanneyi</i>	Couch honeypot dryandra	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia ericifolia</i>	Heath-leaved banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia fraseri</i>		Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia gardneri</i>	Prostrate banksia	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia grandis</i>	Bull banksia	Primary	Secondary	-	Saunders 1980; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia hookeriana</i>	Hooker's banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia ilicifolia</i>	Holly banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; Johnstone & Storr 1998; DoEE 2017
<i>Banksia kippistiana</i>		Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia leptophylla</i>		Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia lindleyana</i>	Porcupine banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Banksia littoralis</i>	Swamp banksia	Primary	Secondary	-	Saunders 1980; Groom 2011; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Banksia menziesii</i>	Firewood banksia	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia mucronulata</i>	Swordfish dryandra	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia nivea</i>	Honeypot dryandra	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia nobilis</i>	Golden dryandra	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia praemorsa</i>	Cut-leaf banksia	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia prionotes</i>	Acorn banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia prolata</i>		Primary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Banksia quercifolia</i>	Oak-leaved banksia	Primary	Secondary	-	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia sessilis</i>	Parrot bush	Primary	Secondary	-	Saunders 1980; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia speciosa</i>	Showy banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia spp.</i>		Primary	Secondary	-	Saunders 1979; DSEWPac 2012; DoEE 2017
<i>Banksia squarrosa</i>	Pingle	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia tricuspis</i>	Pine banksia	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia undata</i>	Urchin dryandra	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia verticillata</i>	Granite banksia	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Brassica campestris</i>	Canola	Secondary	-	-	Groom 2011; DoEE 2017
<i>Callistemon spp.</i>		Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Callistemon viminalis</i>	Captain cook bottlebrush	Secondary	-	-	Groom 2011
<i>Callitris sp.</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Carya illinoensis</i>	Pecan	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; Groom 2014; DoEE 2017
<i>Casuarina cunninghamiana</i>	River sheoak	Secondary	-	-	Groom 2011
<i>Citrullus lanatus</i>	Pie or afghan melon	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Corymbia calophylla</i>	Marri	Primary	Primary	Primary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017; Johnstone 2017; Saunders 1979; Johnstone & Kirkby 2008
<i>Corymbia citriodora</i>	Lemon scented gum	Secondary	Secondary	Secondary	Johnstone <i>et al.</i> 2010; DSEWPac 2012; Groom 2011; Johnstone 2017
<i>Corymbia ficifolia</i>	Red flowering gum	Secondary	-	-	Groom 2011
<i>Corymbia haematoxylon</i>	Mountain marri	Secondary	-	Secondary	Groom 2011; DoEE 2012; DoEE 2017
<i>Corymbia maculata</i>	Spotted gum	-	-	-	-
<i>Darwinia citriodora</i>	Lemon-scented darwinia	Secondary	Secondary	-	Groom 2011; Johnstone <i>et al.</i> 2010
<i>Diospyros sp.</i>	Sweet persimmon	Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eremophila glabra</i>	Tarbush	Secondary	-	-	Groom 2011
<i>Erodium aureum</i>		Secondary	-	-	Groom 2011
<i>Erodium botrys</i>	Long storksbill	Secondary	Secondary	-	Groom 2011; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010
<i>Erodium spp.</i>		Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Eucalyptus caesia</i>	Silver princess	Secondary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017; Johnstone 2017
<i>Eucalyptus camaldulensis</i>	River red gum	-	-	Secondary	DoEE 2012; DoEE 2017
<i>Eucalyptus decipiens</i>	Red heart/moit	-	-	Secondary	Johnstone 2017
<i>Eucalyptus diversicolor</i>	Karri	-	-	Primary	Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017; Johnstone & Storr 1998
<i>Eucalyptus erythrocorys</i>	Illyarrie	Secondary	-	Secondary	DSEWPac 2012; DoEE 2017; Johnstone 2017, Johnstone <i>et al.</i> 2010
<i>Eucalyptus gomphocephala</i>	Tuart	Secondary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eucalyptus grandis</i>	Flooded gum, rose gum	-	-	Secondary	DoEE 2012; DoEE 2017
<i>Eucalyptus lehmannii</i>	Bushy yate	-	-	Secondary	Johnstone 2017
<i>Eucalyptus leucoxylon</i>	Yellow gum	Secondary	-	-	Groom 2014



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Eucalyptus loxophleba</i>	York gum	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eucalyptus marginata</i>	Jarrah	Primary	Secondary	Primary	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017; Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone 2017
<i>Eucalyptus patens</i>	Blackbutt	Primary	-	Primary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017; Johnstone 2017; Groom 2011
<i>Eucalyptus pleurocarpa</i>	Tallerack	Secondary	-	-	Groom 2011
<i>Eucalyptus preissiana</i>	Bell-fruited mallee	Secondary	-	-	Groom 2011
<i>Eucalyptus robusta</i>	Swamp mahogany	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Eucalyptus salmonophloia</i>	Salmon gum	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DSEWPac 2012; DoEE 2017
<i>Eucalyptus staeri</i>	Albany blackbutt	-	-	Secondary	Johnstone & Storr 1998
<i>Eucalyptus todtiana</i>	Coastal blackbutt	Secondary	-	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; Johnstone & Kirkby 2008
<i>Eucalyptus wandoo</i>	Wandoo	Primary	Secondary	Primary	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Ficus sp.</i>	Fig	Secondary	-	-	Groom 2011
<i>Grevillea armigera</i>	Prickly toothbrushes	Primary	-	-	Groom 2011
<i>Grevillea bipinnatifida</i>	Fuschia grevillea	Primary	-	-	Groom 2011
<i>Grevillea hookeriana</i>	Red toothbrushes	Primary	-	-	Groom 2011
<i>Grevillea hookeriana subsp. apiculata</i>	Black toothbrushes	Primary	-	-	Groom 2011
<i>Grevillea paniculata</i>	Kerosene bush	Primary	-	-	Groom 2011
<i>Grevillea paradoxa</i>	Bottlebrush grevillea	Primary	-	-	Groom 2011
<i>Grevillea petrophiloides</i>	Pink poker	Primary	-	-	Groom 2011
<i>Grevillea robusta</i>	Silky oak	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Grevillea spp.</i>		Primary	-	-	Saunders 1979; Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017
<i>Grevillea wilsonii</i>	Native fuchsia	-	Secondary	-	Johnstone <i>et al.</i> 2010
<i>Hakea auriculata</i>		Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea candolleana</i>		Primary	-	-	Groom 2011
<i>Hakea circumalata</i>	Coastal hakea	Primary	-	-	Groom 2011
<i>Hakea commutata</i>		Primary	-	-	Groom 2011
<i>Hakea conchifolia</i>	Shell-leaved hakea	Primary	-	-	Groom 2011
<i>Hakea costata</i>	Ribbed hakea	Primary	-	-	Groom 2011
<i>Hakea cristata</i>	Snail hakea	Primary	Secondary	-	Groom 2011; Johnstone <i>et al.</i> 2010
<i>Hakea cucullata</i>	Snail hakea	Primary	-	-	Groom 2011
<i>Hakea cyclocarpa</i>	Ramshorn	Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea eneabba</i>		Primary	-	-	Groom 2011
<i>Hakea erinacea</i>	Hedgehog hakea	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea falcata</i>	Sickle hakea	Primary	-	-	Groom 2011
<i>Hakea flabellifolia</i>	Fan-leaved hakea	Primary	-	-	Groom 2011
<i>Hakea gilbertii</i>		Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea incrassata</i>	Golfball or marble hakea	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea lasiantha</i>	Woolly flowered hakea	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea lasianthoides</i>		Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea laurina</i>	Pin-cushion hakea	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea lissocarpa</i>	Honeybush	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea marginata</i>		-	Secondary	-	Johnstone <i>et al.</i> 2010
<i>Hakea megalosperma</i>	Lesueur hakea	Primary	-	-	Groom 2011
<i>Hakea multilineata</i>	Grass leaf hakea	Primary	-	-	Groom 2011
<i>Hakea neospathulata</i>		Primary	-	-	Groom 2011
<i>Hakea obliqua</i>	Needles and corks	Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea oleifolia</i>	Dungyn	Primary	-	-	Groom 2011



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Hakea pandanica</i> subsp. <i>crassifolia</i>	Thick-leaved hakea	Primary	-	-	Groom 2011
<i>Hakea petiolaris</i>	Sea urchin hakea	Primary	-	-	Groom 2011
<i>Hakea polyanthema</i>		Primary	-	-	Groom 2011
<i>Hakea preissii</i>	Needle tree	Primary	-	-	Groom 2011
<i>Hakea prostrata</i>	Harsh hakea	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea psilorrhyncha</i>		Primary	-	-	Groom 2011
<i>Hakea ruscifolia</i>	Candle hakea	Primary	Secondary	-	Saunders 1980; Groom 2011; Johnstone <i>et al.</i> 2010
<i>Hakea scoparia</i>	Kangaroo bush	Primary	-	-	Groom 2011
<i>Hakea smilacifolia</i>		Primary	-	-	Groom 2011
<i>Hakea</i> spp.		Primary	Secondary	-	Saunders 1979; DSEWPac 2012; DoEE 2017
<i>Hakea stenocarpa</i>	Narrow-fruited hakea	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea sulcata</i>	Furrowed hakea	Primary	-	-	Groom 2011
<i>Hakea trifurcata</i>	Two-leaved hakea	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea undulata</i>	Wavy-leaved hakea	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea varia</i>	Variable-leaved hakea	Primary	Secondary	-	Saunders 1980; Groom 2011
<i>Harpephyllum caffrum</i>	Kaffir plum	-	-	Secondary	Johnstone 2017
<i>Helianthus annuus</i>	Sunflower	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hibiscus</i> sp.	Hibiscus	Secondary	-	-	Groom 2011
<i>Isopogon scabriusculus</i>		Secondary	-	-	Groom 2011
<i>Jacaranda mimosifolia</i>	Jacaranda	Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Jacksonia furcellata</i>	Grey stinkwood	Secondary	-	-	Groom 2011
<i>Kingia australis</i>	Kingia	-	Secondary	-	Johnstone <i>et al.</i> 2010
<i>Lambertia inermis</i>	Chittick	Secondary	-	-	Johnstone & Storr 1998; Groom 2011
<i>Lambertia multiflora</i>	Many-flowered honeysuckle	Secondary	-	-	Saunders 1980; Groom 2011



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Liquidamber styraciflua</i>	Liquid amber	Primary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; Groom 2014; Personal observation
<i>Lupinus sp.</i>	Lupin	Secondary	-	-	Saunders 1980; Groom 2011
<i>Macadamia integrifolia</i>	Macadamia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Grooms 2011; Groom 2014
<i>Malus domestica</i>	Apple	Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; Johnstone & Storr 1998; DSEWPaC 2012; DoEE 2017; Groom 2011
<i>Melaleuca leuropoma</i>		Secondary	-	-	Saunders 1980; Groom 2011
<i>Melia azedarach</i>	Cape lilac or white cedar	Secondary	-	Primary	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Mesomeleana spp.</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Olea europea</i>	Olive	-	-	Secondary	Johnstone 2017
<i>Persoonia longifolia</i>	Snottygobble	-	-	Secondary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone <i>et al.</i> 2010; DSEWPaC 2012; DoEE 2017
<i>Pinus canariensis</i>	Canary island pine	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Pinus caribea</i>	Caribbean pine	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Pinus pinaster</i>	Pinaster or maritime pine	Primary	-	-	Groom 2011
<i>Pinus radiata</i>	Radiata pine	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Pinus spp.</i>		Primary	Secondary	-	Johnstone & Storr 1998; Saunders 1979; Johnstone <i>et al.</i> 2010; DSEWPaC 2012; DoEE 2017
<i>Protea 'Pink Ice'</i>		Secondary	-	-	Groom 2011
<i>Protea repens</i>		Secondary	-	-	Groom 2011
<i>Protea spp.</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010
<i>Prunus amygdalus</i>	Almond tree	Secondary	-	-	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Pyrus communis</i>	European pear	-	Secondary	-	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; DSEWPaC 2012; DoEE 2017
<i>Quercus spp.</i>	Oak	-	Secondary	-	Johnstone <i>et al.</i> 2010



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Raphanus raphanistrum</i>	Wild radish	Secondary	-	-	Groom 2011; DoEE 2017
<i>Reedia spathacea</i>		-	Secondary	-	Johnstone <i>et al.</i> 2010
<i>Rumex hypogaeus</i>	Doublegee	Secondary	-	-	Saunders 1980
<i>Stenocarpus sinuatus</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010
<i>Syzygium smithii</i>	Lilly pilly	Secondary	-	-	Groom 2014
<i>Tipuana tipu</i>	Tipu or rosewood tree	Primary	-	-	Groom 2011, Groom 2014
<i>Xanthorrhoea preissii</i>	Grass tree	Secondary	Secondary	-	Groom 2011; Johnstone <i>et al.</i> 2010
<i>Xylomelum occidentale</i>	Woody pear	Secondary	-	-	Groom 2014

CBC=Carnaby's black cockatoo, BBC=Baudin's black cockatoo and FRTBC=Forest red-tailed black cockatoo

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Appendix E

Local Water Management Strategy (Emerge Associates 2024b)



Local Water Management Strategy

Ascot Racecourse Local Structure Plan

Project No: EP23-109(03)

**Prepared for Perth Racing
July 2024**

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Document Control

Doc name: Local Water Management Strategy Ascot Racecourse Local Structure Plan					
Doc no.: EP23-109(03)--001B JM					
Version	Date	Author		Reviewer	
1	May 2024	Joyti Mabruk	JM	David Coremans	DPC
	For project team review				
A	May 2024	Joyti Mabruk	JM	David Coremans	DPC
	For submission to Agencies				
B	July 2024	Joyti Mabruk	JM	David Coremans	DPC
	For submission to Agencies				

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Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Executive Summary

Perth Racing (the ‘proponent’) proposes to progress a local structure plan (LSP) over its landholdings in Ascot. The area is bounded by the Swan River to the North, Grandstand Road to the west and south, Matheson Road and Resolution Drive to the south and residential areas to the east, referred to herein as ‘the site’. The structure plan area also includes the existing Ascot Racecourse. The site is located approximately 8.5 km east of Perth central business district (CBD) and is approximately 62 ha in size, within City of Belmont (CoB). The LSP consists of six precincts: Precinct A, Precinct B (largely unchanged from existing), Precinct C, Precinct D, Precinct E, and the racecourse. The layout of LSP and precinct plan is shown on **Figure 1** and provided in **Appendix A**. The site is currently zoned “Urban”, “Parks and Recreation”, and “Private Recreation” under the Metropolitan Regional Scheme (MRS) (WAPC 2023b). Under the Local Planning Scheme (LPS) No. 15 (WAPC 2023a), the site is zoned as “RC – Place of Public Assembly: Racecourse”, Mixed Use”, “Parks and Recreation” and “Parks and Recreation: Water Supply Sewerage and Drainage”.

This Local Water Management Strategy (LWMS) outlines the water management approach as required for the site by *Better Urban Water Management* (WAPC 2008b) and supports the Ascot Racecourse Structure Plan. It is intended to satisfy the expectations of the Department of Water and Environmental Regulation (DWER) and City of Belmont (CoB). The LWMS also aids in achieving the goals and objectives outlined in the *Kep Katitjin – Gabi Kaadadjan – Waterwise Perth Action Plan 2* (DWER 2023d).

The first step in applying integrated water cycle management in urban catchments is to establish agreed environmental values for receiving environments. In summary, the environmental investigations conducted to date indicate that:

- The site is being used for horse racing, mixed uses (i.e. car park, stables and entertainment/hospitality venues, and commercial). Some portions of the site are only used infrequently (e.g. for parking or events).
- The site is located in an area of moderate to high rainfall, receiving 756.3 mm on average annually with the majority of rainfall received between June and August.
- The majority of the site has a relatively flat topography of 1 mAHD at the northwest (along the Swan River) and 2 mAHD to the south and rising to 7 mAHD to the east of the site.
- The site is within the Swan River Terraces system and displays Guildford formation soils of alluvial and leached yellow sand described as:
 - **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, fine sand, hard when dry, variable clay content of alluvial origin
 - **Ms4** – Sandy Silt: light yellow brown, blocky, mottled some fine to medium sand, soft when moist, variable clay content
 - **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin
- The groundwater depth below the surface of Precinct A varies from 1.09 m mBGL to 2.37 mBGL (Douglas Partners 2024).
- The highest groundwater level beneath the site is reported 3.03 mBGL during February 2024 (Galt 2024), located beneath Precinct D.

Local Water Management Strategy

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- Most of the site is considered to have a high to moderate risk of ASS occurring, however some portions of Precinct B, Precinct C and the Racecourse are considered to have a moderate to low risk of ASS occurring within the 3 m of the natural surface.
- The northern portion of the site along the Swan River is identified as an ESA.
- The entirety of the site is classified as a SSA and classified as:
 - a) Estuary catchments on the Swan and Scott Coastal Plains.
 - f) The area is <1 km up-groundwater-gradient and 250 m down-gradient of a significant wetland; or where the groundwater gradient is unknown within 1 km of the significant wetland.
- The following wetlands are located within the site and these are classified as:
 - Multiple Use category wetland (MUW) area (UFI 8424, UFI 8425, UFI 8426).
 - Resource Enhancement wetland (REW) area (UFI 8423).
- The dominant hydrological feature of the site is the Swan River estuary. The northern boundary of the site falls within the Swan Canning Development Control Area (DCA) (CoB 2018) and Swan Canning River Park.
- The floodway of the Swan River is immediately adjacent to but not within the site. The 1% AEP flood elevation of the Swan River adjacent to the site is 2.8 mAHd.
- There are two existing major drainage network systems within or adjacent to the site include:
 - The Central Belmont Main Drain (CBMD), managed by the Water Corporation. This currently receives runoff from Precinct C (via the CoB drainage network) and Precinct E.
 - The CoB local piped drainage network, which exists along Matheson Road, Grandstand Road and the northern portion of Resolution Drive.
- There are three lakes (Irrigation Lake, Lined Lake and Wetland Lake) located within the centre of the racecourse. These are understood to receive runoff from the Grandstand buildings in Precinct B and stables/buildings in Precinct C.
- The groundwater beneath the site is a multi-layered system consisting of the Superficial, Kings Park Formation, Leederville and Yarragadee aquifers.
- Regional groundwater mapping indicates that the groundwater levels across the site are at approximately 0.5 m AHD.
- Local groundwater level monitoring indicates that annual maximum groundwater levels (recorded in August 2022) were measured at 1.26 m AHD and 1.70 m AHD at Bore 1 and Bore 2 respectively. Groundwater levels in adjacent areas included Precinct A levels at 1.09 mBGL to 2.37 mBGL and Precinct D levels of approximately 3.03 mBGL.
- Water quality monitoring indicates that EC, TDS and pH values do not exceed guideline trigger values. However, TN and TP concentrations continually exceed the ANZECC guideline trigger value of 1.2 mg/L and 0.065 mg/L respectively.

The design criteria and the manner in which they are proposed to be achieved are presented in **Table E1**.

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Table E1: Water management criteria and compliance summary

Management Aspect	Criteria Number	Criteria Description	Manner in which compliance will be achieved	Responsibility for implementation	Timing of implementation
Water Conservation	WC1	For residential dwellings consumption target of 60 kL/person/year scheme water.	Provide advice to Precinct A and Precinct D residents on water conservation measures	Proponent	Point of sale
			RWTs can be utilised for non-potable uses	Lot owner	Post-house construction
			Promotion and use of WWG in lots within Precinct D and other open spaces across all precincts	Proponent/Lot owner	Point of sale/Post-house construction
			Promotion and use of water efficient appliances within Precinct A and Precinct D	Proponent/Lot owner	Point of sale/Post-house construction
			Mandate water efficient fittings within Precinct A and Precinct D	CoB	Building approval
	WC2	Ensure the efficient use of all water resources.	Use of waterwise landscaping principles in all open spaces and verges	Proponent	Landscape design
			Open spaces designed to use no more than allocated groundwater		
			Minimise water requirements for open spaces and verge maintenance		
			Use of water efficient appliances within Precinct A and Precinct D	Lot owner	Post-house construction
			Use of WWG principles within Precinct A and Precinct D		
	WC3	Non-potable irrigation water to be sourced from existing groundwater licences held over the area.	The proponent holds a groundwater Licence with an allocation of 347,000 kL per annum which will meet the irrigation requirements of the racecourse.	Proponent	Landscape design

Local Water Management Strategy

Ascot Racecourse Local Structure Plan



Table E1: Water management criteria and compliance summary (Continued)

Management Aspect	Criteria Number	Criteria Description	Manner in which compliance will be achieved	Responsibility for implementation	Timing of implementation
Stormwater Management	SW1	Retain and treat the first 15 mm of rainfall as close to source as possible	Lots within Precinct D and Precinct E to retain the first 15 mm of rainfall on lot in soakwells/soakage. Lot storage will be the responsibility of the lot owners.	Lot owner/developer	Construction
	SW2	Retain up to 1% AEP rainfall event on-site.	Runoff up to the 1% AEP to be detained within the FSA in Precinct A. Precinct A and a portion of Precinct C will ultimately discharge to the centre of the track.	Proponent	Construction
			Runoff up to 1% AEP to be managed with the sub-surface storage in Precinct D.	Proponent	Construction
	SW3	Post-development critical 1% AEP peak flows leaving the site to mimic pre-development peak flows.	Runoff up to 1% AEP event to be detained in the detention basin and subsurface storage which will maintain the pre-development peak flow of 0.95 m ³ /s from Precinct E and 0.463 m ³ /s from Precinct D respectively.	Proponent	Construction
	SW4	Finished floor levels must have a minimum of 300 mm clearance above the 1% AEP TWL in the FSA.	It is anticipated that the FSA and detention basin invert will be set so that the Finished floor levels must have a minimum of 300 mm clearance above the 1% AEP TWL in the basins.	Proponent	Detailed drainage design
	SW5	All lots must have a minimum of 500 mm clearance above the 1% AEP flood level in the Swan River.	The 1% AEP flood level in the Swan River is 2.8 mAHD. The preliminary bulk earthworks concept provided in shows that finished floor level will be at 4.0 mAHD.	Proponent	Detailed drainage design
	SW6	Nutrient concentrations within surface water discharging from the site to the Swan River are to meet regional water quality targets.	BRA will be designed so that after treatment the nutrient concentrations within surface water meet the regional water quality target.	Proponent	Detailed drainage design
	SW7	Reduce nutrient loads by applying appropriate non-structural measures	<ul style="list-style-type: none"> • Minimise use of fertilisers within POS and road verges. • Street sweeping at regular intervals. • Use of drought tolerant turf species. • Education of residents regarding fertiliser use 	Landscape/Maintenance Contactor/Proponent	Landscape Implementation/ Point of Sale
	SW8	Design infiltration areas to avoid creating mosquito habitat	Stormwater infrastructure will be designed to ensure all runoff is infiltrated within 96 hours.	Proponent	Detailed drainage design

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Table E1: Water management criteria and compliance summary (Continued)

Management Aspect	Criteria Number	Criteria Description	Manner in which compliance will be achieved	Responsibility for implementation	Timing of implementation
Groundwater Management	GW1	Surface based infiltration should have 300 mm clearance above MGL.	Basin inverts will be set at 300 mm above the MGL, and subsoil drainage will be provided in the POS.	Proponent	Detailed drainage design
	GW2	Finished floor levels should have a clearance to the MGL of at least 1.2 m.	Lots will be set at least 1.2 m above the MGL.	Proponent	Detailed drainage design

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Appendices

Appendix A

Concept plan

Appendix B

Geotechnical Reports

Appendix C

Preliminary Civil Drawing

Appendix D

Modelling Assumption Report

Appendix E

Central Belmont Main Drain Water Corporation

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Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
ANZECC	Australian and New Zealand Environment and Conservation Council
BoM	Bureau of Meteorology
DBCA	Department of Biodiversity, Conservation and Attractions
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
CoB	City of Belmont
WC	Water Corporation of Western Australia (Water Corp)

Table A2: Abbreviations – General terms

General terms	
AEP	Annual exceedance probability
ASS	Acid sulfate soils
CCW	Conservation category wetland
CEMP	Construction Environmental Management Plan
DCA	Development Control Area
DMP	Drainage management plan
EC	Electrical conductivity
FMP	Foreshore management plan
LWMS	Local Water Management Strategy
MGL	Maximum groundwater level
MRS	Metropolitan Region Scheme
NWQMS	National Water Quality Management Strategy
POS	Public open space
SCWQIP	Swan and Canning Water Quality Improvement Plan
SRA	Swan River Alluvium
TDS	Total dissolved solids
TEC	Threatened ecological community
TKN	Total Kjeldahl nitrogen
TN	Total nitrogen
TP	Total phosphorus
TSS	Total suspended solids

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General terms	
TWL	Top water level
UFI	Unique feature identifier
UWMP	Urban Water Management Plan
WSUD	Water sensitive urban design
WWG	Water wise gardening

Table A3: Abbreviations – units of measurement

Units of measurement	
cm	centimetre
ha	hectare
m	metre
m ²	square metre
m ³	cubic metre
m ³ / s	cubic metres per second
mAHD	metres in relation to the Australian height datum
mBGL	metres below ground level
mm	millimetre
mS / cm	millisiemens per centimetre
µg/L	micrograms per litre
mg / L	milligrams per litre

Table A4: Terminology – design rainfall

Rainfall event	Annual exceedance probability (AEP)	Approximate equivalent average recurrence interval (ARI)
Small	1 exceedance year (EY) event (frequent)	1 in 1 year ARI event
Minor (residential purposes)	20% AEP event	1 in 5 year ARI event
Minor (commercial purposes)	10% AEP event	1 in 10 year ARI event
Major	1% AEP event	1 in 100 year ARI event

Local Water Management Strategy

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1 Introduction

1.1 Background

Perth Racing (the 'proponent') proposes to progress a local structure plan (LSP) over its landholdings in Ascot. The area is bounded by the Swan River to the North, Grandstand Road to the west and south, Matheson Road and Resolution Drive to the south and residential areas to the east, referred to herein as 'the site'. The structure plan area also includes the existing Ascot Racecourse and Perth Racing Administration lot/building on Grandstand Road. The site is located approximately 8.5 km east of Perth central business district (CBD) and is approximately 62 ha in size, within City of Belmont (CoB). The LSP consists of six precincts: Precinct A, Precinct B, Precinct C, Precinct D, Precinct E, and the racecourse. The layout of LSP and precinct plan is shown on **Figure 1** and provided in **Appendix A**.

1.2 Town planning context

The site is currently zoned "Urban", "Parks and Recreation", and "Private Recreation" under the Metropolitan Regional Scheme (MRS) (WAPC 2023b). Under the Local Planning Scheme (LPS) No. 15 (WAPC 2023a), the site is zoned as "RC – Place of Public Assembly: Racecourse", "Mixed Use", "Parks and Recreation" and "Parks and Recreation: Water Supply Sewerage and Drainage".

1.3 Purpose of this report

This Local Water Management Strategy (LWMS) outlines the water management approach as required for the site by *Better Urban Water Management* (WAPC 2008b) and supports the Ascot Racecourse Structure Plan. It is intended to satisfy the expectations of the Department of Water and Environmental Regulation (DWER) and CoB. The LWMS also aids in achieving the goals and objectives outlined in the *Kep Katitjin – Gabi Kaadadjan – Waterwise Perth Action Plan 2* (DWER 2023d).

1.4 Policy Framework

There are a number of State Government legislation and policies of relevance to the site. These policies include:

- *Kep Katitjin – Gabi Kaadadjan – Waterwise Perth Action Plan 2* (DWER 2023d)
- *Swan and Canning Rivers Management Act 2006* (Government of WA 2006)
- *Policy 49 – Planning for stormwater management affecting the Swan Canning Development Control Area* (DPaW 2016)
- *Local Planning Scheme No. 15 (City of Belmont)* (WAPC 2023a)
- *State Water Plan* (Government of WA 2007)
- *Draft State Planning Policy 2.9: Planning for Water Guidelines* (DPLH 2021)
- *State Planning Policy 2.10 Swan Canning River System* (WAPC 2006b)
- *Guidance Statement No. 33: Environmental Guidance for Planning and Development* (EPA 2008)
- *Liveable Neighbourhoods* (WAPC 2009a)
- *Planning Bulletin No. 64: Acid Sulfate Soils* (WAPC 2009b)

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In addition to the above policies, there are a number of published guidelines and standards available that provide direction regarding the water management characteristics that urban developments should aim to achieve. These are key inputs that relate either directly or indirectly to the site and include:

- *Better Urban Water Management* (WAPC 2008b)
- *Urban Water Management Plans: Guidelines for Preparing Plans and for Complying with Subdivision Conditions* (DoW 2008)
- *National Water Quality Management Strategy (NWQMS)* (ANZECC 2000)
- *Australian Runoff Quality* (Wong et al. 2006)
- *National Water Quality Management Strategy* (ANZECC 2000)
- *Stormwater Management Manual for Western Australia* (DoW 2007)
- *Decision Process for Stormwater Management in Western Australia* (DWER 2017)
- *Australian Rainfall and Runoff* (Ball J et al. 2019)
- *Swan and Canning Water Quality Improvement Plan* (SCWQIP) (SWT 2009)
- *Swan and Canning Rivers Foreshore Assessment and Management Strategy* (SRT 2008)
- *Golden Gateway Structure Plan* (CoB 2019).

1.5 Previous Studies

1.5.1 Golden Gateway Local Water Management Strategy

The draft Golden Gateway LWMS (Essential Environmental 2018b) was prepared to support the Golden Gateway Structure Plan (CoB 2019) by Essential Environmental. The LWMS was prepared in consideration of *Better Urban Water Management* (WAPC 2008b) and *State Planning Policy 2.9: Water Resources* (WAPC 2006a). The key objectives and design criteria of the draft LWMS (Essential Environmental 2018b) included:

Water Conservation:

- Ensure the efficient use of all water resources in the redeveloped urban form and aim to achieve highest value use of fit-for-purpose water.
- Maintain opportunities for future generations by using water more efficiently.

Stormwater management:

- The first 15 mm of rainfall is to be retained within all lots through a combination of raingardens, water tanks and soakwell systems.
- Raingardens and tree-pits are to be installed in all new or upgraded streets to provide infiltration of the first 15 mm of rainfall.
- Minor event runoff from events larger than 15mm total depth are to be managed in accordance with serviceability requirements of the City of Belmont.
- Roads and public open spaces are to be designed to cater for the surface overflow for more severe storm events with habitable floors at least 0.3 m above the 1% AEP flood or storage level at any location.
- Habitable floors are to be constructed at least 0.5m above the 1% AEP flood level in the Swan River adjacent to the development area.

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- Water quality treatment systems and stormwater management structures should be designed in accordance with the *Stormwater Management Manual for Western Australia* (DoW 2007) and *Australian Runoff Quality: A guide to water sensitive urban design* (Wong et al. 2006).

Groundwater management:

- Groundwater management systems are to be designed as free discharging under normal operating conditions.
- Flows from groundwater management systems are to be treated prior to discharge.

1.6 LWMS objectives

Whilst the criteria proposed in the Golden Gateway LWMS are relevant to some parts of the Ascot Racecourse structure plan area, it is not representative of all areas and site characteristics and therefore only partially applicable. This LWMS supports the Ascot Racecourse Structure Plan, which proposes an alternate layout (to the Golden Gateway Structure Plan) to some of the land uses surrounding the Ascot Racecourse. The design criteria and objectives proposed in this LWMS are generally based on those proposed in the Golden Gateway LWMS, though with additional consideration for site and Precinct- specific characteristics. This LWMS adopts the following major objectives:

- Protect water quality in the Swan River by providing appropriate water quality treatment at source.
- Mitigate potential flooding within the Structure Plan area and immediate surrounds.
- Take account of existing drainage infrastructure capacity and ensure that sufficient land is set aside to manage stormwater.
- Provide a broad level stormwater management framework to support future urban development.
- Incorporate appropriate best management practices (BMPs) into the drainage systems that address the environmental and stormwater management issues identified.
- Minimise development construction costs, which will result in reduced land costs for future home owners.
- Minimise transport of nutrients/pollutants to groundwater.
- Develop a non-potable water conservation strategy that will accommodate existing groundwater allocation constraints for the area.
- Gain support from DWER, DBCA, CoB and Water Corporation for the proposed method to manage stormwater within the site.

Detailed objectives for water management within the site are further discussed in **Section 4**.

2 Proposed Development

A total of approximately 62.0 ha is proposed to be developed as shown on **Figure 1**. The Ascot Racecourse Structure Plan proposes six precincts with different objectives and character, and these include:

- **Precinct A** – Approximately 3.0 ha for retirement living/village and mixed use purposes
- **Precinct B** – Approximately 9.3 ha for the use of public assembly (i.e. entertainment/office purposes)
- **Precinct C** – Approximately 8.0 ha for the use of public assembly (i.e. racecourse/stabling purposes)
- **Precinct D** – Approximately 1.5 ha for residential/childcare purposes
- **Precinct E** – Approximately 4.2 ha for mixed use (i.e. commercial/retail purposes)
- **The Racecourse** – Approximately 36.0 ha of retained 'Place of Public Assembly: Racecourse' uses.

The proposed land uses surrounding Ascot Racecourse will be integrated into the Racecourse Precinct. Management of surface and groundwater will take a water sensitive urban design (WSUD) approach that will integrate the management of water within the Precincts with the Racecourse and immediately surrounding infrastructure.

The WSUD measures that will be adopted within the Structure Plan area will include:

- Bio-retention areas (BRAs) to meet water quality treatment requirements
- Subsurface infiltration cells that will facilitate at-source infiltration
- Flood storage integrated into existing surface water bodies located centrally within the Racecourse
- Flood storage areas (FSAs) to provide flood detention, retention and infiltration as close to source as possible.

The WSUD approaches are further discussed in **Section 6**. The detailed concept plan and preliminary civil drawings are provided in **Appendix A** and **Appendix C**.

3 Pre-development Environment

3.1 Sources of information

The following sources of information were used to provide a broad regional environmental context for the site:

- *Geological Survey of Western Australia* (Gozzard 2007)
- *Map Viewer Plus* (Landgate 2023)
- *Water Register* (DWER 2024c)
- *Perth Groundwater Map* (DWER 2024a)
- *Weather and Climate Statistics Data* (BoM 2024)
- *Acid Sulfate Soil Mapping* (DWER 2023a)
- *Water Information Reporting* (DWER 2024b).

In addition to the above information, site-specific investigations have been conducted. These have aimed at providing more detail to the existing regional information. These site-specific investigations and information have been available from the following sources:

- *Draft Golden Gateway Structure Plan* (CoB 2019)
- *Draft Golden Gateway LWMS* (Essential Environmental 2018b)
- *Draft Golden Gateway Environmental Report* (Essential Environmental 2018a)
- *Draft Infrastructure Assessment Report : Golden Gateway Precinct* (Cardno 2017)
- *Swan and Canning Water Quality Improvement Plan* (SCWQIP) (SWT 2009)
- *Swan and Canning Rivers Foreshore Assessment and Management Strategy* (SRT 2008).

3.2 Land use context

The site has been used as the Ascot Racecourse since 1892 (Landgate 2023). The northeast portion of the site is being used for horse racing and training purposes and the surrounding area is being used for stabling, training and entertainment venues which support the above purposes. Some portions of the site are predominantly cleared (e.g. Precinct A, Precinct E) and are occasionally used for parking or other temporary uses. The Precinct D area is used for commercial purposes, being the current Perth Racing administration building.

3.3 Climate

The site experiences a dry Mediterranean climate of hot dry summers and cool wet winters and is located in an area of moderate to high rainfall, receiving 756.3 mm on average annually with the majority of rainfall received between June and August (BoM 2024). The region experiences rainfall for 84.8 days annually (on average).

3.4 Topography

The site is mostly flat with a slight downward slope from east to north and northwest, with a few low points. The variance in topography of the Precincts is described further as:

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- The Racecourse slopes from Precinct C towards the Swan River with topography approximately 7 m Australian Height Datum (mAHD) to 1m AHD and from 7 mAHD (east) to 3 mAHD (west). There are a few local depressions (i.e., lakes and swale) observed within the centre of the racecourse.
- Precinct A has a generally flat topography of 2 mAHD with a high point of 3 mAHD to the west adjacent to Grandstand Road.
- Precinct B slopes from south to north (4 mAHD to 2 mAHD) and from west to east (3 mAHD to 2 mAHD). Precinct D and E are generally flat with a topography of 3 mAHD and 2 mAHD respectively.
- Parts of Precinct C (existing stables and buildings) drain towards the Racecourse, however most of Precinct C is currently carpark that drains towards Precinct E and the Southern Main Drain.
- Precinct D is generally flat with a topographic level 3 mAHD.
- Precinct E has a gentle slope from east to west. The topography of the precinct ranges from 4 mAHD to the east to 2 mAHD to the west.

The topographic contours of the site are shown on **Figure 2**.

3.5 Geotechnical conditions

3.5.1 Geology and soils

The Perth Metropolitan Region 1:50,000 Environmental Geology Series (Gozzard 1986) and *Sea to scarp - geology, landscape, and land use planning in the southern Swan Coastal Plain* (Gozzard 2011) describes that the site lies in the Swan River Terraces system, being underlain by the Guildford formation of alluvial and leached yellow sand. The regional geological mapping indicates that the site soils include:

- **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, fine sand, hard when dry, variable clay content of alluvial origin
- **Ms4** – Sandy Silt: light yellow brown, blocky, mottled some fine to medium sand, soft when moist, variable clay content
- **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin

The regional geological mapping is shown on **Figure 3**.

3.5.2 Precinct A geotechnical investigation

A detailed geological investigation has been carried out in January 2024 (Douglas Partners 2024) for Precinct A (see **Appendix B**). This investigation generally confirms the regional geological mapping, and the ground conditions of Precinct A are described as:

- Uncontrolled Fill
 - Granular FILL - SAND, Organic SAND, Gravelly SAND, Silty SAND and Sandy GRAVEL
 - Cohesive FILL - Clayey SAND, Sandy CLAY, CLAY
- Overlying natural soils includes
 - Clayey soils including Clayey SAND and CLAY
 - Sandy soils including SAND and Silty SAND

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Douglas Partners (2024) concluded that if unmodified, Precinct A is considered unsuitable for on-site stormwater disposal due to the low permeability soils and shallow groundwater depth. To meet geotechnical requirements, stormwater should be managed by connecting to a suitable outflow (Douglas Partners 2024).

3.5.3 Precinct D geotechnical investigation

Galt has undertaken a geotechnical study in March 2024 (Galt 2024) for Precinct D (provided in **Appendix B**) and has described the Precinct D ground conditions as:

- **Surficial Topsoil** (in landscaped areas) up to 0.3 m thick and **Hardstand Fill Layers** (in carparks and access ways); overlying
- **FILL: SAND / SAND (SP)**, fine to medium grained, sub-rounded to sub-angular, yellow / brown / grey layers, includes trace gravel / Sandy GRAVEL layers, trace / with fines, some typically medium dense to dense, extending to depths of about 0.4 m to 0.9 m; overlying
- **In BH03 and BH04 only: Silty SAND / Clayey SAND (SM/SC)** fine to medium grained, sub-rounded to sub-angular, brown / grey, low to medium plasticity fines, some typically medium dense to dense, extending to depths of about 0.7 m to 1.2 m; overlying
- **Sandy CLAY / CLAY (CI)**, medium plasticity, brown / orange / grey, trace sand to sandy, trace gravel in some zones, desiccated, CPT traces indicate presence of occasional sand layers, typically very stiff to hard, extending to the maximum depth investigated of 10 m.

Whilst detailed geotechnical investigations have not been undertaken in each Precinct, it is expected that the soils encountered will be generally consistent with regional geological mapping and the investigations undertaken for Precincts A and D and will consist of generally shallow layers of sand overlying sandy clay of the Guildford formation. Such soils are unlikely to be suitable for onsite infiltration of all stormwater and onsite detention unless modified and stormwater management will need to be supplied with an outlet so that flood storage areas have a way to drain between storm events.

3.5.4 Acid sulfate soils

The acid sulfate soil (ASS) risk mapping (DWER 2023b) indicates that most of the site is considered to have a high to moderate risk of ASS occurring within the 3 m of the natural surface. Some portions of Precinct B, Precinct C and the Racecourse are mapped to have a moderate to low risk of ASS occurring within the 3 m of the natural surface.

The ASS risk mapping is shown on **Figure 4**.

3.6 Environmental assets

3.6.1 Environmentally sensitive area

The northern portion of the site (along the Swan River) is identified as an environmentally sensitive area (ESA). ESAs are shown on **Figure 5**.

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3.6.2 Sewerage sensitive area

The entirety of the site is classified as a sewage sensitive area (SSA) by the *Government Sewerage Policy* (DPLH 2019). The two classifications of relevance to the site define a SSA as:

- a) Estuary catchments on the Swan and Scott Coastal Plains.
- f) The area is <1 km up-groundwater-gradient and 250 m down-gradient of a significant wetland; or where the groundwater gradient is unknown within 1 km of the significant wetland.

3.6.3 Geomorphic wetlands

The *Geomorphic Wetlands of the Swan Coastal Plain* dataset indicates the following wetlands within the site:

- Multiple Use Category Wetland (MUW) area (UFI 8424, UFI 8425, UFI 8426).
- Resource Enhancement Wetland (REW) area (UFI 8423)

The Swan River, situated immediately adjacent to the northern boundary of the site, is recognised as a "Conservation Category Wetland" (CCW) (UFI 1316 - Estuary waterbody) within the *Geomorphic Wetlands of the Swan Coastal Plain* dataset and has additional significant ecological, cultural and heritage values (DEC 2011).

The location of the geomorphic wetlands is shown on **Figure 5**.

3.7 Hydrology

3.7.1 Surface water

3.7.1.1 Water Resources

The dominant hydrological feature of the site is the Swan River estuary. The estuary is subject to marked seasonality, which controls the salinity of the site, and particularly the foreshore area. This seasonality is a result of the short winter rainfall patterns, a small tidal range and the landform of the estuary (Hodgkin and John 1986).

The northern boundary of the site falls within the Swan Canning Development Control Area (DCA) (CoB 2018) and Swan Canning River Park (shown on **Figure 6**). Any proposed development on land adjacent river within the DCA and/or partly within DCA are subject to assessed and approved by the Department of Biodiversity, Conservation and Attraction (DBCA) under Part 5 of the *Swan and Canning Rivers Management Act 2006* and the *Swan and Canning River Management Regulations 2007* (CoB 2018).

Water management strategies will be needed to ensure protection (i.e. water quality improvement) of the Swan River. The catchments of the Swan Canning River system are the subject of the Swan Canning Water Quality Improvement Plan (SRT 2009) which contains catchment management measures and control actions.

The major event flood levels in the Swan River have been documented in recent studies undertaken on behalf of DWER (DWER 2023c). These flood levels, along with the extent of floodway/floodplain

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are shown in the DWER online floodplain mapping tool. This tool indicates that the anticipated 1% AEP flood level adjacent to the site is 2.8 mAHD – noting that this level includes consideration for future climate change. The extent of floodway/floodplain from the Swan River adjacent to the site is shown on **Figure 6**.

3.7.1.2 Lakes

There are three lakes within the racecourse including:

- **Irrigation lake** – located adjacent to the Production Bore 1 (PB01) and has a volume of 6,000 m³ to 7,000 m³. Water is pumped out from PB01 into the lake, and irrigation water is drawn from the Irrigation Lake. During winter the Irrigation Lake overflows into the adjacent Lined Lake. The current irrigation demand for the Racecourse is approximately 3,000 m³/day, there is no shortage of irrigation water supply as the lake has sufficient storage capacity. The top water level (TWL) of the Irrigation Lake is approximately 3.1 mAHD.
- **Lined Lake** – this Lake is sealed with a natural clay liner and fed via a 225 mm overflow pipe from the Irrigation Lake. The Lined Lake overflows into the Wetland Lake. The elevation of the Lined Lake is approximately 2.1 mAHD.
- **Wetland lake** – is the largest of the three lakes and has approximately 2.6 ha of surface area. The Wetland Lake has a TWL of approximately 0.4 mAHD. Two overflow pipes at the northern end of the Wetland Lake allow excess water within the Lake to flow to the Swan River.

Peak water levels within the Lined Lake and Wetland Lake were predicted for a 10% AEP storm event (Evangelisti & Associates 1997). The peak water level for was 2.68 mAHD in the Lined Lake which then discharged to the Wetland Lake. The Wetland Lake discharged to the Swan River after reaching the peak water level of 0.53 mAHD. The lakes are connected by 450 mm RCP pipes. The outfall into the Swan River is directed via two pipes (450 mm RCP and 375 mm RCP). The pipes are fitted with headwall and tidal control gate to mitigate inundation from the Swan River (Evangelisti & Associates 1997).

The location of the lakes and overflow pipes are shown on **Figure 6**.

3.7.1.3 Drainage network systems

The Central Belmont Main Drain (CBMD) is managed by the Water Corporation and is the regional drainage system and has a catchment area of 189 ha and which discharges into the Swan River. Catchment plans for the CBMD indicate that inflow from the site occurs in the southwestern corner of Precinct E, where an open drain connects to the CBMD at node CAN008 as shown in **Appendix E** and **Figure 6**.

The CoB has a local drainage piped network located beneath Hardey Road adjacent to Precinct C and which discharges to the CBMD within Precinct E. A larger local CoB network extends along Matheson Road to the East. This is currently connected to the 900 mm pipe that discharges northwards to the lined lake within the centre of the racecourse.

CoB local drainage pipes also exist beneath Grandstand Road adjacent to Precinct A however there is no current connection between Precinct A and the local drainage network. The same network also extends past/adjacent to Precinct D along the northern end of Resolution Drive, however there is no

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current connection from Precinct D to the local pipe network. The pipe network along Resolution Drive includes a 450 mm and 525 mm pipe which are understood to discharge into the CBMD. Whilst the CoB catchment has not been modelled to determine peak flows under differing storm durations, an estimate can be made based on the capacity of the pipes which discharge to the CBMD. The combined capacity of the two existing pipes is estimated to be 0.62 m³/s, and therefore the allowable discharge from Precinct C and Precinct E is estimated to be 0.33 m³/s.

Within the Racecourse an existing swale is being used around the racecourse to convey water from the track into the central Wetland Lake.

The location of the swales within the Racetrack Precinct and outlet to Swan River from the Wetland Lake is shown on **Figure 6**.

3.7.2 Groundwater

3.7.2.1 Groundwater Resource

The groundwater beneath the site is a multi-layered system comprised of the following:

City of Bayswater – Perth Superficial Swan unconfined aquifer. The Superficial Aquifer is approximately 20 m thick under the Ascot Racecourse, with the base of the aquifer under the racecourse at approximately - 20 mAHD (Davidson, 1995). The aquifer is recharged directly by rainfall and from the Swan River.

King Park Aquifer. The Kings Park Aquifer is 155 m thick starting from - 20 mAHD and is recharged laterally from the adjacent northern Mirrabooka Aquifer and Superficial Aquifer. The Kings Park Aquifer comprises 2 members: the Mullaloo Sandstone and Como Sandstone. Only the Mullaloo Sandstone member is present at the Ascot site (Davidson, 1995). The Mullaloo Sandstone member is underlain by the Kardinya Shale confining bed of the Osborne Formation.

The groundwater salinity in the aquifer in 1995 was mapped as 500 mg/L to 1,000 mg/L TDS (Davidson, 1995). However, data in recent years indicates the aquifer salinity levels are increasing due to saltwater intrusion.

Perth South – Perth Leederville confined aquifer is below -160 mAHD and is approximately 370 m thick. In the Ascot area the Leederville Aquifer is confined but further to the south and north of Perth it is hydraulically connected to the Superficial Aquifer. The Leederville Aquifer comprises of four formations under the Ascot Racecourse, namely Henley Sandstone, Pinjar Member, Wanneroo Member and the Mariginiup Member.

Groundwater flow is generally westwards through the Leederville Aquifer. Lateral discharge can occur to the Kings Park Aquifer but depends on levels of abstraction in the Leederville Aquifer adjacent to the discharge area.

Generally, groundwater salinity in the Leederville Aquifer can be divided into an upper and a lower zone. The upper zone is generally fresh with salinity ranging from 250 to 1,000 mg/L. Salinity in the lower zone (below -400 mAHD) ranges from 1,000 mg/L to greater than 3,000 mg/L.

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Groundwater is abstracted from an artesian production bore (PB1) assigned to the Leederville Aquifer to meet the irrigation demand of the Racecourse and surrounds. The bore is located adjacent the Irrigation Lake at the south corner of the Ascot Racecourse track. The bore is screen in the upper Leederville Formation which extends between -160 mAHD and -400 mAHD.

The allocation status of aquifers is further discussed in **Section 5.1.2**.

3.7.2.2 Groundwater levels

Perth Groundwater Map indicates (DWER 2023e) that the regional groundwater level sits at 0.5 m AHD across the site. Therefore, the groundwater clearance from southeast to northwest of the site ranges from 6.5 m to 0.5 m.

There are two groundwater level and quality monitoring bores (Bore1 and Bore2) and one production bore (PB1) within the Racecourse (see **Figure 2**) which are monitored by Perth Racing. Groundwater levels in these are monitored monthly.

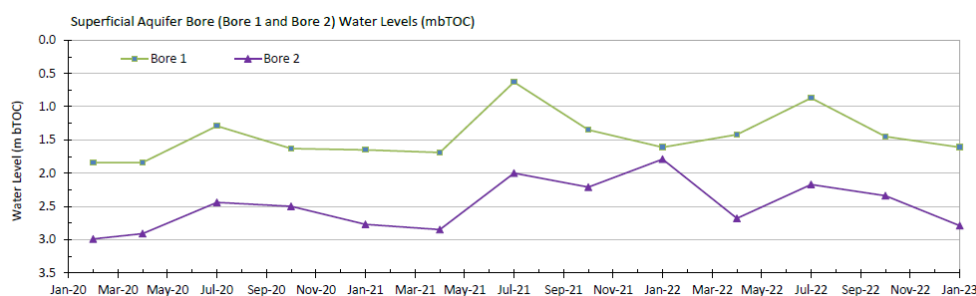


Plate 1: Groundwater levels within the Superficial Aquifer at Bore1 and Bore2 (JDA 2023)

Plate 1 depicts the groundwater levels observed within the Racecourse which clearly indicates the rise and fall of groundwater levels seasonally. The peak groundwater level at Bore 1 and Bore 2 were recorded 1.26 m AHD and 1.70 m AHD respectively, during August 2022.

Monitoring has recently been undertaken within Precinct A. Six monitoring wells were installed for the Precinct A geotechnical investigation. The groundwater depth below the surface of the Precinct A (during January 2024) varied from 1.09 m below ground level (mBGL) to 2.37 mBGL (Douglas Partners 2024).

Monitoring has also recently been undertaken within Precinct D by Galt Geotechnics during the geotechnical investigation. The highest groundwater level beneath Precinct D is reported as 3.03 mBGL during February 2024 (Galt 2024). The various monitoring data/sources have been collated to prepare estimated maximum groundwater contours beneath the site. These have also considered the surface elevation of swales adjacent to the racetrack and the reported TWL of the Wetland Lake. The regional groundwater levels are shown in **Figure 2**, with spot heights recorded at the various locations also provided. It is noted that these do not necessarily represent the annual maximum groundwater levels at all parts of the site given the various timing of measurement of groundwater. Notwithstanding the variability of timing, it is likely that the management of stormwater (and in

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particular infiltration) will more likely be influenced by localised soil conditions than seasonal peak groundwater levels in the superficial aquifer.

3.7.2.3 Groundwater quality

Water quality monitoring was conducted monthly at PB1 and quarterly at Bore1 (JDA 2023). Water quality parameters those were analysed during the monitoring period include:

Monitoring Bore (Bore1)

- EC
- pH
- TDS
- Total phosphorus (TP)
- Filterable Reactive Phosphorus or Phosphorus in Orthophosphate ($\text{PO}_4\text{-P}$)
- Total Nitrogen (TN)
- Nitrogen in Total Oxidised Nitrogen ($\text{NO}_x\text{-N}$)
- Nitrogen in Ammonia ($\text{NH}_3\text{-N}$)
- Total Kjeldahl Nitrogen (TKN)

Production Bore (PB1)

- Electrical conductivity (EC)
- pH
- Total Dissolved Solids (TDS)

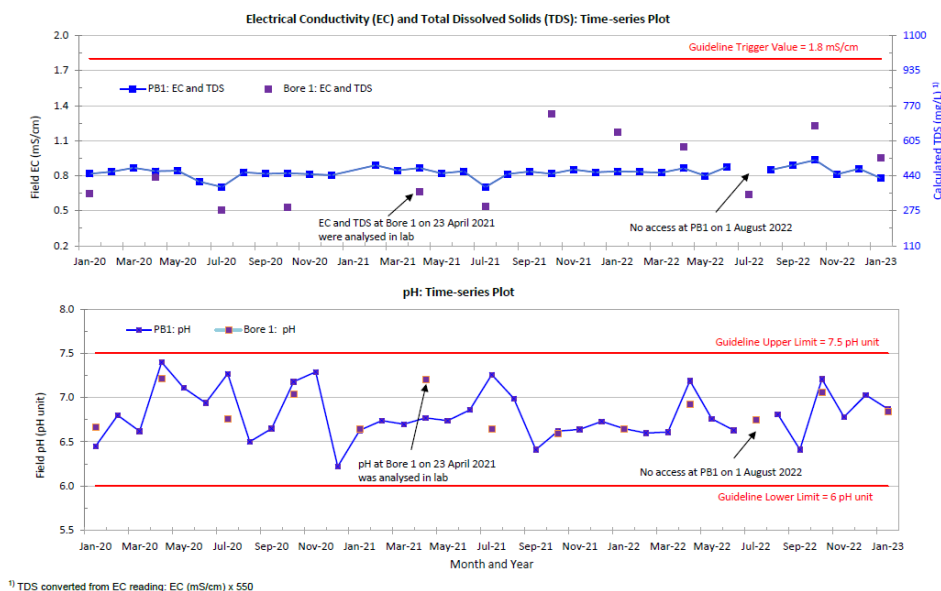


Plate 2: Water Quality (EC, TDS and pH) Monitoring results (JDA 2023)

Plate 2 and **Plate 3** illustrate the water quality of the groundwater within the site is generally consistent over the monitoring periods with typically low variance in parameters tested. EC, TDS and

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pH values did not display any exceedances of the trigger values. However, TN and TP regularly exceeded the ANZECC guideline trigger value of 1.2 mg/L and 0.065 mg/L (respectively). It is also noted a large exceedance in TN occurred in August 2022 however this does not appear to be representative of long-term values.

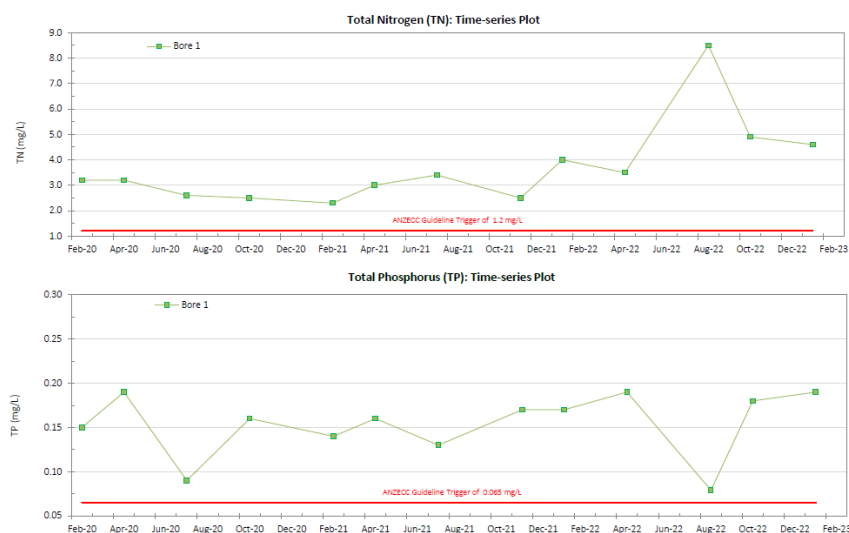


Plate 3: Water Quality (TN and TP) Monitoring results (JDS 2023)

3.8 Summary of existing environment

In summary, the environmental investigations conducted to date indicate that:

- The site is being used for horse racing, mixed uses (i.e. car park, stables and entertainment/hospitality venues, and commercial). Some portions of the site are only used infrequently (e.g. for parking or events).
- The site is located in an area of moderate to high rainfall, receiving 756.3 mm on average annually with the majority of rainfall received between June and August.
- The majority of the site has a relatively flat topography of 1 mAHD at the northwest (along the Swan River) and 2 mAHD to the south and rising to 7 mAHD to the east of the site.
- The site is within the Swan River Terraces system and displays Guildford formation soils of alluvial and leached yellow sand described as:
 - **Ms2** – Sandy Silt: Strong brown to mid grey, mottled, blocky, fine sand, hard when dry, variable clay content of alluvial origin
 - **Ms4** – Sandy Silt: light yellow brown, blocky, mottled some fine to medium sand, soft when moist, variable clay content
 - **S8** – Sand: very light grey at surface, yellow at depth, fine to medium-grained, sub rounded quartz, moderately well sorted of eolian origin
- The groundwater depth below the surface of Precinct A varies from 1.09 m mBGL to 2.37 mBGL (Douglas Partners 2024).

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- The highest groundwater level beneath Precinct D is reported 3.03 mBGL during February 2024 (Galt 2024).
- Most of the site is considered to have a high to moderate risk of ASS occurring, however some portions of Precinct B, Precinct C and the Racecourse are considered to have a moderate to low risk of ASS occurring within the 3 m of the natural surface.
- The northern portion of the site along the Swan River is identified as an ESA.
- The entirety of the site is classified as a SSA and classified as:
 - a) Estuary catchments on the Swan and Scott Coastal Plains.
 - f) The area is <1 km up-groundwater-gradient and 250 m down-gradient of a significant wetland; or where the groundwater gradient is unknown within 1 km of the significant wetland.
- The following wetlands are located within the site and these are classified as:
 - Multiple Use category wetland (MUW) area (UFI 8424, UFI 8425, UFI 8426).
 - Resource Enhancement wetland (REW) area (UFI 8423).
- The dominant hydrological feature of the site is the Swan River estuary. The northern boundary of the site falls within the Swan Canning Development Control Area (DCA) (CoB 2018) and Swan Canning River Park.
- The floodway of the Swan River is immediately adjacent to but not within the site. The 1% AEP flood elevation of the Swan River adjacent to the site is 2.8 mAHd.
- There are two existing major drainage network systems within or adjacent to the site include:
 - The CBMD, managed by the Water Corporation. This currently receives runoff from Precinct C (via the CoB drainage network) and Precinct E.
 - The CoB local piped drainage network, which exists along Mathieson Road, Grandstand Road and the northern portion of Resolution Drive.
- There are three lakes (Irrigation Lake, Lined Lake and Wetland Lake) located within the centre of the Racecourse. These are understood to receive runoff from the grandstand buildings in Precinct B and stables/buildings in Precinct C.
- Allowable discharge to the CBMD from the local drainage network is 0.95 m³/s based on Water Corporation modelling.
- The groundwater beneath the site is a multi-layered system consisting of the Superficial, Kings Park Formation, Leederville and Yarragadee aquifers.
- Regional groundwater mapping indicates that the groundwater levels across the site are at approximately 0.5 m AHD.
- Local groundwater level monitoring indicates that annual maximum groundwater levels (recorded in August 2022) were measured at 1.26 m AHD and 1.70 m AHD at Bore 1 and Bore 2 respectively. Groundwater levels in adjacent areas included Precinct A levels at 1.09 mBGL to 2.37 mBGL and Precinct D levels of approximately 3.03 mBGL.
- Water quality monitoring indicates that EC, TDS and pH values do not exceed guideline trigger values. However, TN and TP concentrations continually exceed the ANZECC guideline trigger value of 1.2 mg/L and 0.065 mg/L respectively.

4 Design Criteria and Objectives

This section outlines the objectives and design criteria that this LWMS and future management plans must achieve. The water management strategy includes water conservation, groundwater management and stormwater management.

4.1 Integrated water cycle management

Better Urban Water Management (WAPC 2008a) endorses the promotion of integrated water cycle management and application of WSUD principles to provide improvements in the management of stormwater, and to increase the efficient use of other existing water supplies.

The key principles of integrated water cycle management include:

- Considering all water sources, including wastewater, stormwater and groundwater
- Integrating water and land use planning
- Allocating and using water sustainably and equitably
- Integrating water use with natural water processes
- Adopting a whole catchment integration of natural resource use and management.

Integrated water cycle management addresses not only physical and environmental aspects of water resource use and planning, but also integrates other social and economic concerns. Water management design objectives should therefore seek to deliver better outcomes in terms of:

- Potable water consumption
- Stormwater quality management
- Groundwater management.

The first step in applying integrated water cycle management in urban catchments is to establish agreed environmental values for receiving environments. The existing environmental context of the site has been discussed in **Section 3** of this document. Guidance regarding environmental values and criteria is provided by a number of national and state policies/guidelines and site-specific studies undertaken in and around the site. These were detailed in **Section 1.4** and **Section 1.5** respectively.

4.2 Water conservation

This LWMS proposes the following water conservation criteria:

- Criteria WC1** For residential dwellings, consumption target of 60 kL/person/year.
- Criteria WC2** Ensure the efficient use of all water resources
- Criteria WC3** Non-potable irrigation water to be sourced from existing groundwater licences held over the area.

The manner in which this objective will be achieved is further detailed in **Section 5**.

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4.3 Stormwater management

The principle behind stormwater management at the site is to mimic the pre-development hydrological conditions and utilise existing infrastructure where sensible to do so, as described in **Section 3.7**. This principle and the guidance documents discussed in **Section 1.4** and **Section 1.5** and have guided the stormwater management criteria.

- Criteria SW1** Retain and treat the first 15 mm of rainfall as close to source as possible and within site.
- Criteria SW2** Detain up to 1% AEP rainfall event on-site.
- Criteria SW3** Post-development critical 1% AEP peak flows leaving the site to mimic pre-development peak flows.
- Criteria SW4** Finished floor levels must have a minimum of 300 mm clearance above the 1 % AEP TWL in the FSA.
- Criteria SW5** All lots must have a minimum of 500 mm clearance above the 1 % AEP flood level in the Swan River.
- Criteria SW6** Nutrient concentrations within surface water discharging from the site to the Swan River are to meet regional water quality targets.
- Criteria SW7** Reduce nutrient loads by applying appropriate non-structural measures.
- Criteria SW8** Design infiltration areas to avoid creating mosquito habitat.

The manner in which these objectives will be achieved is further detailed in **Section 6**.

4.4 Groundwater management

The principle behind the groundwater management strategy is to maintain the existing groundwater hydrology. The groundwater management criteria for the site include:

- Criteria GW1** Surface based infiltration structures should have 300 mm clearance above the MGL.
- Criteria GW2** Habitable floor levels should have a clearance to the MGL of at least 1.2 m.

The manner in which the groundwater management objectives will be achieved is further detailed in **Section 7**.

5 Water Conservation Strategy

5.1 Fit for purpose water use

Conservation of water through fit-for-purpose use and best management practices is encouraged so that scheme water is not wasted. Fit-for-purpose describes the use of water that is of a quality suitable for the required use of the water. Fit-for-purpose principles have been utilised in the water conservation strategy for the site and will achieve **Criteria WC1**.

5.1.1 Scheme water supply

Scheme water will be supplied by the Water Corporation Integrated Water Supply System. Scheme water is proposed to be used for all potable uses. Scheme water will also service some external uses, where fit-for-purpose alternatives are not available.

5.1.2 Groundwater

As discussed in **Section 3.7.2.1**, the site is located beneath a multi-layered system comprising of the Superficial Swan, Kings Park Formation, Leederville and Yarragadee aquifers.

The proponent holds a groundwater allocation from the Perth South Leederville confined aquifer for the following:

- GWL 178519 - 347,000 kL

This licence will be used to meet the irrigation requirements for the Racecourse Precinct, Precinct A, Precinct B and part of Precincts C and E.

The above-mentioned measure will achieve **Criteria WC3**.

5.1.3 Rainwater tanks

Rainwater tanks (RWTs) can be used within private lots to harvest roof runoff. This water is considered non-potable but can be used to supplement non-potable water uses.

5.2 Lot scale water conservation measures

This LWMS proposes that the water conservation measures to be adopted would include RWTs, waterwise principles for lot scale gardens and within estate landscaping (WWG) and water efficient fixtures and appliances (WEFA) to ensure that the residential portion of the development minimises the use of water. These are summarised in the following sections.

5.2.1 Rainwater tanks

The use of RWTs will not be mandated, and the stormwater quantity management strategy does not rely on their use. They are therefore only considered to be a water conservation measure. Given that rainwater tanks will not be mandated or supplied by the proponent, it has been assumed that these would be implemented by 7.5% of households within Precinct D. Whilst they may be considered for

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Precinct A they are not proposed to be taken up in other Precincts. The assumed uptake rate has been based on data obtained from the Australian Bureau of Statistics (ABS 2013). It is assumed (for the purposes of the water balance analysis) that all rainwater tanks have a capacity of 3 kL.

5.2.2 Water efficient fixtures and appliances

Water conservation strategy for the site proposes the use of WEFA. Water efficient fittings will be mandated through the building licence, while uptake of water efficient appliances can be encouraged by State and Local Government rebates in addition to education from the proponent at point of sale. WEFA are relevant to Precinct A and Precinct D. It is assumed that water efficient appliances will be implemented by 40% of households within Precinct A and Precinct D, which has been based on data obtained from the Australian Bureau of Statistics (ABS 2013, 2014).

5.2.3 Waterwise gardens

Landscape packages will not be provided as a part of the land sale contract. Lot scale waterwise gardening principles (WWG) are only relevant for Precinct D. These will be achieved by promoting Waterwise gardening principles (WWG) (WC 2003) at the time of sale of land within Precinct D. It is assumed that 75% of households in Precinct D will implement WWG principles within lot gardens (ABS 2013). WWG principles include:

- Soil to be improved with soil conditioner certified to Australian Standard (AS) 4454 to a minimum depth of 150 mm where turf is to be planted and a minimum depth of 300 mm for garden beds.
- The irrigation system shall be designed and installed according to best water efficient practices:
 - The controller must be 'hydrozoned'.
 - Emitters must disperse coarse droplets or be subterranean.
- Garden beds to be mulched to 75mm with a product certified to AS4454.
- Increasing community awareness of water conservation by promoting Waterwise practices, fixtures and fittings at the point of sale.

WWG principles will also be considered for Precinct A and Precinct E, however it is anticipated that these areas will have minimal irrigated landscaping to which this would apply. The current approach to irrigation within the Racecourse Precinct, Precinct B and Precinct C adopts a range of water conservation measures (including non-irrigated area and retention of existing trees/vegetation) to ensure that Perth Racing operates within the available groundwater allocation. This approach is not proposed to be significantly modified.

The above measures will assist in achieving **Criteria WC1** and **WC2**.

5.3 Water use analysis

5.3.1 Lot scale water use analysis

A water use analysis has been undertaken for Precinct D to estimate the expected individual residential lot water use to demonstrate the effectiveness of the water conservation strategy. The water use analysis has been based on the rates and calculation methodology presented in the Water

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Corporation (2011) spreadsheet *AltWaterSupply_Water_Use_Model.xls*. This spreadsheet has been adapted to model the effects of using the water conservation measures proposed, and key assumptions include:

- Lot area has been based on a conceptual lot layout (see **Appendix A**).
- Average residency of 2.6 people per single lot dwelling. This value has been calculated from data provided by ABS for new housing developments in Perth (ABS 2022).
- Assumed up-take rates include:
 - 100% uptake of water efficient fittings
 - 40% uptake of water efficient appliances
 - 7.5% uptake of RWTs
 - 55% uptake of WWG principles.

The results of the water balance indicate that if households in Precinct A and Precinct D adopt the proposed water conservation measures (e.g. efficient fittings, RWT, WWG principals) at typical uptake rates they will use an average of 33.0 kL/year/person. This achieves the water target of no more than 60 kL/year/person of scheme water and satisfies **Criteria WC1**.

5.4 Wastewater management

The wastewater generated from the site will be managed by connecting the development to the Water Corporation deep sewer network.

5.5 Water conservation management criteria compliance

A summary of the proposed water conservation management criteria and how these are addressed is provided within **Table 1**.

Table 1: Water conservation management criteria compliance

Criteria number	Criteria description	Manner in which compliance will be achieved
WC1	Residential consumption target of 60 kL/person/year scheme water.	Provide advice to residents in Precinct A and Precinct D on water conservation measures
		RWTs can be utilised for non-potable uses within Precinct D
		Promotion and use of WWG in lots within Precinct D
		Promotion and use of water efficient appliances to Precinct A and Precinct D
		Mandate water efficient fittings within Precinct A and Precinct D
WC2	Ensure the efficient use of all water resources.	Use of waterwise landscaping principles in open spaces
		Open spaces designed to use no more than allocated groundwater
		Minimise water requirements for open space and verge maintenance
		Use of water efficient appliances within Precinct A and Precinct D
		Use of WWG principles in lots in Precinct D

Table 2: Water conservation management criteria compliance (Continued)

Criteria number	Criteria description	Manner in which compliance will be achieved
WC3	Non-potable irrigation water to be sourced from existing groundwater licences held over the area.	The proponent holds a groundwater Licence with an allocation of 347,000 kL per annum which will meet the irrigation requirements of the Racecourse and surrounding Precincts.

6 Stormwater Management

The principle behind the stormwater management strategy for the site is to maintain the existing hydrology by detaining, retaining and treating runoff from the small rainfall event (i.e. first 15 mm) as close to source as possible and detaining/retaining the major event (1% AEP) on site prior to discharge to either the centre of the Racecourse (i.e. self-retained) or to the CBMD the pre-development outflow rates. Due to the existing soil conditions (See **Section 3.5**), the site is not well suited for structural controls utilising infiltration of stormwater unless modified. However, given that fill will be utilised to ensure that habitable floor levels are above the 1% AEP flood elevation of the Swan River, final elevations will be approximately 4 mAHD. Where fill is used to achieve this there will be sufficient clearance to MGL and permeability of soils to adopt WSUD measures which utilise infiltration.

WSUD measures proposed will vary across the Precincts and will include:

- BRAs to achieve water quality treatment (Precincts A, C, D and E)
- FSAs to detain runoff prior to discharge to the adjacent road network system
- Subsurface infiltration cells that will facilitate at-source infiltration (Precinct D)
- Flood storage integrated into existing surface water bodies located centrally within the Racecourse (for Precinct A and C)
- FSAs to provide flood detention and infiltration as close to source as possible (Precinct E).

The overall approach to precinct drainage is shown on **Figure 7**.

The WSUD measures that will be implemented as a part of the development are described in the following sections. Precinct B has been assumed to be self-retained and a portion of Precinct C (already connected to the Lakes in the centre of the track) has been assumed to be the same as it is now. Surface runoff modelling undertaken using XPSWMM has been used to inform the design of stormwater infrastructure as detailed in the following sections. Assumptions used to represent the post-development environment are provided in the modelling assumptions report in **Appendix D**.

6.1 Lot scale drainage measures

Lots within Precinct D and Precinct E will retain the first 15 mm rainfall event runoff within soakwells/soakage which will need a capacity of 150 m³/ha. Lot storage is the responsibility of the lot owner and will be assessed as part of the building approval process prior to construction.

The use of soakwells/soakage areas will assist in achieving **Criteria SW1**.

6.2 Development drainage measures

6.2.1 Bio-retention areas

Runoff from the first 15 mm of rainfall will be captured and retained within a vegetated BRA located in open spaces. The BRA is assumed to have a depth of 500 mm with 1:3 side slopes. Treatment of

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runoff will be provided through interaction with vegetation and adsorption to sand particles through infiltration prior to reaching groundwater.

The BRA will be underlain by material with an appropriate PRI (nominally a PRI of 20 at 150 mm or equivalent). It is acceptable for this to be achieved with a thicker layer of lower PRI soil (e.g. 300 mm of PRI 10). This will be finalised prior to detailed design. The location of the BRA will either be in a drainage reserve, an open space or they may be within the centre of the Racecourse as a separate treatment area (separate from the existing Lakes). The sizing and spatial requirements of BRAs will be confirmed in the detailed designs.

The use of BRA will assist in achieving **Criteria SW1, SW6, and SW8**.

6.2.2 Flood detention/storage

An FSA will be utilised to detain runoff above the first 15 mm and up to the 1% AEP rainfall event. To achieve this, the invert of the FSA will have sufficient clearance above groundwater 300 mm. FSAs are assumed to be 1.2 m depth with 1:6 side slope and will be integrated into POS or drainage reserve, and will overflow to the Water Corporation drainage network. The sizes and spatial requirements for the FSA will be confirmed in the detailed designs and development stages.

The use of an FSA will assist in achieving **Criteria SW1, SW2, SW4, and SW6**.

6.2.3 Subsurface storage

Surface runoff generated by lots, stables and hardstand/carpark areas will be directed into sub-surface storage. Precinct D will have an independent drainage pipe network within individual precincts which convey flows to downstream sub-surface retention structures.

These structures have been sized to accommodate up to the 1% AEP rainfall event and have been designed as a 1 m deep structure. The detailed configurations could be modified to suit site constraints. These will either be location beneath road reserve/verge or beneath an open space and will require an overflow connection to the local (CoB) drainage network to ensure that they can dry out. The sizes and spatial requirements for the subsurface storages are provided in **Table 2** and illustrated in **Figure 7A: Precinct A Stormwater Management Plan**

Figure 7B: Precinct C Stormwater Management Plan

Figure .

The use of the sub-surface storage will assist in achieving **Criteria SW1, SW2, and SW6**.

6.2.4 Lake storage

Precinct A and Precinct C (stables) will first direct runoff to a bio-retention areas, however overflow from these will be catered for in the Wetland Lake. In a 1% AEP storm event an additional 78 mm of depth will occur within the Wetland Lake from both Precincts.

As indicated in **Section 3.7.1.2**, the Wetland Lake is connected/discharges to the Swan River via a 375 mm and 450 mm culvert. These are not proposed to be modified. The combined nominal flow capacity of the 375 mm and 450 mm pipes is approximately 0.4 m³/s. The inlet, length, grade, etc of

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these pipes is not proposed to be modified and therefore the current overflow regime from the site to the Swan River will remain unchanged.

The use of the Wetland Lake storage will assist in achieving **Criteria SW1, SW2, SW3, and SW6**.

6.3 Precinct based drainage approach

6.3.1 Precinct A

There is no current connection point for drainage to be exported from site to the local CoB network. Runoff will therefore need to be managed within Precinct A and the Racecourse. Precinct A will require a single BRA that will address treatment of water quality; this will be located within Precinct A as close to source as possible. The BRA should have the following characteristics:

- Base will be vegetated with reeds/rushes as per a biofilter
- 1:3 side slopes
- Depth of 300 – 500 mm pending final design
- Volume of the BRA will need to achieve 194 m³
- Nominal surface area of 450 m².

In addition to the volume achieved by the BRA, in a major (1% AEP) storm event a further 1,345m³ of flood retention storage will be required. The proposed earthwork level of Precinct A (4.0 mAHD) means that it is possible to direct runoff exceeding BRA capacity to the Wetland Lake in the centre of the Racecourse. This approach will add approximately 52 mm to the central 2.6 ha Wetland Lake.

The volumes of storage required and locations of storage across the Precincts is summarised in **Table 2**. The approach to water management in Precinct A is shown in **Figure 7A**.

6.3.2 Precinct B and Racecourse

As indicate previously, there are no substantial changes proposed to Precinct B. Precinct B currently manages surface runoff within the precinct and adjacent Racecourse, largely via at source infiltration, swales around the perimeter of the track surface and the existing lake system Precinct B and the Racecourse are proposed to be retained largely as is.

As indicated in **Section 3**, the Wetland Lake currently has a piped overflow connection to the Swan River. This overflow pipe(s) reportedly rarely overflow and can be controlled via a structure at the outlet (which also prevents tidal influence on the Wetland Lake). The Wetland Lake has a 2.6 ha surface area, and therefore can provide significant volume of stormwater retention in the event of a major storm event. There are no new connections proposed to the Swan River and there are no changes proposed to the management approach currently taken for the Wetland Lake and the current piped outlets.

6.3.3 Precinct C

Precinct C is the existing stables area, adjacent carparks and future stables areas along the south and east of the Structure Plan area. The existing buildings currently either infiltrate runoff at source or

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discharge to the Lined Lake in the centre of the Racecourse. This approach is proposed to be retained.

Surface runoff generated by hardstand/carpark areas of Precinct C will be directed and discharged towards Precinct E via the existing connections to the CoB drainage network along Matheson Road or via the existing pipe connection in the southwest of the Structure Planning area to the existing connection to the CBMD (Water Corporation drainage system) within Precinct E.

The drainage requirements for the southern (carpark) portion of Precinct C are therefore detailed with those proposed for Precinct E.

For the two currently undeveloped portions of Precinct C (future stables along the south and east of the Structure Plan area), the post-development drainage system will collect the runoff from these areas and direct them to the centre of the Racecourse. Initial treatment will be provided by a BRA which accommodates 418 m³, with a nominal surface area of 924 m².

Runoff exceeding the capacity of the BRA (which will be 684 m³) will be directed to the Wetland Lake. The direction of major event stormwater runoff to the Wetland Lake will add 26 mm to the top water level of the Wetland Lake.

The volumes required to be treated and for flood mitigation for Precinct C are summarised in **Table 2**. The approach to water management in Precinct A is shown in **Figure 7B**.

6.3.4 Precinct D

As indicated in **Section 6.1**, private lots and the childcare building within Precinct D are assumed to retain the first 15 mm within the lot boundary, most likely within soakwells, which should be appropriate given that some measure of imported fill will be required to meet clearance above regional flood levels. Based on the density of lots proposed in Precinct and lack of open space, this precinct will need 42 m³ of subsurface storage to accommodate and detain the 1% AEP storm event to ensure that the post development peak flow rates will mimic the pre -development conditions. This is assumed to be located adjacent to Resolution Drive as shown in **Figure 7C**. The outflow from this Precinct will likely be predominantly overland flow once the first 15 mm of storage has reached capacity, however a low flow to ensure that these can adequately drain between storm events is recommended.

The volumes required to be treated and for flood mitigation for Precinct D are summarised in **Table 2**.

6.3.5 Precinct E

Surface runoff from across Precinct E (inclusive of Precinct C hardstand/carpark) will be conveyed via the drainage network firstly to a BRA for water quality treatment and then this will overflow to an FSA (detention drainage structure) at the south western corner of Precinct E for detention of the 1% AEP storm event. Overflow from Precinct E basin will discharge into the CBMD (Water Corporation drainage system) at existing flow rates. The Water Corporation surface runoff modelling of the CBMD indicates that the local drainage network contributes 0.95 m³/s at node CNA008. This is understood to be contributed to by existing 450 mm and 525 mm pipes beneath Resolution Drive and therefore it is assumed that 0.62 m³/s is taken up by the existing pipe network, and approximately 0.33 m³/s of

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capacity is available to convey runoff from Precinct C, Precinct E and upstream contributing catchments.

The volumes required to be treated and for flood mitigation for Precinct E are summarised in **Table 2**. The approach to water management in Precinct E is shown in **Figure 7D**.

6.3.6 Precinct drainage summary

The requirements for water quality treatment within the Precincts is summarised in **Table 2**.

Table 2: Precinct drainage summary

Precinct	First 15 mm requirement (m ³)	Location of first 15 mm	1% AEP flood mitigation requirement (m ³)	Location of 1% AEP flood mitigation requirement	1% AEP outflow from site
Precinct A	194	BRA located within Precinct A	1,345	Wetland Lake, centre of Racecourse	0
Precinct B	No change to existing	Precinct B	No change to existing	Precinct B	Self-retained
Precinct C (Stables)	418	BRA located in the centre of the Racecourse	684	Wetland Lake in centre of Racecourse	0
Precinct C (carpark)	Combined with Precinct E volumes	BRA in Precinct E	Combined with Precinct E volumes	FSA in Precinct E	
Precinct D	28	Subsurface storage cells beneath road reserve/drainage reserve	42	Subsurface storage cells beneath road reserve/drainage reserve	0.402 m ³ /s to local drainage network/road pavement
Precinct E	365	Southwest corner of Precinct E, adjacent to FSA	930	South west corner of Precinct E	0.32 m ³ /s to CBMD

There will be no new connections to the Swan River or to the CBMD, and the existing flow regimes at these outlet points will be maintained. Specifically with regard to overflow from the Wetland Lake which occurs via gravity, the peak flow rates that the existing 375 mm and 450 mm pipes are capable of achieving (approximately 0.4 m³/s) will not change given that the inlet, length, grade and outlet of these pipes is not proposed to be modified.

Precinct D will require a connection to the local drainage network, however the outflow rate will be nominal, and has not been accounted for when sizing the subsurface storage cells within Precinct D. The direction of runoff from Precinct A and a portion of Precinct C to the centre of the Racecourse will require a BRA with a surface area of 1,105 m² (for Precinct C) and will add a total of 78 mm depth to the top water levels within the Wetland Lake.

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The precinct areas and a summary of the approach to surface water management are shown on **Figure 7**.

6.3.7 Non-structural measures

A number of non-structural measures will be implemented to help reduce nutrient loads within stormwater runoff. These measures include:

- Minimising fertiliser use to establish and maintain vegetation within POS and road verges.
- Street sweeping at regular intervals.
- Ongoing management of nutrient application to Precinct B and the Racecourse.
- Precinct A to adopt a similar nutrient application management regime as that currently applied to Precinct B.
- Minimising the use of turf within open spaces.
- Active management of equine waste within Precinct C and the Racecourse. This includes manual collection and remove of manure from site.
- Education of residents regarding fertiliser use and nutrient absorbing vegetation species within lots.

The above measures will assist in achieving **Criteria SW7**.

6.3.8 Earthwork levels

Finished floor levels of the entire development will be set at minimum of 4.0 mAHD (See **Appendix C**) which will assist in achieving **Criteria SW5**.

6.4 Stormwater criteria compliance

A summary of the proposed stormwater design criteria and how these are addressed is provided in **Table 3**.

Table 3: Stormwater management criteria compliance

Criteria number	Criteria description	Manner in which compliance will be achieved
SW1	Retain and treat the first 15 mm of rainfall as close to source as possible	Lots within Precinct D and Precinct E to retain the first 15 mm of rainfall on lot in soakwells/soakage. Lot storage will be the responsibility of the lot owners.
SW2	Retain up to 1% AEP rainfall event on-site.	Runoff up to the 1% AEP to be detained within the FSA in Precinct A. Precinct A and a portion of Precinct C will ultimately discharge to the centre of the track. Runoff up to 1% AEP to be managed with the sub-surface storage in Precinct D.
SW3	Post-development critical 1% AEP peak flows leaving the site to mimic pre-development peak flows.	Runoff up to 1% AEP event to be detained in the detention basin and subsurface storage which will maintain the pre-development peak flow of 0.32 m ³ /s from Precinct E and 0.463 m ³ /s from Precinct D respectively.
SW4	Finished floor levels must have a minimum of 300 mm clearance above the 1% AEP TWL in the FSA.	It is anticipated that the FSA and detention basin invert will be set so that the habitable floor levels must have a

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		minimum of 300 mm clearance above the 1% AEP TWL in the basins.
SW5	All lots must have a minimum of 500 mm clearance above the 1% AEP flood level in the Swan River.	The 1% AEP flood level in the Swan River is 2.8 mAHD. The preliminary bulk earthworks concept provided in shows that finished floor level will be at 4.0 mAHD.
SW6	Nutrient concentrations within surface water discharging from the site to the Swan River are to meet regional water quality targets.	BRA will be designed so that after treatment the long term nutrient concentrations within surface water meet the regional water quality targets.

Table 4: Stormwater management criteria compliance (Continued)

Criteria number	Criteria description	Manner in which compliance will be achieved
SW7	Reduce nutrient loads by applying appropriate non-structural measures	<ul style="list-style-type: none"> • Minimise use of fertilisers within open space and road verges. • Street sweeping at regular intervals. • Use of drought tolerant turf species. • Education of residents regarding fertiliser use
SW8	Design infiltration areas to avoid creating mosquito habitat	Stormwater infrastructure will be designed to ensure all runoff is infiltrated within 96 hours.

7 Groundwater Management

7.1 Groundwater management approach

The principle behind groundwater management is to maintain the existing hydrology across the site, provide appropriate protection from groundwater inundation, and maintain or improve existing groundwater quality.

7.2 Groundwater level management

The regional groundwater map (DWER 2023e), localised measurement of groundwater and the surface contours of the site (see **Section 3.4** and **Figure 2**) indicate that there is sufficient clearance to groundwater beneath the site to facilitate infiltration of stormwater runoff, on the basis that fill is being imported to raise finished levels to 4.0 mAHD.

Whilst the underlying parent soils have demonstrated generally low permeability, the earthworks approach will require import of fill to 4.0 mAHD to achieve clearance above the 1% AEP flood level in the Swan River for Precinct A, Precinct D and Precinct E. Therefore, stormwater will be encouraged to infiltrate at source wherever possible to minimise stormwater runoff and to adopt an at-source approach to management of runoff where possible. This will occur within soakwells, permeable portions of lots and BRAs which will have at least 300 mm of clearance above the MGL. The above-mentioned measure will assist in achieving **Criteria GW1**.

For Precinct C (stables) runoff will be directed to the centre of the racetrack. The stables facilities do not require a specific separation from groundwater, and in order to accommodate equine uses the land between buildings/facilities should be as flat as possible. The most appropriate response is therefore to accommodate stormwater quality treatment and flood retention within the centre of the racetrack. Given the low permeability of soils in the centre of the racetrack, the BRA is unlikely to achieve separation from groundwater or the low permeability soil layer. This is however considered acceptable as it is consistent with the presence of the three Lakes currently within the centre of the racetrack.

The control of groundwater by subsoil drainage is not proposed due to requirements to provide adequate clearance above the 1% AEP flood levels and the proximity of the Swan River. Rather, groundwater separation requirements will be achieved by the use of imported fill as described above. The earthworks strategy provided in **Appendix C** shows that all habitable floor levels will be greater than 1.2 m above the MGL. The above-mentioned measure will assist in achieving **Criteria GW2**.

As previously discussed, there are no changes proposed to the form of development within Precinct B or to the Racecourse. These areas are currently managed by the swales aligned with the existing racetrack which control soil moisture conditions in these areas, and which discharge to the Wetland Lake. This approach will be retained in the post-development environment.

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7.3 Groundwater quality management

Whilst not specified in a design criterion, the main objective for groundwater quality management is to maintain or improve the existing groundwater quality. This can be achieved by reducing the total nutrient load into the groundwater that originates from the site. Groundwater that originates from the site is surface runoff that has infiltrated into the soil profile. Therefore, improving groundwater quality can be achieved by treatment of the surface runoff prior to infiltrating to groundwater.

The reduction of nutrient load to the groundwater will be achieved by:

- Retention of existing trees within open spaces wherever possible.
- Directing stormwater to a vegetated (with native wetland species) BRA.
- The BRA will be underlain by material with an appropriate PRI (nominally a PRI of 20 at 150 mm or equivalent). It is acceptable for this to be achieved with a thicker layer of lower PRI soil (e.g. 300 mm of PRI 10).
- Minimise fertiliser use to establish and maintain vegetation within open space areas and road verges.
- Ongoing management of nutrient application to Precinct B and the Racecourse.
- Precinct A to adopt a similar nutrient application management regime as that currently applied to Precinct B.
- The use of turf will be minimised, however where adopted a drought tolerant turf species that require minimal water, and nutrients will be used.
- Roll-on turf will be used within the open space areas and road verges, to prevent the high nutrient input requirement during establishment of the turf.
- Garden beds should not be immediately adjacent to BRAs to reduce nutrient transportation into these infiltration areas.
- Active management of equine waste within Precinct C and the Racecourse. This includes manual collection and remove of manure from site.

The above measures will improve the quality of water prior to it infiltrating into the underlying groundwater.

7.4 Groundwater criteria compliance summary

A summary of the proposed groundwater quantity design criteria and how these are addressed within the site is provided in **Table 4**.

Table 4: Groundwater criteria compliance summary

Criteria number	Criteria description	Manner in which compliances will be achieved
GW1	Surface based infiltration should have 300 mm clearance above MGL.	Basin inverts will be set at 300 mm above the MGL, the exception being the BRA in the centre of the racetrack.
GW2	Finished floor levels should have a clearance to the MGL of at least 1.2 m.	Lots will be set at least 1.2 m above the MGL.

8 Subdivision and Urban Water Management Plans

The requirements to undertake preparation of more detailed water management plans to support subdivision is generally imposed as a condition of subdivision. This will be most relevant to Precinct D. Other precincts may be developed under a Development Approval and therefore water management will likely be documented within a Stormwater Management Plan (SMP). The development of future UWMP/SMPs should follow *Urban Water Management Plans: Guidelines for preparing plans and for Complying with Subdivision Conditions* (DoW 2008).

While strategies have been provided within this LWMS that address planning for water management within the site, it is a logical progression that future subdivision designs and the supportive UWMP/SMP will clarify details not provided within the LWMS. The main areas that will require further clarification within future UWMP/SMPs may include (pending which precinct is being addressed):

- Extent of land uses within Precincts
- Connection to local and Main Drainage networks
- Surface runoff modelling
- Implementation of water conservation strategies
- Non-structural water quality improvement measures
- Management and maintenance requirements
- Construction period management strategy.

These are further detailed in the following sections. As stated above, ongoing (post-development) monitoring of groundwater will be detailed in the UWMP/SPM, however in this LWMS is outlined broadly in **Section 9**.

8.1 Extent of land uses within Precincts

It is expected that the layout and extent of land uses within Precincts may evolve over time. Future water planning documents will need to be updated to align with the most up to date spatial plans for each Precinct. Changes to the spatial plans will likely have an implication on the size of stormwater infrastructure and possibly their location, and should be revised and clarified in future UWMP/SMPs.

8.2 Connection to local and Main Drainage networks

This LWMS has made assumptions regarding connectivity to the CoB local drainage network and to the Water Corporation's CBMD. These assumptions are made based on the information available at the time of preparing this LWMS and may need to be revised pending feedback from these agencies. This could result in updates to surface runoff modelling (see **Section 8.3**).

8.3 Surface runoff modelling

It is acknowledged that the water management strategies documented in this LWMS are based upon broad-scale assumptions and to some extent regional data. These assumptions are considered

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adequate for development of this LWMS and are of an appropriate level of detail. However, verification of proposed subdivision drainage designs will be undertaken once the specific basin designs and extent of inclusion of finer scale WSUD elements are confirmed.

It is expected that future UWMP/SMPs will update surface runoff modelling as appropriate, and this may result in evolution of the spatial layout of the structure plan/future subdivisions or detailed civil design approach.

8.4 Implementation of water conservation strategies

The non-potable water needs from the Precincts are to be accommodated from the existing groundwater allocation and therefore, track water usage is a significant consideration. Notwithstanding licensed volumes available, there is minimal new open space areas proposed within the Precincts that would demand significant additional groundwater allocation, and it is therefore anticipated that non-potable water needs can be met by the existing licence held by Perth Racing.

A number of potential measures to conserve water have been presented within this LWMS. These water conservation strategies will be incorporated into design and the on-going maintenance of the Precinct A, B and C open spaces and where relevant. Landscape concept design measures that will be incorporated into the water conservation strategy will be further detailed within the future UWMP/SMPs produced for the development.

The manner in which the developer intends to promote water conservation measures discussed in this LWMS to future lot owners will also be discussed within the future UWMP/SMPs.

8.5 Non-structural water quality improvement measures

Guidance for the development and implementation of non-structural water quality improvement measures is provided within the *Stormwater Management Manual for Western Australia* (DWER 2022). Some measures will be more appropriately implemented by CoB for local roads, such as street sweeping, however many can be implemented relatively easily within the design and maintenance of the subdivision and the open space areas. It is expected that any privately managed development areas (e.g. Precinct A, Precinct B and Precinct C) will be managed by Perth Racing or another appropriate management body, and that the management of areas exposed to equine uses (Precinct C and the Racecourse) will continue to adopt contemporary best practice nutrient management.

Future UWMP/SMPs will provide an implementation plan/timing/responsibility for measures such as street sweeping, public education (through measures such as signage that may be implemented to raise awareness), etc.

8.6 Management and maintenance requirements

The management measures to be implemented to address surface water quality (such as the use of vegetation within WSUD assets) will require ongoing maintenance. It is therefore expected that the future UWMP/SMPs will detail management and maintenance procedures that will set out required maintenance actions (e.g. gross pollutant removal), timing (e.g. how often it will occur), locations (e.g. exactly where it will occur) and responsibilities (e.g. who will be responsible for carrying out the

actions). Given that approval from the CoB will be sought for the proposed measures, it is anticipated that consultation will be undertaken and referral to guiding policies and documents will be made.

8.7 Construction period management strategy

It is anticipated that the construction stage will require some management of various aspects (e.g. soil erosion, sedimentation of downstream water bodies, dust, surface runoff, noise, traffic etc.). The management measures undertaken for construction management will be addressed either in the future UWMP/SMPs or a separate Construction Management Plan (CMP).

9 Monitoring

9.1 Post-development monitoring

The post-development monitoring of water quality should be undertaken within groundwater immediately upstream and downstream of BRAs within Precinct A, Precinct C and Precinct E. It should also be undertaken at the outlet to or adjacent to the subsurface detention system in Precinct D. This should be undertaken via shallow groundwater bores installed immediately upstream and immediately downstream based on local groundwater flow direction, based on information available at the time (or in the case of Precinct D it could be at the outlet from the subsurface storage cells).

The monitoring should also consider and be generally consistent in the approach with the monitoring undertaken to comply with conditions of Groundwater Licence GWL 178519.

The WSUD measures (BRAs) should also be monitored to ensure their continued effectiveness. This should occur at the outlets from BRAs prior to their discharge to the Wetland Lake. It is noted that this may be difficult to achieve as it will require a rainfall event > 15 mm and to be timed to occur when overflow is occurring or alternatively auto samplers could be employed.

Monitoring of the outlet to the Swan River from the Wetland Lake is not proposed to be undertaken given the infrequent nature of overflow from the Lake to the River. Further, the Lake intersects shallow groundwater and any discharge from the pipes to the River is likely to be influenced by local groundwater quality.

9.1.1 Trigger values

The water quality targets from the *National Water Quality Management Strategy* (ANZECC and ARMCANZ 2000) and the trigger criteria are acknowledged as long term targets for the site, being 1.2 mg/L for TN and 0.065 mg/L for TP. However, it is also recognised that recent site monitoring undertaken (and reported in **Section 3**) shows repeated exceedances of the NWQMS default trigger criteria. Therefore, short term trigger values are proposed based on the approximate average nutrient concentrations measured in groundwater, and these are shown in **Table 5**.

Table 5: Post-development trigger values

Analyte	pH	EC (uS/cm)	TN (mg/L)	TP (mg/L)
Value	6-7.5	1800	3.0	0.15

Monitoring should be undertaken on a quarterly basis and should include:

- pH
- Conductivity
- Dissolved oxygen
- Temperature
- Nutrients (TN, TP)
- Nutrient Species (Ammonium, NH₄, Oxides of nitrogen, NO_x ortho-phosphorous (ORP))

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9.1.2 Condition monitoring

It is proposed that the overall condition of the Precincts will be monitored on a bi-annual basis. This monitoring will be implemented after the completion of the civil and landscaping works and will continue for a period of two years.

A visual assessment will be undertaken to monitor the overall condition of the Precincts, with the aim to ascertain that the maintenance activities are achieving the overall management objectives for the development. The parameters that will be monitored include:

- Gross pollutants
- Terrestrial weeds
- Irrigation
- Vegetation density
- Paths, benches, walkways and other infrastructure.

The management and maintenance objectives will be detailed within future UWMPs along with details of the corresponding monitoring program.

9.1.3 Contingency Action Plan

If the results from the initial monitoring occasion indicate that nutrient concentrations exceed the nominated (short term) trigger values, a number of contingency measures may be employed.

The first action that should be undertaken if groundwater trigger criteria are exceeded is to repeat the monitoring to remove the potential for sampling error. If the repeat monitoring still shows results which breach the trigger value, the next action will be to compare the upstream (incoming) nutrient concentrations with the outgoing (downstream) nutrient concentrations. If the downstream nutrient concentrations are >50% higher than the upstream nutrient concentrations, the following actions should be undertaken:

- Review open space nutrient application practices to identify source if possible.
- Conduct surveillance of Precincts and drainage infrastructure to determine any other potential and obvious nutrient inputs.
- Remove source if possible (i.e. fertiliser input, etc.).
- Remove sediment-bound nutrients by removing basin sediments.
- Manual removal of plant material from BRAs to facilitate further nutrient uptake.

If the downstream nutrient concentrations are found to be generally consistent with the upstream concentrations the next action will be to conduct a site – specific comparison of long-term background data presented in this LWMS. There is some amount of variability (temporally) in nutrient concentrations experienced across the site, and this is the reason for the proposed short and long term trigger values. The comparison of measured values to trigger values and historical monitoring data should then be used as a management tool to determine if the trigger values should be revised.

Following the implementation of the above contingency measures the groundwater quality will be re – sampled. If the results of the analysis still show water quality characteristics which breach the trigger values an additional set of upstream/downstream monitoring bores may be installed. The

additional bores would be sampled as per the ongoing sampling regime already being undertaken for the first two bores. If the additional locations demonstrate results consistent with the initial monitoring, an assessment will be undertaken as to whether the results are representative of a broader site management concern, and whether any additional contingency actions need to be implemented onsite.

9.2 Reporting

A post-development monitoring report will be prepared on conclusion of the two-year monitoring period and will be provided to CoB on request. This will be undertaken per Precinct once development within the Precinct has occurred. Interim results (spreadsheet) can be provided to either CoB, DWER or DBCA on request during the monitoring program.

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10 Implementation

10.1 Roles and responsibility

The LWMS provides a framework that the proponent can utilise to assist in establishing stormwater management methods that have been based upon site-specific investigations, are consistent with relevant State and Local Government policies and have been endorsed by DWER, DBCA and CoB. The responsibility for working within the framework established within the LWMS rests initially with the proponent, although it is anticipated that a future UWMP/SMP will be developed in consideration of other relevant policies and documents. A summary of roles and responsibilities relevant to the current and future planning stages and ongoing management of the site is summarised in **Table 6**.

Table 6: Roles and responsibilities for various planning stages

Stakeholder	Perth Racing	City of Belmont	Water Corporation	DWER	DBCA	WAPC
LWMS preparation	✓					
LWMS review and advice		✓	✓	✓	✓	
LWMS approval				✓		✓
UWMP/SMP & civil design preparation	✓					
UWMP/SMP review and approval		✓				
Precinct implementation	✓					
Post development Precinct management	✓					
Public roads/open space ongoing management	✓	✓				

10.2 Funding

The proponent will fund all subdivision, civil and landscape works within the public realm (roads and open spaces) and within Precincts that are being privately managed (Precinct A, Precinct B and Precinct C). Development of individual lots will be the responsibility of the lot owner at the lot-scale development application stage.

10.3 Review

It is not anticipated that this LWMS will be reviewed unless the Ascot Racecourse Structure plan undergoes significant change post-lodgement of the LWMS. If the proposed layout of the

development is substantially modified, the surface runoff modelling undertaken for this LWMS may need to be reviewed and the criteria revised to ensure that all are still appropriate.

The next stage of water management for most of the Precincts is UWMP preparation to support subdivision (relevant to Precinct D) or SMP preparation to support Development Approval (relevant to all other precincts). The UWMP/SMP is largely an extension of the LWMS, as it should provide detail to the designs proposed within this LWMS and will demonstrate compliance with the criteria proposed in **Section 4**. Regardless of whether a UWMP or SMP is prepared, these should be prepared as per *Better Urban Water Management*.

The next stage of development following the UWMP is single lot development. It is recognised that certain elements of the LWMS and the UWMP will not be implemented until this late stage, and that there is little or no statutory control that can be applied to ensure the implementation of any remaining measures. While the remaining measures are unlikely to be enforced at this stage their implementation could be encouraged by the CoB through policy (or modification of these where necessary), building licence or awareness programs (such as the Water Corporation Waterwise program).

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11.2 Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 11.1**, with access date information provided in **Table R1**.

Table R1 Access dates for online references

Reference	Date accessed	Website or dataset name
(ABS 2013)	19/4/2024	ABS: Water Use and Conservation Data
(ABS 2014)	19/4/2024	ABS: Energy Use and Conservation Data
(DWER 2023a)	12/04/2024	Acid Sulfate Soil Risk Map
(BoM 2024)	12/04/2024	Climate Data
(Landgate 2023)	31/01/2024	Landgate Map Viewer Plus
(WAPC 2023a)	11/12/2023	Local Planning Scheme No. 15 Map
(DWER 2024a)	12/04/2024	Perth Groundwater Map
(DWER 2024b)	12/04/2024	Water Information Reporting
(DWER 2024c)	12/04/2024	Water Register
(DWER 2023c)	26/04/2024	FPM Floodplain Area (DWER-020)

Figures



Figure 1: Site Location

Figure 2: Topographic and Groundwater Contours

Figure 3: Geological Mapping

Figure 4: Acid Sulfate Soil Mapping

Figure 5: Environmental Assets

Figure 6: Hydrological Features

Figure 7: Ascot LSP Precinct Plan surface water management

Figure 7A: Precinct A Stormwater Management Plan

Figure 7B: Precinct C Stormwater Management Plan

Figure 7C: Precinct D Stormwater Management Plan

Figure 7D: Precinct E Stormwater Management Plan



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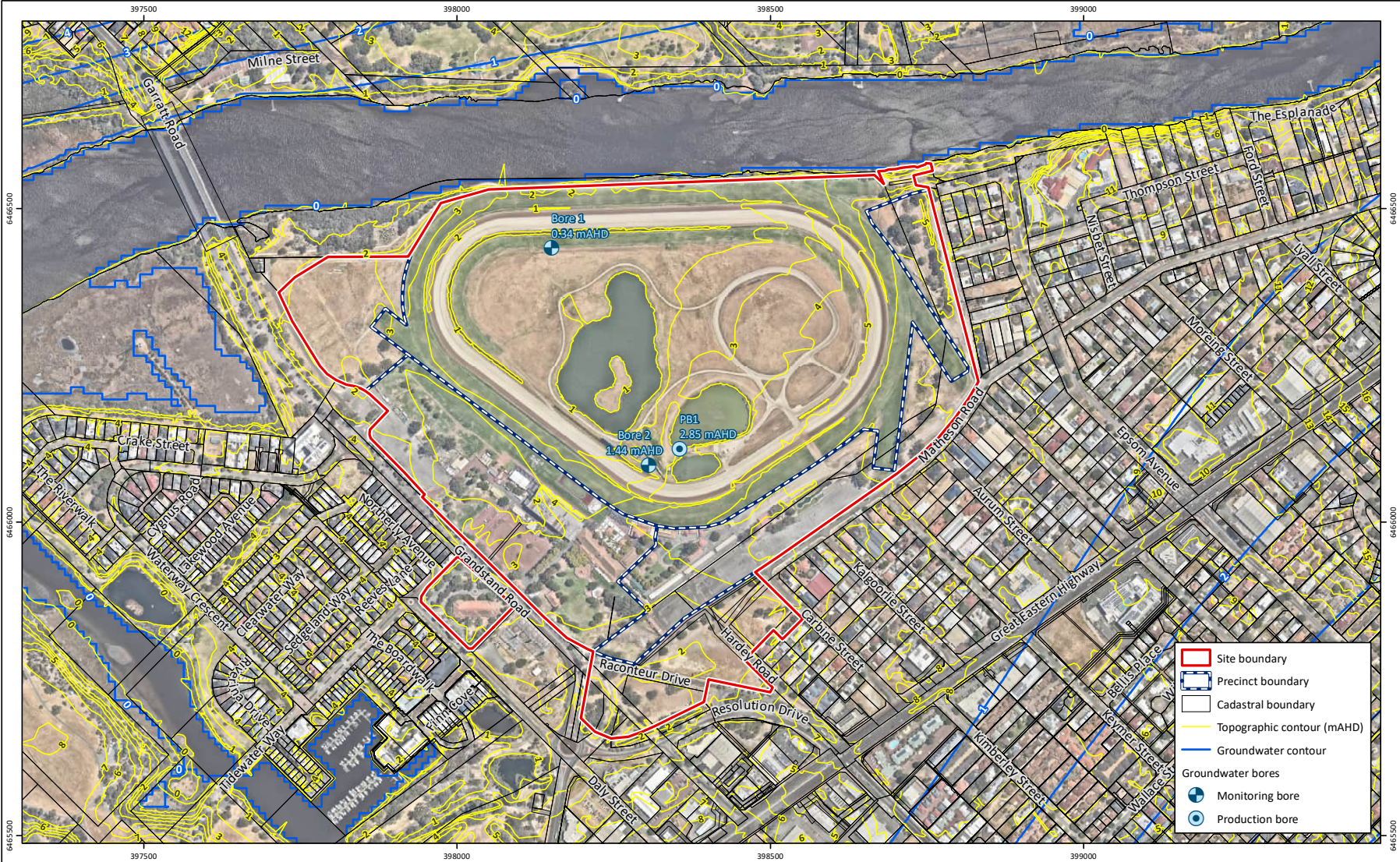


Figure 2: Topographic and Groundwater Contours

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Golden Gateway Local Structure Plan

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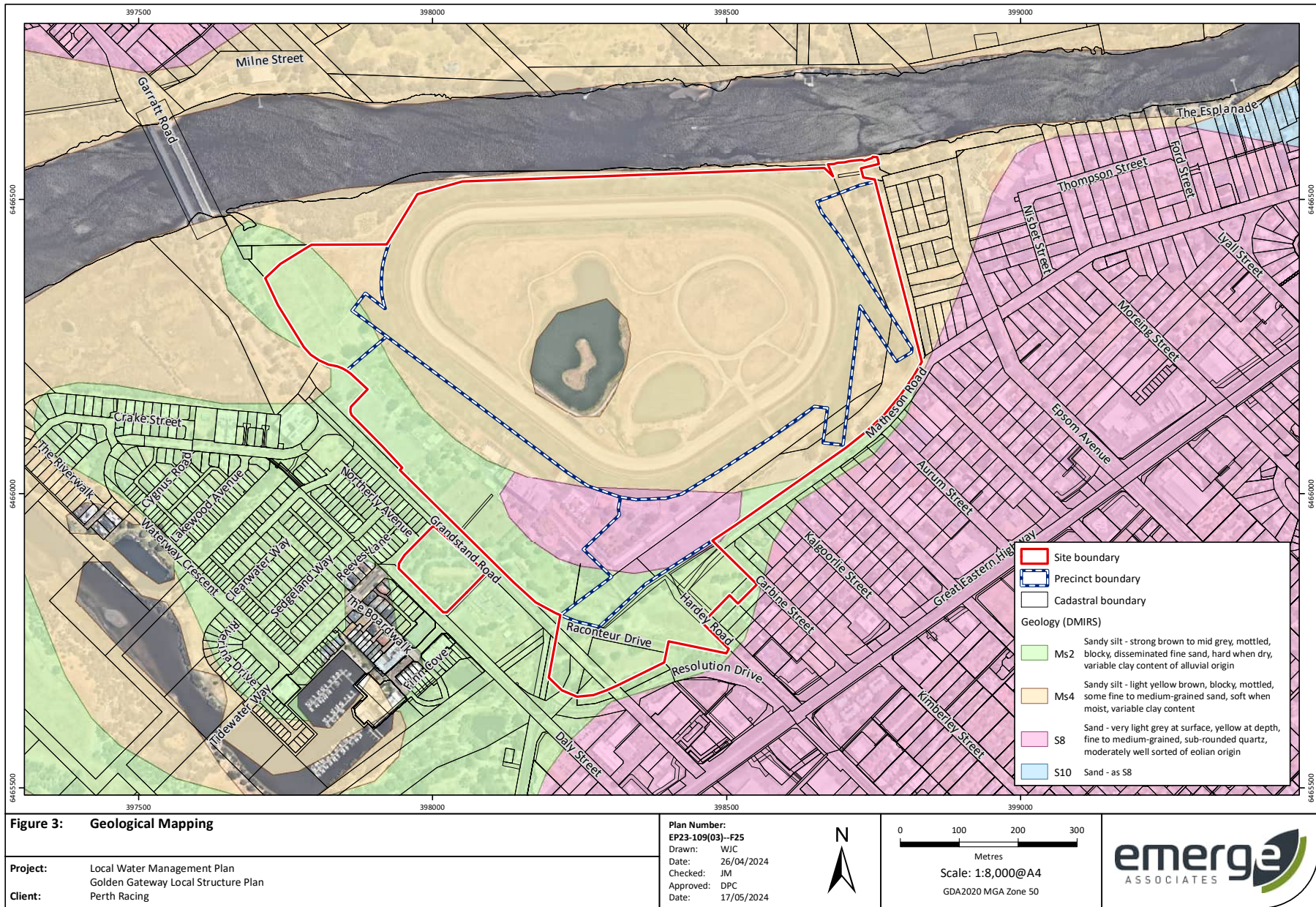
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Drawn: WJC
Date: 26/04/2024
Checked: JM
Approved: DPC
Date: 17/05/2024



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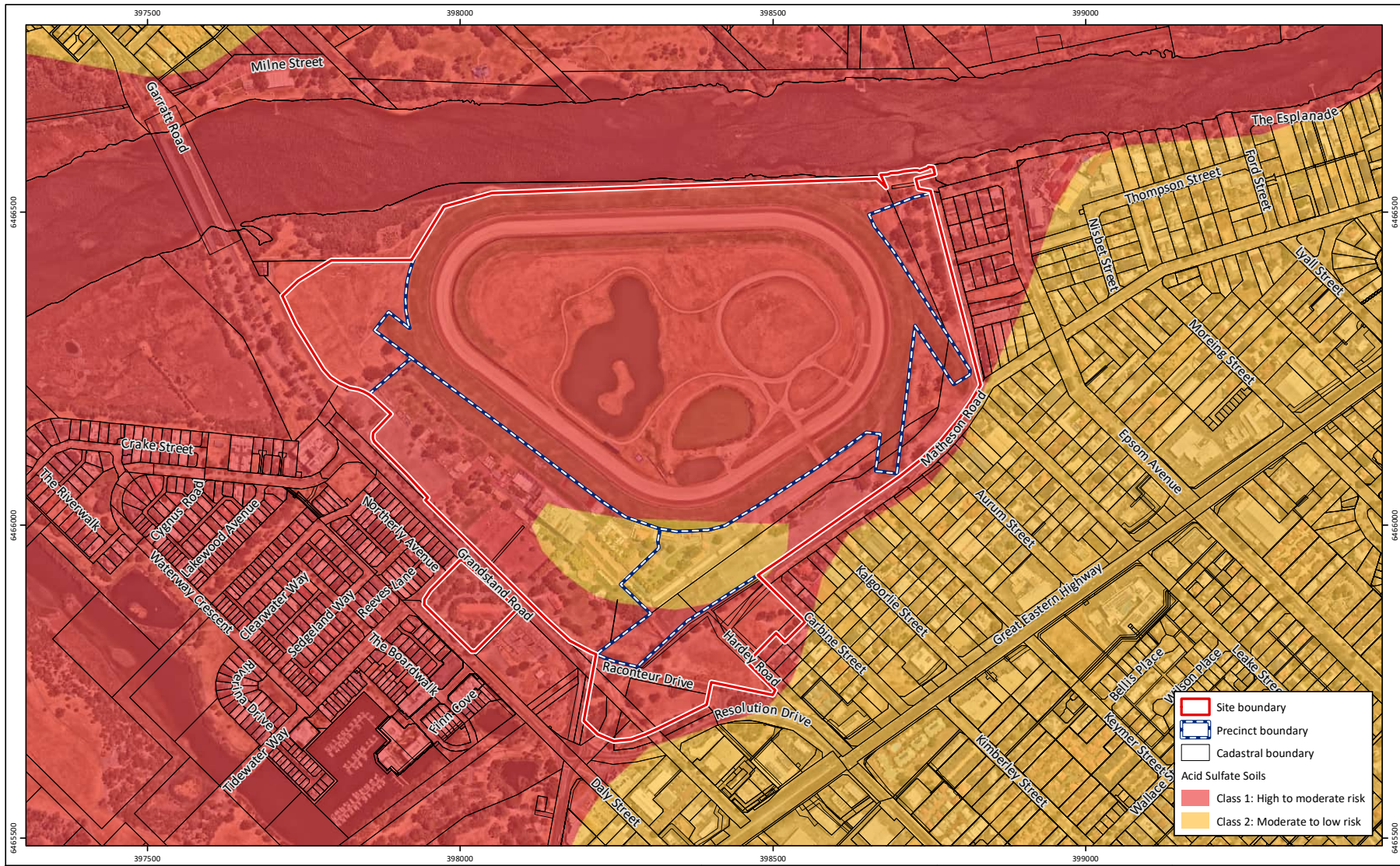


Figure 4: Acid Sulfate Soil Mapping

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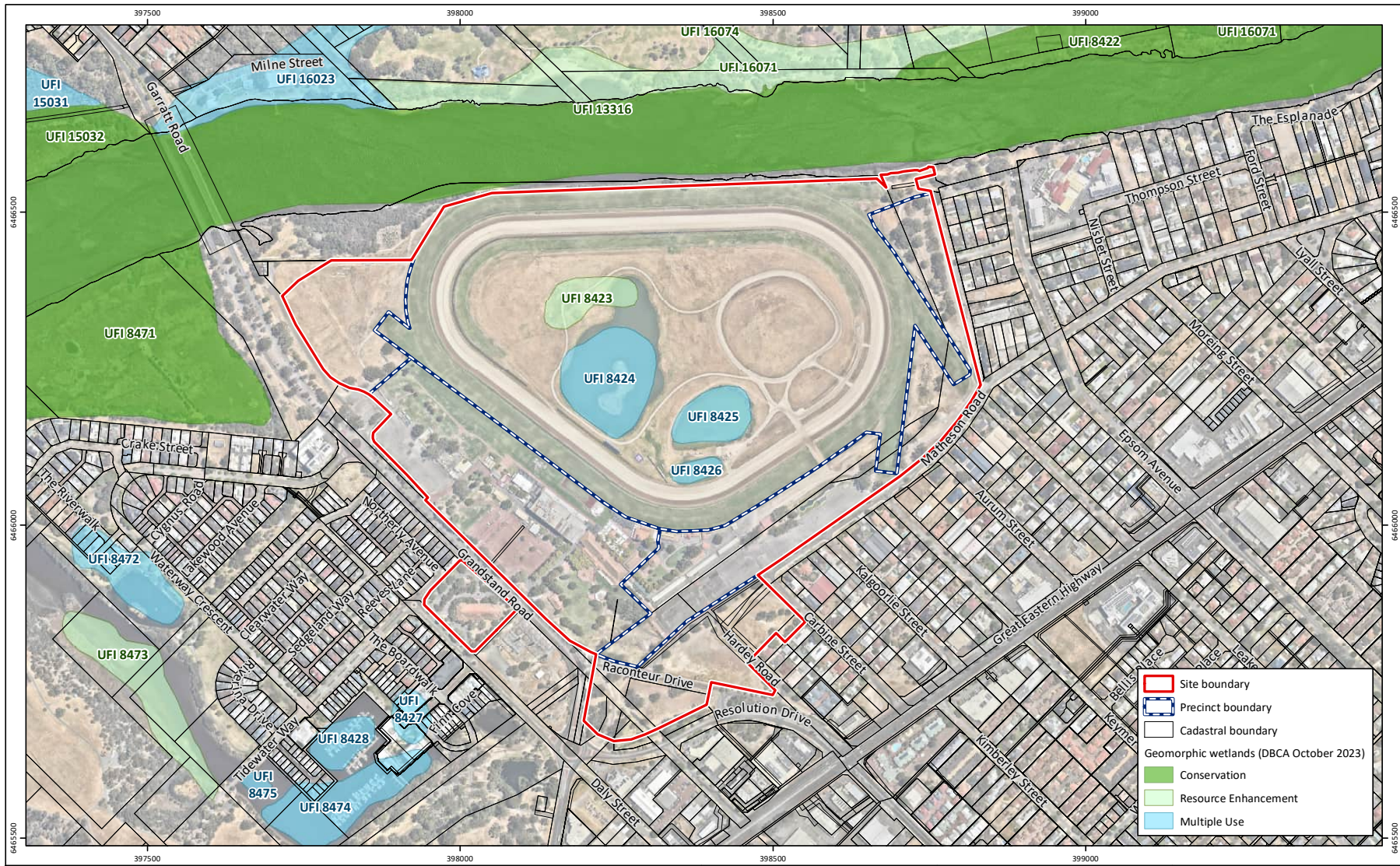
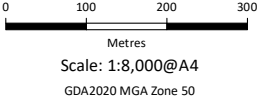


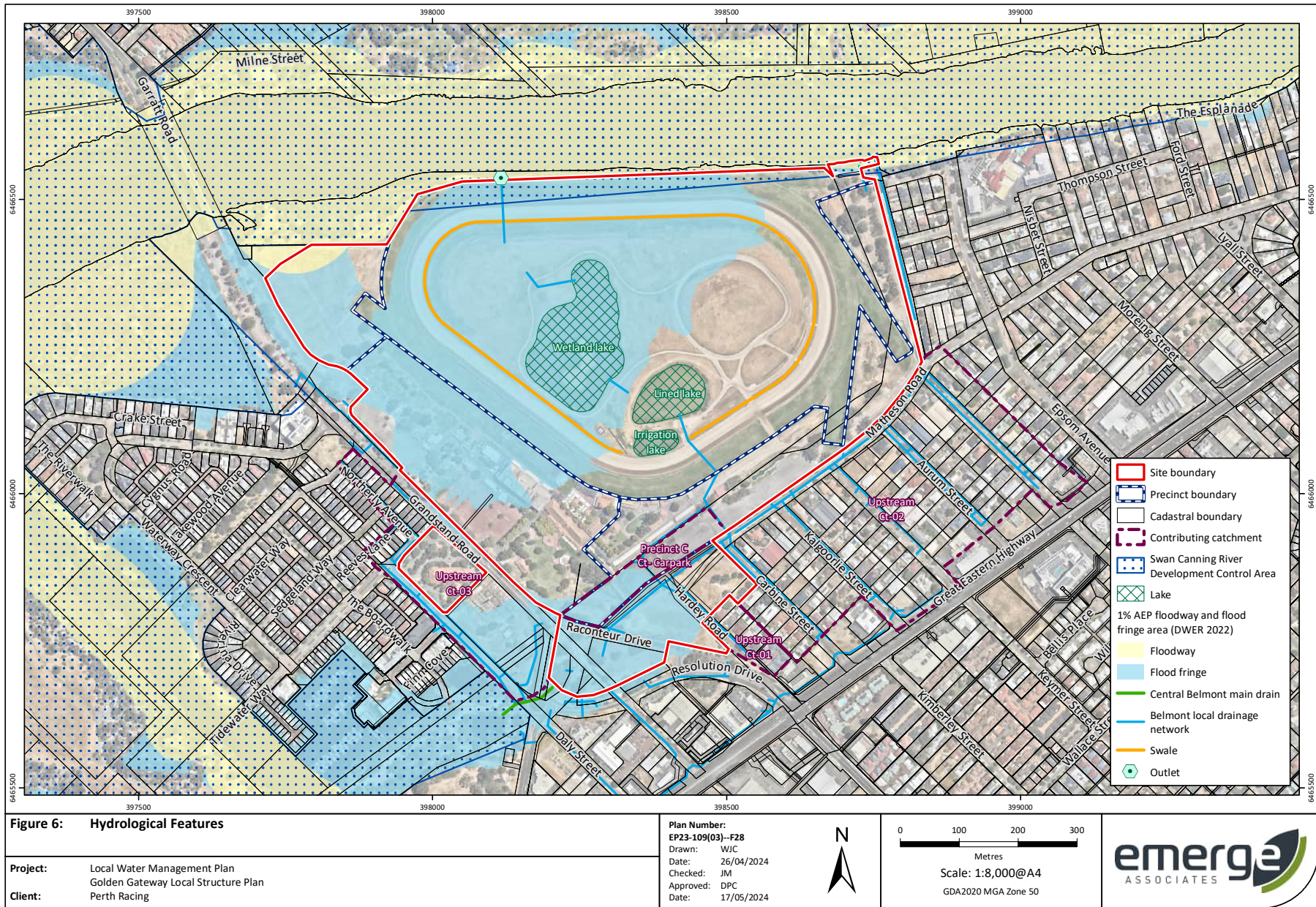
Figure 5: Environmental Assets

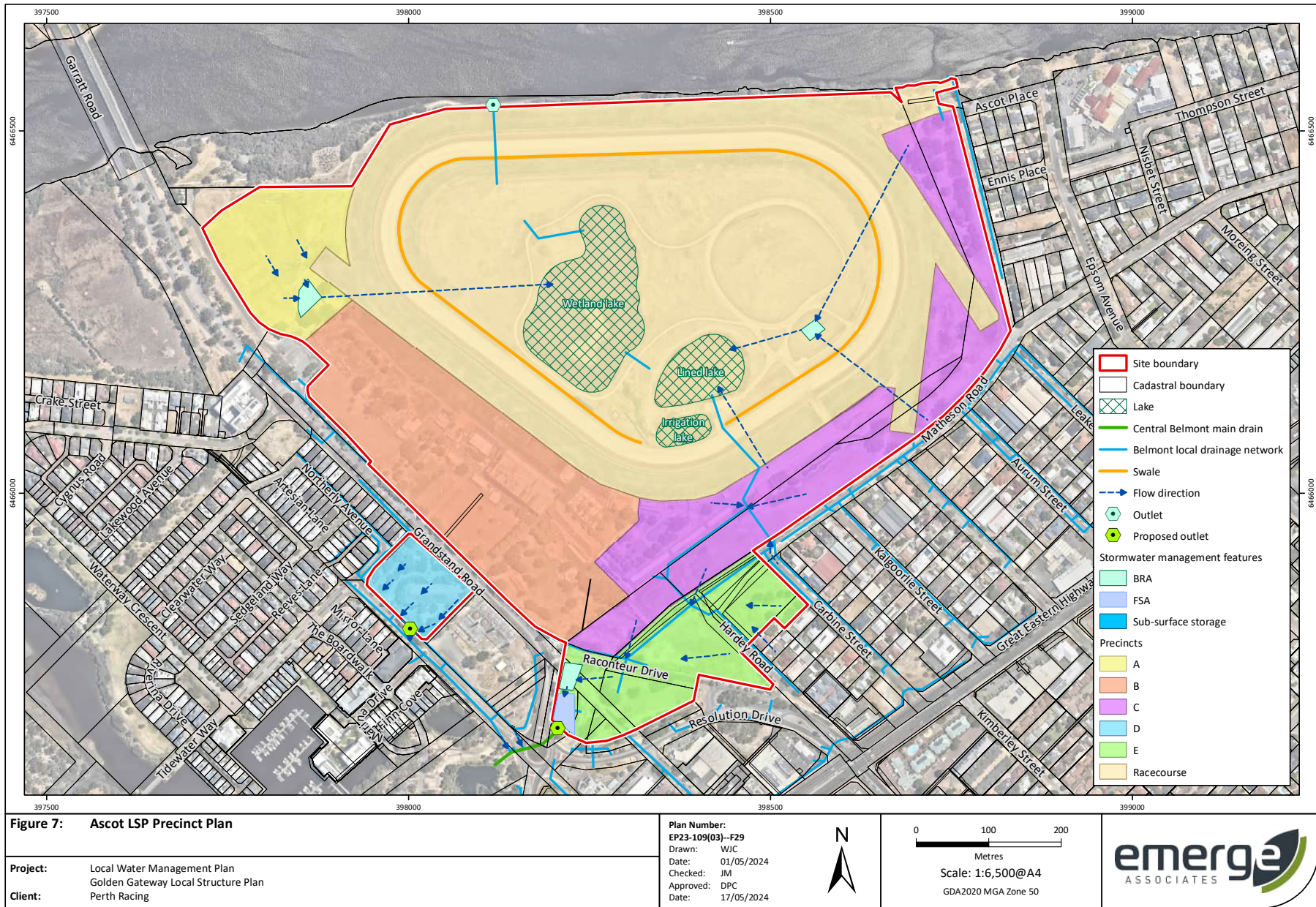
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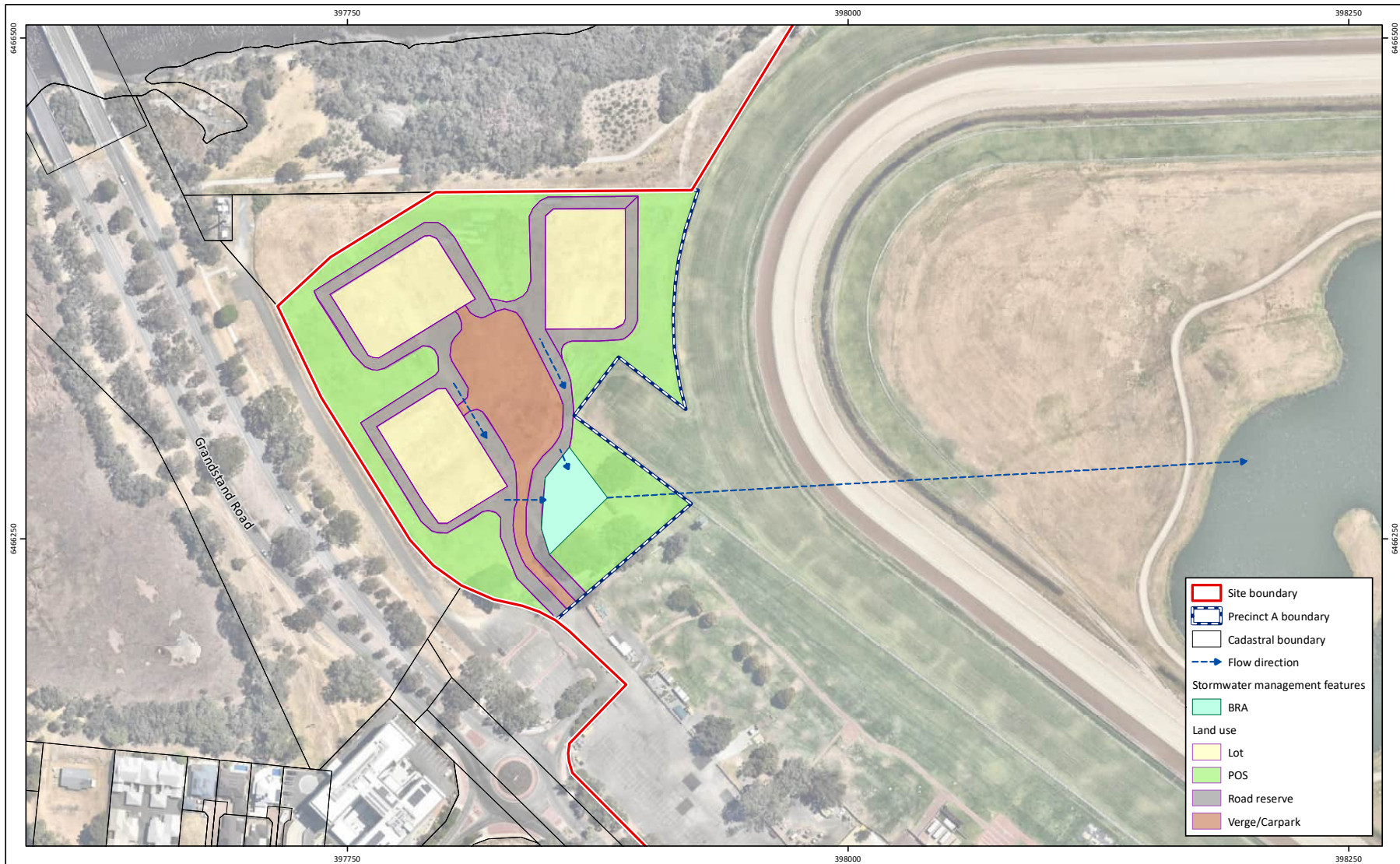


Figure 7A: Precinct A Stormwater Management Plan

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Drawn: WJC
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Checked: JM
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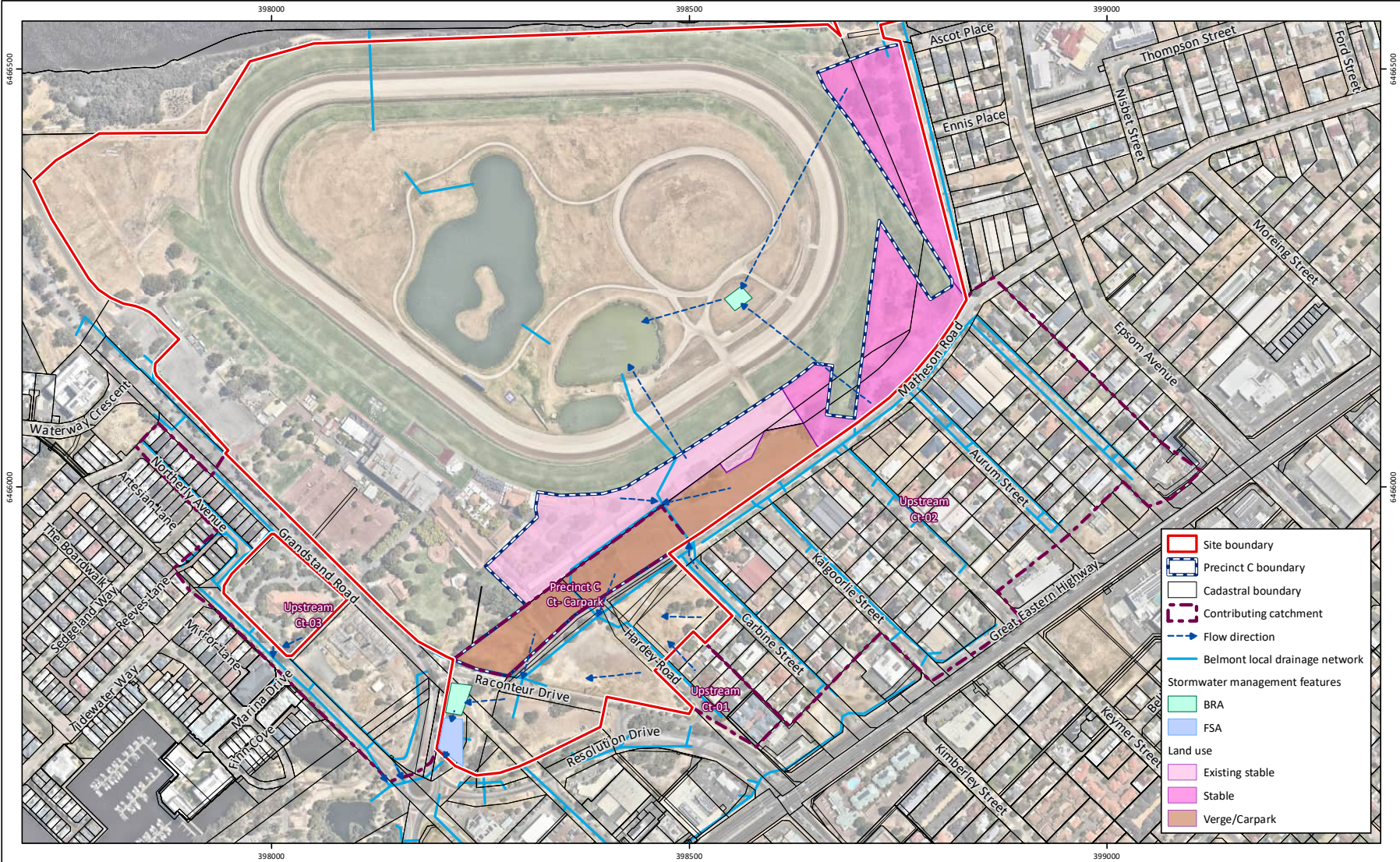


Figure 7B: Precinct C Stormwater Management Plan

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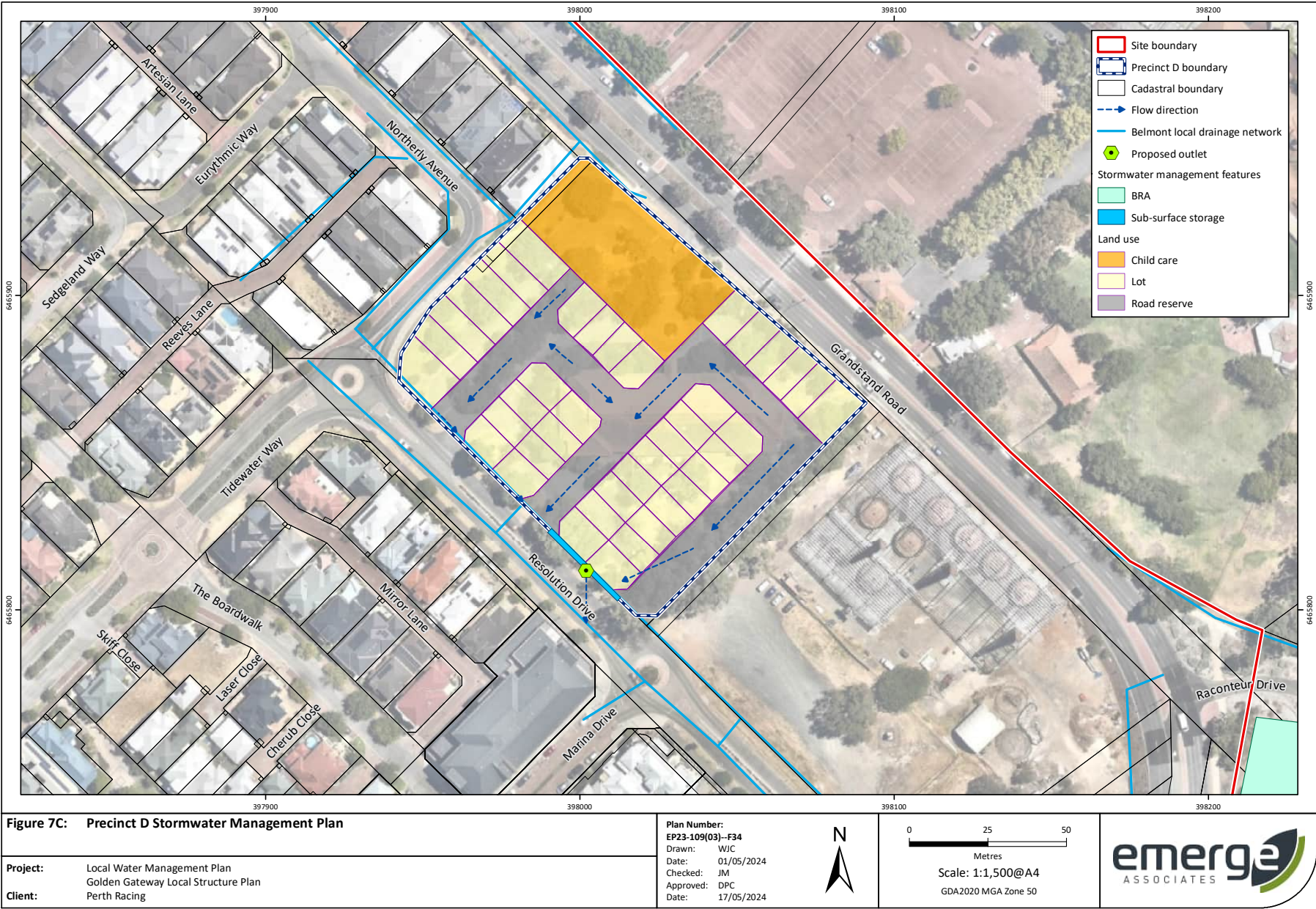
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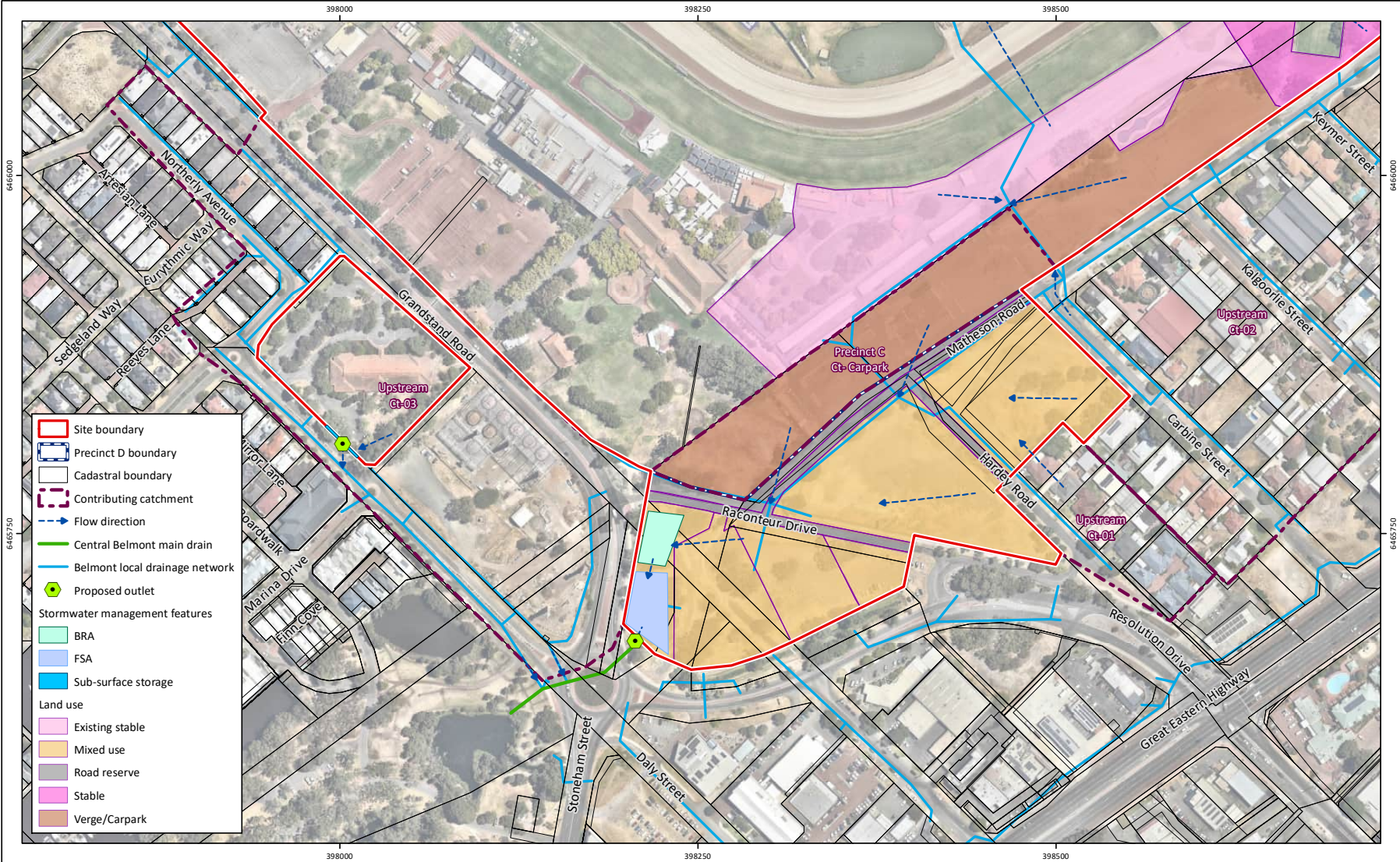


Figure 7D: Precinct E Stormwater Management Plan

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Drawn: WJC
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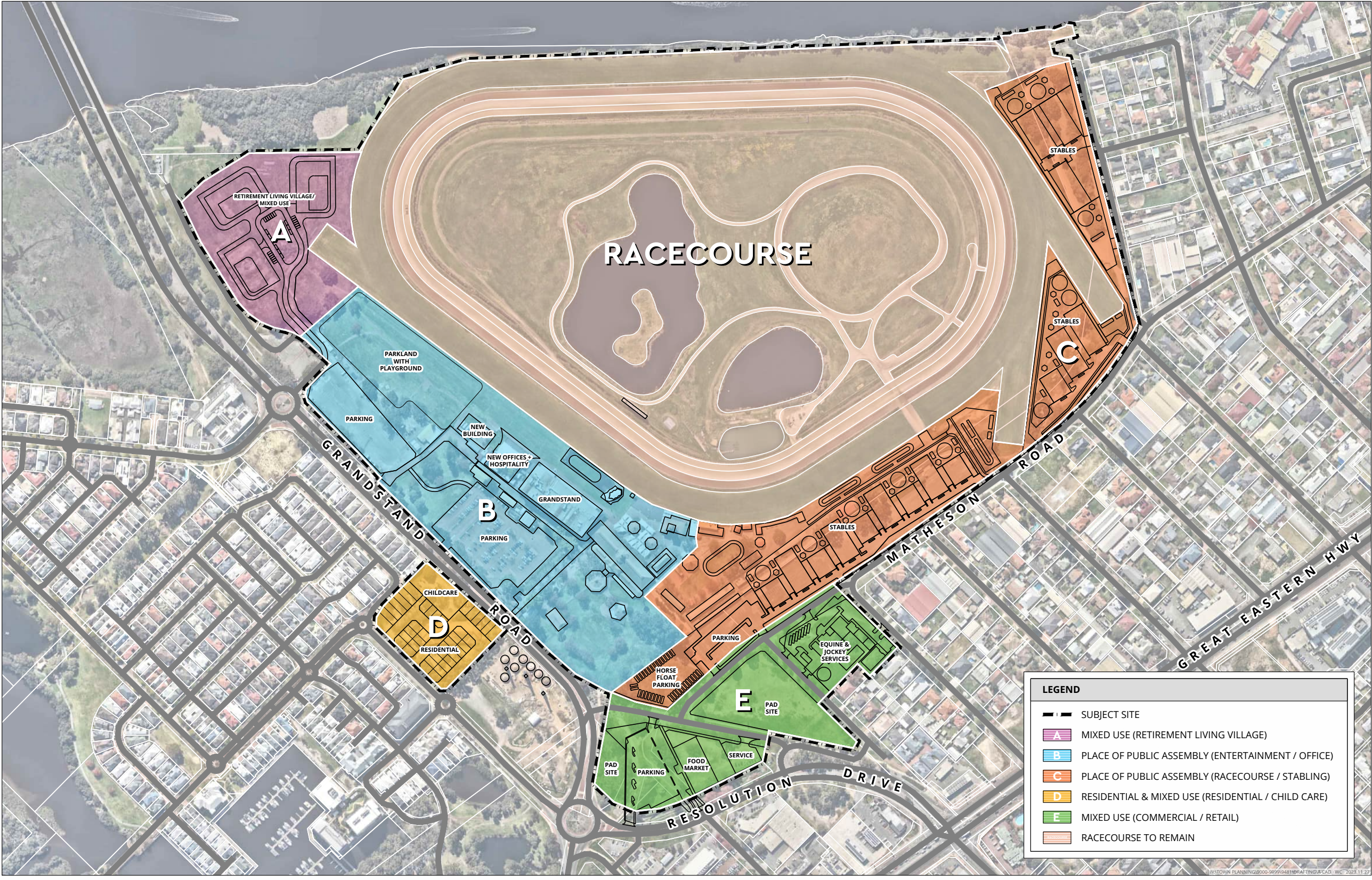
While Emerge Associates makes every attempt to ensure the accuracy and completeness of data, Emerge accepts no responsibility for externally sourced data used
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Appendix A

Concept plan



ROWE Group Design (2023)



DRAFT MASTER PLAN CONCEPT
VARIOUS LOTS - ASCOT RACECOURSE
ASCOT

DRAFT

N

0 100 m

SCALE @ A3: 1:4000

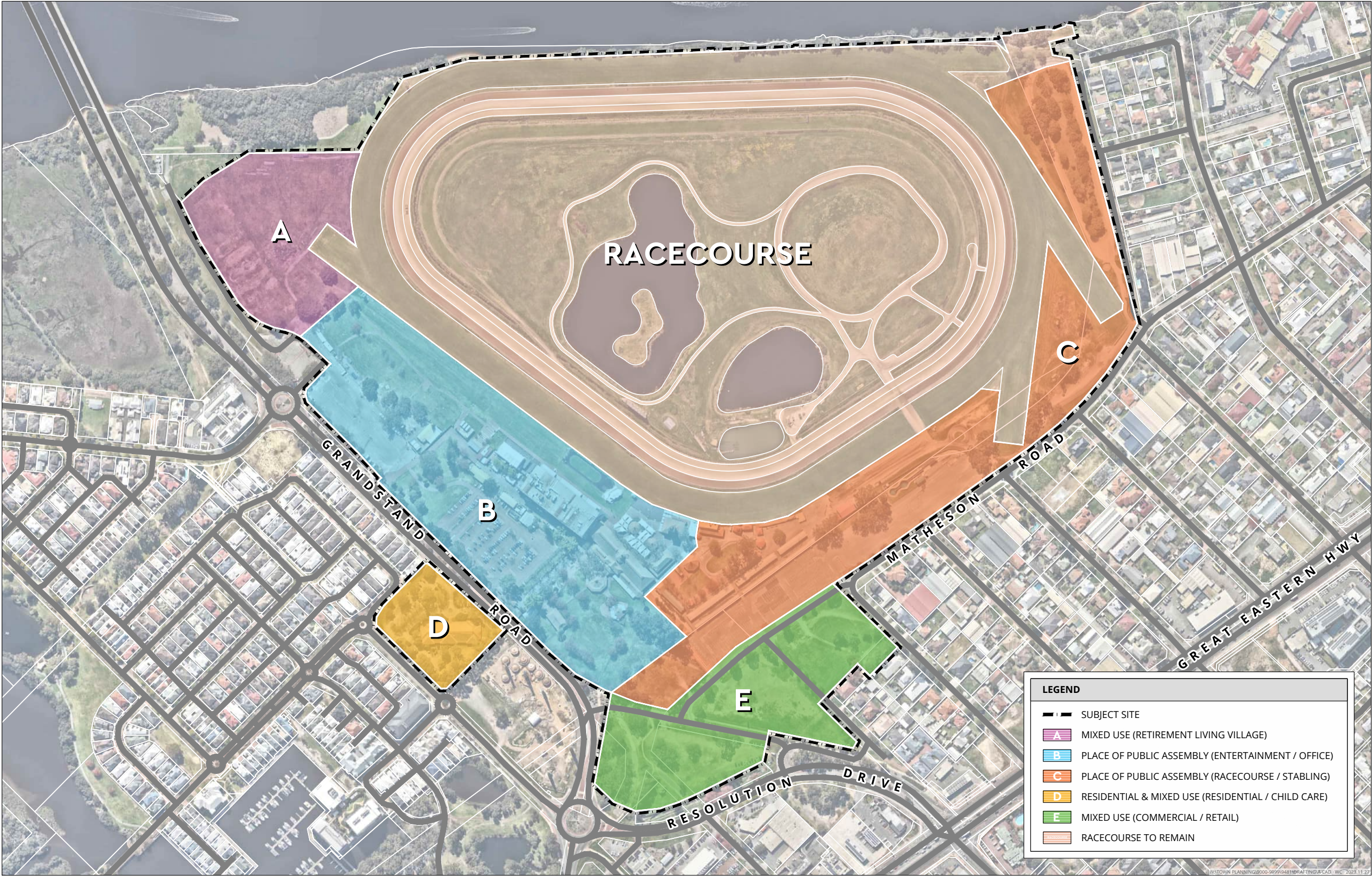
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PROJECTION: MGA50 GDA94
CADASTRE: LANDGATE
AERIAL: NEARMAP 20230831

WC: 2023.11.27
MGA50 GDA94
LANDGATE
NEARMAP 20230831

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ROWE GROUP DESIGN



STRUCTURE PLAN PRECINCTS
VARIOUS LOTS - ASCOT RACECOURSE
ASCOT

DRAFT

0 100 m
SCALE @ A3: 1:4000
9481-FIG-02-B

DRAWN:
DATE CREATED: 2023.11.27
PROJECTION: MGA50 GDA94
CADASTRE: LANDATE
AERIAL: NEARMAP 20230831
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WC
2023.11.27
MGA50 GDA94
LANDATE
NEARMAP 20230831



Appendix B

Geotechnical Reports



Precinct A – Douglas Partners 2024

Precinct D – Galt 2024



GROUND
ED
EXPERTISE

**Report on Preliminary Geotechnical
Investigation**

Proposed Residential Development

**Part of Lot 9002 Grandstand Road, Ascot
WA**

Prepared for Perth Racing

Project 219164.03

25 January 2024

GROUNDED
EXPERTISE

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Document History Details

Project No.	219164.03
Document Title	Report on Preliminary Geotechnical Investigation
Site Address	Part of Lot 9002 Grandstand Road, Ascot WA
Report Prepared For	Perth Racing
Filename	219164.03.R.001.Rev0

Status and Review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Venkat Vallurapalli/Brendan Divilly	Frederic Verheyde	25 January 2024

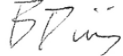

Distribution of Copies

Status	Issued to
Revision 0	Perth Racing

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature

Date

Author		25 January 2024
Reviewer		25 January 2024



Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

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Appendix A: About This Report

Appendix B: Test Location Plan



GROUND
ED
EXPERTISE

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Test Pit and Borehole Logs

CPT Results

Appendix C: Geotechnical Laboratory Test Certificates



Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

Report on Preliminary Geotechnical Investigation Proposed Residential Development Part of Lot 9002 Grandstand Road, Ascot WA

1. Introduction

This report presents the results of a preliminary geotechnical investigation undertaken for a proposed residential development across Part of Lot 9002 Grandstand Road, Ascot WA. The investigation was commissioned by Mr. James Oldring of Perth Racing in a signed order to proceed dated 8 August 2023 and was undertaken in accordance with Douglas' proposal dated 8 May 2023.

It is understood that Perth Racing is evaluating the feasibility of developing the northwest portion of Lot 9002 for possible residential use (the 'site').

The objective of the investigation is to assess the subsurface soil and groundwater conditions at across the site to provide preliminary comments on:

- The geotechnical suitability of the site for the proposed development.
- Geotechnical opportunities and constraints relevant to the proposed development.
- Areas of foundation risk including the presence of aggressive soils and strategies to address identified risks.
- Site preparation, including the possible reuse of existing soil as controlled fill.
- Excavation conditions.
- The likely site classification in accordance with the requirements of AS 2870-2011.
- Appropriate earthquake design factor for the site, in accordance with AS 1170.4-2007.
- Suitable foundation systems, including preliminary design parameters.
- Preliminary design parameters for the design of retaining structures and batter slopes.
- Depth to groundwater at the time of the investigation.
- Recommendations on additional geotechnical investigation at detailed design phase or to address specific ground conditions encountered.

The investigation included eight cone penetration tests, 16 test pits and one borehole excavated and drilled as a part of detailed site investigation (for contamination), and laboratory testing of selected samples. The details of the field work are presented in this report, together with comments and recommendations on the items listed above.

The investigation was conducted concurrently with a detailed site investigation (for contamination), which has been reported under separate cover (219164.01.R.001.Rev0). The detailed site investigation (for contamination) report should be read in conjunction with this report.

2. Site Description

The site comprises an irregular shaped area, approximately 36.2 ha in size, that covers a part of Lot 9002 Grandstand Road, within the Ascot Racecourse.

At the time of the field work, the majority of the site was vacant and vegetated with short grass. A few mature trees, about 5 m to 10 m in height, occupied the southern part of the site. A parking lot and small loading area were located at the south-western corner of the site. Some fly-tipped rubbish, including fences and posts, were observed at several locations across the site.

According to publicly available LiDAR data (DEM derived to 5 m), the topography across Lot 9002 is relatively flat with existing surface levels ranging from approximately RL 2 m relative to the Australian Height Datum (AHD) in the western part of the site to RL 3.5 in the north-eastern corner of the site.

The Perth 1: 50 000 Environmental Geology sheet indicates that shallow sub surface conditions beneath the western two thirds of the site comprise sandy silt of the Guildford Formation, and beneath the north-eastern corner and eastern corner of the site comprise alluvium.

The Perth Groundwater Atlas (2004) indicates that in May 2003, the groundwater level beneath the site was less than RL 1 m, or between approximately 1.0 m and 2.5 m below the existing surface level. The Atlas also indicates that the groundwater flow direction beneath the site in May 2003 was approximately northwest towards the Swan River.

The published acid sulfate soil risk mapping indicates that the site is located within an area which is mapped as *"high to moderate risk of acid sulfate soils occurring within 3 m of natural soil surface"*.

3. Field Work Methods

Field work for the investigation was carried out between 11 October and 9 November 2023 and comprised:

- The excavation of 16 test pits.
- The drilling of one borehole.
- Perth sand penetrometer (PSP) or Dynamic cone penetrometer (DCP) testing adjacent to each test pit or borehole location.
- The performance of cone penetration tests at 8 locations (CPT24 to CPT31A). A total of 14 CPTs were undertaken after repeating CPTs at some locations in attempt to achieve greater testing depth following shallow refusal in uncontrolled fill.

The test pits (locations 7 to 22) were excavated using a 5-tonne excavator, equipped with 450 mm toothed bucket, and the borehole (location 23) was drilled using a 250 mm diameter power auger attached to the same excavator. The ground conditions at each test pit and borehole were logged in accordance with Australian Standard (AS 1726, 2017) by a geo-environmental engineer from Douglas. Soil samples were recovered from selected locations for subsequent laboratory testing.

Dynamic cone penetrometer (DCP) and Perth sand penetrometer (PSP) tests were undertaken adjacent to the test pit and borehole locations in accordance with Australian Standards (AS 1289.6.3.3, 1997; AS 1289.6.3.2, 1997) to assess the in-situ density of the shallow soils.

The CPTs use a 36 mm diameter instrumented cone with a following 130 mm long friction sleeve attached to rods of the same diameter, pushed continuously at a rate of 20 mm/sec into the soil by hydraulic thrust from a truck rig. Strain gauges in the cone and sleeve measure resistance to penetration and friction along the sleeve during penetration. This data is recorded on a computer and analysed to assess the type, properties and condition of the materials penetrated. The CPT's were pushed to termination depths of up to 20.2 m. Upon withdrawing the CPT probe, each test hole was dipped in an attempt to measure groundwater levels. CPTs were repeated at several test locations to attempt achieving greater testing depth following shallow CPT refusal on inferred hard foreign inclusions in the uncontrolled fill.

Test locations were determined using a handheld GPS and site features and are marked on Drawing 1, Appendix B. Surface elevations were recorded using a differential GPS with a reported accuracy of 0.1 m.

4. Field Work Results

4.1 Ground Conditions

The logs of the ground conditions and results of the field testing are presented in Appendix B, together with notes defining descriptive terms and classification methods, in Appendix A.

- **Uncontrolled FILL**

- **Granular FILL - SAND, Organic SAND, Gravelly SAND, Silty SAND and Sandy GRAVEL (SP, SP-SM, SM and GP-GM)** – generally sandy fill (or gravelly material associated with pavement layers at location 23), uncontrolled (apart from the pavement layers), from surface to depths of between 0.6 m and 3.6 m depth, encountered at all locations. A layer of organic sandy fill layer was observed between 1.4 m and 1.8 m depth at location TP8. The sandy fill was generally loose to medium.
- **Cohesive FILL - Clayey SAND, Sandy CLAY, CLAY (SM, SC, CI and CL-CI)** – generally stiff to very stiff, either underlying the aforementioned sandy fill material or interbedded within layers of sandy fill, encountered at test pit locations 9, 20, 21, 23, and CPT locations 24, 24A, 29 and 29A.

A considerable amount of foreign inclusions such as fragments of brick, glass, timber, geo-fabric, concrete, plastic, rubber, scrap metal, terracotta pipes, redundant cables and PACMs were observed at all test pit locations, except location 22. A layer of asphalt was encountered at 0.95 m depth at TP9. The fill materials across the site are uncontrolled.

It is noted that the fill extended below groundwater level at many locations.

Overlying natural soils including:

- **Clayey soils including Clayey SAND and CLAY** – ranging between very soft to soft and stiff to very stiff, encountered under the fill materials at CPTs 25, 30 and 31A to depths between 4.2 m and 14.9 m.
- **Sandy soils including SAND and Silty SAND** – underlying and interbedded within the above clayey soils at CPTs 25, 30 and 31A. The sand was generally very loose and loose to medium dense to depths between 10.5 m and 14.9 m, becoming medium dense and dense below.

4.2 Groundwater

Groundwater level observations between 18 September and 9 November 2023 are summarised in Table 1 and are shown on the logs in Appendix B.

The test holes were immediately backfilled following sampling, which precluded longer-term monitoring of groundwater levels. Six monitoring wells (MW01 to MW06) were installed as part of the preliminary environmental investigation (reported separately) and groundwater observations available from these wells at the time of report writing have been included in Table 1.

Table 1: Summary of Groundwater Levels

Location	Date of Measurement	Ground Surface Level ^[1] (m AHD)	Groundwater Depth (m)	Groundwater Level ^[2] (RL m AHD)
MW01	18 September 2023	1.9	1.30	0.6
MW02		2.0	1.46	0.5
MW03		3.2	2.37	0.8
MW04		2.4	1.59	0.8
MW05		2.5	1.21	1.3
MW06		2.2	1.09	1.1
TP7	9 November 2023	2.9	2.30	0.6
TP9		2.1	2.10	0.0
TP12		2.1	2.10	0.0
TP13		2.8	2.50	0.3
TP15		2.2	2.40	-0.2
TP16		2.6	2.50	-0.1
TP17		2.2	2.10	0.1
TP19		2.2	1.80	0.4
TP20		2.0	2.10	-0.1
TP21		2.1	1.80	0.3
TP22		2.3	1.80	0.5
BH23		2.4	1.70	0.7
CPT25	11 October 2023	3.4	3.00	0.4
CPT28		1.9	1.30	0.6
CPT29A		2.3	2.20	0.1
CPT30		3.2	2.80	0.4
CPT31A		2.1	2.00	0.1

Notes for Table 1: [1]: Surface level measured using a differential GPS.

[2]: Groundwater Level = Surface Level – Groundwater Depth.

It should be noted that groundwater levels are affected by climatic conditions and land usage and will therefore vary with time. In addition, owing to the proximity of the Swan River, the groundwater levels are expected to be impacted by the tidal river conditions and river flood levels.

5. Laboratory Testing

A geotechnical laboratory testing programme was carried out by a NATA accredited laboratory and comprised:

- the particle size distributions on seven samples;
- the Atterberg Limits and linear shrinkage on three samples; and
- the organic content on four samples.

Results of the laboratory testing are summarised in Tables 2. The test certificates are presented in Appendix C.

Table 2: Results of Laboratory Testing for Soil Identification

Location	Depth (m)	Fines (%)	Sand (%)	Gravel (%)	LL (%)	PL (%)	PI (%)	LS (%)	OC (%)	Material
TP8	1.5	9	61	30	-	-	-	-	6.8	FILL / Organic SAND SP-SM, with gravel and silt
TP13	1.5	4	95	1	-	-	-	-	1.6	FILL / SAND SP, trace gravel and silt
TP19	2.5	5	83	12	-	-	-	-	1.5	FILL / SAND SP, trace gravel and silt
TP21	2.0	40	51	9	37	24	13	8.5	-	Sandy CLAY CI, medium plasticity, trace gravel
TP22	2.0	7	93	0	NO	NP	NP	-	-	SAND SP-SM, with silt
TP23	2.0	45	48	7	44	22	22	9.5	-	FILL / Sandy CLAY CI, medium plasticity, trace gravel
TP23	2.5	12	87	1	-	-	-	-	1.2	FILL / SAND SP-SM, with silt, trace gravel

Notes: Fines = Finer than 75 µm.

Sand = Between 2.36 mm and 75 µm.

Gravel = Larger than 2.36 mm.

LL – liquid limit PL – plastic limit PI – plasticity index

LS – linear shrinkage

OC – organic content NO – not obtainable NP – non plastic

6. Proposed Development

At the time of preparing this report, the details for the proposed development were not yet available. Notwithstanding, it is understood that the proposed development is likely to be residential and, given the location, is presumed would likely be multistorey and possibly include a basement level.

7. Comments

7.1 Site Suitability

The investigation indicates that the site is generally underlain by uncontrolled fill overlying very soft to stiff clayey materials and very loose sandy soils becoming medium dense and dense with depth as described in Section 4.1 above.

From a geotechnical standpoint, there are several significant geotechnical constraints that will adversely impact on any development of the site including;

- Deep uncontrolled fill, unsuitable to support shallow foundations, and will impact on construction activities associated with deep piled foundations.
- Deep very soft and very loose natural soils under the uncontrolled fill, unsuitable to support shallow foundations.
- Shallow groundwater which will make earthworks across the site any possible remediation works of the above difficult. It should be noted that the abovementioned uncontrolled fill and soft soils both extend below groundwater.

Owing to the significant geotechnical constraints, any possible development will likely require a piled foundation solution into the medium dense and dense sandy soils, encountered below depths of approximately 10 m to 15 m. Additional geotechnical investigation will be required to confirm the foundation design and suitable pile design parameters. Also, noting that any proposed additional loading of the ground (for instance from the placement of fill to raise site levels, if proposed) would generate further consolidation of the soft soils underlying the site and could result in some possible significant ground settlement. Therefore, surcharging areas (by placing temporary fill prior to construction of any structure) outside the proposed building envelopes might also be required during the site preparation to manage the risk of differential settlements between proposed buildings and adjacent ground, following their construction.

7.2 Site Classification

The shallow ground conditions beneath the site comprise uncontrolled fill materials and deep loose and soft soil deposits. Based on the results of the investigation and in accordance with Australian Standard (AS 2870, 2011), a site classification of 'Class P' applies to the site, owing to the presence of the uncontrolled fill and deep loose and soft soil.

7.3 Site Seismic Classification

Owing to the uncontrolled fill and deep very loose and very soft soil deposits across the site, an earthquake design soil sub-class of Ee is considered appropriate for this site in accordance with Australian Standard (AS 1170.4, 2007). The Hazard Factor (Z) for the site is 0.09, according to Australian Standard (AS 1170.4, 2007). Due to the deep loose soil below the water table, the site also has a significant potential for liquefaction. An assessment on the liquefaction potential of the site should be considered during any detailed investigation, when more details can be collected on the extent of deep loose soils.

7.4 Excavation Conditions

The encountered ground conditions generally comprise uncontrolled fill, with some large foreign inclusions within the fill, extending below groundwater. Conventional earthmoving equipment (such as large excavators, say at least 20 t) should be generally suitable for shallow excavations in the surficial uncontrolled fill. Shallow groundwater is likely to impact excavations across the site.

The majority of the uncontrolled fill encountered during this preliminary investigation is considered to be geotechnically unsuitable for re-use as structural fill in its current condition. Any further consideration to reuse the uncontrolled fill would require some specific geotechnical provisions, such as screening and disposing its unsuitable components. Separating the re-useable granular components (e.g. the sandy fill) from its cohesive components (e.g. clayey fill) might also prove to be practically difficult. Owing to the significant variability of uncontrolled fill materials across the site, any re-use potential from a geotechnical standpoint should be confirmed on-site by a geotechnical engineer. Some environmental considerations (i.e. contamination) are also anticipated to be required. Overall, at this stage of the study, the reuse of the encountered uncontrolled fill should be considered to be associated with some significant constraints that might preclude such reuse.

7.5 Slope Stability

During construction, it is recommended that temporary batter slopes across the site are maintained flatter than 2:1 (H:V) if not retained. This batter angle is valid provided no surcharge loads (including live loads such as vehicles and machinery) apply at the top of the slope. In uncontrolled fill materials, a safe batter angle not steeper than 3:1 (H:V) is recommended for design for slopes not greater than 3 m in height, however, owing to variability of the uncontrolled fill materials, this value should be adjusted during construction based on the encountered conditions.

The design of unpropped flexible or rigid walls should be undertaken using a triangular pressure distribution and the earth pressure parameters given in Table 4. In addition to the soil pressure, wall design should also allow for external loads such as buildings, live loads and hydrostatic pressure. Owing to the likely significant settlements associated with the uncontrolled fill and deep soft soils, the requirement to adopt a piles foundation system to support proposed retaining walls is anticipated.

Table 4: Preliminary Soil Parameters for Earth Retaining Design

Soil Type and Density	Soil Unit Weight Above Water γ (kN/m ³)	Submerged Soil Unit Weight γ' (kN/m ³)	Drained Angle of Friction Φ' (°)	Undrained Shear Strength C_u (kPa)	Coefficient of Earth Pressure – Active K_a	Coefficient of Earth Pressure – Passive K_p	Coefficient of Earth Pressure – at Rest K_0
Uncontrolled Fill Materials	16	6	28	-	0.36	2.7	0.5

It should be noted that the passive earth pressure coefficient (second last column of Table 4) is an ultimate value and does not incorporate a factor of safety. Because the stress-strain relationship curve for lateral loading is not linear, relatively large strains are required to mobilise full passive pressure, but only relatively small strains are required to mobilise half the passive pressure, therefore it would be prudent to incorporate a factor of safety of at least 2 for uncontrolled fill materials, to derive design values from the ultimate values.

7.6 Foundation Options

Shallow footings are not considered suitable across this site, owing to the significant thickness of uncontrolled fill and deep loose and soft soils.

7.6.1 Piles

It is anticipated that a piled foundation system, with deep bored piles that penetrate the deep loose and soft soils into the medium dense and dense sandy soils at depth, would likely be required for any foundations on-site.

Bored piles will require temporary or permanent casing throughout the uncontrolled fill materials, noting that possible obstructions within the uncontrolled might cause some difficulties when driving the casing or drilling the pile hole. This pile type will involve soil excavation to target founding level and hence would produce spoil that needs to be handled and disposed of in a suitable manner, which will need to also be considered from an environmental standpoint.

Installation through the uncontrolled fill materials could be affected by the possible presence of large, hard inclusions and the design of the pile installation methodology should take this possibility into consideration.

The settlement of the uncontrolled fill will exert negative skin friction on the piles, which the piles will need to be designed to accommodate or be constructed in sleeves.

Additional deep geotechnical boreholes will be required across the site to inform on the pile design.

7.6.1 Controlled Modulus Columns

Controlled modulus columns could be installed as an alternative to conventional pile foundations, allowing shallow footings to be used whilst controlling settlements to acceptable limits.

Installation of controlled modulus columns involves displacing a column of material using a reverse flight auger, densifying the soil around the auger, and backfilling the resulting hole with cement ground under moderate pressure to create a 'hard' inclusion in the ground. The columns are typically 250 mm to 500 mm in diameter. Column spacings of columns typically 1.8 m to 2.5 m but would need input from a specialist ground improvement contractor. Columns can be installed to depths of up to 50 m, so could penetrate to the base of the uncontrolled fill and deep loose and soft soils. However, if large hard inclusions such as concrete slabs or beams, are encountered then the auger may experience refusal, as the CPTs did at several locations during the preliminary geotechnical investigation.

A load transfer platform, such as a granular, well compacted fill layer, possibly reinforced with geogrid or geotextile, would be needed to transfer loads from shallow foundations to the columns.

One main benefit of this ground improvement option (compared to piling) would be to minimise differential settlement across the site and notably between buildings and surrounding grounds. However, it would likely be limited to low level development (say 2 to 3 level buildings), and this option is anticipated to likely be prohibitively expensive, with likely significant mobilisation and installation costs. The advice of a specialist ground improvement contractor, such as Menard Oceania, is suggested to be sought to further assess the suitability of this ground improvement to the proposed development.

7.7 Pavement Construction

The uncontrolled fill across the site does not form a suitable subgrade material for pavement in its current condition. Depending on the expected loading of proposed pavement, the requirement for some over-excavation of uncontrolled fill is likely. Construction should involve the use of a geo-composite layer (such as Global Synthetics' Combigrid) across the base of the over-excavation, overlain by a 500 mm thick layer of compacted crushed limestone, placement of a layer of geogrid (such as Global Synthetics' Secugrid), and a further 500 mm of compacted sand fill. The base of the constructed floating pavement footprint should be at least 2 m wider on each side than the total pavement width (4 m wider in total) to account for a suitable batter and transfer of load. Standard flexible pavements could then be constructed on the 1 m thick raft of stiffened subgrade. Placement of the initial base layer of composite geogrid may be difficult across areas of exposed uncontrolled fill. As such, depending on the site conditions, a 300 mm thick capping layer of clean fill may be required.

Regardless of the above site preparation, some settlement of the pavement should be expected over its service life and should be considered in the selection of the pavement surfacing. The use of pavers should be considered as such surfacing treatment would deform without cracking. Alternatively, a bituminous seal should be preferred over say an asphalt, owing to greater flexibility and to decrease maintenance and repair requirements, noting however that seals are less resistant than asphalt to shearing forces from tyres of turning heavy vehicles. The use of a specialised asphalt, such as a stone mastic asphalt, could also be considered, noting it would be less resistant to the risk of cracking than a seal. Some allowance for regular maintenance and repairs should be allowed during the serviceability of the pavement.

7.8 Stormwater Drainage

Owing to the occurrence of low permeability soils and groundwater at shallow depth, the site is considered unsuitable for on-site stormwater disposal. It is suggested that stormwater is controlled using positive drainage or a subsoil drainage network, connected to a suitable outflow.

7.9 Additional Geotechnical Investigation

Additional geotechnical investigation across the site, by way of deep geotechnical boreholes (as a minimum), further CPT and additional laboratory testing, should be undertaken to help refine the ground model, provide pile design parameters, confirm suitable bearing strata for piles, and assess the soil aggressivity and exposure classification for piles. It is recommended that the detailed investigation programme be developed once some details of the proposed development

are known, if possible, in order to target specific geotechnical issues associated with the development.

The investigation covered in this report should be considered preliminary and as noted in selected sections of the report, additional detailed geotechnical testing at a greater testing frequency is anticipated once the project design has progressed.

8. References

AS 1170.4. (2007). *Structural Design Actions, Part 4: Earthquake Actions in Australia*. Reconfirmed 2018. Incorporating Amendments 1 & 2: Standards Australia.

AS 1289.6.3.2. (1997). *Methods for testing soils for engineering purposes - Soil strength and consolidation tests - Determination of the penetration resistance of a soil - 9kg dynamic cone penetrometer test*. Reconfirmed 2013: Standards Australia.

AS 1289.6.3.3. (1997). *Methods for testing soils for engineering purposes - Soil strength and consolidation tests - Determination of the penetration resistance of a soil - Perth sand penetrometer test*. Reconfirmed 2013: Standards Australia.

AS 1726. (2017). *Geotechnical Site Investigations*. Standards Australia.

AS 2159. (2009). *Piling - Design and Installation*. Standards Australia.

AS 2870. (2011). *Residential Slabs and Footings*. Standards Australia.

9. Limitations

Douglas Partners (DP) has prepared this report for this project at Part of Lot 9002 Grandstand Road, Ascot WA in accordance with DP's proposal dated 8 May 2023 and acceptance received from Mr James Oldring in a signed services order dated 8 August 2023. The work was carried out under DP's Engagement Terms. This report is provided for the exclusive use of Perth Racing for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

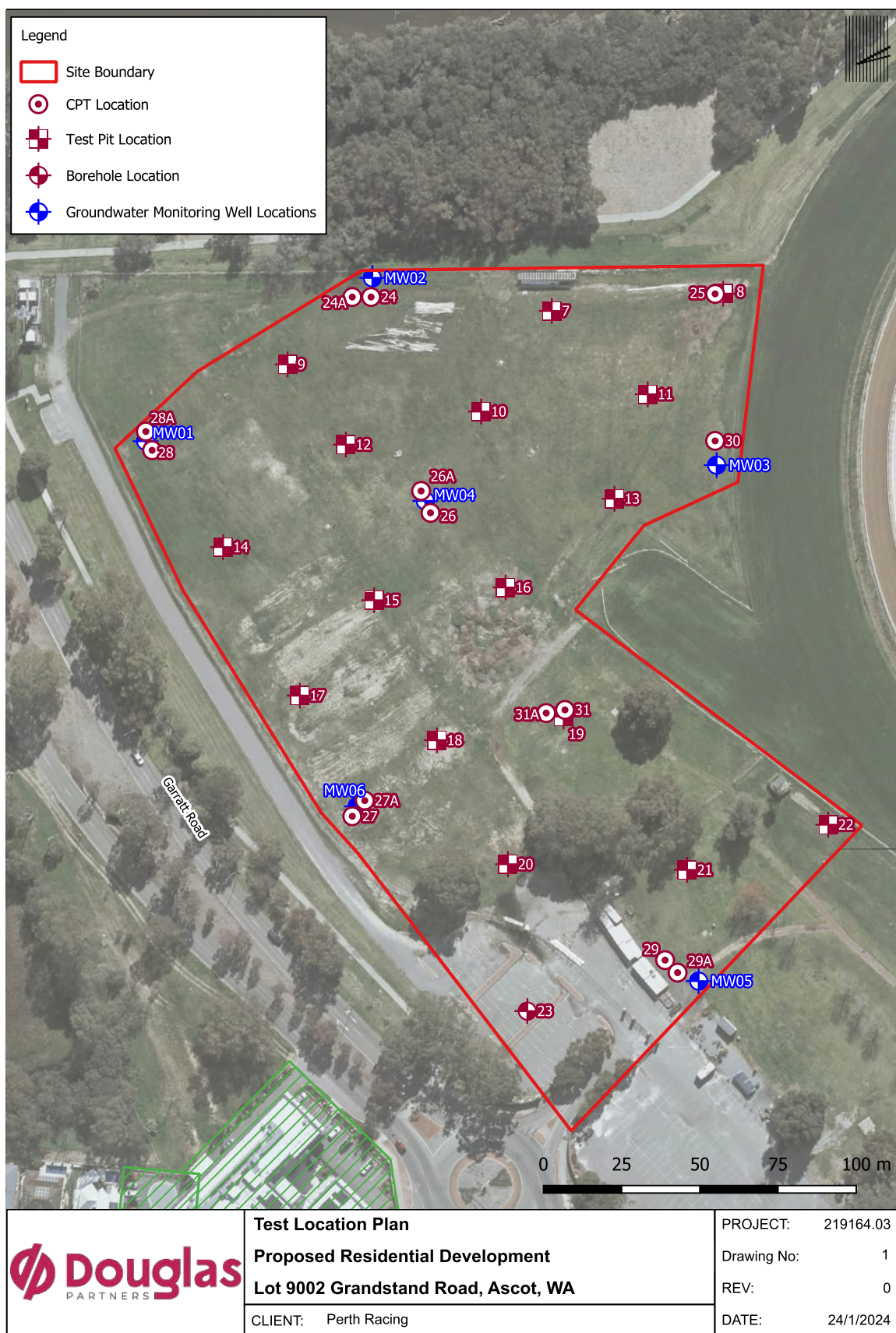
The scope of work for this investigation/report did not include the assessment of surface or sub-surface materials or groundwater for contaminants, within or adjacent to the site. Should evidence of fill of unknown origin be noted in the report, and in particular the presence of building demolition materials, it should be recognised that there may be some risk that such fill may contain contaminants and hazardous building materials.

Appendix B

Test Location Plan

Test Pit and Borehole Logs

CPT Results



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 1.9 AHD
COORDINATE: E:397722.0, N:6466365.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 01
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS				
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
Ground Water Measured at 1.3 m 18/09/23		0.40	FILL / SAND (SP-SM), with silt, trace rootlets: grey-brown; fine to medium; poorly graded.		FILL												
			FILL / SAND (SP-SM), with silt, trace rootlets: grey - brown; fine to medium.					M		ASS		0.50					
	1	1								ASS		1.00					
					FILL					ASS		1.50					
	2	2								ASS		2.00					
		2.10	SAND (SP), trace silt: grey; fine to medium.					W		ASS		2.50					
					ALV					ASS		3.00					
		3.60	Clayey SAND (CL-CI): grey; fine to medium; low to medium plasticity clay.		ALV						ASS		3.50				
	3	3															
	4	4								ASS		4.00					
			Borehole discontinued at 4.00m depth. Target Depth Reached.														

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.0 AHD
COORDINATE: E:3977795.0, N:6466418.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 02
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
RL (m)										
		FILL / SAND (SP-SM), with silt, trace gravel: grey; fine to medium.								
		From 0.40m: becoming orange-brown							ASS	0.50
	1	From 1.10m: becoming grey-brown, trace limestone gravel		FILL			M		ASS	1.00
		1.60m: trace brick, limestone gravel, wet @ 1.6 m							ASS	1.50
	2								ASS	2.00
	2.20	Sandy CLAY (CL-CI): grey; low to medium plasticity; fine to medium sand.		ALV					ASS	2.50
	2.70	SAND (SP), trace rootlets, trace silt: grey; fine to medium.					W		ASS	3.00
	3			ALV					ASS	3.50
	4	Borehole discontinued at 4.00m depth. Target Depth Reached.							ASS	4.00
	5									5

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 3.2 AHD
COORDINATE: E:397905.0, N:6466358.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 03
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED				SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
	3	FILL / SAND (SP), trace silt: orange; fine to medium.								
		From 0.30m: becoming grey, trace clay, limestone gravel								
	1			FILL						
	2									
	1.60	FILL / Clayey SAND (SC), trace gravel: grey; fine to medium; low to medium plasticity clay.								
	2			FILL						
	2.20	FILL / SAND (SP), trace silt: orange - grey; fine to medium.								
		2.80m: trace brick								
	3.00			FILL						
		3.30m-3.50m: with bitumen layer								
	3.60	FILL / CLAY (CL-Cl), trace sand: grey - green; low to medium plasticity.								
	4			FILL						
		Borehole discontinued at 4.00m depth. Target Depth Reached.								
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PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface lvel surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions


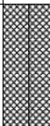















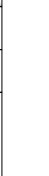
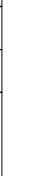







BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397812.0, N:6466346.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 04
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS																	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE													
Ground Water Measured at 1.59 m 18/09/23		0.60	FILL / SAND (SP-SM), with silt, trace rootlets: orange grey; fine to medium.		FILL						ASS	0.50																	
		1.00	FILL / SAND (SP), with gravel, trace clay: grey; fine to medium; fine to medium gravel.		FILL							ASS	1.00																
			1.50m: trace brick, wet																										
		2.00	2.00m: trace brick		FILL							ASS	2.00																
			3.00m: trace brick		ALV							ASS	2.50																
		3.20	SAND (SP), trace silt: grey-orange; fine to medium.																						ASS	3.00			
3.40	Clayey SAND (SC): orange-grey; fine to medium; low to medium plasticity clay.																						ASS	3.50					
3.60	Sandy CLAY (CL): grey; low to medium plasticity; fine to medium sand.		ALV																										
4.00	Borehole discontinued at 4.00m depth. Target Depth Reached.									ASS	4.00																		
5.00																													
6.00																													

Generated with CORE-GS by Geocore - Soil Log

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe 7822DT
METHOD: Direct Push Probing
REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

OPERATOR: DPP

LOGGED: VV
CASING: Nil

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.5 AHD
COORDINATE: E:397900.0, N:6466193.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 05
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED																SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE					
Ground Water Measured at 1.21 m 18/09/23			FILL / SAND (SP-SC), with rootlets, with silt: orange-grey, fine to coarse. 0.30m: trace gravel		FILL					ASS		0.50									
		0.60	FILL / Clayey SAND (SC): orange-grey, fine to medium; low to medium plasticity clay.		FILL					ASS		1.00									
		1.40	SAND (SP), trace silt: orange-grey, fine to medium.							ASS		1.50									
		2.00			ALV					ASS		2.00									
		2.60								ASS		2.50									
		3.00	Sandy CLAY (CL): grey-black; low to medium plasticity; fine to medium sand.		ALV					ASS		3.00									
		3.10	SAND (SP): grey; fine to medium.		ALV																
		3.40	Sandy CLAY (CL): grey-black; low to medium plasticity; fine to medium sand.		ALV					ASS		3.50									
		4.00	Borehole discontinued at 4.00m depth. Target Depth Reached.							ASS		4.00									
		5.00																			
NOTES ^(*) Soil origin is "probable" unless otherwise stated. ^(*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																					

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface lvel surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397790.0, N:6466249.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW 06
PROJECT No: 219164.01
DATE: 11/09/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS				
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
Ground Water Measured at 1.09 m 18/09/23	0.40	FILL / SAND (SP) : Sand, with rootlets, trace silt: orange-grey; fine to medium.		FILL												
		FILL / SAND (SP), with gravel: grey-brown; fine to medium.									ASS					
	1	From 0.80m: becoming grey, no gravel		FILL							1					
		From 1.10m: becoming orange-grey									2					
	2	From 1.80m: becoming grey and trace brick		FILL							2					
		FILL / Clayey SAND (CL): grey; fine to medium; low to medium plasticity clay; may be natural.														
	2.60	SAND (SP): grey; fine to medium.		ALV							3					
	3.10	Sandy CLAY (CL): dark grey; low to medium plasticity; fine to medium sand.		ALV							4					
	4	Borehole discontinued at 4.00m depth. Target Depth Reached.										4				
	5											5				
NOTES ^(*) Soil origin is "probable" unless otherwise stated. ^(*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																

PLANT: Geoprobe 7822DT

OPERATOR: DPP

LOGGED: VV

METHOD: Direct Push Probing

CASING: Nil

REMARKS: Surface lvel surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.9 AHD
COORDINATE: E:397852.9, N:6466410.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP07
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

GROUNDWATER		CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS				
RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°) DENSITY: (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS		
		FILL / SAND (SP-SM), with silt, trace rootlets: grey, fine to medium. From 0.17m: becoming orange		FILL	MD to VD			ES	0.10	PID	<1ppm	5	10	15
	0.60	0.54m: trace geo-fabric		FILL		D to M		ES	0.40 - 0.50	PID	<1ppm			
	0.90	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand. 0.84m: trace geo-fabric		FILL										
	1.40	FILL / GRAVEL (GP-GM) : Gravel, with mulch, with sand: dark brown and dark grey-brown; with silt. 1.50m: trace PACM fragment From 1.60m-2.60m: with fragments of bricks, concrete and metal roofing sheetings		FILL	ND	M	ASB9, ASB10 AF/FA	D ES	1.50 - 1.60	PID	<1ppm			
	2.00			FILL				ES	2.00 - 2.10	PID	<1ppm			
	2.50					W		ES	2.50 - 2.60	PID	<1ppm			
		Test Pit discontinued at 2.60m depth. (Collapsing conditions).												



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NOTES: ^(a) Soil origin is "probable" unless otherwise stated. ^(b) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.3 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 3.6 AHD
COORDINATE: E:397905.7, N:6466414.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP08
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
RL (m)									
		FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.			VD			ES	0.10
		From 0.43m: becoming pale grey, trace gravel						ES	0.50
		From 1.20m: becoming grey						ES	1.00
		FILL / organic SAND (SP-SM), with silt, with gravel: dark grey-brown; fine to medium; trace fragments of brick and concrete.			ND			D	1.50
		1.55m-2.00m: with fragments of brick, concrete and PVC						ES	1.60
		FILL / SAND (SP), trace gravel, fragments of brick and concrete, trace silt: dark grey; fine to medium.						D	2.00
		2.20m: trace metal sheet, PVC						ES	2.10
		2.40m: trace rubber pipe, metal bar						ES	2.50
		Test Pit discontinued at 2.70m depth. (Test Pit terminated due to slow digging).							2.60



NOTES *Soil origin is "probable" unless otherwise stated. **Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.1 AHD
COORDINATE: E:397768.9, N:6466392.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP09
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
0.91/23 0	0.10	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL	D to D VD	D to M		ES	0.10	PID	<1ppm	 REFUSAL 25 25
	0.45	FILL / Clayey SAND (SC): orange-brown; fine to medium; low to medium plasticity clay.						D	0.50	PID	<1ppm	
	0.95	FILL / ASPHALTIC CONCRETE: black, 7 mm sized nominal aggregate.						ES	1.00	PID	<1ppm	
	0.98	FILL / Silty SAND (SM): brown; fine to medium. From 1.15m: becoming grey-brown medium. From 1.20m: with fragments of brick, concrete slab of 0.4 m in thickness, geo-fabric, metal bar and terracotta pipe 1.40m: trace metal sheet						ES	1.10	PID	<1ppm	
	1.50							ES	1.50	PID	<1ppm	
	1.60							ES	1.60	PID	<1ppm	
	2.00							ES	2.00	PID	<1ppm	
	2.10							ES	2.10	PID	<1ppm	
	1.90m-2.10m: trace pockets of Clayey SAND SC											
	Test Pit discontinued at 2.30m depth. (Collapsing conditions).											



NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397829.1, N:6466375.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP10
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	
			FILL / SAND (SP-SM), with silt, trace rootlets: bands of grey, orange-brown and pale grey; fine to medium.		FILL	MD to D			DUP 2	ES		0.10	PID	<1ppm	
		0.80	0.70m: trace geo-fabric		FILL					ES		0.50	PID	<1ppm	
		1	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL					ES		1.00	PID	<1ppm	
		1.20	FILL / SAND (SP), trace rootlets, trace silt: grey -brown; fine to medium.									1.10	PID	<1ppm	
			From 1.40m-1.80m: with fragments of brick and concrete		FILL					ES		1.50	PID	<1ppm	
		2	From 1.80m: becoming dark grey, trace fragments of brick and concrete		FILL					ES		2.00	PID	<1ppm	
		0	Test Pit discontinued at 2.15m depth. (Test Pit terminated due to slow digging).									2.10	PID	<1ppm	



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NOTES ^(a) Soil origin is "probable" unless otherwise stated. ^(f) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:397881.2, N:6466387.1
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP11
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
RL (m)									
	0.10	FILL / SAND (SP-SM), with silt: grey and orange-brown; fine to medium.				D to M		ES	0.10
	0.50	From 0.35m: becoming grey			VD			ES	0.50
	0.60							ES	0.60
	1.00							D	1.00
	1.10						DUP 3	ES	1.10
	1.60	From 1.60m: becoming dark grey, trace fragments of brick						D	1.60
	1.70	From 1.70m-2.40m: with fragments of brick and concrete						ES	1.70
	2.00	1.80m: piece of concrete boulder (1 m x 0.5 m) observed						ES	2.00
	2.10	2.10m: trace plastic bottle, glass bottle, concrete rubble							2.10
	2.30	2.30m: trace fragments of wooden plank and timer						D	2.30
		Test Pit discontinued at 2.40m depth. (Test Pit terminated due to slow digging).							



Generated with CORE-GS by Geocore - Soil Log with Photo

NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.1 AHD
COORDINATE: E:397785.4, N:6466366.6
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP12
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS						
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾ DENSITY ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS		
<div>0.85 0.90</div> <div>1</div> <div>2</div> <div>0.0 0.9/1.23</div>	2	FILL / SAND (SP-SM), with silt, trace gravel and rootlets: grey; fine to medium. From 0.20m: becoming yellow-brown		FILL		D to M	AF/FA, ASB 6, ASB 7	ES	0.10	PID	<1ppm			
	ES	0.50 0.60		PID				<1ppm						
	ES	1.00 1.10	PID	<1ppm										
	ES	1.50 1.60	PID	<1ppm										
	B ES	2.00 2.10	PID	<1ppm										
	Test Pit discontinued at 2.30m depth. (Collapsing conditions).													



NOTES ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

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NOTES: ^(a) Soil origin is "probable" unless otherwise stated. ^(f) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.8 AHD
COORDINATE: E:397872.7, N:6466350.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP13
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
		FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium; 10% non-plastic fines. From 0.15m: becoming orange		FILL	VD to D	D to M		ES	0.10
		0.70m: trace geo-fabric		FILL				D	0.50
				FILL				ES	0.60
		FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL				ES	1.00
		1.20m: trace geo-fabric						D	1.10
		FILL / SAND (SP), trace gravel, fragments of brick and concrete, trace silt: dark grey; fine to medium.						ES	1.50
		1.50m-2.40m: with fragments of bricks and concrete slab						D	1.60
								ES	2.00
								D	2.10
								ES	2.50
								D	2.60
		Test Pit discontinued at 2.70m depth. (Collapsing conditions).							



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.5 m depth.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397745.6, N:6466334.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP14
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*)	DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
	0.25	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL	to D		D to M		ES	0.10
		FILL / Silty SAND (SM): brown and grey-brown; weakly to moderately cemented.			VD					
	1	0.65m: trace fragments of brick and glass 0.72m-2.00m: with fragments of brick, metal sheet and insulation material 0.92m: trace fragments of plastic waste, glass and limestone boulders								
				FILL	ND		M		ES	1.00
	2	2.00m: becoming green-grey, trace fragments of timber, brick and concrete blocks, with pockets of Clayey SAND SC							ES	1.50
		From 2.20m: with fragments of brick and scrap metal							ES	2.00
									D	2.40
		Test Pit discontinued at 2.50m depth. (Test Pit terminated due to slow digging).								



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions

Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397794.3, N:6466319.4
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP15
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
<div>0.81/23</div>	2	0.10	FILL / SAND (SP-SM), with silt, trace gravel and rootlets: orange-brown; fine to medium.		FILL	VD	D to M		ES	0.10	PID	<div><div><1ppm</div><div>51015</div></div>				
		0.75	From 0.24m: becoming grey													
			From 0.42m: becoming pale grey													
		0.95	FILL / Sandy GRAVEL (GP-GM), with silt: dark brown and grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL	ND										
			FILL / SAND (SP), with fragments of brick and concrete, trace silt: grey; fine to medium.													
		2	1.20m: trace fragments of timber, terracotta pipe and scrap metal													
			1.50m: trace redundant cable													
From 1.80m: becoming orange-brown	FILL		ND													
2.00m: trace PACM pipe																
2.10m: trace fragments of timer																
0	From 2.40m: becoming dark grey															
Test Pit discontinued at 2.70m depth. (Test Pit flooded with water seepage).																



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 Groundwater encountered at 2.4 m depth.

Refer to explanatory notes for symbol and abbreviation definitions




Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397837.5, N:6466321.2
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP16
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°) DENSITY: (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS		
 0.8/11/23			FILL / SAND (SP-SM), with silt, trace gravel and rootlets: grey; fine to medium.		FILL	ND	D to M		ES		0.10	PID	<1ppm		
	0.34	FILL / Sandy (GP-GM), with silt: grey; fine to medium sand.	FILL					ES	0.50	PID	<1ppm				
	0.84	0.80m: trace fragments of plastic waste													
	1	FILL / SAND (SP), with fragments of brick and concrete, trace silt: grey; fine to medium.						ES	1.00	PID	<1ppm				
		1.50m: trace fragments of plastic waste						D	1.50	PID	<1ppm				
					ES			1.60	PID	<1ppm					
	2	2.00m: trace metal plate (0.5 m x 0.5 m) 2.10m: with limestone boulders						ES	2.00	PID	<1ppm				
			ND												
			Test Pit discontinued at 2.60m depth. (Collapsing conditions).												

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NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.5 m depth.

Refer to explanatory notes for symbol and abbreviation definitions




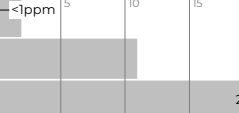
Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397775.7, N:6466289.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP17
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
 0.8/1.723 0	0.15	FILL / SAND (SP-SM), with silt, trace rootlets: orange - grey; fine to medium.		FILL		D to M		ES	0.10	PID	<1ppm	
		FILL / Sandy GRAVEL (GP-GM), with fragments of concrete, with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL				ES	0.50	PID	<1ppm	
	0.90	FILL / SAND (SP), with fragments of brick and concrete, trace silt: grey; fine to medium.		FILL				ES	1.00	PID	<1ppm	
	1	1.10m: trace fragments of plastic waste		FILL				ES	1.10	PID	<1ppm	
		1.60m: trace metal sheets		FILL			ASB 3	ES	1.50	PID	<1ppm	
	2	1.90m: piece of concrete block observed					ASB 4	ES	2.00	PID	<1ppm	
									2.10			
		Test Pit discontinued at 2.50m depth. (Collapsing conditions).										



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NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397816.0, N:6466272.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP18
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	2	0.26	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium; weakly cemented.		FILL	ND		D to M		ES	ASB 1	0.10	PID	<1ppm
		0.45	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand.		FILL									
			FILL / SAND (SP), with fragments of brick and concrete, with clay: grey; fine to medium.											
		1	0.50m-1.50m: with fragments of tile and brick, trace PACM fragments 0.75m: trace metal bar		FILL	MD to VD	M			D	ES	1.00	PID	<1ppm
			1.00m: trace fragments of redundant cables, glass, geo-fabric and limestone blocks											
			From 1.20m: with limestone boulders											
					ND					ES		1.40	PID	<1ppm
										ES		1.50		
		2	Test Pit discontinued at 1.50m depth. (Test Pit terminated due to slow digging).											
		0												



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NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
No free groundwater observed.

Refer to explanatory notes for symbol and abbreviation definitions


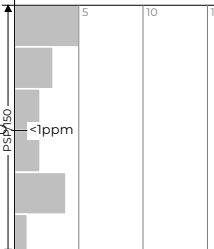
Douglas
PARTNERS

TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.2 AHD
COORDINATE: E:397856.8, N:6466280.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP19
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE		TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	
<div>0.9/1/23</div> <div>▼</div> <div>1.90</div> <div>2</div> <div>0</div>		~ 0.20	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL	ND	D	DUP 1	ES	0.10	PID	<1ppm		
			FILL / Sandy GRAVEL (GP-GM), with silt: orange-brown; medium to coarse; fine to medium sand; Gravel is crushed limestone.		FILL						D	ES		0.50
	0.70		FILL / SAND (SP-SM), with silt, trace gravel: grey-brown; fine to medium.							ES	0.60	PID		<1ppm
	1		0.75m: trace concrete slab, fragments of brick and terracotta pipes From 0.90m: with fragments of brick				MD			ES	1.00	PID		<1ppm
			From 1.20m: becoming grey, trace fragments of timber		FILL			M		ES	1.10	PID		<1ppm
			From 1.60m: becoming grey-brown							ES	1.50	PID		<1ppm
	1.90		FILL / SAND (SP), trace roots, trace silt: dark grey; fine to medium.							ES	2.00	PID		<1ppm
	2						ND			ES	2.10	PID		<1ppm
			2.40m: trace fragments of sea shells		FILL					D	2.50	PID		<1ppm
										ES	2.60	PID		<1ppm
Test Pit discontinued at 2.60m depth. (Collapsing conditions).														

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NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 1.8 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.0 AHD
COORDINATE: E:397838.6, N:6466231.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP20
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	
<div>08/11/23</div> <div></div>		0.05	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL		D to M		ES			PID	<1ppm	
	0.34	FILL / Sandy GRAVEL (GP-GM), with silt: yellow-brown; medium to coarse; fine to medium sand.	FILL											
		FILL / SAND (SP-SM), with silt, trace gravel: grey and orange-brown; fine to medium. 0.50m: with fragments of brick and concrete			ES				0.50		PID	<1ppm		
	1	0.80m: trace fragments of rubber waste and scrap metal	FILL						D		1.00	PID	<1ppm	
		ES							1.10					
		D							1.50		PID	9.4ppm		
	1.80	From 1.20m: becoming dark grey, with fragments of brick							ES		1.60			
		2							1.30m-2.10m: with hydrocarbon odour					
									1.50m: with pockets of Clayey SAND SC					
	2	FILL / Clayey SAND (SC): dark grey; fine to medium; low to medium plasticity clay.	FILL						ES		2.00	PID	1.4ppm	
		2							From 2.10m: becoming green-grey					
				ES		2.10								
						W								
								ES	2.50	PID	1.1ppm			
									2.60					
Test Pit discontinued at 2.60m depth. (Collapsing conditions).														

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.



NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 2.1 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.1 AHD
COORDINATE: E:397896.5, N:6466231.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP21
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS				
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	
<div>0.8/1.7/2.3</div>	0.17	FILL / SAND (SP-SM), with silt, trace rootlets: grey; fine to medium.		FILL		D to M		ES	0.10	PID	<1ppm		
		FILL / Sandy GRAVEL (GP-GM), with silt: grey; fine to coarse; fine to medium sand; Gravel is crushed limestone.		FILL				ES					0.50
	0.70	FILL / SAND (SP-SM), with fragments of brick and concrete, with silt: grey; fine to medium.		FILL		M		ES	1.00	1.10	PID	<1ppm	
	1	1.20m: trace fragments of rubber waste and scrap metal		FILL				D	1.50	1.60	PID	<1ppm	
	1.90	From 1.80m: trace pockets of CLAY CL-CI		FILL				B	2.00	2.10	PID	<1ppm	
	2	FILL / Sandy CLAY (CI), trace fragments of brick and timber, trace gravel: dark grey; medium plasticity; fine to medium sand.		FILL				ES					
	Test Pit discontinued at 2.10m depth. (Collapsing conditions).												

NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
 Groundwater encountered at 1.8 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



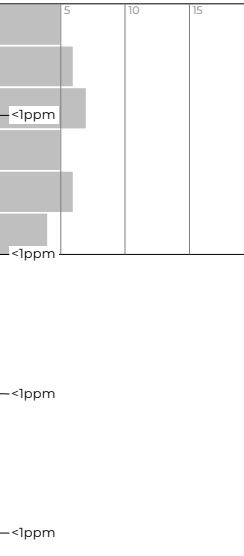
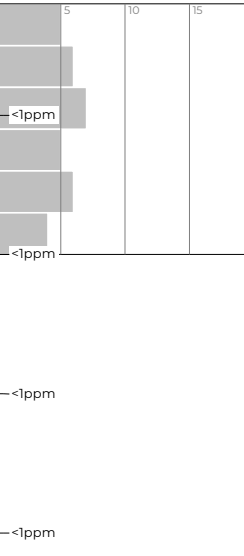



TEST PIT LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.3 AHD
COORDINATE: E:397941.6, N:6466244.9
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP22
PROJECT No: 219164.01
DATE: 09/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS									
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
<div>09/11/23</div> <div>▼</div>		2	FILL / SAND (SP-SM), with silt, trace rootlets: grey, fine to medium.				D to M		ES	0.10	PID	<1ppm						
		1	From 0.22m: becoming orange	FILL	MD	M	ES		0.50 - 0.60	PID	<1ppm							
1.40	SAND (SP-SM), with silt: pale yellow-brown; fine to medium.		possibly ALV	ND	W	ES	1.50 - 1.60	PID	<1ppm									
2	From 1.70m: becoming orange-grey																	
0			Test Pit discontinued at 2.20m depth. (Collapsing conditions).						B	2.00	PID	<1ppm						
									ES	2.10								



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NOTES: ^(a) Soil origin is "probable" unless otherwise stated. ^(f) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 1.8 m depth.

Refer to explanatory notes for symbol and abbreviation definitions





BOREHOLE LOG

CLIENT: Perth Racing
PROJECT: Proposed Residential Development
LOCATION: 71 Grandstand Road, Ascot, WA 6104

SURFACE LEVEL: 2.4 AHD
COORDINATE: E:397844.9, N:6466181.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP23
PROJECT No: 219164.01
DATE: 08/11/23
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY: ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	0.05	ASPHALT: black, 7 mm sized nominal aggregate.		FILL								
	0.15	FILL / Sandy GRAVEL (GP-GM), with silt: grey; medium to coarse, angular to sub-angular; fine to medium sand; BASECOURSE, gravel is crushed rock.		FILL	ND	D						
	0.30	FILL / Sandy GRAVEL (GP-GM), with silt: red-brown; medium to coarse, angular to sub-angular; fine to medium sand; SUB-BASE, gravel is granitic and lateritic.		FILL		M						
	0.65	FILL / Silty SAND (SM), trace gravel: brown; fine to medium; with pockets of Clayey SAND SC. 0.90m: trace fragments of brick		FILL	MD D to			ES		0.50 0.60	PID	<1ppm
	1	FILL / Clayey SAND (SC): orange-grey; fine to medium; low to medium plasticity clay.		FILL		M		D ES		1.00 1.10	PID	<1ppm
	1.40	FILL / SAND (SP), trace silt: grey; fine to medium; trace pockets of Clayey SAND SC.		FILL				ES		1.50 1.60	PID	<1ppm
	1.90	1.80m: trace fragments of brick										
	2	FILL / Sandy CLAY (CI), trace gravel: dark grey; medium plasticity; fine to medium sand.		FILL	ND	W		D ES		2.00 2.10	PID	<1ppm
	2.20	FILL / SAND (SP-SM), with silt: dark grey; fine to medium.		FILL				D ES		2.50 2.60	PID	<1ppm
		Borehole discontinued at 2.60m depth. (Collapsing conditions).										



NOTES ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

Generated with CORE-GS by Geocore - Soil Log with Photo



NOTES *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5T excavator with 450 mm toothed bucket

OPERATOR: SLE Earthmoving

LOGGED: VV

METHOD:

CASING: Nil

REMARKS: Surface level surveyed using a differential GPS with a reported accuracy of +/- 0.1 m.
Groundwater encountered at 1.7 m depth.

Refer to explanatory notes for symbol and abbreviation definitions



Appendix C

Geotechnical Laboratory Test Certificates



SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - ASTM D2974-14 (Test Method C)

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18256-18262_1_ORG
Project:	Proposed Residential Development	Sample No.	WG23.18256-18262
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	Various See Below	Date Tested:	15/11/2023

TEST RESULTS - Organic Content

Sampling Method: Sampled by Client, Tested as Received
Testing Completed By: WGLS-LC
Furnace Temperature (°C): 440

Sample Number	Sample Identification	Ash Content (%)	Organic Content (%)
WG23.18256	TP13/1.5	98.4	1.6
WG23.18257	TP8/1.5 m	93.2	6.8
WG23.18258	TP19/2.5	98.5	1.5
WG23.18262	BH23/2.5 m	98.8	1.2

Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 16/November/2023



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SOIL | AGGREGATE | CONCRETE | CRUSHING

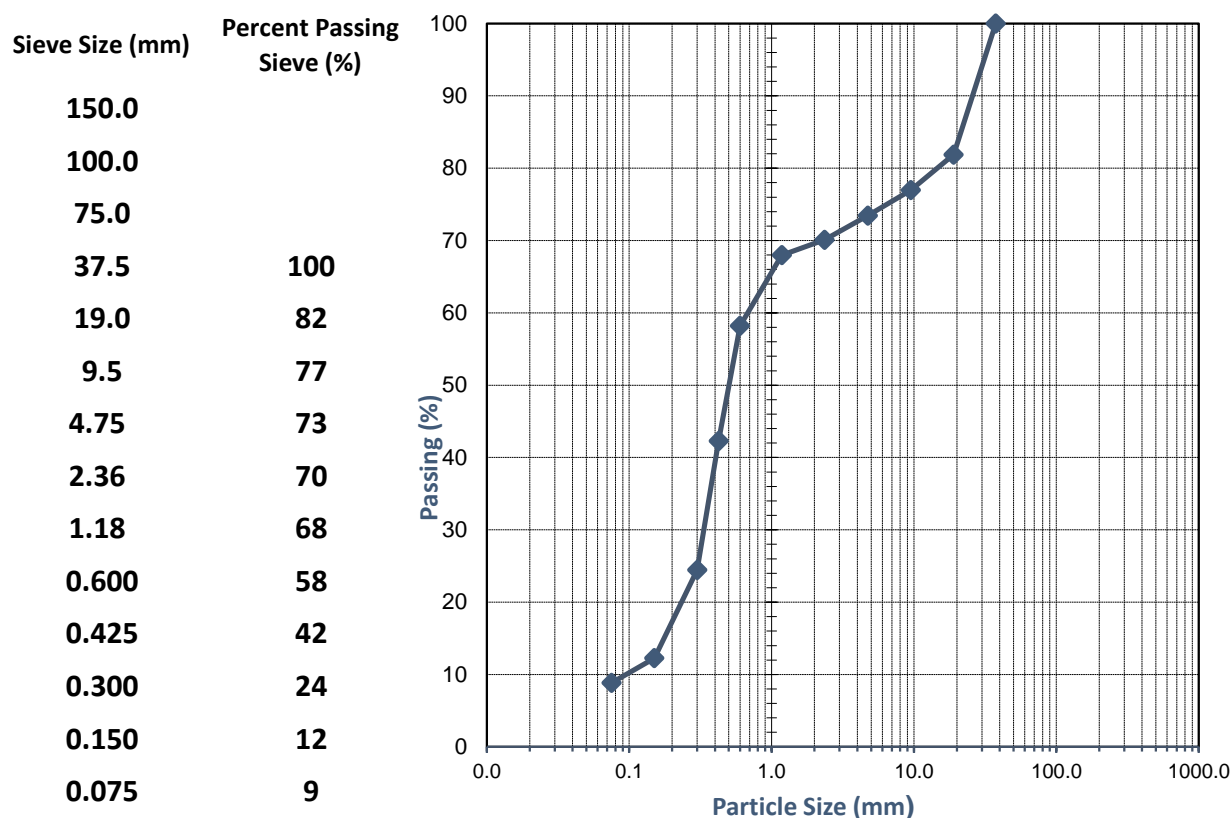
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18257_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18257
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP8/1.5 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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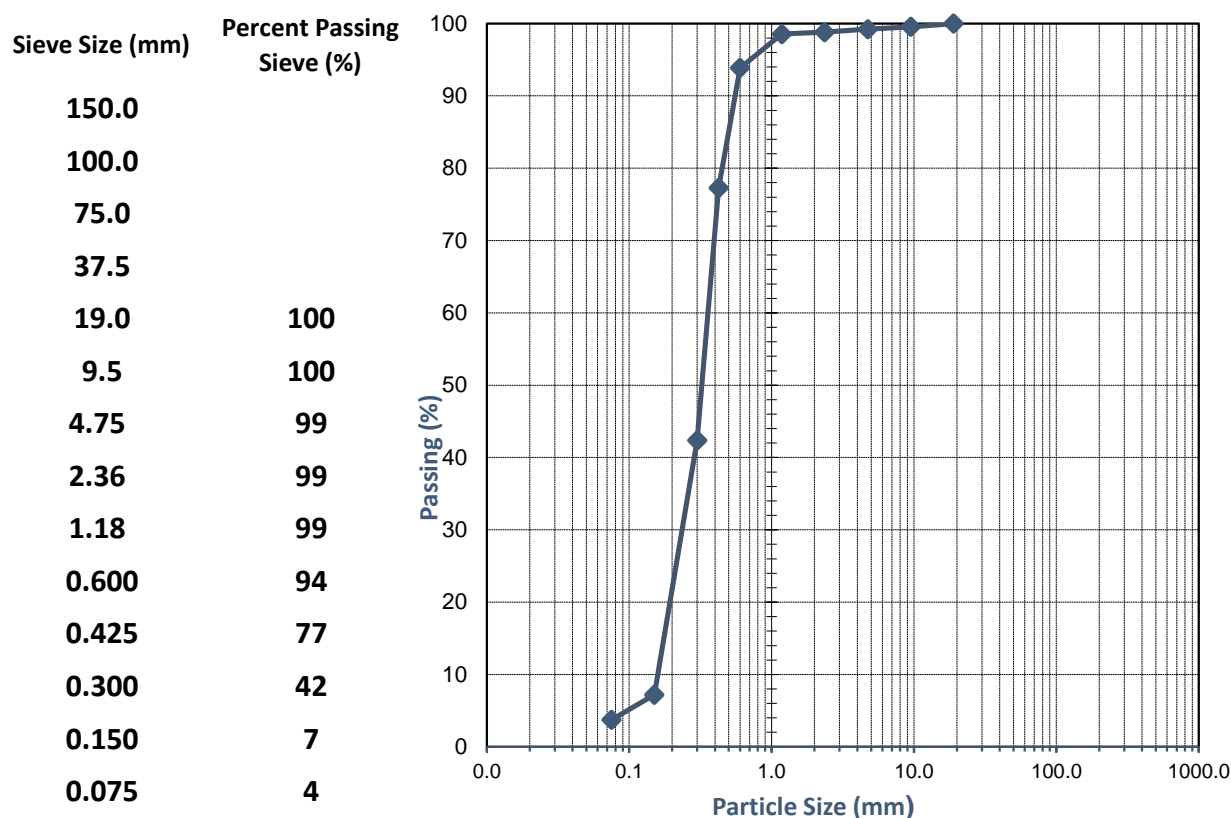
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18256_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18256
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP13/1.5	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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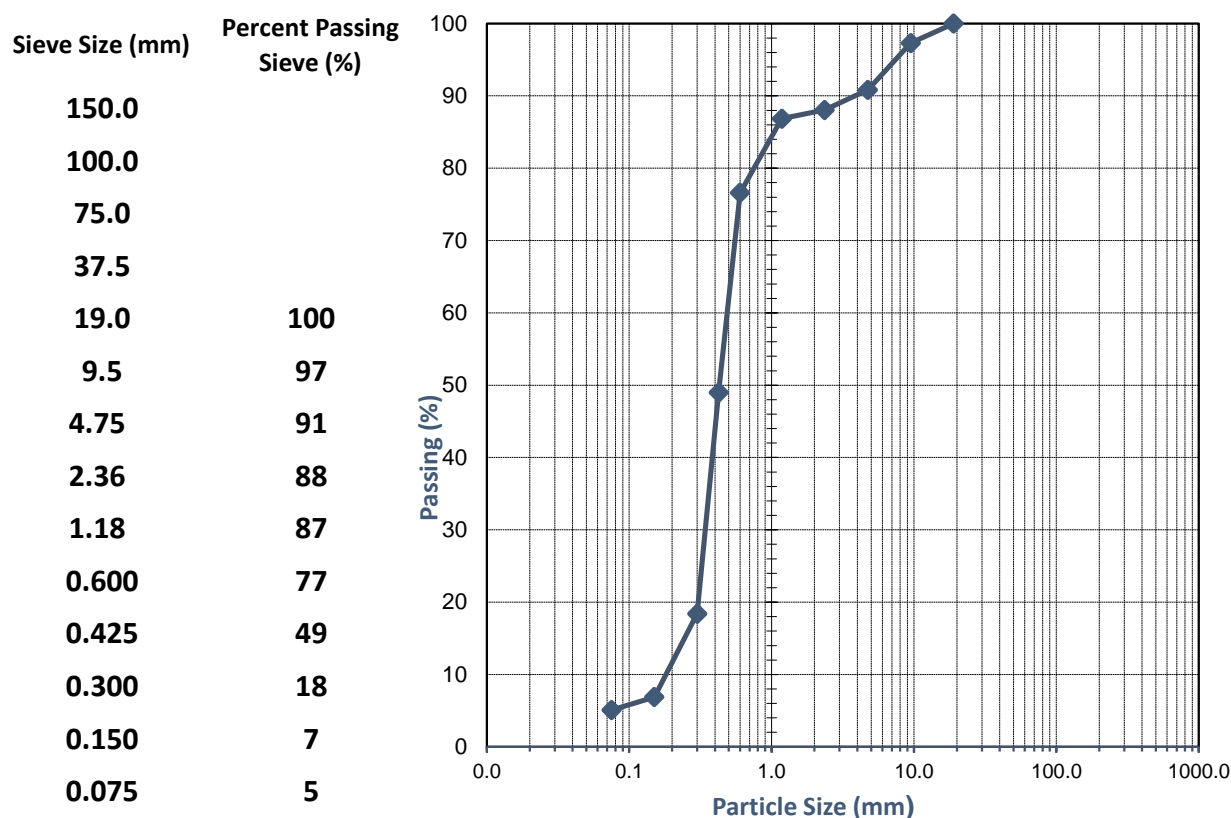
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18258_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18258
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP19/2.5	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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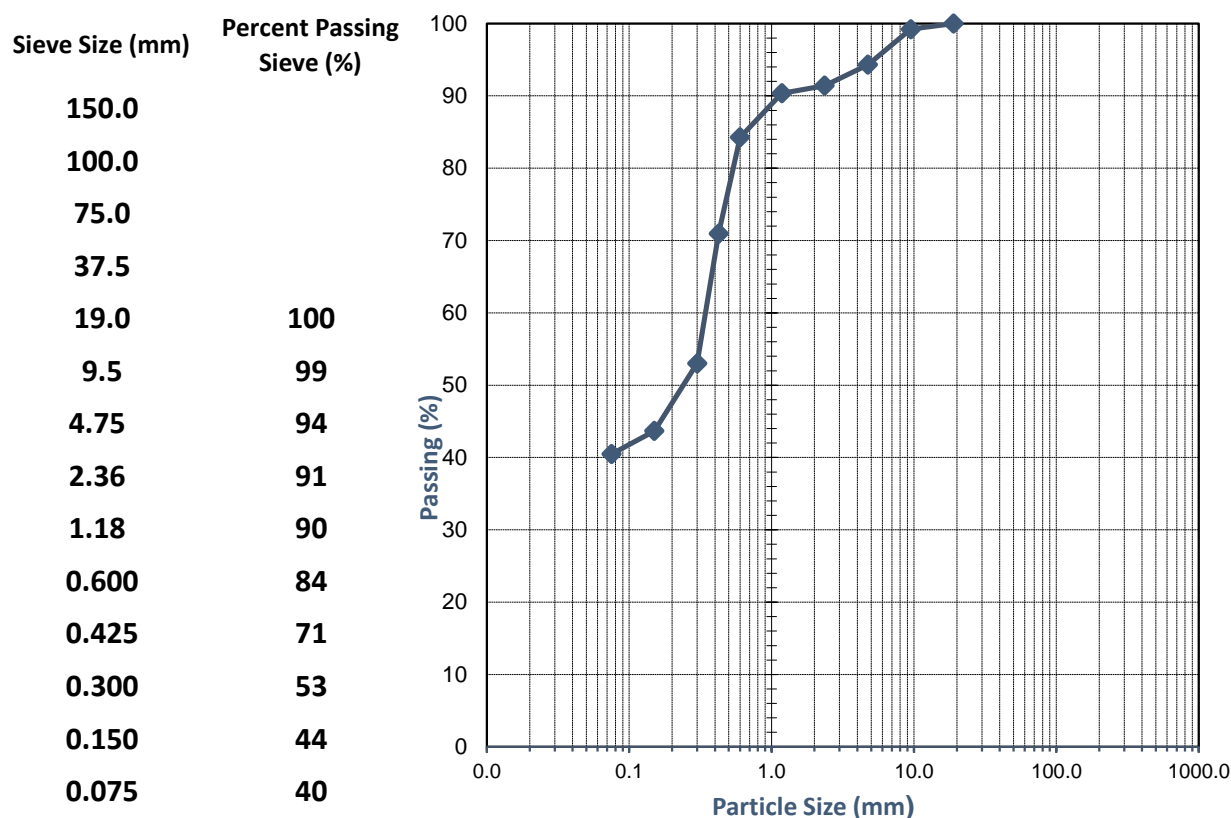
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18259_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18259
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP21/2.0 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18259_1_PI
Project:	Proposed Residential Development	Sample No.	WG23.18259
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP21/2.0 m	Date Tested:	17/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	Sampled by Client, Tested as Received
History of Sample:	Oven Dried <50°C
Method of Preparation:	Dry Sieved

AS 1289.3.1.1 **Liquid Limit (%)** **37**

AS 1289.3.2.1 **Plastic Limit (%)** **24**

AS 1289.3.3.1 **Plasticity Index (%)** **13**

AS 1289.3.4.1 **Linear Shrinkage (%)** **8.5**

AS 1289.3.4.1 **Length of Mould (mm)** **250**

AS 1289.3.4.1 **Condition of Dry Specimen:** **Curled**

Comments:

Approved Signatory:

Name: Madhav Basnet

Date: 20/November/2023



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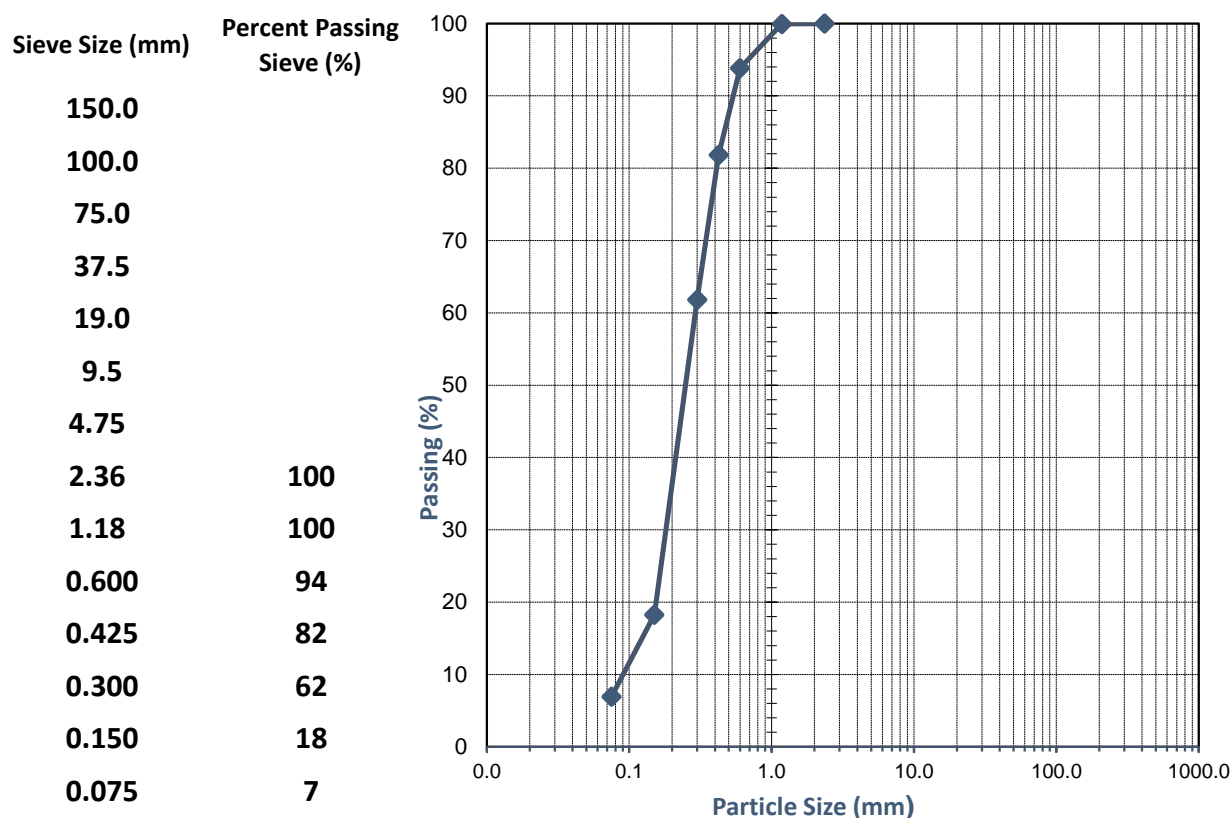
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18260_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18260
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/2023
Sample Identification:	TP22/2.0	Date Tested:	22/11 - 23/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Natasha Bielawski

Date: 23/November/2023



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TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18260_1_PI
Project:	Proposed Residential Development	Sample No.	WG23.18260
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	TP22/2.0	Date Tested:	23/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	Sampled by Client, Tested as Received
History of Sample:	Oven Dried <50°C
Method of Preparation:	Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	Not Obtainable
AS 1289.3.2.1	Plastic Limit (%)	Non-Plastic
AS 1289.3.3.1	Plasticity Index (%)	Non-Plastic
AS 1289.3.4.1	Linear Shrinkage (%)	0.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

Name: Matthew Lichon

Date: 24/November/2023



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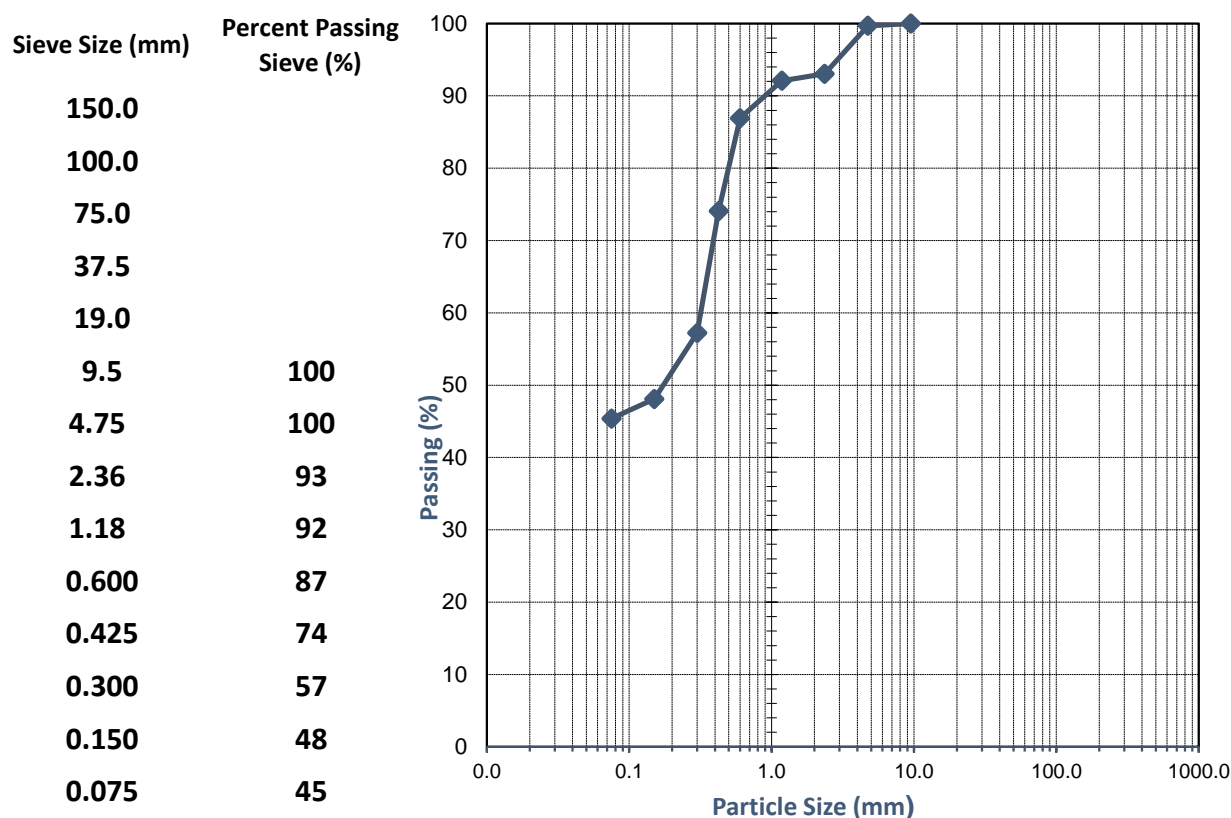
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18261_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18261
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	BH23/2.0 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18261_1_PI
Project:	Proposed Residential Development	Sample No.	WG23.18261
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	BH23/2.0 m	Date Tested:	17/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	Sampled by Client, Tested as Received
History of Sample:	Oven Dried <50°C
Method of Preparation:	Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	44
----------------------	-------------------------	-----------

AS 1289.3.2.1	Plastic Limit (%)	22
----------------------	--------------------------	-----------

AS 1289.3.3.1	Plasticity Index (%)	22
----------------------	-----------------------------	-----------

AS 1289.3.4.1	Linear Shrinkage (%)	9.5
----------------------	-----------------------------	------------

AS 1289.3.4.1	Length of Mould (mm)	250
----------------------	-----------------------------	------------

AS 1289.3.4.1	Condition of Dry Specimen:	Curled
----------------------	-----------------------------------	---------------

Comments:

Approved Signatory:

Name: Madhav Basnet

Date: 20/November/2023



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SOIL | AGGREGATE | CONCRETE | CRUSHING

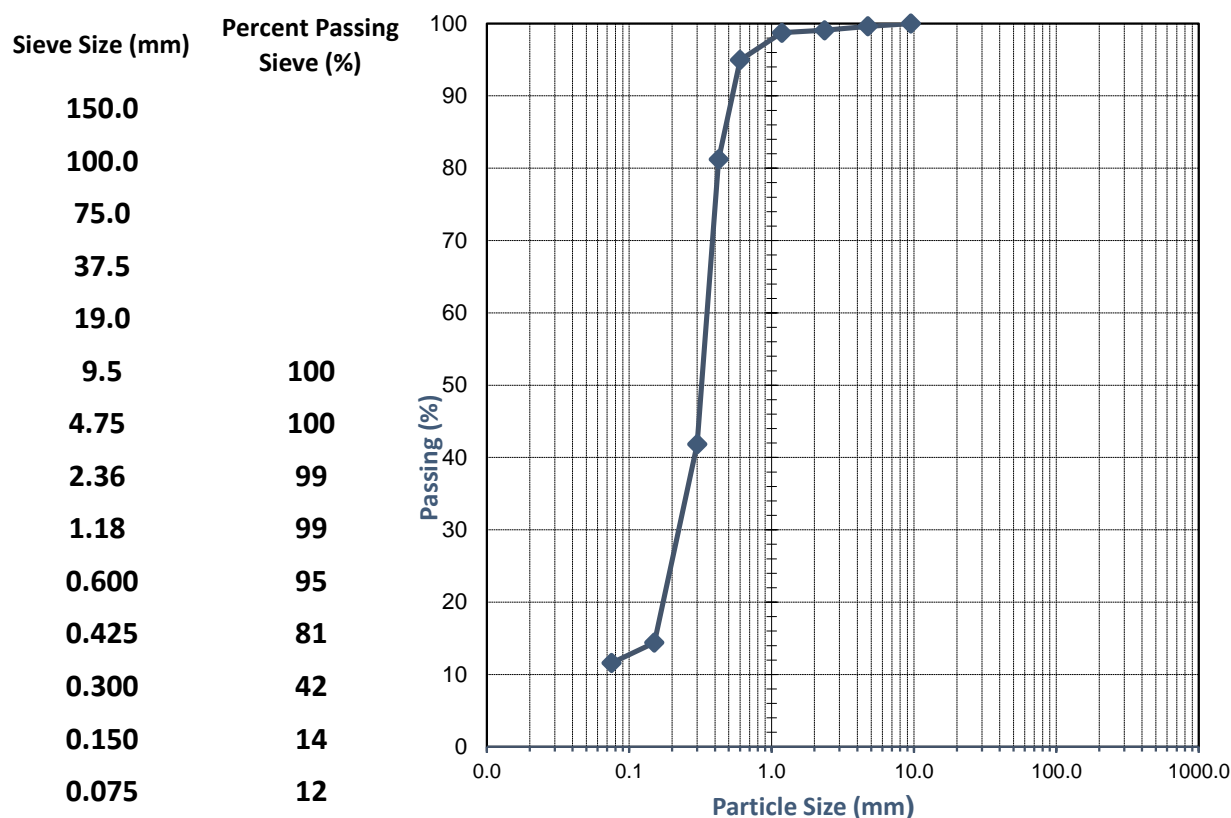
TEST REPORT - AS 1289.3.6.1

Client:	Perth Racing	Ticket No.	S11610
Client Address:	-	Report No.	WG23.18262_1_PSD
Project:	Proposed Residential Development	Sample No.	WG23.18262
Location:	Lot 9002 Grandstand Rd, Ascot	Date Sampled:	08/11 - 09/11/23
Sample Identification:	BH23/2.5 m	Date Tested:	16/11 - 17/11/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 17/November/2023



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Report on:

**GEOTECHNICAL STUDY
PROPOSED DEVELOPMENT
LOT 452 RESOLUTION DRIVE
ASCOT WA**

WAG230750-01 002 R Rev0

Submitted to:

Tabec Pty Ltd
PO Box 409
West Perth WA 6872

12 March 2024

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4. PROJECT OBJECTIVES	2
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Attached Table 2: Summary of Chemical Test Results and Exposure Classification	10

Figure 1: Site and Location Plan

Appendix A: Site Photographs
Appendix B: Cone Penetration Test Results
Appendix C: Machine Borehole and Monitoring Well Logs
Appendix D: Laboratory Test Results

Standard Geotechnical Definitions, Recommendations, Requirements and Limitations

1. INTRODUCTION

This report presents the outcomes of Galt Geotechnics' (Galt's) geotechnical study for the proposed development at Lot 452 Resolution Drive, Ascot ("the site").

This report is to be read in conjunction with the appended "Geotechnical Definitions, Recommendations, Requirements and Limitations". 'Clause GDR1', etc. refer to this Appendix, found at the back of this report.

2. KEY FINDINGS

Site Description

Table 1: Summary of Site

Item	Comment
Site Extent	Refer Figure 1.
Site Area	About 1.14 Ha.
Current Site Surface Levels ¹	About RL 3 m AHD.
Vegetation	Mature trees, shrubs and lawn in landscaped areas covering a large portion of the site.
Existing Infrastructure	Single Storey building (used by Perth Racing Security Services) with surrounding accessways, car parking and landscaped areas.
Site History ²	<p>Prior to 1953: two residences in northern portion of site. Remainder of site relatively clear.</p> <p>1953 to 1985: Relatively unchanged. Undeveloped portion of site used as laydown area, car park area, and to stockpile materials at different times.</p> <p>1989: Existing Perth Racing Security Services development (as described above) is present</p> <p>1989 to Present: Site relatively unchanged.</p>

- NOTES:**
1. Site level based on correspondence with client.
 2. Site history based on aerial imagery (Landgate).

3. PROPOSED DEVELOPMENT

Table 2: Summary of Proposed Development

Item	Comment
Proposed Development	Unknown, assumed subdivision for commercial/residential purposes.
Proposed Finished Level	Assumed within about 1 m of current ground levels.
Cut/Fill	Assumed ± 1 m with up to 5 m excavation to connect development to existing sewer.
Assumed Foundation Type	Shallow Footings.
Assumed Retaining Walls	Gravity walls up to 1 m in height.
Assumed Stormwater Disposal	Off site into council network.
Assumed Sewage Disposal	Off site via reticulated sewer.

- NOTES:**
1. FFL – finished floor level
 2. Proposed development details based on supplied information.

4. PROJECT OBJECTIVES

The objectives of the study were to:

- Assess the geotechnical suitability of the site for the proposed development;

- Geotechnical opportunities and constraints relevant to the proposed development;
- Areas of foundation risk including the presence of aggressive soils and strategies to address identified risks;
- Site preparation including possible reuse of existing soil as controlled fill;
- Excavation conditions;
- The likely site classification;
- Suitable foundation systems including preliminary design parameters;
- Preliminary design parameters for the design of retaining structures and batter slopes;
- Depth to groundwater at time of investigation; and
- Recommendations on additional geotechnical investigation at detailed design phase or to address specific ground conditions encountered.

5. FIELDWORK

Fieldwork was carried out in the presence of a representative from Galt between the 8 and 14 February 2024 and comprised:

Table 3: Summary of Field Data

Type	Results Appendix	Summary	GDR Clause	Equipment Used	No. Tests	Depth Range (m)
Site Plan	Figure 1	-	-	Hand held GPS ¹	-	-
Photographs	A	-	-	-	-	-
Cone Penetration Tests (CPTs)	B	Section 8	GDR3.2	14-tonne truck	5	1.6 to 10.1
Machine Auger Boreholes (BH)	C	Section 8	GDR3.3	AMS Power Probe	4	0.7 to 6.5
Monitoring Well (MW)	C	Section 8	GDR3.3	AMS Power Probe	1	6.0

NOTES: 1. Hand held GPS is accurate to ± 5 m.

6. LABORATORY TESTING

Laboratory test certificates are presented in Appendix D, and summarised in Attached Tables 1 and 2.

7. SITE CONDITIONS

7.1. Geology

Table 4: Summary of Geology Mapping

Map Sheet	Map Scale	Mapped Soils	Typical Site Findings
Perth	50K	Guildford Formation, described as: "SANDY SILT - strong brown to mid grey, mottled, blocky, disseminated fine sand, hard when dry, variable clay content of alluvial origin."	Thin topsoil (landscaped areas) and pavement materials (car parks / access ways) over FILL: SAND / SAND to about 0.4 m to 0.9 m depth, over Sandy CLAY / CLAY.

7.2. Groundwater

Table 5: Summary of Groundwater Levels

Item	Date	Depth Range (m)	Elevation Range (m AHD)	Comment
Perth Groundwater Atlas	1997	-	3.0	Historical maximum
Department of Water and Environmental Regulation (DWER) Flood Mapping	-	-	2.7 to 2.9 (DWER mapped 1% AEP flood event level)	Portion of site along southern and south western site boundaries, and the northern side of Grandstand road are mapped as being part of flood fringe by DWER. Advice on development within the defined flood event (DFE) floodplain is provided by DWER on a case by case basis. DWER recommends a minimum building floor level of 0.50 metres above this level (RL 3.4 m AHD).
Site observations in MW01	February 2024	3.03	-	Based on highest recorded water levels in monitoring well.
Site observations in CPT test probes	February 2024	1.90 to 2.80	-	CPT probes may not have had sufficient time to recharge to hydrostatic levels.
Recommended Design	-	-	2.7 to 2.9	Groundwater likely to perch on clay soils at site. Proposed development must be designed for DWER DFE flood event.

NOTES: 1. Depths for site observations based on the site surface level at the time of investigation.

8. GROUND MODEL

The encountered subsurface conditions are summarised as comprising:

- **Surficial Topsoil (in landscaped areas)** up to 0.3 m thick **and Hardstand Fill Layers** (in carparks and access ways); **overlying**
- **FILL: SAND / SAND (SP)**, fine to medium grained, sub-rounded to sub-angular, yellow / brown / grey layers, includes trace gravel / Sandy GRAVEL layers, trace / with fines, some typically medium dense to dense, extending to depths of about 0.4 m to 0.9 m; **overlying**
- **In BH03 and BH04 only: Silty SAND / Clayey SAND (SM/SC)** fine to medium grained, sub-rounded to sub-angular, brown / grey, low to medium plasticity fines, some typically medium dense to dense, extending to depths of about 0.7 m to 1.2 m; **overlying**
- **Sandy CLAY / CLAY (CI)**, medium plasticity, brown / orange / grey, trace sand to sandy, trace gravel in some zones, desiccated, CPT traces indicate presence of occasional sand layers, typically very stiff to hard, extending to the maximum depth investigated of 10 m.

Geotechnical design parameters for the generalised subsurface units described above are presented in Table 6.

Table 6: Geotechnical Model Units and Design Parameters

Unit Name	γ_{bulk} (kN/m ³)	ϕ' (°)	c' (kPa)	S_u (kPa)	E_v (MPa)	ν	k_0	Wall Friction=0		Wall Friction=0.5 ϕ	
								k_a	k_p	k_a	k_p
Compacted Approved FILL	18	36	-	-	50	0.25	0.41	0.26	3.85	0.22	6.54
SAND / Silty SAND / Clayey SAND	18	35	-	-	25	0.3	0.43	0.27	3.69	0.24	6.08
Sandy CLAY / CLAY	18	21	0 to 5	150	30	0.45	Earth pressure coefficients can be calculated for undrained or drained conditions as outlined in GDR11.2.2 using Firm parameters (undrained) or Fines Content >35% & PI 40% (drained).				

- NOTES:**
1. These units are a generalization of results from individual tests, which should be referred to for more information.
 2. Conditions at CPT locations below depth of soil sample recovery are inferred (refer to clause GDR3.2)
 3. Surficial topsoil and hardstand layers are not included as discrete units.
 4. Compacted approved fill is as described in Table 7.
 5. For all earth pressure coefficients (retaining wall design) refer to clause GDR11.2 for more detail and interpretation. Unit weights for retaining structure design should be as per GDR11.2 or 1 kN/m³ greater than the values in the table above.
- γ_{bulk} – bulk unit weight
 ϕ' – effective friction angle
 S_u – undrained shear strength
 c' – effective cohesion
 E_v – vertical elastic modulus
 ν – Poisson's Ratio
 k_a – coefficient of active earth pressure (Coulomb – AS4678-2002, Appendix E)
 k_p – coefficient of passive earth pressure (Coulomb – AS4678-2002, Appendix E)
 k_0 – coefficient of at-rest earth pressure (Jaky)

9. GEOTECHNICAL ASSESSMENT

9.1. Summary

Table 7: Summary of Geotechnical Assessment

Type	Clause	Parameter	Comment
Site Suitability	-	-	We consider the site to be geotechnically suitable for the proposed subdivision development. Standard site preparation measures will apply. However, groundwater could impact construction if it occurs during winter. Flood levels will impact site levels (refer Table 5).
Construction Methodology and Suitability	-	-	Shallow footings in accordance with AS2870-2011 will be suitable for this site. Mass retaining will be suitable for retaining however, must be designed for potential flooding of the site. Stormwater disposal via infiltration is not suitable.
Site Classification (AS2870)	GDR5	S	Where no less than 0.7 m of sand (including insitu silty sand and clayey sand layers encountered in BH03 and BH04) is present over in situ CLAY / Sandy CLAY .
Site Subsoil Class (AS1170.4)	-	Ce	Base of superficial formation mapped to be about 25 m below ground.
Site Preparation	GDR6	-	GDR6.2.1 Common Measures followed by GDR6.2.4 Clayey Sites followed by GDR6.2.5 Sand Topping Layer .
Approved Fill	GDR8	-	Approved Fill for this site is to comprise Permeable Sand . Only relatively thin surficial layers of sand at the site (excluding topsoil) are suitable as approved fill. If additional fill is required, imported Permeable Sand will be needed. Although not classed as 'approved fill', where clay is encountered in trench excavations, this material could possibly be reused to backfill the same portion of the trench (excluding any special fill materials required around buried elements). However, this material will be difficult to work and moisture condition to near optimum (particularly if removed from below the groundwater table).
Compaction Control	GDR7	-	A PSP may be used for compaction control on Permeable Sand . Deemed to comply values for 'Tamala' sand in GDR7.4 are applicable. Where filling with clay is done (in trenches, etc), compaction control must be done with the NDG as outlined in GDR7.3 Nuclear Density Gauge.
Shallow Footings	GDR9	$q_{all} = 100 \text{ kPa to } 250 \text{ kPa}$	Design tables for shallow footings are presented in Section 9.2. Estimated settlements are not considered excessive. 70% of the settlement is expected to occur during construction.
Earth Pressure Coefficients	GDR11	Table 6	Earth pressure coefficients are presented in Table 6.
Unsaturated Hydraulic Conductivity	GDR13	-	On site disposal of stormwater unlikely to be suitable due to shallow depth to clay and potential for flooding adjacent the site. Off site disposal of stormwater likely to be required.
Pavement Subgrade CBR	GDR16	CBR = 10%	Subgrade to comprise compacted Approved Fill no less than 0.6 m thick .
Soil Aggressivity	GDR17	-	Refer Section 9.3
Batters	GDR12	Temporary: Sand: 1V:2H Clay: 1V:1H Permanent: 1V:3H	Batter angles apply to soil units (refer Table 6) above the water table, as per GDR12.3. Dewatering and possibly retention (i.e. shoring) required below the groundwater table.
Excavations	GDR12.1	20 Ton Excavator	Potential for obstructions (buried concrete, Soakwells etc...), cemented soils and surficial pavement layers must be considered when selecting earthmoving plant.

NOTES: 1. q_{all} – allowable bearing pressure (maximum for all footings, refer to footing tables for further details)

9.2. Shallow Footings

Table 8: Isolated Pad Footing Allowable Bearing Pressures and Estimated Settlements

d_e (m)	b (m)	q_{all} (kPa)	s (mm)
0.5	0.5	120	< 5
0.5	1.0	130	< 5
1.0	1.0	240	5 - 10
1.0	2.0	250	10 - 15
1.0	3.0	250	20 - 25

NOTES:

- d_e – minimum embedment depth (below finished ground level or floor slab)
- b – Footing breadth (footings assumed approximately square)
- q_{all} – allowable bearing pressure (peak). Limited to keep estimated settlements less than 25 mm. Higher q_{all} may be possible if higher settlements can be tolerated – refer queries to us.
- s – estimated settlement (excludes shrink/swell from site class)
- Refer to GDR9
- Groundwater assumed to be at ground level.

Table 9: Isolated Strip Footing Allowable Bearing Pressures and Estimated Settlements

d_e (m)	b (m)	q_{all} (kPa)	s (mm)
0.5	0.5	100	< 5
0.5	1.0	130	5 - 10
1.0	1.0	190	10 - 15
1.0	2.0	250	20 - 25

NOTES:

- d_e – minimum embedment depth (below finished ground level or floor slab)
- b – Footing breadth (footings assumed long relative to breadth)
- q_{all} – allowable bearing pressure (peak). Limited to keep estimated settlements less than 25 mm. Higher q_{all} may be possible if higher settlements can be tolerated – refer queries to us.
- s – estimated settlement (excludes shrink/swell from site class)
- Refer to GDR9
- Groundwater assumed to be at ground level.

9.3. Soil Aggressivity

Results of aggressivity testing on clay samples is summarised in Attached Table 2. The results indicate the clay is 'non aggressive' to concrete and steel (in accordance with AS2159-2009) with a AS3600-2009 classification of 'A1'.

Based on regional experience, we anticipate the sand will have the same aggressivity classifications as the underlying clay where above the groundwater. However, for concrete in sand below the water table, an AS2159-2009 'mild' classification, and AS3600-2009 'A2' classification is appropriate.

Groundwater was not tested.

10. CLOSURE

GALT GEOTECHNICS PTY LTD



Owen Woodland CPEng
Geotechnical Engineer



Tyrone Mardesic CPEng
Geotechnical Engineer

[https://galtgeo.sharepoint.com/sites/wag230750/shared documents/01 tabec si/03 correspondence/wag230750-01 002 r rev0.docx](https://galtgeo.sharepoint.com/sites/wag230750/shared%20documents/01%20tabec%20si/03%20correspondence/wag230750-01%20002%20r%20rev0.docx)



Attached Table 1: Summary of Geotechnical Index Test Results

Test Name	Sample Depth (m)	Soil Class (AS1726 2017)	Fines (%)	Sand (%)	Gravel (%)	LL (%)	PI (%)	LS (%)
BH03	1.5 - 2.2	CLAY (CI)	89	11	0	46	28	12.5
BH04	1.0 - 1.3	Sandy CLAY (CI)	54	43	3	34	20	8.5

- Notes**

1. Particle size distribution (by mass)
Gravel: 2.36 mm – 63 mm

2. Atterberg Limits
LL: Liquid limit
NO: Not obtainable

Sand: 0.075 mm – 2.36 mm

PI: Plasticity index
NP: Non-plastic

Fines: <0.075 mm

LS: Linear shrinkage

Attached Table 2: Summary of Chemical Test Results and Exposure Classification

Location	Sample Depth (m)	Soil Description	Soil Condition	pH	SO ₄ (ppm)	Cl (ppm)	AS2159 Steel EC	AS2159 Concrete EC	AS3600 Concrete EC
BH03	1.5 - 2.2	CLAY (CI)	B	8.8	100	210	Non-Aggressive	Non-Aggressive	A1
BH04	1.0 - 1.3	Sandy CLAY (CI)	B	7.5	170	94	Non-Aggressive	Non-Aggressive	A1

NOTES:

1. Soil condition

A – high permeability soils (sands and gravels) which are below water table.

B – Low permeability soils (silts and clays) and all soils above water table

2. Sulfate expressed as SO₄

3. Cl – Chloride

4. ER – Electrical Resistivity

5. EC – Exposure Classification

5. Exposure Classification for AS2159-2009 (for steel and concrete piles)

[Exposure Classification for AS3600-2009 (for buried concrete structures)]

Non-aggressive [A1]	Mild [A2]	Moderate [B1]	Severe [B2]	Very Severe [C2]
------------------------	--------------	------------------	----------------	---------------------

The background of the page is a close-up, high-resolution image of a wood grain, showing various shades of brown and orange. Overlaid on the bottom right portion of this background are several semi-transparent, light-colored geometric shapes, including squares and rectangles, some of which are nested or overlapping each other.

Figures



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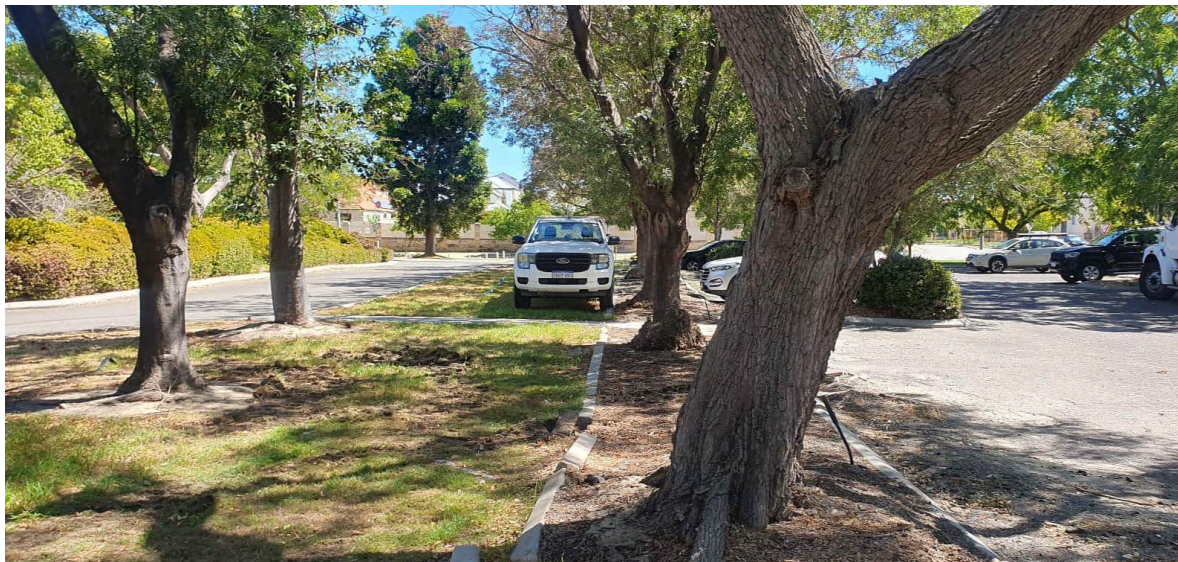
Appendices

Appendix A: Site Photographs

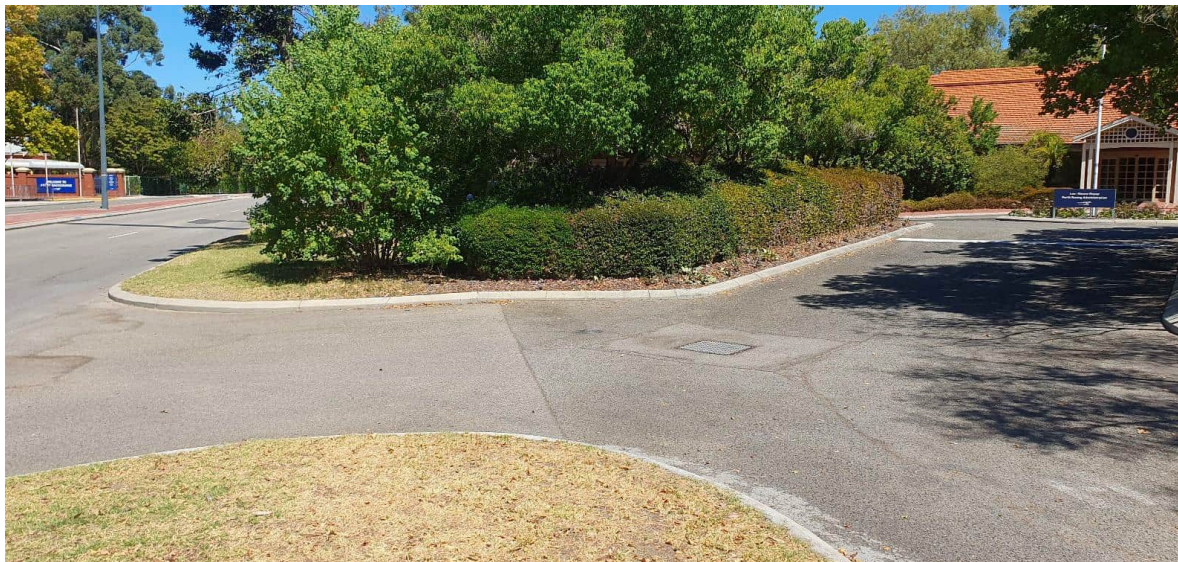
Photograph 1: Near CPT02 facing south




Photograph 2: Near CPT02 facing south west



Photograph 3: Site photo from near northern portion of site

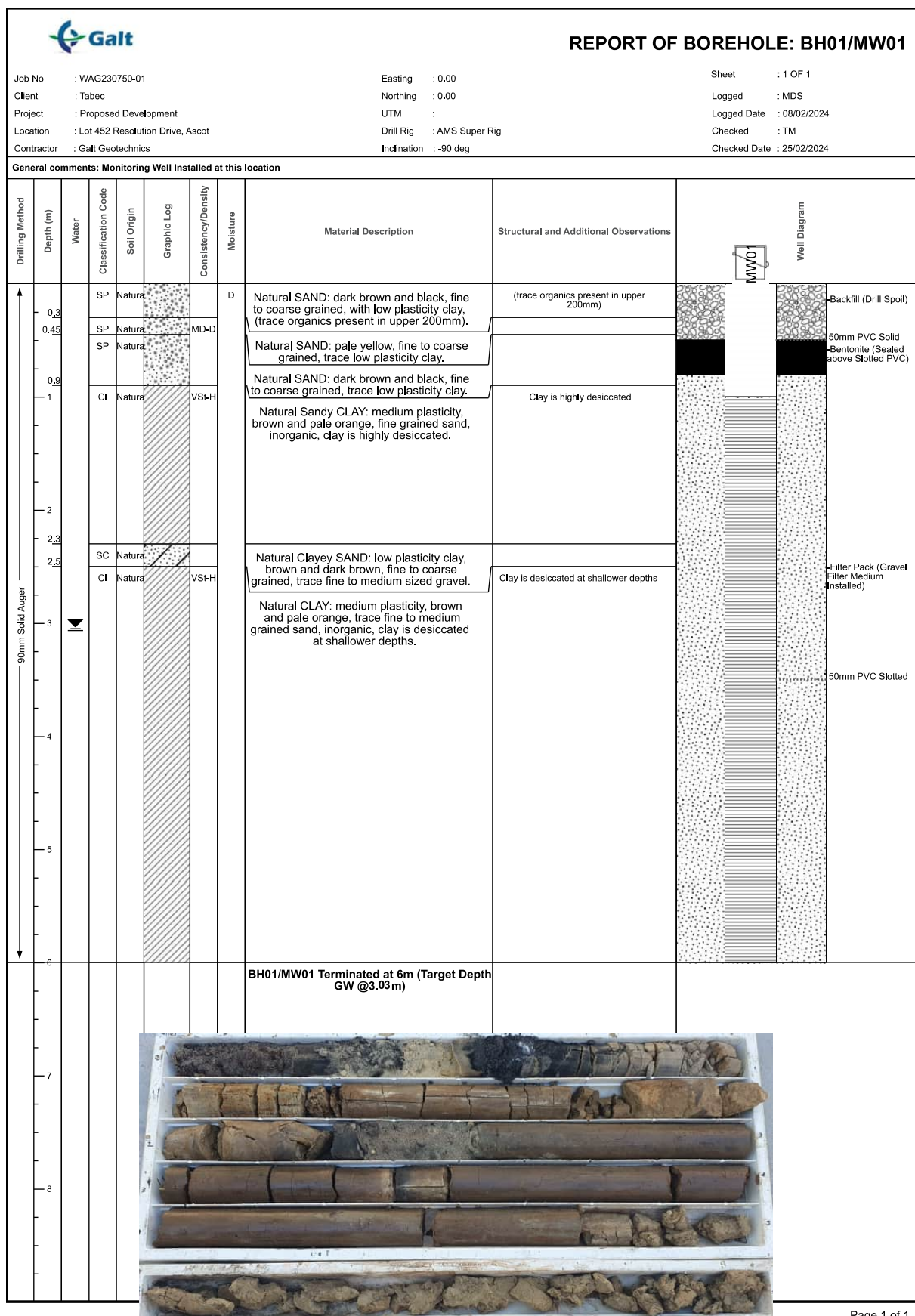


Appendix C: Machine Borehole and Monitoring Well Logs

EXPLANATORY NOTES TO BE READ WITH BOREHOLE AND TEST PIT REPORTS						
METHOD OF DRILLING OR EXCAVATION						
AC	Air Core	E	Excavator	PQ3	PQ3 Core Barrel	
AD/T	Auger Drilling with TC-Bit	EH	Excavator with Hammer	PT	Push Tube	
AD/V	Auger Drilling with V-Bit	HA	Hand Auger	R	Ripper	
AT	Air Track	HE	Hand Excavation	RR	Rock Roller	
B	Bulldozer Blade	HQ3	HQ3 Core Barrel	SON	Sonic Rig	
BH	Backhoe Bucket	N	Natural Exposure	SPT	Driven SPT	
CT	Cable Tool	NMLC	NMLC Core Barrel	WB	Washbore	
DT	Diatube	PP	Push Probe	X	Existing Excavation	
SUPPORT						
T	Timbering					
PENETRATION EFFORT (RELATIVE TO THE EQUIPMENT USED)						
VE	Very Easy	E	Easy	F	Firm	
H	Hard	VH	Very Hard			
WATER						
▶	Water Inflow	▼	Water Level			
◀	Water Loss (complete)					
◁	Water Loss (partial)					
SAMPLING AND TESTING						
B	Bulk Disturbed Sample	P	Piston Sample			
BLK	Block Sample	PBT	Plate Bearing Test			
C	Core Sample	U	Undisturbed Push-in Sample			
CBR	CBR Mould Sample		U50: 50 mm diameter			
D	Small Disturbed Sample	SPT	Standard Penetration Test			
ES	Environmental Soil Sample		Example: 3, 4, 5 N=9			
EW	Environmental Water Sample		3,4,5: Blows per 150 mm			
G	Gas Sample		N=9: Blows per 300 mm after			
HP	Hand Penetrometer		150 mm seating interval			
LB	Large Bulk Disturbed Sample	VS	Vane Shear; P = Peak			
M	Mazier Type Sample		R = Remoulded (kPa)			
MC	Moisture Content Sample	W	Water Sample			
ROCK CORE RECOVERY						
TCR = Total Core Recovery (%) = $\frac{CRL}{TCL} \times 100$						
RQD = Rock Quality Designation (%) = $\frac{ALC > 100}{TCL} \times 100$						
TCL	Length of Core Run					
CRL	Length of Core Recovered					
ALC>100 Total Length of Axial Lengths of Core Greater than 100 mm Long						


METHOD OF SOIL DESCRIPTION																																		
BOREHOLE AND TEST PIT REPORTS																																		
GRAPHIC LOG & SOIL CLASSIFICATION SYMBOLS																																		
Graphic	USCS	Soil Name	Graphic	USCS	Soil Name																													
		FILL (various types)		SM	Silty SAND																													
		COBBLES / BOULDERS		ML	SILT (low liquid limit)																													
	GP	GRAVEL (poorly graded)		MH	SILT (high liquid limit)																													
	GW	GRAVEL (well graded)		CL	CLAY (low plasticity)																													
	GC	Clayey GRAVEL		CI	CLAY (medium plasticity)																													
	GM	Silty GRAVEL		CH	CLAY (high plasticity)																													
	SP	SAND (poorly graded)		OL	Organic SILT (low liquid limit)																													
	SW	SAND (well graded)		OH	Organic SILT (high liquid limit)																													
	SC	Clayey SAND		Pt	PEAT																													
NOTE: Dual classification given for soils with a fines content between 5% and 12%.																																		
SOIL CLASSIFICATION AND INFERRED STRATIGRAPHY																																		
Soil descriptions are based on AS1726-2017. Material properties are assessed in the field by visual/tactile methods in combination with field and laboratory testing techniques (where used).																																		
NOTE: AS 1726-2017 defines a fine grained soil where the total dry mass of fine fractions (<0.075 mm particle size) exceeds 35%.																																		
PARTICLE SIZE <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Soil Name</th> <th style="width: 70%;">Particle Size (mm)</th> </tr> </thead> <tbody> <tr> <td>BOULDERS</td> <td>>200</td> </tr> <tr> <td>COBBLES</td> <td>63 to 200</td> </tr> <tr> <td rowspan="3">GRAVEL</td> <td>Coarse 19 to 63</td> </tr> <tr> <td>Medium 6.7 to 19</td> </tr> <tr> <td>Fine 2.3 to 6.7</td> </tr> <tr> <td rowspan="3">SAND</td> <td>Coarse 0.6 to 2.36</td> </tr> <tr> <td>Medium 0.21 to 0.6</td> </tr> <tr> <td>Fine 0.075 to 0.21</td> </tr> <tr> <td rowspan="2">FINES</td> <td>SILT 0.002 to 0.075</td> </tr> <tr> <td>CLAY <0.002</td> </tr> </tbody> </table>			Soil Name	Particle Size (mm)	BOULDERS	>200	COBBLES	63 to 200	GRAVEL	Coarse 19 to 63	Medium 6.7 to 19	Fine 2.3 to 6.7	SAND	Coarse 0.6 to 2.36	Medium 0.21 to 0.6	Fine 0.075 to 0.21	FINES	SILT 0.002 to 0.075	CLAY <0.002	PLASTICITY - MODIFIED CASAGRANDE CHART - AS1726-2017 														
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RESISTANCE TO EXCAVATION <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Symbol</th> <th style="width: 15%;">Term</th> <th style="width: 70%;">Description</th> </tr> </thead> <tbody> <tr> <td>VE</td> <td>Very easy</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">All resistances are relative to the selected method of excavation</td> </tr> <tr> <td>E</td> <td>Easy</td> </tr> <tr> <td>F</td> <td>Firm</td> </tr> <tr> <td>H</td> <td>Hard</td> </tr> <tr> <td>VH</td> <td>Very hard</td> </tr> </tbody> </table>			Symbol	Term	Description	VE	Very easy	All resistances are relative to the selected method of excavation	E	Easy	F	Firm	H	Hard	VH	Very hard	MOISTURE CONDITION <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Symbol</th> <th style="width: 85%;">Term</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>Dry</td> </tr> <tr> <td>M</td> <td>Moist</td> </tr> <tr> <td>W</td> <td>Wet</td> </tr> </tbody> </table>			Symbol	Term	D	Dry	M	Moist	W	Wet							
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W	Wet																																	
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Moderately cemented	Effort is required to disaggregate the soil by hand in air or water																																	

Attachment 12.1.3 Environmental Assessment Report




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Attachment 12.1.3 Environmental Assessment Report

 REPORT OF BOREHOLE: BH02											
Job No : WAG230750-01		Easting : 0.00		Sheet : 1 OF 1							
Client : Tabec		Northing : 0.00		Logged : MDS							
Project : Proposed Development		UTM :		Logged Date : 08/02/2024							
Location : Lot 452 Resolution Drive, Ascot		Drill Rig : AMS Super Rig		Checked : TM							
Contractor : Galt Geotechnics		Inclination : -90 deg		Checked Date : 25/02/2024							
Drilling Method	DCP graph	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Remarks	Sample
90mm Solid Auger				Natural		SP	Natural SAND: dark grey and black, fine to coarse grained, trace low plasticity clay, (trace organics present in upper 200mm).	M-D	MD-D		
			1				BH02 refusal at 0.7m (Refusal on Desiccated Clay Groundwater not encountered)				
			2								
			3								
			4								
			5								
			6								
			7								
			8								



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Attachment 12.1.3 Environmental Assessment Report

<div><div></div><div>REPORT OF BOREHOLE: BH03</div></div>					
Job No : WAG230750-01		Easting : 0.00		Sheet : 1 OF 1	
Client : Tabec		Northing : 0.00		Logged : PA	
Project : Proposed Development		UTM :		Logged Date : 14/02/2024	
Location : Lot 452 Resolution Drive, Ascot		Drill Rig : AMS Super Rig		Checked : TM	
Contractor : Galt Geotechnics		Inclination : -90 deg		Checked Date : 25/02/2024	

Drilling Method	DCP graph	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Remarks	Sample
<div><div>90mm Solid Auger</div><div></div></div>			0.1	Topsoil	SP		Topsoil SAND: dark grey, fine to medium grained, trace medium plasticity clay, with roots / organics.	D	MD-D		
		0.25	Fill	SP		Fill SAND: brown, medium dense to dense, fine to medium grained, trace low plasticity clay.					
		0.4	Fill	GP		Fill Sandy GRAVEL: grey, medium dense to dense, fine to medium sized, fine to medium grained sand, trace low to medium plasticity clay.					
		0.7	Natural	SM		Natural Silty SAND: grey brown, fine to medium grained.	VSI-H				
		1	Natural	CI		Natural CLAY: medium plasticity, grey, with fine to medium grained sand, inorganic, trace organics, clay is desiccated at shallow depths.					
		1.5	Natural	CI		As above, brown, trace organics.					
		2					M				
		3									
		4	Natural	CI		As above,					
		5									
			6				BH03 Terminated at 6m (Target depth, Groundwater not encountered)				
			7				<div></div>				
			8								

Attachment 12.1.3 Environmental Assessment Report

<div><div></div><div>REPORT OF BOREHOLE: BH04</div></div>											
Job No : WAG230750-01		Easting : 0.00		Sheet : 1 OF 1							
Client : Tabec		Northing : 0.00		Logged : PA							
Project : Proposed Development		UTM :		Logged Date : 14/02/2024							
Location : Lot 452 Resolution Drive, Ascot		Drill Rig : AMS Super Rig		Checked : TM							
Contractor : Galt Geotechnics		Inclination : -90 deg		Checked Date : 25/02/2024							
Drilling Method	DCP graph	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Remarks	Sample
<div><div>90mm Solid Auger</div><div></div></div>			0.25	Topsoil		SP	Topsoil SAND: grey, fine to medium grained, trace medium plasticity clay, trace / with organics.	D			
			0.5	Fill		SP	Fill SAND: brown, fine to medium grained, trace low plasticity clay.				
			1	Natural		SC	Natural Clayey SAND: medium plasticity clay, brown, fine to medium grained.				
			1.2	Natural		CI	Natural Sandy CLAY: medium plasticity, brown mottled red, fine to medium grained sand, trace fine to medium sized gravel, inorganic, clay is desiccated.	VSI-H			
			1.5	Natural		CI	Natural CLAY: medium plasticity, brown, with fine to medium grained sand, inorganic, clay is desiccated at shallow depths.				
			3	Natural		CI	As above.	M			
			4.5	Natural		CI	As above.	W			
			BH04 Terminated at 6.5m (Target depth. Groundwater possibly at 4.5 m depth)								
<div><div></div></div>											

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Appendix C

Preliminary Civil Drawing



Tabec 2024



Appendix D

Modelling Assumption Report



Emerge Associates 2024

Modelling Assumptions Report

Golden Gateway Local Structure Plan

Project No: EP23-109(03)

**Prepared for Perth Racing
May 2024**

Prepared for Perth Racing

Doc No.: EP23-109(03)--008 JM | Version: 1

Modelling Assumptions Report
Golden Gateway Local Structure Plan



Document Control

Doc name: Modelling Assumptions Report Golden Gateway Local Structure Plan					
Doc no.: EP23-109(03)--008 JM					
Version	Date	Author		Reviewer	
1	May 2024	Joyti Mabruk	JM	David Coremans	DPC
	Appendix to the LWMS				

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Table 1: Post-development parameters

5

Table 2: Post-development catchment areas (ha)

5

Modelling Assumptions Report Golden Gateway Local Structure Plan



1 Background

Perth Racing (the 'proponent') proposed to progress a local structure plan (LSP) over its landholdings in Ascot. The area is bounded by the Swan River to the North, Grandstand Road to the west and south, Matheson Road and Resolution Drive to the south and residential areas to the east, referred to herein as 'the site'. The structure plan area also includes the Ascot Racecourse area. The site is located approximately 8.5 km east of Perth central business district (CBD) and is approximately 62 ha in size, within City of Belmont (CoB). The LSP consists of six precincts: Precinct A, Precinct B, Precinct C, Precinct D, Precinct E, and the racecourse.

Modelling Assumptions Report

Golden Gateway Local Structure Plan



2 Methodology

XPSWMM hydrologic and hydraulic modelling software (v21.3) was used to calculate the surface water runoff volumes within the road reserves and lots associated with the development of Ascot Racecourse.

The hydrologic component of the software uses the Laurensen non-linear runoff-routing method to simulate runoff from design storm events. Key assumptions regarding the hydrologic model include:

- Runoff is proportional to slope, area, infiltration and percentage of imperviousness of a catchment.
- Sub-catchment areas and slopes are determined from surveyed topographical data and earthworks plans.
- Infiltration rates and percentage imperviousness have been selected based on experience with model preparation for similar soil conditions.

Runoff from each sub-catchment is routed through the catchment using the hydraulic component of XPSWMM. Generally, assumptions associated with the hydraulic component of the model include:

- Virtual links (i.e. purely for model construction, not equivalent to flow path onsite) between nodes within a sub-catchment are given the length of 10 m and slope of 0.05 to minimise the lag time of conveying the water from a sub-catchment node to a 'storage' node, a 'dummy intermediate' node or a conduit/link.
- Links between sub-catchment storages act as conveyance channels (e.g. sheet flow within roads in a 1% annual exceedance probability (AEP)). These links are given lengths and slopes that are representative of the site conditions and actual pathway lengths between catchments.
- All channels are designed with a width of 5 m, roughness of 0.014 (Manning's n) and are trapezoidal in shape. This allows for easy conveyance and represents concrete pipes and road surfaces within the model.
- Where relevant median swales, bio-retention areas (BRAs), and flood storage areas (FSAs) are modelled as nodal-reservoirs with infiltration depth-rating curves to account for differential infiltration rates with changing depth.

2.1 Rainfall

The ensemble temporal patterns obtained from the Australian Rainfall and Runoff (AR&R) Data Hub (AR&R 2019) were used for the rainfall analysis.

Durations ranging between 15 min and 72 hours were tested, with the peak flood elevation being assessed as the determining result.

Following the process suggested by AR&R (Ball J et al. 2019), the highest mean duration was selected as the critical duration. AR&R also recommends that when it is not practical to run the entire ensemble array, the ensemble that produces the result closest to the mean (for the critical duration) should be adopted and provided in **Table 1**.

Table 1: Critical Duration Analysis

Catchment	Critical Duration (20% AEP)	Critical Duration (10% AEP)	Critical Duration (1% AEP)
Precinct A	3 hour duration ensemble 4	3 hour duration ensemble 1	3 hour duration ensemble 1
Precinct C	30 min duration ensemble 6	30 min duration ensemble 7	30 min duration ensemble 8
Precinct D	1 hour duration ensemble 1	30 min duration ensemble 5	30 min duration ensemble 1
Precinct E	45 min duration ensemble 6	30 min duration ensemble 5	30 min duration ensemble 8

3 Pre-development model

The catchment parameters determined for Precinct D within the LWMS for the initial loss – continuous loss model have been adopted to account for catchment losses. The pre-development loss parameters used are given in **Table 2**.

Table 2: Pre-development loss parameters

Land type	Initial loss (mm)	Continual loss (mm)	Roughness
Existing residential/Carpark	15	0.1	0.014

Catchment analysis for pre-development scenario was based on topographic contour data, site visit and aerial photography. Pre-development catchment area within Precinct D is 1.145 ha.

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4 Post-development model

An initial loss continuing loss model was adopted to account for post-development catchment losses. The post-development catchment area, land types and loss values were based on the structure plan design, typical infiltration rates for the soils which occur onsite and based on project team experience. Post-development catchment areas and land types within the site were informed by subdivision plan provided by LPD surveyors. **Table 3** summarises the loss parameters used within the post-development model.

Table 3: Post-development loss parameters

Land type	Initial loss (mm)	Continual loss (mm)	Roughness
Road Surface	1	0.1	0.02
Road Verge	9	1.5	0.05
Fully Impervious	1	0.1	0.02
Roof	1	0.1	0.02
Lot IMP	1	0.1	0.02
Gardens	25	2	0.05
POS	25	2	0.05
Precinct E Lots	15	0.1	0.014

A summary of post-development catchment information is provided in **Table 4** with the catchment plan and basin location shown in Figure 08 of the LWMS.

Table 4: Post-development catchment areas (ha)

Road reserve	Lots	Road Reserve	POS	Fully Impermeable	Child Care
Precinct A	0.714	0.606	1.360	0.330	-
Precinct C	-	5.903	-	-	-
Precinct D	0.526	0.421	-	-	0.199
Precinct E	3.622	0.365	0.219	-	-

The following assumptions were incorporated into the model:

- Precinct A
 - Lots will have 100% roof areas and road reserve contains 5% pervious verge and 95% impervious bitumen areas.
 - POS will be 100% pervious.
 - There is no current connection point for drainage to be exported from Precinct A.
 - 1 single basin/Flood storage area (FSA) for both treatment and flood mitigation.
 - Base of the FSA will need to be vegetated with reeds/rushes as per a biofilter.
 - FSA will have 1:6 side slopes and maximum depth 1.2m in a 1% AEP – to avoid the need for fencing or access control.

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- A hydraulic conductivity of 1m/day is assumed.
- Precinct C
 - The existing portion of Precinct C already connected to the centre of the track (existing buildings and stables) and no change has been assumed.
 - Rest of the Precinct C were modelled as two separate catchments i.e., carpark and stables which are 95% impervious and 5% pervious.
 - 1m deep sub-surface storage has been designed to accommodate 1% AEP event.
 - A hydraulic conductivity of 1m/day is assumed.
 - The storage configuration could be changed/modified to suit site layout/constraints.
 - The carpark in Precinct C that discharges to the southwest will discharge to Precinct E.
- Precinct D
 - Lots will have 50% roof areas, 45% paved areas and 5% pervious garden areas, the childcare has roof areas and Road reserve contains 20% pervious verge and 80% impervious bitumen areas.
 - 1m deep sub-surface storage has been designed to accommodate and detain upto 1% AEP events that will mimic pre-development flow of 0.4.
 - A hydraulic conductivity of 1m/day is assumed.
 - The storage configuration could be changed/modified to suit site layout/constraints.
- Precinct E
 - The carpark in Precinct C discharges to Precinct E.
 - Outflow of pre-development Water Corporation (WC) drain is 0.95 m³/s as per WC modelling.
 - All lots of Precinct E retain 15mm of rainfall.
 - Runoff above 15 mm rainfall up to the 1% AEP will be managed by a detention basin which will mimic pre-development 1% AEP peak flow of 0.463 m³/s.
 - The basin will have 1:6 side slopes and maximum depth 1.2m in a 1% AEP – to avoid the need for fencing or access control.
 - A hydraulic conductivity of 1m/day is assumed.

Modelling Assumptions Report Golden Gateway Local Structure Plan



5 References

5.1 General references

The references listed below have been considered as part of preparing this document.

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M and Testoni I (Editors)
2019, *Australian Rainfall and Runoff: A Guide to Flood Estimation*, Commonwealth of
Australia (Geoscience Australia).

5.2 Online references

Australian Rainfall and Runoff (AR&R) 2021, ARR Data Hub, viewed 1 December 2021, Available from:
<<https://data.arr-software.org/>>.

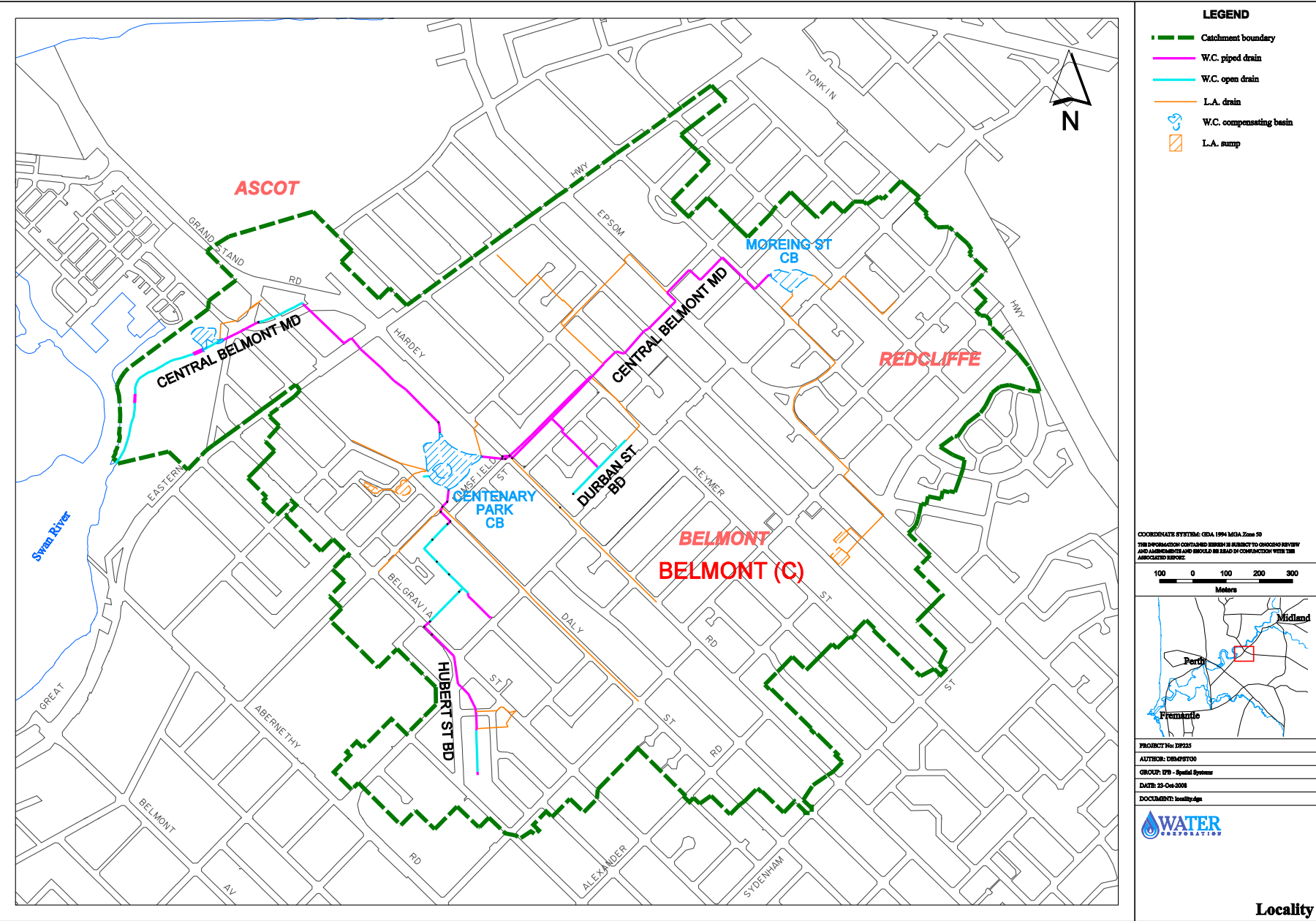
Bureau of Meteorology (BoM) 2021a, Climate Data Online, viewed 1 December 2021, Available from,
<<http://www.bom.gov.au/water/designRainfalls/revised-ifd/>>.

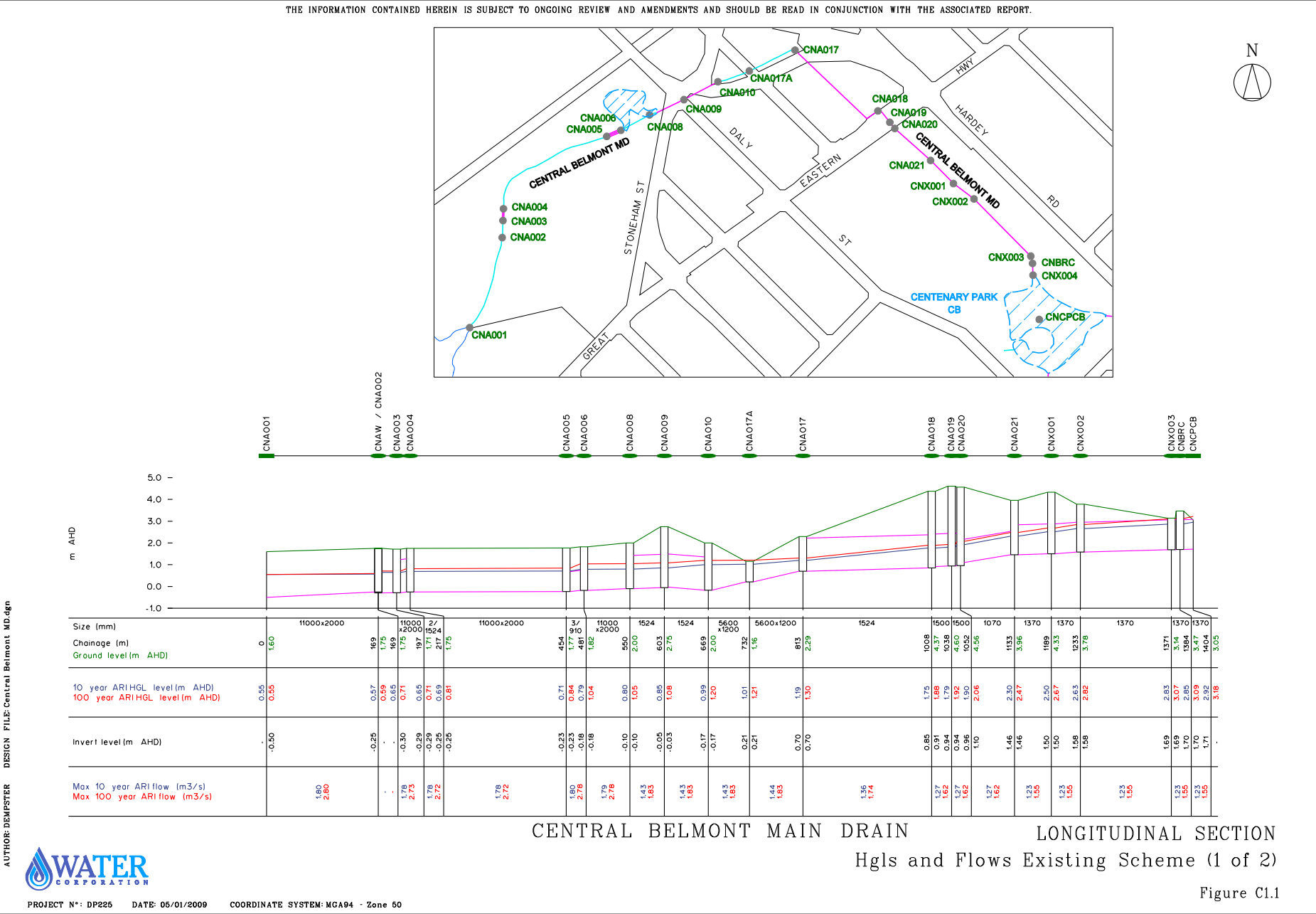
Bureau of Meteorology (BoM) 2021b, Design Rainfall Data System (2016), viewed 1 December 2021,
Available from, <<http://www.bom.gov.au/water/designRainfalls/revised-ifd/>>.

Appendix E

Central Belmont Main Drain Water Corporation









ASCOT RACECOURSE
Engineering Infrastructure Report

June 2024

CLIENT: PERTH RACING C/O DAVISON ADVISORY

PROJECT: ASCOT RACECOURSE – LOT 9002 GRANDSTAND ROAD, ASCOT

TITLE: ENGINEERING INFRASTRUCTURE REPORT

DOCUMENT REVIEW				
Revision	Date Issued	Written By	Reviewed By	Approved By
REV A	5/06/2024	J. ZIELINSKI	B. SMITH	B. SMITH
REV 0	4/07/2024	J. ZIELINSKI	B. SMITH	B. SMITH

Note:

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1 INTRODUCTION

This report has been prepared by TABEC Pty Ltd to provide broad servicing and infrastructure advice for the Ascot Racecourse and surrounding sites located at Lot 9002 Grandstand Road, Ascot.

The report provides civil engineering advice on the capability and future requirements of the development plan area to support the proposed residential and commercial land uses and the civil engineering influences on the development form. This report has been based on the civil engineering aspects, including earthworks, roads, drainage, wastewater and utility services required to support the development.

The investigation and preparation of the report are based on preliminary advice from the various service Authorities, desktop reviews and site investigations where appropriate. The report is supported by additional consultants and their inputs which are listed in the references. The information is current as of June 2024 and is subject to change as development proceeds around the subject land.

Figure 1 illustrates the location of the site, identified on the aerial image.



Figure 1 – Site Location and Aerial Image (2024 MNG Access)

2 THE STUDY AREA

The Ascot Racecourse is situated within the City of Belmont and is located in the proximity of Grandstand Road, Resolution Drive, Matheson Road, Ennis Place and the Swan River. The existing racecourse and its surrounding facilities are currently operational.

The subject site has been split into five precincts to assist with differentiating the various proposed uses across the lots. TABEC's understanding of these five precincts has been included below:



Figure 2 - Preliminary Structure Plan (Rowe Group Design)

Precinct A	<ul style="list-style-type: none"> Retirement Living Village/Mixed Use – Apartments and a café (300m²) 3 buildings, which will cater for a total of 330-390 dwellings.
Precinct B	<ul style="list-style-type: none"> Racecourse Administration Office and Entertainment (No change to current zoning) Office space – 680m² NLA Upper floor will be hospitality venue – 1000m² in size
Precinct C	<ul style="list-style-type: none"> Racecourse and on-course stabling facility (No change to current zoning) Existing Racecourse to remain 3 new on-course stabling complexes providing ~400 stables
Precinct D	<ul style="list-style-type: none"> Childcare and residential (R60) Childcare site – 2100m³ for 70-90 children. Residential development will yield ~41 lots
Precinct E	<ul style="list-style-type: none"> Approx 3,400m² retail floorspace Approx 7000m² of non-retail commercial floorspace Equine welfare centre

Whilst Precincts A, B and C are adjacent to the racecourse, Precinct D (Lot 452) and Precinct E are located outside of the racecourse lot 9002. Precinct D is surrounded by existing residential land use, and to the southeast, interfaces to the heritage-listed Ascot Kilns.

Precinct E is currently fragmented and consists of multiple lots and road reserve corridors. The Resolution Drive and Grandstand Rd road reserves within the subject site are not currently being utilised as public access streets, however, the existing reserve along the south boundary of the site and Lot 51 is a drainage reserve and is to remain, hence being excluded from the assembly development proposal.



Figure 3 - Precinct E Land Assembly (Rowe Group)

2.1 Landform / Topography

In reviewing the available Water Corporation contour information, the Ascot Racecourse Course (Lot 9002) has its lowest elevation of approximately 2mAHD at the northwest area of the site (Precinct A), which is adjacent to the Swan River and foreshore reserve. The Ascot Racecourse lot grades up to its highest elevation of approximately 7.5mAHD at the east corner of the site (Precinct C) adjacent to Matheson Road. The existing levels of Precinct C grade from this high point, down to approximately 3mAHD at the west interface near Raconteur Drive.

The existing internal surface levels of Precinct B within Lot 9002 range between 4mAHD at the south, to 2mAHD near Precinct A. Whilst no survey data is available for the adjacent road reserves, Precinct B is anticipated to be higher than the adjacent road levels at Grandstand Road, which then grades down to approximately 2mAHD towards to track.

The centre of the racetrack of Lot 9002 is generally lower than the surrounding racecourse site, with the levels and aerial imagery showing localized depressions with multiple lakes. Drawings from Evangelisti & Associates Engineering Drawings, dated 1997, show the depths of existing drainage Lake 1 (Wetland) and Lake 2 (Lined) being RL 1.0m and RL -0.75m respectively, with the top of lake water level ranging from RL 0.4m and 2.1m. The third existing lake does not serve a drainage purpose but serves as a source of irrigation water, with this overtopping into the drainage lakes at a top of water level of 3.1mAH.

The Swan River Foreshore Reserve is located along the northern boundary of Lot 9002, and the levels steeply grade away from the track edge from approximately 3mAH to 0mAH at the northern boundary.

In reviewing contour information available from Water Corporation at Lot 452 Grandstand Road (Precinct D), the existing levels increase from 3.0mAH to approximately 4.0mAH closer to the centre of the lot at the existing building location, with the surrounding road reserve levels ranging between 2.5mAH and 3mAH. This site currently has existing mature trees and shrubs located across the Lot.

Fragmented areas of Precinct E have approximate levels grading from 4mAH near the east at Raconteur Drive entry, down to approximately 2mAH at the west. The site is generally flat with some trees and vegetation, however, there is an existing swale within the reserve south of the site along Resolution Drive with its swale base closer to 1.0mAH. The perimeter of this swale is currently fenced onsite.

Contours of the site have been included below in Figure 4.

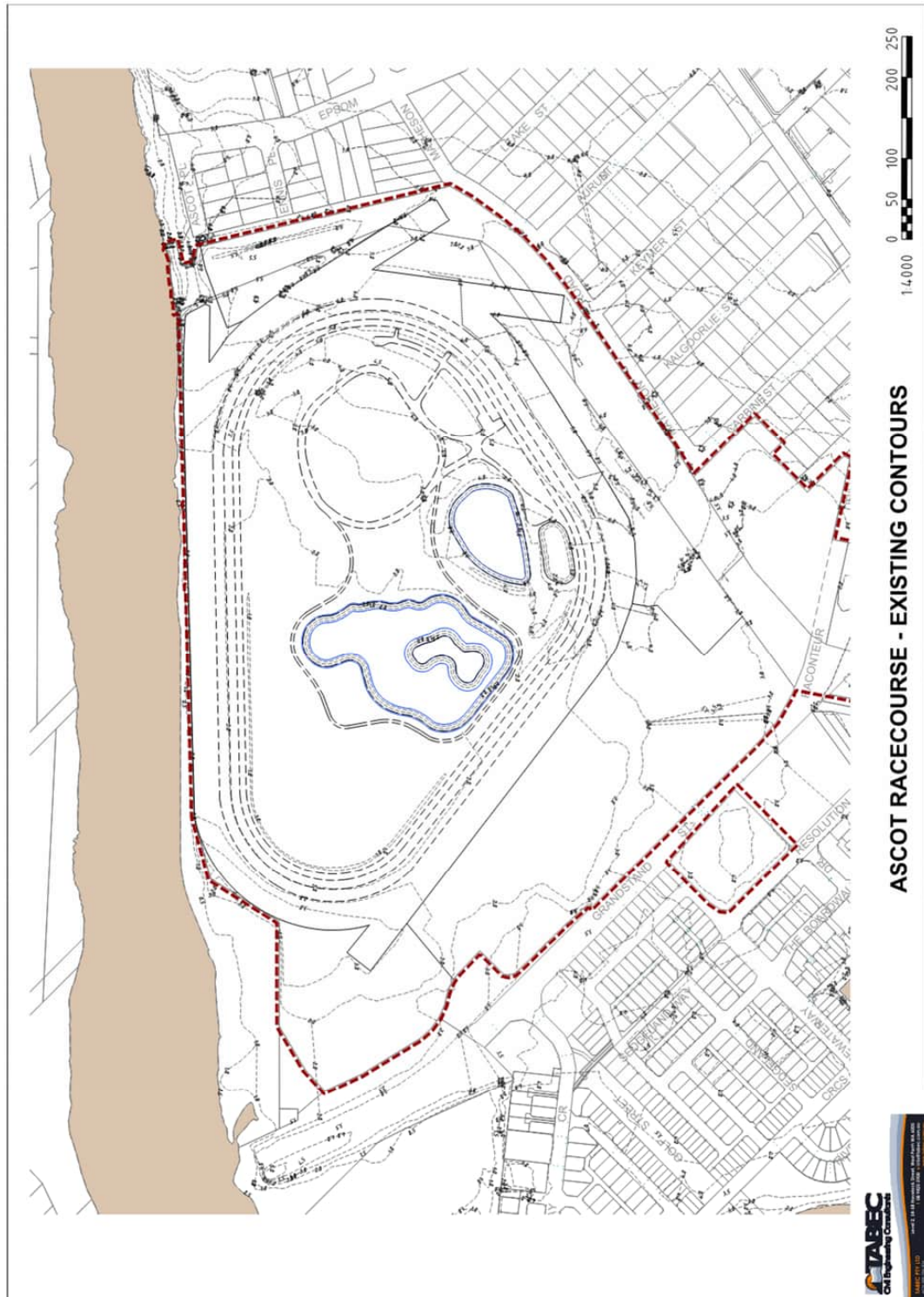


Figure 4 – Existing ground contours (TABEC 2024)

2.2 Ground Conditions and Ground Water

Geology mapping for the area has been identified as Pinjarra System, with poorly drained coastal plains and variable alluvial and aeolian soils.

Generally, the historical maximum groundwater contours are published by the Department of Water and Environment Regulation (DWER). The Golden Gateway Local Structure Plan Draft document (Essential Environmental 2018) shows maximum groundwater level (MGL) contours ranging from approximately 5mAHD located at the southeast area of the site, and generally fall to approximately 0.5mAHD along the Swan River and northwest of the site.

It is anticipated that there may be insufficient clearance above the published groundwater contours to development levels, and additional fill may be required to satisfy minimum groundwater clearance of 1.2m above MGL at Precinct A, Precinct D and Precinct E for residential and commercial purposes. This would be subject to further investigation on final development requirements and land uses.

Flood levels due to the Swan River have been previously investigated by DWER, with online floodplain mapping indicating flood levels in proximity to the Swan River at 2.8mAHD. All lots must have a minimum 500mm elevation above this Swan River flood level and a minimum of 300mm clearance above the 1% AEP top of water level of drainage basins.

Further geotechnical investigations have been undertaken across Precinct A, C and Precinct D to better understand the subsurface soil and groundwater conditions across the various sites, with this summarised below.

Precinct A

Douglas Partners carried out a site geotechnical investigation at Precinct A in January 2024 (Report reference 219164.03). From the field works, the subsurface conditions of this site were found to comprise uncontrolled fill, made up of sandy gravel material, loose sands, and clay, with the inclusion of foreign unsuitable materials such as brick, glass, scrap metals, concrete, rubber, pipes, and potential asbestos containing materials. In some locations, this uncontrolled fill extended below the groundwater level.

Natural materials found at the site underneath the uncontrolled fill, ranged from clayey sand, between depths of 4.2m to 14.9m, and sandy soils between 10.5m and 14.9m. Both materials ranged from very soft or loose, to dense and stiff.

Given the shallow ground conditions at Precinct A consisting of uncontrolled fill and deep loose and soft soils, the current site classification is Class P. Douglas Partners have therefore suggested shallow footings are not suitable and have anticipated a piled foundation system into deeper insitu soils would be necessary.

Groundwater levels at various locations within Precinct A have been measured over September, October and November 2023. From the assessment, the groundwater level ranged from -0.2m AHD (November) at the centre of the site, to 1.3m AHD (September) located at the site's southern boundary. The groundwater fluctuated inconsistently throughout the site, and these findings are not a clear representation of the maximum groundwater level.

Precinct B

Whilst no geotechnical investigation has been undertaken for Precinct B, the underlying material is anticipated to be consistent with those underlying ground conditions found at Precinct A and Precinct C. Based on adjacent geotechnical investigations at nearby Precincts, it could be anticipated that silty sand,

clay and clayey sands existing beneath surface level. Further geotechnical assessment will be required to ensure adequate treatment of ground conditions before further development within Precinct B, and to check conditions relating to uncontrolled fill, which is evident at Precinct A and Precinct C.

Precinct C

Douglas Partners carried out a site geotechnical assessment at Precinct C in December 2023 (Report reference 219164.02) for the proposed stables at Ascot Racecourse.

From the investigation, ground conditions differ depending on the test location within the site. Generally, uncontrolled fill was uncovered at most test locations with this depth ranging between 0.25m and 2.5m. Some test locations also observed unsuitable foreign materials such as plastic wrap, concrete and brick fragments. Sand and silty-sand can be uncovered below the uncontrolled fill to a depth of 2.5m, along with clayey sand and clay.

The uncontrolled material across Precinct C has led Douglas Partners to suggest piled foundations, with the site Classification currently Class P. Details of piled foundations can be found within the geotechnical report.

Notwithstanding, the site can be re-classified to Class S, provided that the site preparation is undertaken with the geotechnical recommendations. Areas of over-excavation to achieve Class S may uncover groundwater, and therefore dewatering may be required for earthworks and site preparation.

Groundwater levels at Precinct C have been measured onsite in September 2023, with the depth of groundwater fluctuating at each location. From the assessment, the groundwater level ranged considerably from 0.4m AHD (MW51) at the site near Aurum Street, to 5.6m AHD (BH39) located approximately 100m from the MW51 test pit, and therefore does not provide a clear and consistent overview of the groundwater throughout this area.

Precinct D

Galt Geotechnics carried out a site geotechnical assessment at Precinct D Lot 452 Resolution Drive, in March 2024 (REF WAG230750-01 002 R1) for the proposed residential and commercial development site.

The subsurface soil profile from the testing found sand fill to a depth of 0.4m to 0.9m depth, over sandy clay and clay material. At boreholes BH03, and BH04, layers of silty sand and clayey sand up to 0.7m thick extending to 1.2m depths were also found.

The site classification is considered Class S, where no less than 0.7m of sand and clayey sand layers are present over insitu clay and sandy clay.

Groundwater at the site in February 2024 was found to be approximately 1.9m to 3.03m depth below surface. Galt has suggested there is perched ground water between 2.7mAHD and 2.9mAHD. Whilst that the design level be 0.5m above DWER flood level events, which is a finished level of 3.4m AHD, adequate clearance would still need to be managed to groundwater.

Precinct E

No geotechnical investigation has been undertaken within Precinct E to confirm underlying soil conditions; however, it is anticipated ground conditions would be consistent with the natural material from the geotechnical investigations, and geological mapping.

2.3 Acid Sulfate Soils

The Ascot Racecourse and surrounding land are mapped as having a known high risk of encountering potential acid sulfate soils. As indicated in Figure 5, there is a reference to higher-risk areas in red within the site at depths within 3m of the surface. No acid sulfate soils were discovered during geotechnical testing at Precincts A, Precinct C, or Precinct D.

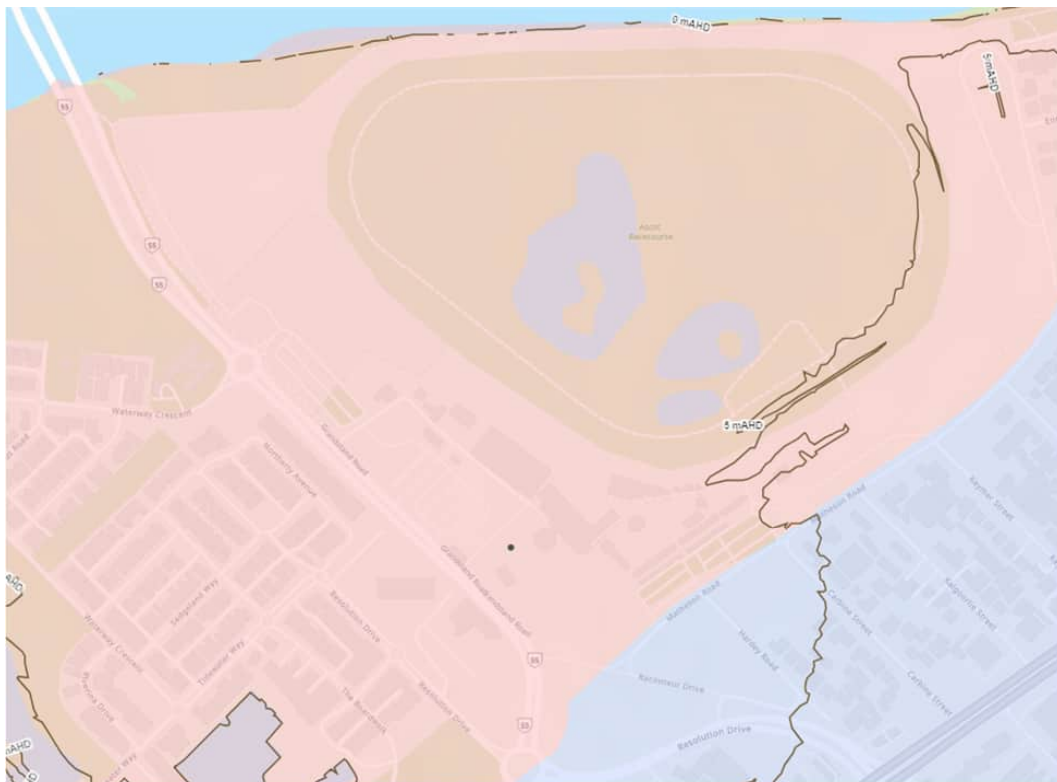


Figure 5 – MNG Access - Acid Sulfate Soils Risk Mapping (2024)

3 SITEWORKS

Siteworks for the development generally comprise the clearing of existing vegetation, stripping of topsoil and pavement, and the earth working of the existing ground surface to facilitate a required form of development.

The siteworks at Precinct A will be subject to the footing requirements due to the existing loose soils and uncontrolled fill beneath the surface. Due to groundwater conditions, remediation works may be difficult, therefore a pile foundation system has been suggested within the geotechnical report which may remove the requirement to remove underlying uncontrolled fill. However, due to the settlement that may occur due to the soft and loose materials, it is anticipated that surcharging of the site may be necessary to reduce differential ground settlement, which could be carried out through temporary fill.

To achieve Class S at Precinct C, which will allow light-loaded structures to be constructed with shallow footings, site preparation will include 0.15m topsoil stripping and grubbing of existing vegetation, and over-excavation earthworks to achieve a minimum of 0.8m of sand separation above reactive clayey soils.

It is also important that there are no loose underlying soils to a depth not less than 1.5m below the foundation level to avoid settlement of the development.

3.1 Demolition and Remediation

Precinct A is free from structures and therefore demolition works are not anticipated to be required.

Depending on the final scope for Precinct B, Precinct C and Precinct E, demolition of existing car parking pavement and redundant asphalt roads within these areas may be required.

The demolition of the existing buildings, pavements and associated infrastructure within Precinct D will be required to enable the proposed residential and commercial development at this location. Whilst no asbestos was detected in any of the geotechnical samples at Precinct D, it should be noted that the adjacent northern road reserve, Northerly Ave, has been identified as remediated for restricted use, which may suggest potential asbestos-impacted fill below the surface.

4 EARTHWORKS

The preliminary earthwork pad levels have been reviewed by TABEC to demonstrate how the proposed development levels may be accommodated, given constraints due to groundwater, flooding and interface levels. Generally, earthworking of all proposed precincts will be required, whether this is in the form of remediation works due to subsurface soils or import fill to lift the development levels. Each precinct site will require site preparation, potential demolition, and stripping of existing pavements, vegetation and topsoil, after which the exposed ground will be proof compacted.

Due to existing groundwater hydrology and flood levels, which are discussed further in the LWMS prepared by Emerge (EP23-109, May 2024), the report recommends:

- Surface-based infiltration structures have a minimum 300mm clearance above the maximum groundwater level (MGL)
- Habitable floor levels should have a clearance to a maximum groundwater level (MGL) of at least 1.2m
- Finished floor levels must have a minimum 300mm clearance above the 1% AEP event, top of water level at storage basins.
- All lots to have a minimum of 500mm clearance above the 1% AEP flood level in the Swan River.

These drainage requirements and minimum flood elevation requirements will likely govern the finished floor-level requirements of the five Precincts. TABEC concept earthworks levels have been provided in Figure 6, with these levels to be refined during detailed design.

Precinct A

It is anticipated that the existing surface levels of Precinct A will be lifted to accommodate clearance to flooding, with the minimum finished levels at this location being approximately 3.2mAHD. With existing surface levels surrounding Precinct A being in the order of 2mAHD, the development will require further consideration on how the additional ~1-2m level difference may be accommodated and whether retaining walls are required, or if there is sufficient area to enable battering. Precinct A has a road reserve on the western boundary, and foreshore on the northern boundary, so any batter encroachment into these lots will require further discussion and approval with the relevant authorities.

Precinct B

As existing levels within Precinct B currently look to be conveying overland drainage towards the racecourse, any changes in levels are only anticipated to be those to lift new offices and hospitality levels. In Figure 6, TABEC has nominated the future building floor level at RL3.2 to satisfy flood levels.

Precinct C

Finished development levels at Precinct C will vary as it will be subject to tying into the existing road network at Raconteur Drive, Matheson Road, Ennis Place and the existing levels at the racecourse. Given the purposes of Precinct C, steep grades and level differences/retaining will likely need to be designed out to serve its purposes as on-course stabling and to facilitate horse movements.

It is anticipated that the future stable finish levels will be at approximately 4m AHD at the west and grade up to 6m AHD to the east in the proximity of Keymer Road, which is consistent with the grade of Matheson Road. These levels also tie in with the existing levels of the internal racecourse.

The private internal access road between the proposed stables and Matheson Road will be marginally lower than the stables floor levels by approximately 200mm, and grade consistently with the stable level steps.

The proposed stables to the east near Leake Street will need to be a minimum of 6.9m AHD, which will allow for internal sewer servicing of the site, and also provide clearance to groundwater levels. To tie in with the existing road reserve on Matheson Road, it is expected that these stables and the internal road will grade to approximately 7.4m AHD to the east.

The northeast development area of Precinct C adjacent to an existing reserve, will match in with existing interface levels. To satisfy sewer servicing and flood levels, it is anticipated that the level of this area of Precinct C will be approximately 6.1m AHD.

Precinct D

It is anticipated that additional sand fill will be required for Precinct D ensure sufficient separation for flood levels, and ground water levels. Precinct D will need to satisfy as a minimum habitable floor level of 3.2mAHD, however, the geotechnical investigation by GALT (February 2024) has identified perched ground water between 2.7mAHD and 2.9mAHD. Emerge Associates have recommended 1.2m clearance above maximum ground water level (MGL) to finish floor level which may increase the habitable floor level higher than the flooding requirements to approximately 4.0m AHD.

Further review of these finish levels will be required on further investigation of the maximum ground water, and drainage and subsoil drainage design which would ultimately determine the finish development levels.



5 ROADS AND TRAFFIC

5.1 Existing Road Network

Surrounding Lot 9002 and Precincts A, B and C, are existing roads that are suitable to provide future access for these proposed developments. Lot 9002 is surrounded by Grandstand Road (Distributor A), Raconteur Drive (Access Road) and Matheson Road (Access Road). The Main Roads WA (MRWA) road database shown in Figure 7, indicates that Grandstand Road is operated and maintained by the MRWA with a speed limit of 60km/hr, with the other access roads being controlled by the City of Belmont. Whilst the east boundary of the site is located against a road reserve, no road currently exists with this being a sand/limestone track.

The existing roundabout at Grandstand Road and Waterway Cres currently provides access to Precincts A and B, and the existing car parks. There is also gated access from Grandstand Drive into Precinct B car parks at three other locations before reaching the Raconteur Drive intersection.

Matheson Road will remain as it currently is, and serve as the primary access for Precinct C, however, access to the northeast stables will be solely from Ennis Place as the only sealed road entry to this location.

Lot 100, located in Precinct E, currently has multiple private roads through this site. Raconteur Drive off Grandstand Road can provide vehicle access through to Resolution Drive, however this does have vehicle gates to restrict access at both boundaries. The intersection of Grandstand Road and Raconteur Drive is currently a left in, left out, however, does allow a right turn in from vehicles travelling north via a split in the median island. Two other existing roads within Lot 100 are fenced to reduce unauthorised access, with these being extensions of Matheson Road and Hardey Road.

Precinct D is located between Grandstand Road and Resolution Drive (Local Distributor), with access to the existing admin building being located at both Grandstand Road as a left in, left out, or via Resolution Drive. The existing median island on Grandstand Road restricts those vehicles travelling south from turning onto the car park.



Figure 7 – Main Roads WA GIS Road Hierarchy (MRWA 2024)

The land assembly at Precinct E as per Figure 3, will require further consideration for access to future commercial development. Resolution Drive has a raised centre median between the roundabout to Great Eastern Highway which currently restricts vehicle movements. This section of Resolution Drive is a Distributor A road and is controlled by Main Roads WA, with direct development access onto this road requiring MRWA approval.

6 STORMWATER DRAINAGE

Details of the stormwater and drainage strategy, flooding, and water treatments have been detailed within the LWMS prepared by Emerge Associates (EP23-109, 2024).

There are predominantly two significant drainage systems to convey stormwater within the LSP area to the Swan River. The first is the Central Belmont Main Drain which is managed by Water Corporation, and the second is the local drainage system located near Matheson Road, which conveys water from the surrounding road reserves into the lake system at the centre of the race course via a 900mm pipe.

The lakes system is interconnected, with flows discharging from this into the Swan River via a 450mm and 375mm concrete pipe at peak water level within the wetland lake of 0.53mAHD (Evangelisti & Associate 1997). The outlet is controlled to restrict tidal influence on the internal lake systems.

Whilst Grandstand Road has a pit and pipe network consisting of 450mm and 525mm concrete pipes, Precinct A does not currently have access to a stormwater connection, and as part of future development, it would be anticipated that drainage from this site would need to be treated and captured within Precinct A and the racecourse. Infiltration rates at Precinct A are low due to existing soils, however, with the increased level of the site and import fill to achieve flood level requirements, this may allow for some storage and bio-retention swale to infiltrate at source.

Precinct B currently captures and infiltrates water at source, with overland flow being graded towards the existing track. There was no evidence of Precinct B overflowing into the existing road reserve at Grandstand Road.

Consistent with the current drainage design onsite, the proposed stables and car park at Precinct C are anticipated to be a combination of infiltration at source where levels and soil conditions allow, and discharge to the lake system. The geotechnical assessment (Douglas Partners 2024) suggests this site is unsuitable for on-site stormwater disposal due to the shallow clay which may be impervious for drainage purposes. It could be expected that this clayey sub-surface will pond, and water will move laterally on this surface. Further investigation is required as part of the detailed design on the infiltration opportunities and discharge locations, and requirements for bio-retention swales to treat stormwater. The proposed car parks to the southwest of Precinct C are likely to flow towards the Water Corporation drainage system in Precinct E due to the low levels of the area being unable to convey stormwater to the lakes.

Precinct E, adjacent to Water Corporation's Belmont Main Drain, is anticipated to be treated via bio-retention swale before overflowing to a proposed detention basin storage for the 1% AEP event. Overflow from this basin will be into the Water Corporation's drainage system. (Emerge Associates 2024)

Whilst Precinct D has an existing 525mm and 300mm drainage pipe network along Resolution Drive, it is anticipated that there will be stormwater storage and infiltration at the site, with a 1% AEP event discharging into the local drainage network on Resolution Drive. Further investigation will be required during design to determine the final location for stormwater detention before entering Resolution Drive, as no POS has been identified for Precinct D.

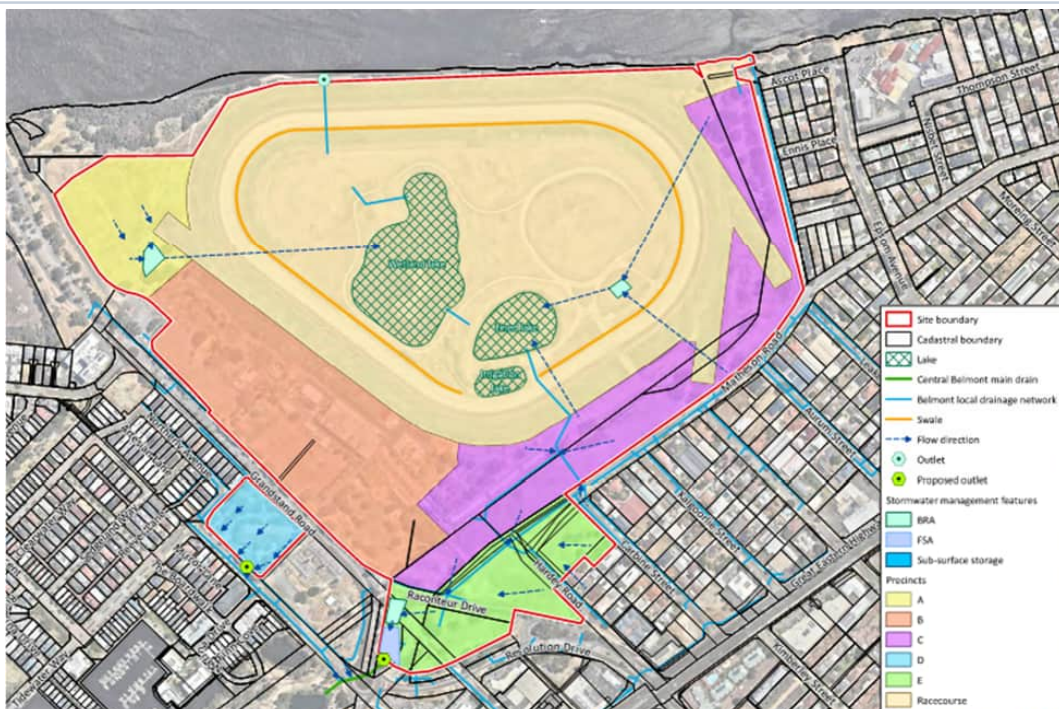


Figure 8 – Emerge Associates - Concept Drainage Catchments and Lake System (2024)

7 WASTEWATER

Water Corporation planning information was requested for the five precincts at Ascot Racecourse.

Precinct A

Precinct A is located off the existing Grandstand Service Road in proximity to the Waterway Cres roundabout. Whilst there is an existing sewer in proximity to Precinct A located at Waterway Cres, it is anticipated that this existing pipe network will not have sufficient cover below finish ground levels to extend from its current location, across Grandstand Road, and into the development. Therefore, alternative options have needed to be considered for wastewater servicing.

The first possible option would be to convey wastewater away from Precinct A and the future aged care site to the existing wastewater pump station to the east located on Ascot Place. This would require a private pump station within Precinct A, and approximately 950m of DN100 pressure main through the Ascot Racecourse lot adjacent to the Swan River and into a new gravity pipe system which would then discharge into the pump station. Given the pressure main would be crossing lot boundaries between Precinct A, and Ascot Racecourse, this would need to be reviewed further with Water Corporation to ensure the proposal is acceptable, and that the relevant easements/agreements are in place to protect these new sewer assets.

Alternatively, there is an opportunity to extend the 225mm sewer up Grandstand Road from the Marina Drive/Resolution Drive roundabout. This existing sewer is at RL-2.09m, and therefore should have sufficient depth to be extended and still service Precinct A if the development is earthworked higher closer to approximately 4m AHD. The connection to this wastewater catchment would trigger downstream upgrades due to capacity issues, with the existing 225mm sewer on Great Eastern Highway requiring an upgrade to a 300mm sewer as per Figure 10.



Figure 9 – Existing Gravity Wastewater Reticulation Services (Water Corporation)

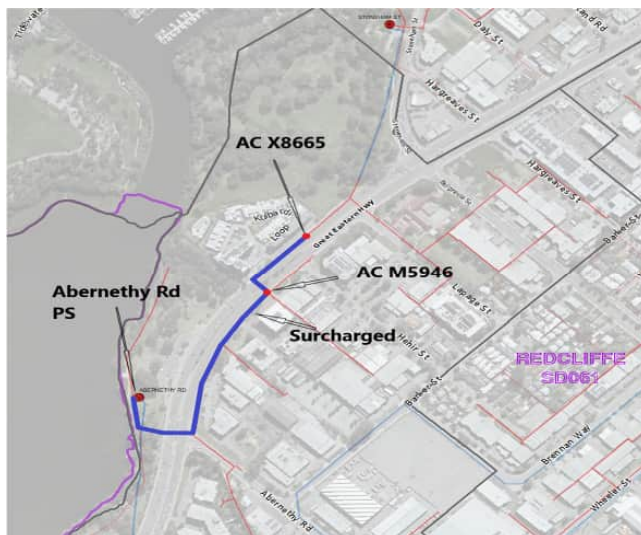


Figure 10 – Existing Gravity Wastewater Reticulation Services (Water Corporation)

Precinct B

In reviewing existing internal sewer plumbing for Lot 9002 (Ascot Racecourse), there is an existing sewer connection located at Raconteur Drive, at Access Chamber T3030. The sewer connection at this location currently services Precinct B, and a portion of the proposed Precinct C area. Whilst these two precincts are currently connected to the sewer at Raconteur Drive, Water Corporation has advised that there is no record of this connection, and the wastewater flows from this precinct have not been included in their planning assumptions. If wastewater flows from Precincts B and C are substantially increasing, further discussions are likely required to identify the increased flow of wastewater anticipated from the new developments.

According to the sewer flimsy as-cons acquired from Building and Energy Western Australia, the private sewer pipework from Precinct B to the existing Water Corporation main is located partially through Precinct E, Lots 13, and Lot 100 as per Figure 12. At the time of this report, all three lots are owned by the same entity. If the Precinct E land assembly proceeds and/or ownership of any of these lots is transferred, it may be necessary to divert the internal plumbing out of Lot 100 or Lot 13. In this instance, the Water Corporation sewer main may need to be extended to provide a sewer service connection that does not traverse other private lots.

Precinct C

Precinct C for the proposed on-course stabling facilities, will cover the outer edge of the Ascot Racecourse, from Raconteur Drive through to Ascot Place near the existing waste water pump station site. Due to this distance, multiple sewer connections will be required to adequately service the site as shown on Figure 11, with the service boundaries being subject to detailed design and finish levels.

Subject to Water Corporation's acceptance of private sewer crossing lot boundaries with the same ownership and final levels, the west portion of Precinct C (C1) between Kalgoorlie Street and Raconteur Drive will likely be conveyed to the west to the existing internal sewer. This is due to the existing levels of the site and Matheson Road, which generally grade lower as the site gets closer to Raconteur Drive.

There is an existing sewer connection available from Kalgoorlie Street with a connection invert level of 3.48m AHD, which is anticipated to service C2 with sufficient cover to finish levels.

New sewer lot connections will be required for both C3 and C4 areas within Precinct C, with the sewer invert levels into the site anticipated to be in the order of 3.30m AHD and 2.3m AHD respectively. The existing levels within C3 grade from approximately 6.5m to 7.2m AHD at the eastern boundary of C3. The C4 area has an existing surface level of approximately 5.6m AHD, which will likely require sand structural fill to approximately 6.1m AHD to be serviced with sewer.



Figure 11 – Existing Gravity Wastewater Reticulation Services (Water Corporation)

Precinct D

There is an existing sewer main located on the southern corner of Precinct D, located near the intersection of Marina Drive and Resolution Drive. Water Corporation has advised that a sewer connection to this existing 225mm PVC main is possible for the proposed residential development. The levels of this existing main are at an invert level -2.09mAHD and has sufficient depth to service the site.

The existing sewer junction to Lot 452 is anticipated to service the existing building within the lot, and will likely require removal as part of the development of Precinct D.

Precinct E

There is an existing 225mm PVC sewer south of Precinct E, located along Resolution Drive which ranges from approximately -0.02m AHD to 0.49m AHD at access chamber T3030 located at Raconteur Drive Link. The existing sewer main continuing northeast from this access chamber is located within Lot 100 which is private land. Whilst no easement currently exists over this portion of the Water Corporation pipe, it could be anticipated that this would be required as part of future amalgamation or development in the future.

The depth of this existing sewer should be sufficient to service the future development at Precinct E subject to the final lot layout allowing access to this existing main. As seen from Figure 12, Lots 51 and Lot 100 can be serviced from the existing main, however, the existing drainage reserve R45069 will require consideration when extending the sewer to service Lot 51.

The wastewater servicing of Lot 1 will require further investigation, but the Water Corporation sewer main could likely need to be extended to this site, possibly from Lot 52 at Resolution Drive.

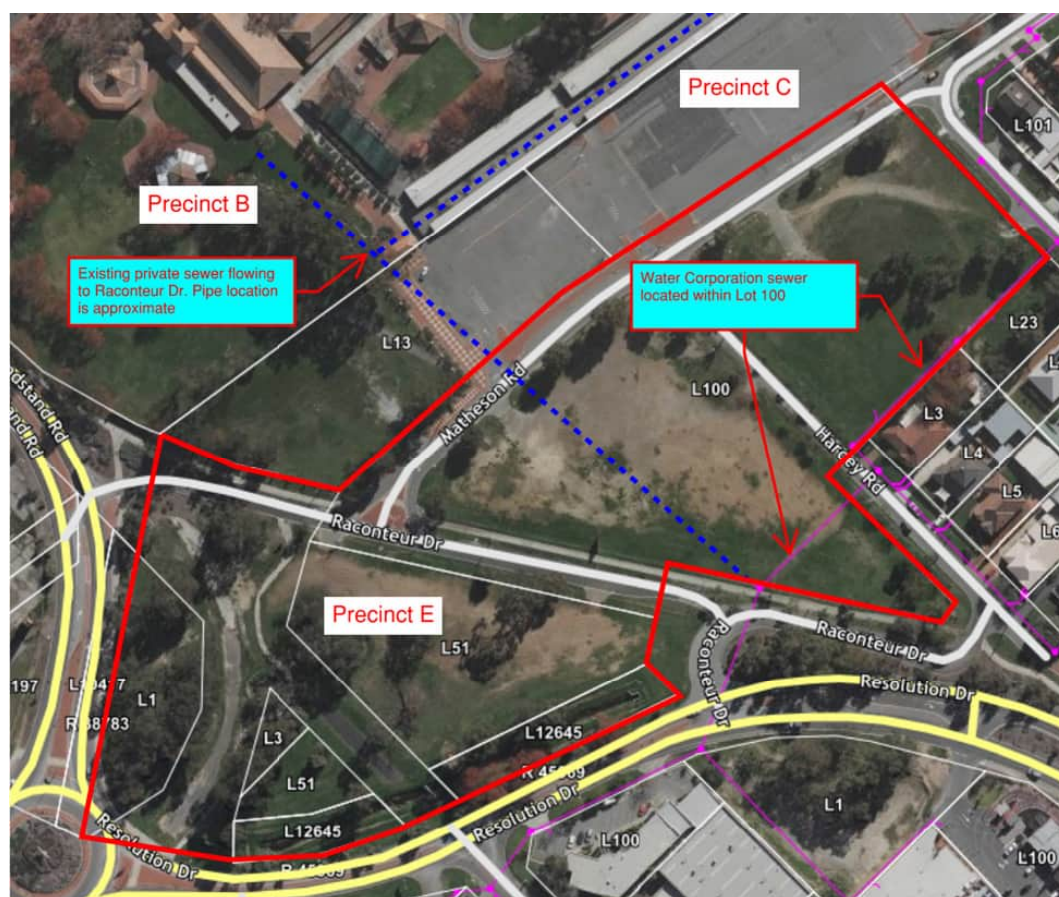


Figure 12 – Existing Gravity Wastewater Reticulation Services (Water Corporation)

Notwithstanding the advice outlined above, if the developer intends to upgrade or extend the sewer reticulation for any reason, they will be responsible for funding reticulation extensions to service the proposed lot with a gravity connection, which shall be designed and constructed to Water Corporation specifications. Standard Water Corporation infrastructure contributions will apply on a per-lot basis.

8 WATER SUPPLY

Advice was sought from Water Corporation regarding the established water reticulation system within the area and if service upgrades are required for the proposed development. Water Corporation has advised that the existing water reticulation in the area may be utilised to service the proposed Precincts depending on final water usage requirements, however, it should be noted that Precincts B and C are not currently included within the current Water Corporation planning assumptions.

Precinct A and Precinct B

Depending on the potable water capacity requirements for Precinct A, the existing 200dia water main located in the western verge of Waterway Cres and Grandstand roundabout should provide adequate supply to the proposed high-density developments. This 200mm water main would need to be extended to the development site from Grandstand Road to provide supply.

According to Water Corporation's database, Precinct B has an existing 100mm diameter water main feeding into the site with a 100mm meter and multiple existing 100mm fire services. The existing water main size along Grandstand Rd is 100mm PVC, therefore, if additional water is required and the supply needs to increase, an upgrade of this existing 100mm water main would be required which would require further investigation by Water Corporation.



Figure 13 - Existing Water Mains in proximity of Precincts

Precinct C and D

Precinct C has access to an existing 100mm water main located along the south verge of Matheson Road which has been constructed of varying materials (PVC, Asbestos Concrete, Cast Iron, Steel). Access to this main is readily available, however, if greater supply is required above what the 100mm diameter pipework supplied within the area, further investigation would be required with Water Corporation to increase the size of the water main to Precinct C.

Precinct D has an existing 150mm water main on the west verge of Resolution Drive, and a 100mm main on Grandstand Road, both of these providing adequate opportunity for connection and water supply.

Precinct E

There is an existing DN915mm steel water distribution main located along the eastern verge of Grandstand Road on the 2.1m alignment which also runs through the centre of Precinct E within the existing road reserve. A smaller existing DN100mm cast iron water main also conveys potable water through Precinct E within this road reserve corridor, with these mains being built in 1949 and 1987 respectively. Depending on the final use of Precinct E, it could be expected that as part of assembling the

lots in Precinct E, the Distribution Water Main and the DN100 CI main, may need to be relocated outside of the proposed lots, and reinstalled on their ultimate alignment within remaining road reserves. If these water main assets are to remain in their current location, Water Corporation would need to accept an easement over these assets with the DN915 and 100CI mains requiring 10 and 5m easements respectively.

It is anticipated that the existing DN100 cast iron water main will be suitable for water servicing. The existing DN915 steel distribution main located on the northern verge of Grandstand Road, and through Precinct E, would not be available for connection to the proposed development.

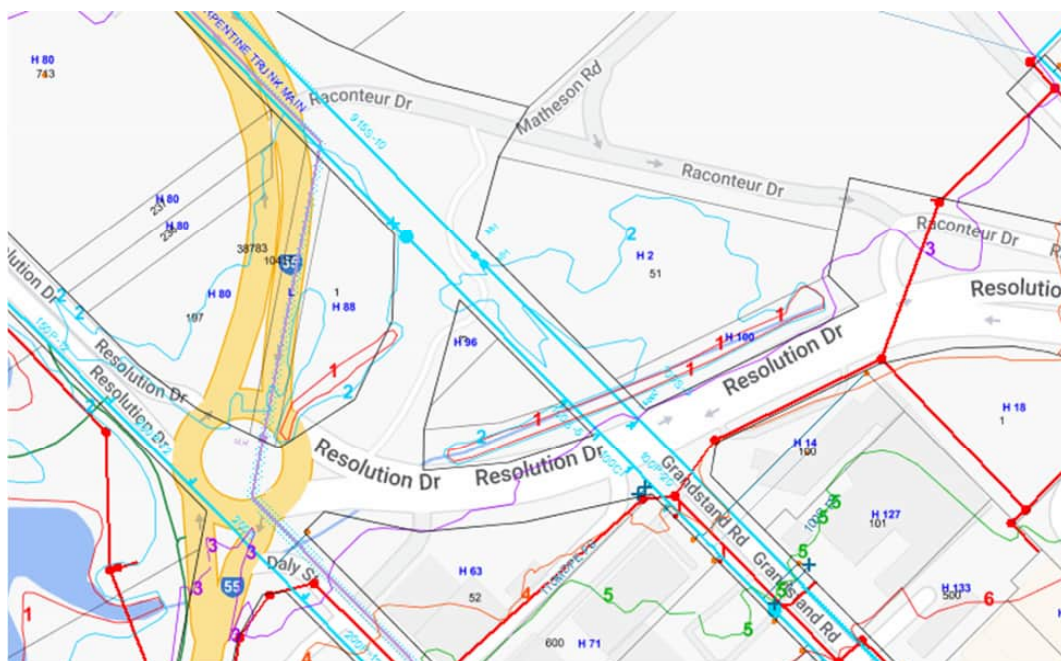


Figure 14 - Existing Water reticulation in Precinct E (Water Corporation Esinet 2024)

Whilst Water Corporation did not advise TABEC of any necessary upgrade of the old water pipe network, any modification to these existing pipes may result in the requirement to upgrade old cast iron water mains. Final upgrade requirements of the existing infrastructure will be clarified once water usage requirements are understood, and modelling has been undertaken by Water Corporation.

9 POWER SUPPLY

9.1 Power Requirements

The preliminary power requirements have been reviewed based on the proposed development at each of the precincts. It is estimated that the development equates to a total power requirement of 5.4MVA, with the new proposed developments within the precincts requiring the additional 4.2MVA. The existing developments within the precincts are estimated to be using 80% of the 1.5MVA currently available.

Load Type	Anticipated HV infrastructure required
Precinct A	1 x 1000kVA Transformer
Precinct B	Existing 1000kVA transformer and switchgear may be adequate Existing 500kVA transformer located near the grassed parkland function area may be adequate
Precinct C	Existing may be adequate subject to further review.
Precinct D	1 x 315kVA transformer
Precinct E	2 x 1000kVA and 1 x 315kVA transformers

The estimated load summary has been calculated as follows:

Precinct	Development Type	Approx. sqm / No. of Units	Average kVA / sqm	Approx Total kVA	
Precinct A	Retirement Living	390	3.1	1209	
	Commercial	300	140	42	1251
Precinct B	Office	680	140	95.2	
	Hospitality	1000	140	140	235.2
Precinct C	Stables	6400	10	64	64
Precinct D	Childcare	2100	75	157.5	
	Residential	41	4.7	192.7	350.2
Precinct E	Site 1 Retail	3400	140	476	
	Site 1 Office	2500	140	350	
	Site 1 Parking	5500	10	55	881
	Site 2 retail	7100	140	994	
	Site 2 Parking	3500	10	35	1029
	Site 3 Equine	5000	75	375	410
Total				4185.4	kVA
				5822.76	Amps

The anticipated additional power demand from the development is estimated to be in the order of 4.2MVA (4,200kVA).

9.2 Feeder Capacity

Western Power's (WP) Network Capacity Mapping tool indicates that the area is serviced by the Belmont Zone Substation and has more than 30MVA of power available on the network. Note that this information is unconfirmed by Western Power until such time as an application is being made to WP for connection.

To access the additional capacity in the network supplied at the Belmont Zone Substation, it is anticipated that 2 additional power feeders may need to be installed, 2.5km from the Belmont Substation Site to the development to adequately service the ultimate required supply.

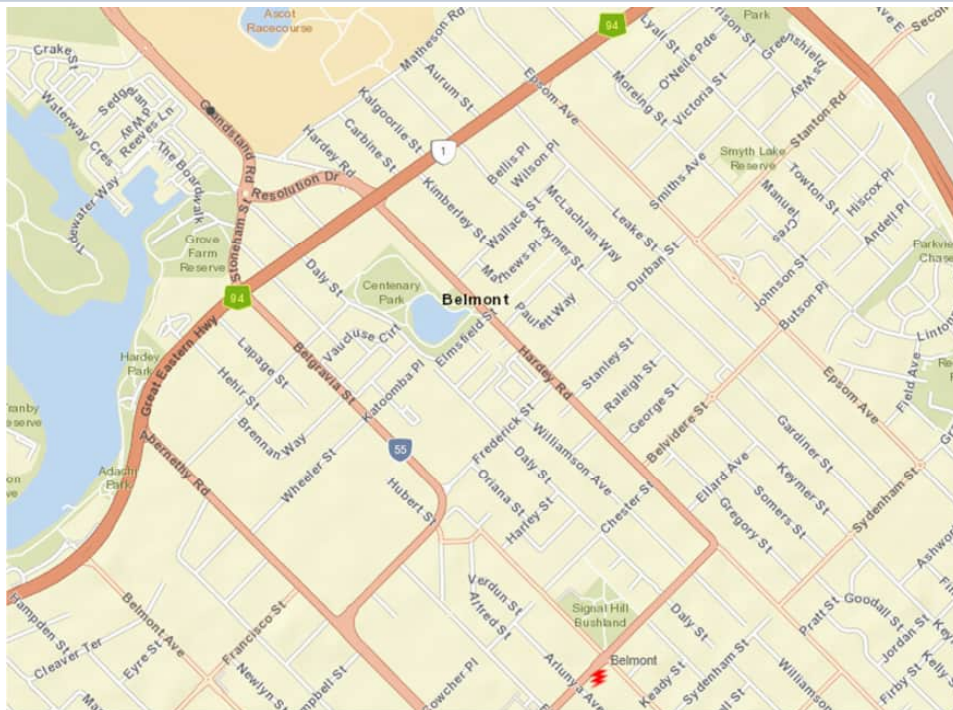


Figure 15 - WP Substation Site (Western Power Mapping 2024)

9.3 Existing Distribution Power Network

The Western Power Network Mapping tool (NCMT) and DBYD has indicated that there is high voltage (HV) servicing this development area. Existing 132kV overhead power is also located along Matheson Road, and along the east of Lot 9002.

There are also high voltage distribution cables surrounding the sites, with these being overhead power along Matheson Road, which transitions to underground at Resolution Drive, and north up Grandstand Road as seen within Figure 16.

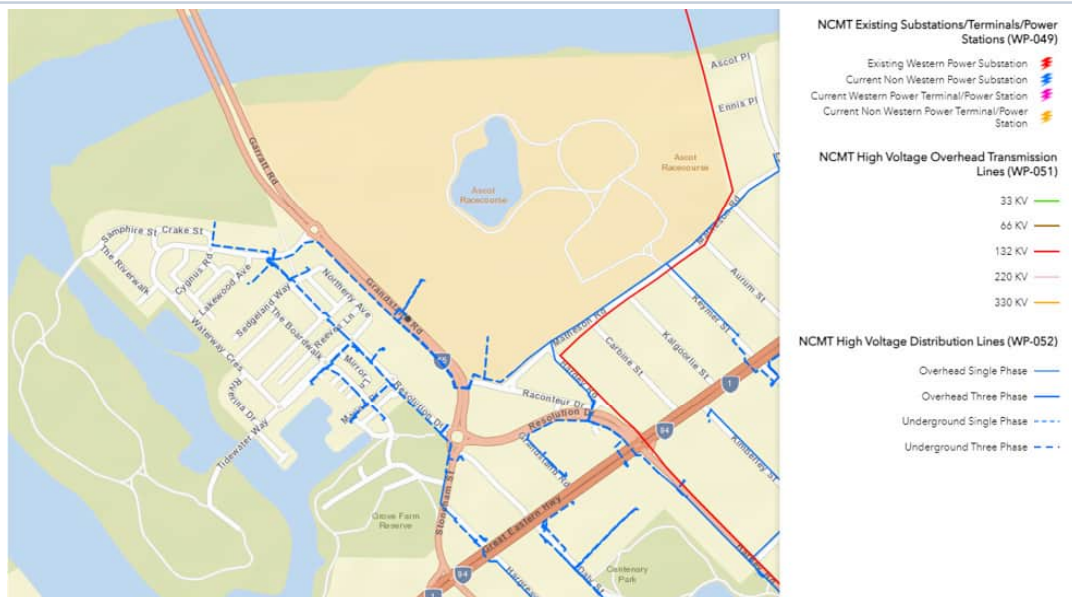


Figure 16 – NCMT Network Existing Power Services (Western Power)

10 COMMUNICATIONS

Ascot Racecourse is currently surrounded by NBN service in the area with FTTN Technology. It is expected with new developments or upgrades, that FTTP will be available.

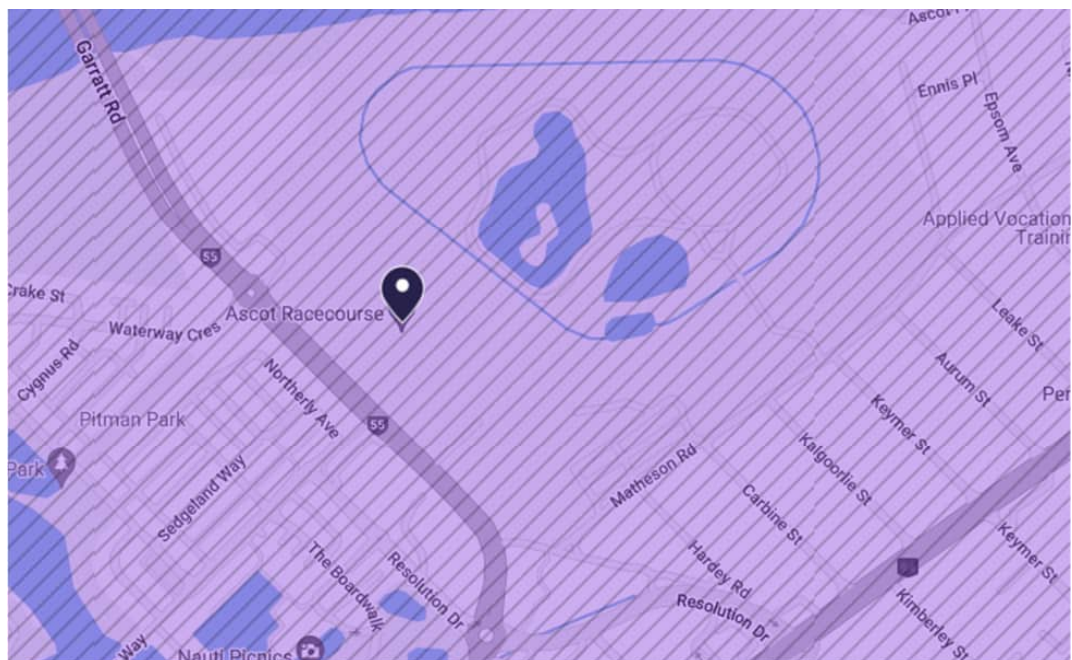


Figure 17 - NBN Rollout Map (NBN) – Fixed Line available

The Dial Before you Dig information shows Precinct D has existing Optus fibre optic assets within the site, which have been installed within the north west boundary of the lot. Precinct D also has Telstra and Vocus assets entering the lot from Grandstand Road and from Resolution Drive respectively.

Further discussion will required with the communication providers to determine whether these existing comms assets will impede the proposed development at this site, and whether relocation or removal of this asset is required.

11 GAS SUPPLY

There is existing medium pressure 155 PVC 1.5 (MAOP 70kPa) gas mains located along Matheson Road and up Grandstand Road until Precinct D which are available for connection to Precinct C, Precinct D and Precinct E if required.

ATCO has completed high level modelling based on similar business connection types as those nominated developments within each precinct. The modelling was based on:

- Connection to MAOP 70kPa network
- MP Metro 25 – Severe Winter
- Full load at 350scmh ($\approx 12000\text{MJ/hr}$)
- Full connection by 2025
- Potential mains extension required for connections to Precinct A and B

Based on this modelling, the existing gas mains adjacent to Precinct D and Precinct E should be sufficient to service these residential and commercial developments.

Precinct A will require a gas mains extension to the retirement village if this development is to utilise gas, however, ATCO have not expressed any concerns with servicing capacity issues.

The supply of gas is not a WAPC subdivision condition and there is no obligation on the developer to install gas as part of the development.

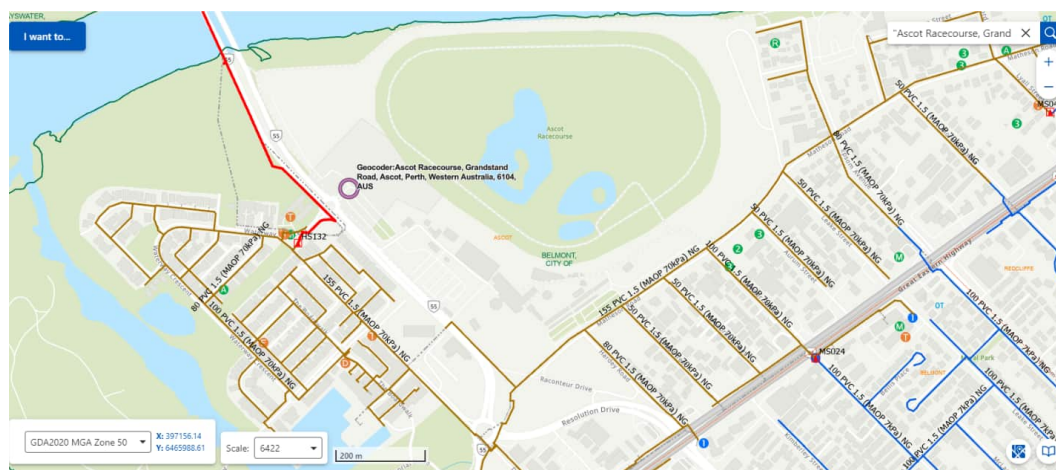


Figure 18 – Existing ATCO Gas Network map (ATCO Gas)

In reviewing the Dial Before You Dig information, an existing 150 PVC gas main traverse through Precinct D, along the south east boundary. From the information available, this pipe does not look to be

operational, however, further discussions with ATCO Gas are required on whether this needs to be relocated, or removed.

12 CONCLUSION

Based on the infrastructure review, there does not appear to be engineering-related constraints preventing the development of the five precincts. Notwithstanding, there are a number of design issues and construction challenges to be resolved in further detail within the next phases of development.

The advice received from servicing authorities and investigations to date indicate each aspect can be resolved to support the development proposal.

13 RECOMMENDATIONS

Since this report is based on preliminary servicing advice and investigations, it is recommended that each Authority be kept informed as the planning progresses and concept engineering designs are refined. Communicating the proposed time frames for the precinct development is also important.

There are a number of project-related issues and challenges that require further consideration, with some of these to be assessed as part of the next phase, such as:

- further investigation and discussion on the preferred Precinct A sewer servicing methodology;
- the upgrade/relocation requirements of existing water mains if deemed necessary for Precinct E or to provide adequate servicing to Precinct B or C. If required, early engagement with Water Corporation is recommended to coordinate scope within Water Corporations capital works program;
- bio-retention locations within the centre racecourse for Precincts A, and C;
- drainage basin/storage location at Precinct D;
- existing communications assets removal or relocation within Precinct D;
- power servicing to each development sites with overlapping lots and boundaries
- understanding development timeframes for precincts, due to the limited power capacity within the existing network prior to additional HV feeders being required to the site.

The information contained within the report is preliminary in nature, has been completed based on a high-level desktop assessment, and has relied on preliminary planning advice from servicing authorities where appropriate. There are no site investigations, reports or other consultants' input unless stated within the report, which would ordinarily provide a more substantial servicing review for the purpose of supporting subdivision applications.

14 REFERENCES

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15 APPENDIX A – DBYD INFORMATION

Attachment 12.1.4 Engineering Servicing Report

Job No 36962243



byda.com.au

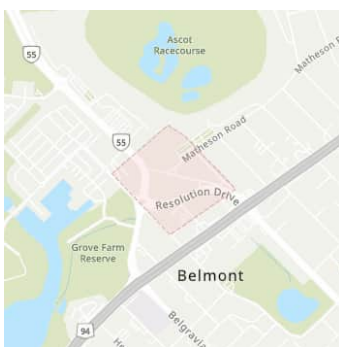
Contact Details

Contact	Contact number	Company	Enquirer ID
Justin Zielinski	0420 304 451	-	3140642
Email		Address	
jzielinski@tabec.com.au		54 Havelock Street West Perth WA 6005	

Job Site and Enquiry Details

WARNING: The map below only displays the location of the proposed job site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

Enquiry date	Start date	End date	On behalf of	Job purpose	Locations	Onsite activities
21/06/2024	24/06/2024	24/06/2024	Private	Design	Both Road	Planning & Design



Check that the location of the job site is correct. If not, you must submit a new enquiry.

If the scope of works change or plan validity dates expire, you must submit a new enquiry.

Do NOT dig without plans. Safe excavation is your responsibility. If you don't understand the plans or how to proceed safely, please contact the relevant asset owners.

User Reference	Address	Notes/description
Precinct E	2 Raconteur Drive Ascot WA 6104	-

Your Responsibility and Duty of Care

- **Lodging an enquiry does not authorise project commencement.** Before starting work, you must obtain all necessary information from all affected asset owners.
- If you don't receive plans within 2 business days, contact the asset owner & quote their sequence number.
- Always follow the 5Ps of Safe Excavation (page 2), and locate assets before commencing work.
- Ensure you comply with State legislative requirements for Duty of Care and safe digging.
- If you damage an underground asset, you MUST advise the asset owner immediately.
- By using the BYDA service, you agree to the [Privacy Policy](#) and [Term of Use](#).
- For more information on safe digging practices, visit www.byda.com.au

Asset Owner Details

Below is a list of asset owners with underground infrastructure in and around your job site. It is your responsibility to identify the presence of these assets. Plans issued by Members are indicative only unless specified otherwise. Note: not all asset owners are registered with BYDA. You must contact asset owners not listed here directly.

Referral ID (Seq. no)	Authority Name	Phone	Status
240900614	ATCO Gas Australia	1300 926 755	NOTIFIED
240900610	NBN Co (WA)	1800 687 626	NOTIFIED
240900607	Optus (WA)	1800 505 777	NOTIFIED
240900612	Telstra (WA)	1800 653 935	NOTIFIED
240900609	TPG Telecom (WA)	1800 786 306	NOTIFIED
240900608	Vocus (WA)	1800 262 663	NOTIFIED
240900613	Water Corporation	13 13 95	NOTIFIED
240900611	Western Power	13 10 87	NOTIFIED

END OF UTILITIES LIST

Lodge your FREE enquiry online any time at byda.com.au



ATCO UNDERGROUND ASSET DETAILS ASSETS AFFECTED

GAS DIVISION

ASSETS AFFECTED – see accompanying Plan

Justin Zielinski
ATCO Gas Australia
54 Havelock Street
West Perth
WA 6005

Job No: 36962243
Sequence No: 240900614
Date of Issue: 21 June 2024
Phone: 1300 926 755

BYDA Utility Registration Name: Private
BYDA Location: 2 Raconteur Drive Ascot WA 6104

ATTENTION: This response to your enquiry has been interpreted from details in your requested DBYD picture location request only (not any street address you gave). It is your duty to ensure the accompanying plan/s match your geographical area of works.

**IF YOU SEE, HEAR, SMELL OR OTHERWISE DETECT GAS,
LEAVE THE IMMEDIATE AREA AND THEN CALL 13 13 52**

Our records indicate that ATCO gas infrastructure **IS PRESENT** in the vicinity of and/or surrounding area of the above enquiry. This response relates only to ATCO assets. Your Duty of Care requires that personnel **Must** at all times comply with, and have on site, this information sheet and the accompanying plan(s). All plans are subject to this information sheet. You should refer to the ATCO Self-service Portal ([Link Here](#)) or if unsure, contact ATCO on **1300 926 755** during business hours.

All information provided is to be used as a guide only (see Disclaimer item 5). It does not absolve you or third parties from your Duty of Care obligations, including to take additional precautions where work has the potential to impact on gas assets, public safety or the environment, or from your duties at law (including Reg 3.21 of the Occupational Safety and Health Regulations 1996).

WARNINGS

- No works of any type within 15 metres of any **CRITICAL GAS ASSET** infrastructure without prior approval from ATCO
- NO HOT WORK** within 15 metres of any gas infrastructure except in compliance with applicable laws & *Australian Standard 1674*. **Do Not** let heat sources or hot works impact on any gas infrastructure and take into consideration that the ground or adjacent structures may also be capable of transmitting heat so as to circumvent protection afforded by a heat shield or barrier
- DANGER** - Gas can cause asphyxiation and is flammable. Keep all ignition sources well away (e.g., flames, matches/ lighters, sparks, electrical devices, vehicles or engines, mobile phones, cameras)
- Gas pipes **Must Not** be unsupported or left without adequate cover or protection without prior approval from ATCO
- Damage to the pipe coating or pipe itself can be very dangerous if not given immediate attention. Report any damage to ATCO immediately on **13 13 52**. **Do Not** attempt to repair any damaged gas infrastructure
- No alteration or removal of live or abandoned gas infrastructure without prior written approval from ATCO
- Any abandoned or proposed gas infrastructure indicated on the gas plans **Must** be treated as live
- Never assume the location or depth of any gas infrastructure. Pipes may not follow straight lines or maintain a constant depth. Always check carefully (e.g., by careful hand digging of potholes)
- Unauthorised repairs or tampering with gas infrastructure may result in prosecution under the *Energy Operators (Powers) Act 1979*. ATCO Gas Australia reserves all rights to recover compensation for loss or damage to its gas infrastructure or other property including for indirect or consequential losses.

Document No: AGA-O&M-WI03-FM01

Revision No: 13

Issue Date: 22/04/2024


Page 1 of 4

Attachment 12.1.4 Engineering Servicing Report

PLANS:

Plans provided are current for **30 days only** from date of request. You must use current plans at all times.

Plans do not show all gas service lines (which connect gas mains to individual meter positions). See condition **3.c)** below.

If plan shows **additional detail** symbols (*) or () in the area of proposed works it is **your duty** to obtain that further detail from the number below.

Plans (including the location of pipes, services, infrastructure and boundaries) are **approximate only**. You **Must** use safe and proper procedures – including **potholing** (see condition **4** below).

Plans are not a guide as to gas availability for connection purposes.

To call ATCO: Weekdays from 7.30am to 3.30pm, call – 1300 926 755 After hours, weekends and emergencies, call – 13 13 52

CONDITIONS FOR WORKS IN THE VICINITY OF ATCO ASSETS

1. Compliance with Warnings

You **Must** comply with the Warnings contained in this information sheet and the accompanying plan(s).

2. Compliance with 'Working around Gas Infrastructure' Document ([Link Here](#)) applicable laws and duty of care

All work (including but not limited to using Excavator's Augers, Directional, drilling machines, 'Ditch Witch' type trenching machine, Loader, Dozer, Skid Steer (Bob Cat)) **Must** comply with all applicable requirements in the 'Working around Gas Infrastructure' Document and with all applicable laws and Australian Standards. All due care must be exercised to locate any gas infrastructure in the vicinity and when conducting any works near them.

3. All Gas Infrastructure

All work that may have any impact upon any gas infrastructure (see **3.a)**, **b)** and **c)** below for examples) should be carefully planned with notification to ATCO well in advance of commencement. Contact ATCO on **1300 926 755** or visit Atco's online self-service portal ([Link Here](#)). Amongst other things, this includes excavation of or near gas pipelines, boring/drilling, crossings of pipelines (including by other underground infrastructure e.g. drains, power cables, etc.), road works and structural installations. In addition:

a) Critical Asset

No works of any type are permitted within 15 meters of these pipelines without prior approval from ATCO. For approvals contact ATCO on **1300 926 755** or visit the Atco online Self-service portal ([Link Here](#))

You **Must** ascertain the location of any Critical Asset, in relation to your proposed work by:

- Locating a straight line between two marker danger signs, and
- Assessing the distance from this line to your proposed work area.

ATCO may require stand-by supervision during your works and will advise of attendance requirements.

b) Non Critical Assets

These pipelines are installed in most streets throughout the Perth metro area and several country centers. Main valves, regulator sets, and test points also exist at intervals along these pipelines. Where work may impact upon these pipelines or assets then ATCO **Must** be contacted as per item **3** above.

c) Gas Services and Meters

If a gas meter is installed on a property, an underground gas service pipe will run from the meter position to the gas main in the street. Plans do not show all gas service lines (with the exception of Critical Assets), but their presence must be anticipated. Most gas meter boxes installed since 1996 will include a sticker giving approximate guidelines for the gas service line location. All due care must be exercised to locate any gas services in the vicinity and when conducting any works near them.

4. Compliance with Safe Work Practices

It is your responsibility to have and comply with adequate safe work practices and procedures. Without limiting your obligations:

PLAN The complete & current Before you Dig Australia documentation and plans must always be on site & referred to for the duration of work. Refer to regulation 3.21 of the Occupational Safety and Health Regulations 1996 and the Utility Providers "Code of Practice" for further useful information.

PREPARE Prepare by reviewing the Before you Dig Australia Documentation and contacting ATCO if you need assistance. Look for onsite ATCO asset and infrastructure clues such as pit lids, marker posts and meters. No works of any type are permitted within 15 meters of a **CRITICAL ASSET** without prior approval from ATCO. For approvals contact ATCO on **1300 926 755** or visit the Atco website Self Service portal ([Link Here](#)) and allow suitable

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Attachment 12.1.4 Engineering Servicing Report

processing time. Atco recommends engaging a [BYDA Certified Locator](#) which includes undertaking electronic location prior to potholing.

POTHOLE Using current Before you Dig Australia plans, all gas pipes should be located (including any deviation in the direction of a gas pipe) by exposing them by careful digging using a HAND SHOVEL. Where the proposed work is parallel to a gas pipeline, pothole every 10 meters along the entire route. Damage to the pipe coating or to the pipe itself can create a very dangerous situation if not given immediate attention. If damage does occur, it **Must** be reported to ATCO immediately on Ph. **13 13 52**.

PROTECT Supervise and monitor all excavations near gas infrastructure using a dedicated spotter. Where any gas infrastructure is required to be exposed, adequate protection of the gas infrastructure is required to prevent potential damage. Also implement appropriate controls when conducting 'hot work' (in accordance with AS 1674) in the vicinity of the ATCO infrastructure such as; isolation; separation distance; the placement of an effective non-combustible barrier of sufficient size and thermal resistance for the intensity, type and duration of heat exposure; gas monitoring; monitoring the environment surrounding the ATCO infrastructure to ensure it is not being impacted by the work, and other controls as necessary.

PROCEED You should **only proceed** with your excavation work after you have planned, prepared, potholed (unless prohibited) and have protective measures in place. All locations markers/pegs are to be removed on completion of works. If you are unsure, **DO NOT** Proceed. Call ATCO on **1300 926 755**

5. Disclaimer and Further Terms

- a) Nothing in this document, any accompanying plan or the 'Additional Information for Working around Gas Infrastructure' (AGA-O&M-PR24) (together called "**Documents**") purports to exclude or modify any term, condition or warranty to the extent that by law it cannot lawfully be excluded or modified by agreement or notice, including but not limited to those contained in Schedule 2 of the *Competition and Consumer Act* 2010 (Cth) and corresponding provisions of any state legislation.
- b) If any of ATCO, or their respective related entities, officers, employees, agents, contractors or advisers (together called "**Associates**") is liable for a breach of a term, condition or warranty described in paragraph **5.a)** above, its liability is, to the fullest extent permitted by law, limited to any one or more of the

following as it determines in its absolute discretion:

- i) in relation to goods supplied by them, replacing or repairing the goods, supplying an equivalent item, paying the cost of replacing or repairing the goods or paying the cost of acquiring or hiring an equivalent item; and
- ii) in relation to services supplied by them, the re-supply of the services or the payment of the cost of having the services re-supplied.
- c) Subject to paragraphs **5.a)** and **b)**, but otherwise despite any other provision in the Documents, no representation or warranty is made or given (whether expressly or by implication) by any of ATCO or their respective Associates in respect of any information contained or referred to in any of the Documents or in any other communication from ATCO concerning any of the Documents or the subject matter of any of the Documents ("Information"). In particular, but without limiting the generality of the foregoing limitation, none of ATCO or their respective Associates makes any warranty or representation as to the truth, accuracy, completeness, reliability, currency, timeliness, quality or fitness for any purpose of or the standard of care taken in the preparation of any Document or Information (including, but not limited to, the accuracy of the scale of, or the location of anything or symbol shown on, any plan or diagram).
- d) Subject to paragraphs **5.a)** and **b)**, to the maximum extent permitted by law, none of ATCO or their respective Associates is liable to any person or other body ("**Recipient**") who receives or otherwise obtains access to all or any part or parts of the Documents or Information, in any way (including, but not limited to, liability for negligence, breach of statutory duty or lack of care) in respect of any cost, expense, damages, loss or liability, including, but not limited to:
 - i) any financial or economic loss, cost, expense or damage, including but not limited to loss of production, loss of profit, loss of revenue, loss of use, loss of contract, loss of goodwill or loss of business opportunity;
 - ii) any new or increased costs or expenses, including but not limited to financing or operating costs;
 - iii) any failure to achieve any actual or anticipated saving in respect of any cost or expense;
 - iv) any cost, expense, damage or loss resulting from any liability of the Recipient to any other person or body howsoever and whensoever arising, suffered or incurred by the Recipient in relation to, or in connection with, the disclosure to them of, or use of, or reliance on, all or any

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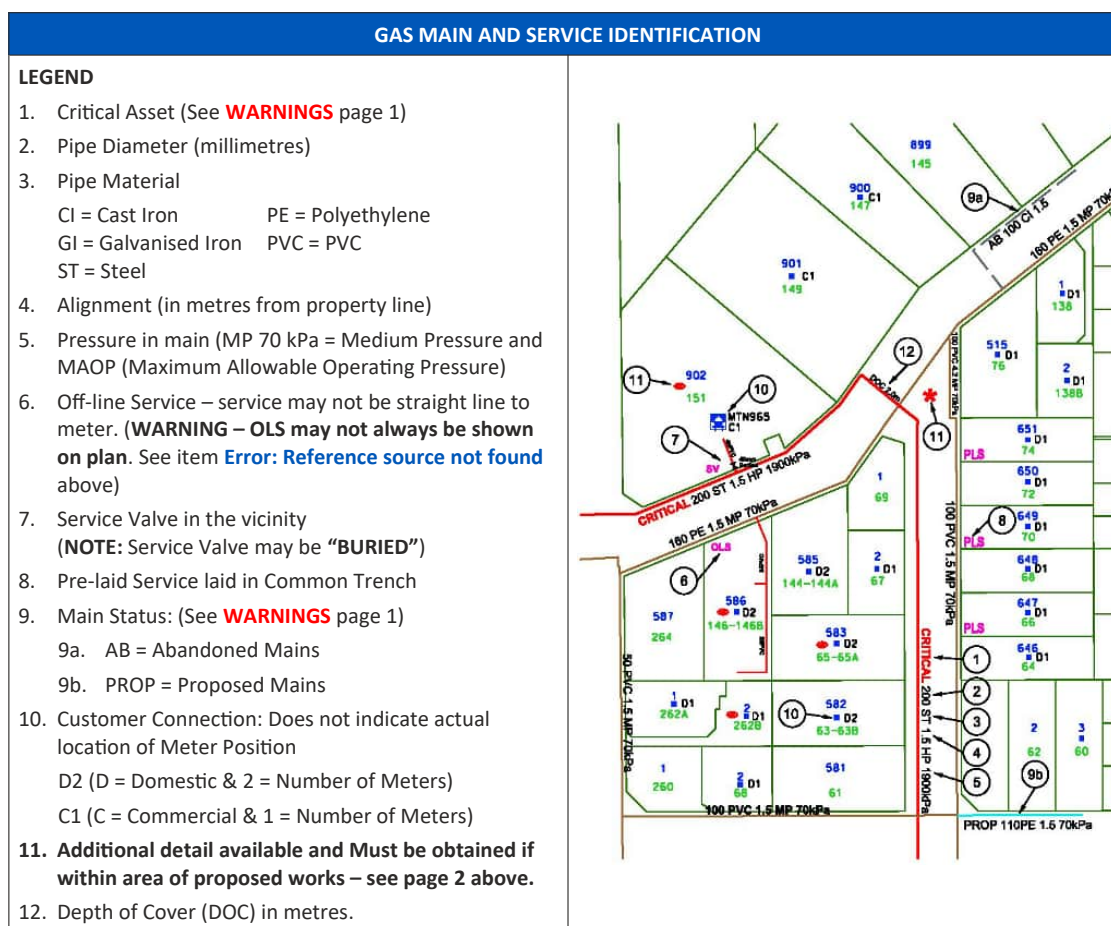
Issue Date: 22/04/2024

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Attachment 12.1.4 Engineering Servicing Report

part or parts of the Documents or Information.

- e) By using any Document or Information, each Recipient is taken to represent and warrant to ATCO that the Recipient will comply with the conditions and other terms referred to in the Documents or Information, including but not limited to conditions that:
- the Recipient **Must** comply with the conditions in numbered paragraphs 1 to 4 above and this paragraph 5;
 - as between ATCO and each Recipient, ATCO owns the Information and all rights and title in and to the Information are to remain vested in ATCO;
 - no Recipient has any right, title or interest in the Information or, except as expressly provided for in the Documents, any license or right to copy, alter, modify, publish or otherwise use or deal with the Information without prior written approval from ATCO;
 - ATCO makes no representation and gives no warranty as to its right to disclose any Information;
 - the Recipient relies on any Information entirely at its own risk and expense;
 - the Recipient **Must** undertake its own independent due diligence and investigations in relation to the Information;
 - none of ATCO or their respective Associates owes the Recipient any duty of care in respect of the Information; and
 - none of ATCO or their respective Associates is under any obligation to correct, update or revise any Documents or Information.



IF UNSURE, PLEASE CONTACT ATCO ON 1300 926 755

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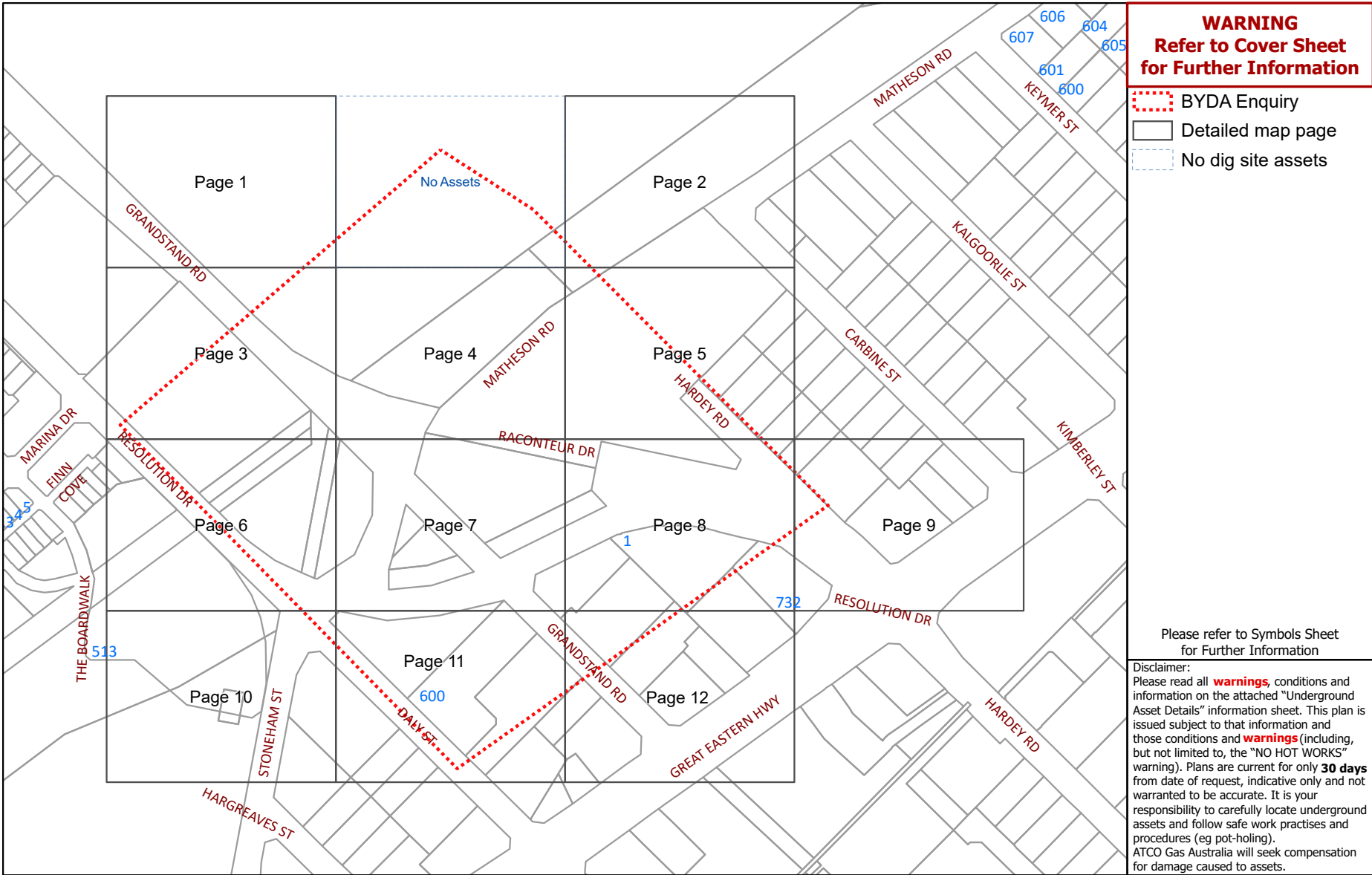
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)
Index Sheet

Seq # 240900614
Job # 36962243

BYDA Location: 2 Raconteur Drive Ascot 6104
Scale: 1:3,500



WARNING
Refer to Cover Sheet
for Further Information

BYDA Enquiry

Detailed map page

No dig site assets

Please refer to Symbols Sheet
for Further Information

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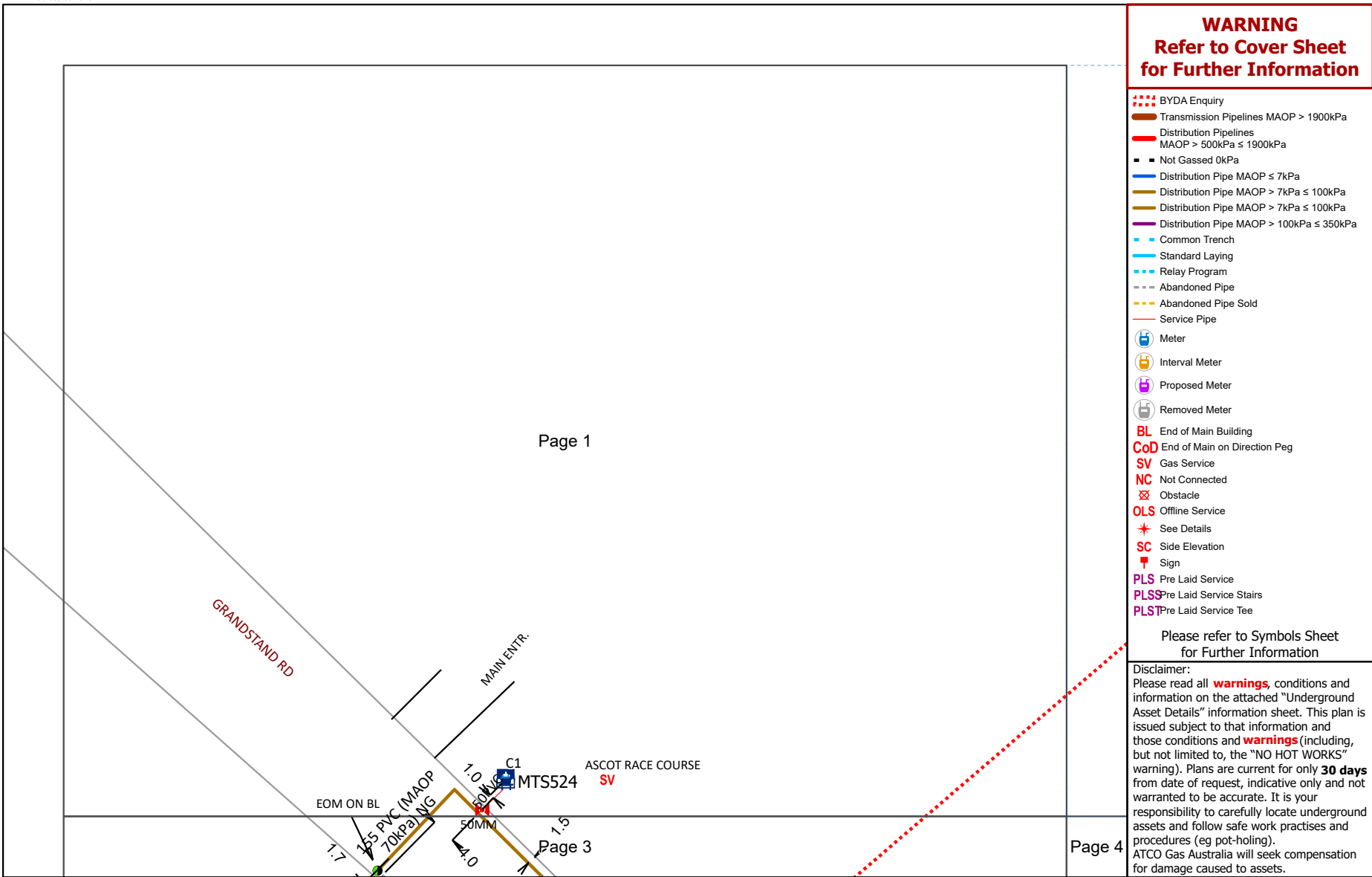
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Seq # 240900614

Job # 36962243

BYDA Location: 2 Raconteur Drive Ascot 6104

Scale: 1:800



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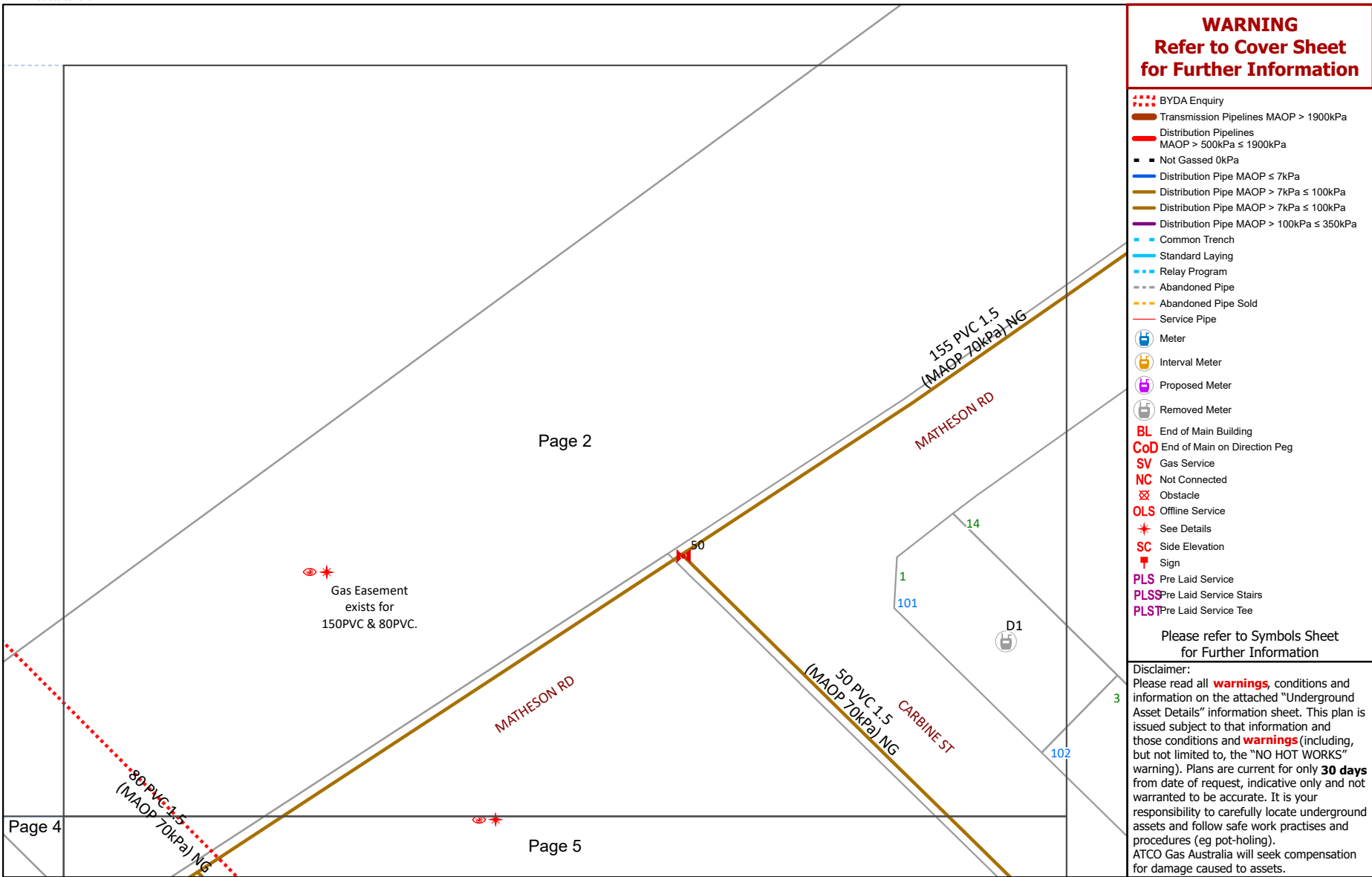
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WARNING
Refer to Cover Sheet for Further Information

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- Abandoned Pipe Sold
- Service Pipe
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- Proposed Meter
- Removed Meter
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- CoD End of Main on Direction Peg
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- OLS Offline Service
- See Details
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- Sign
- PLS Pre Laid Service
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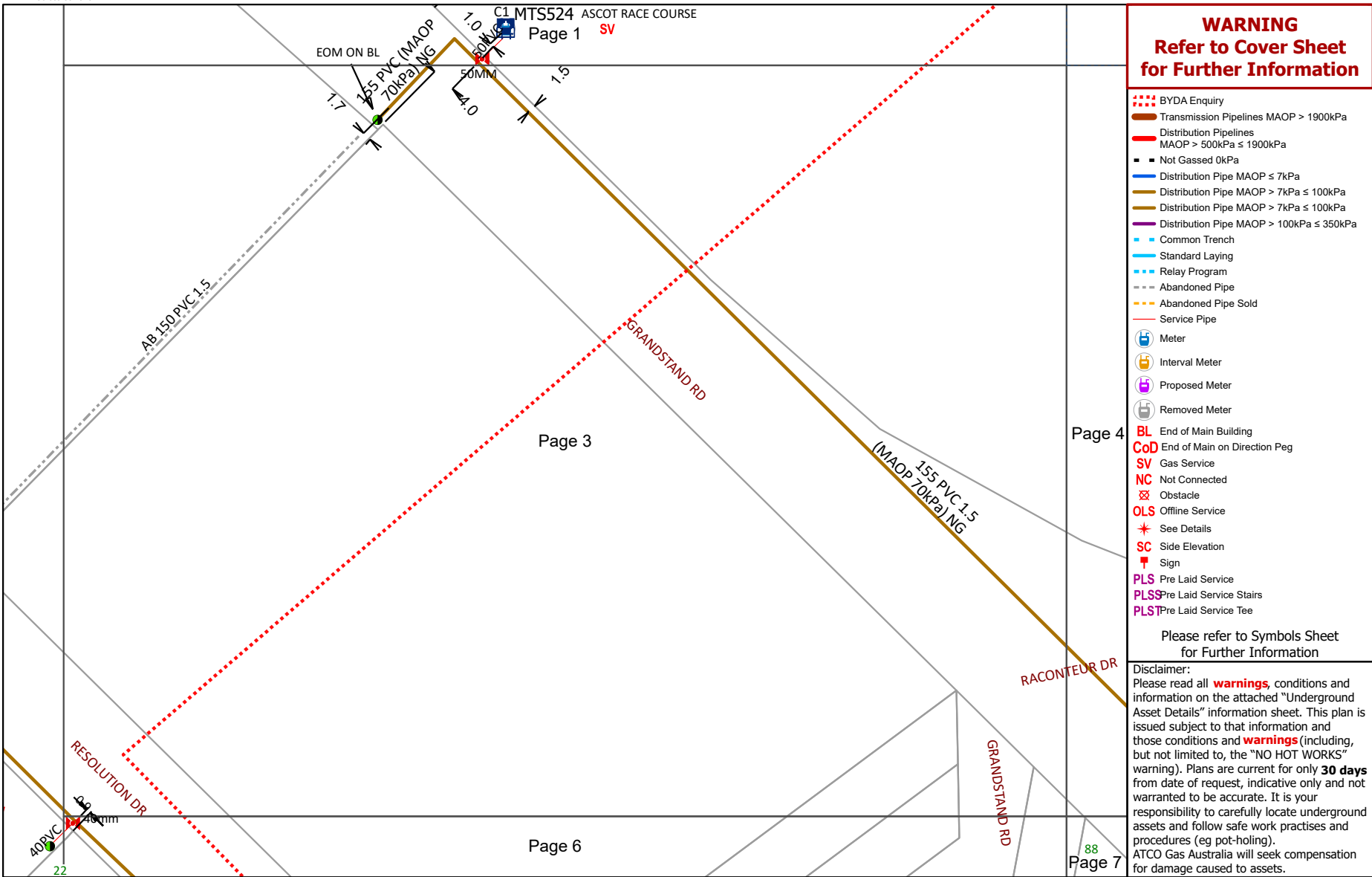
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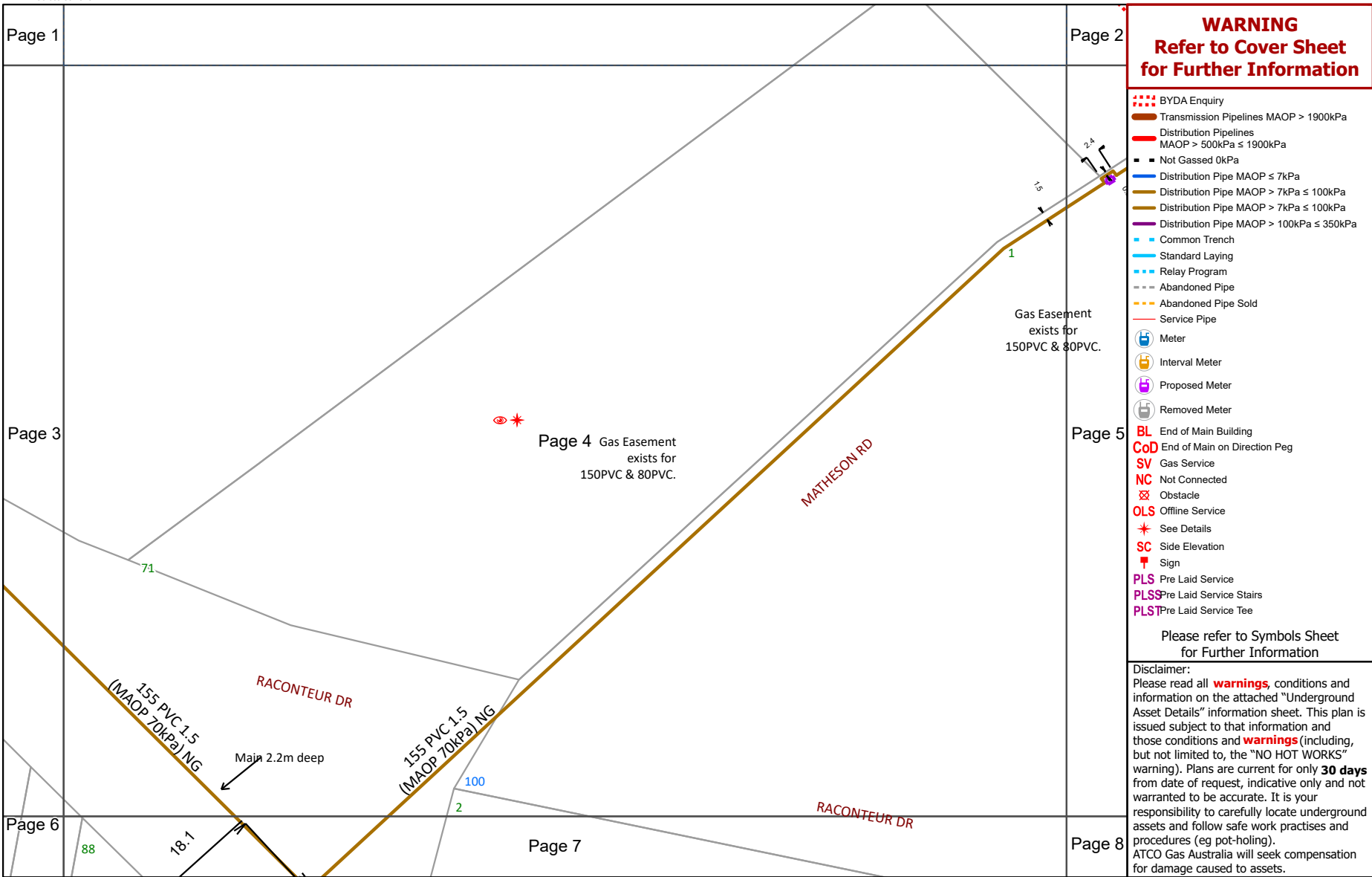
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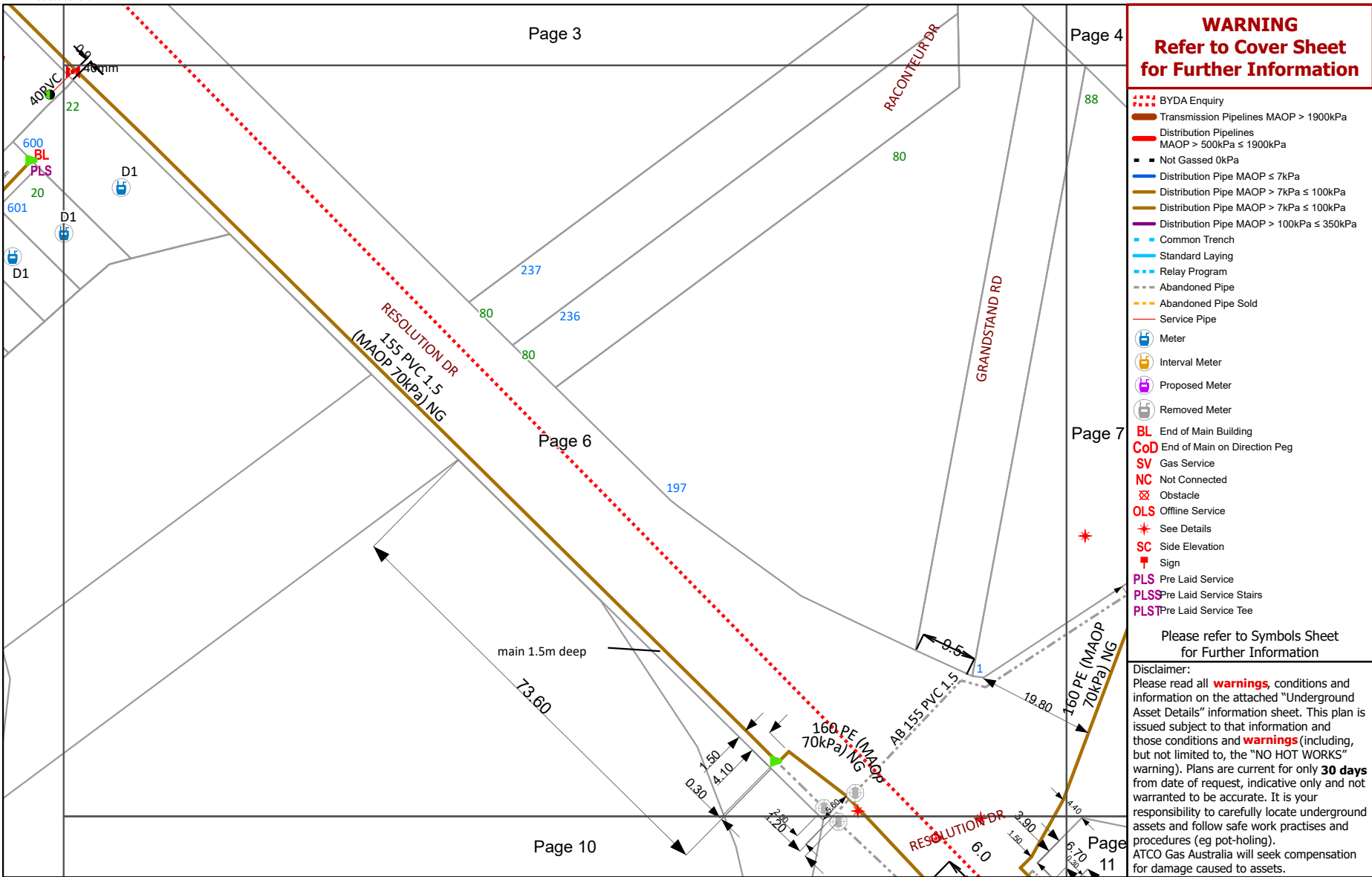
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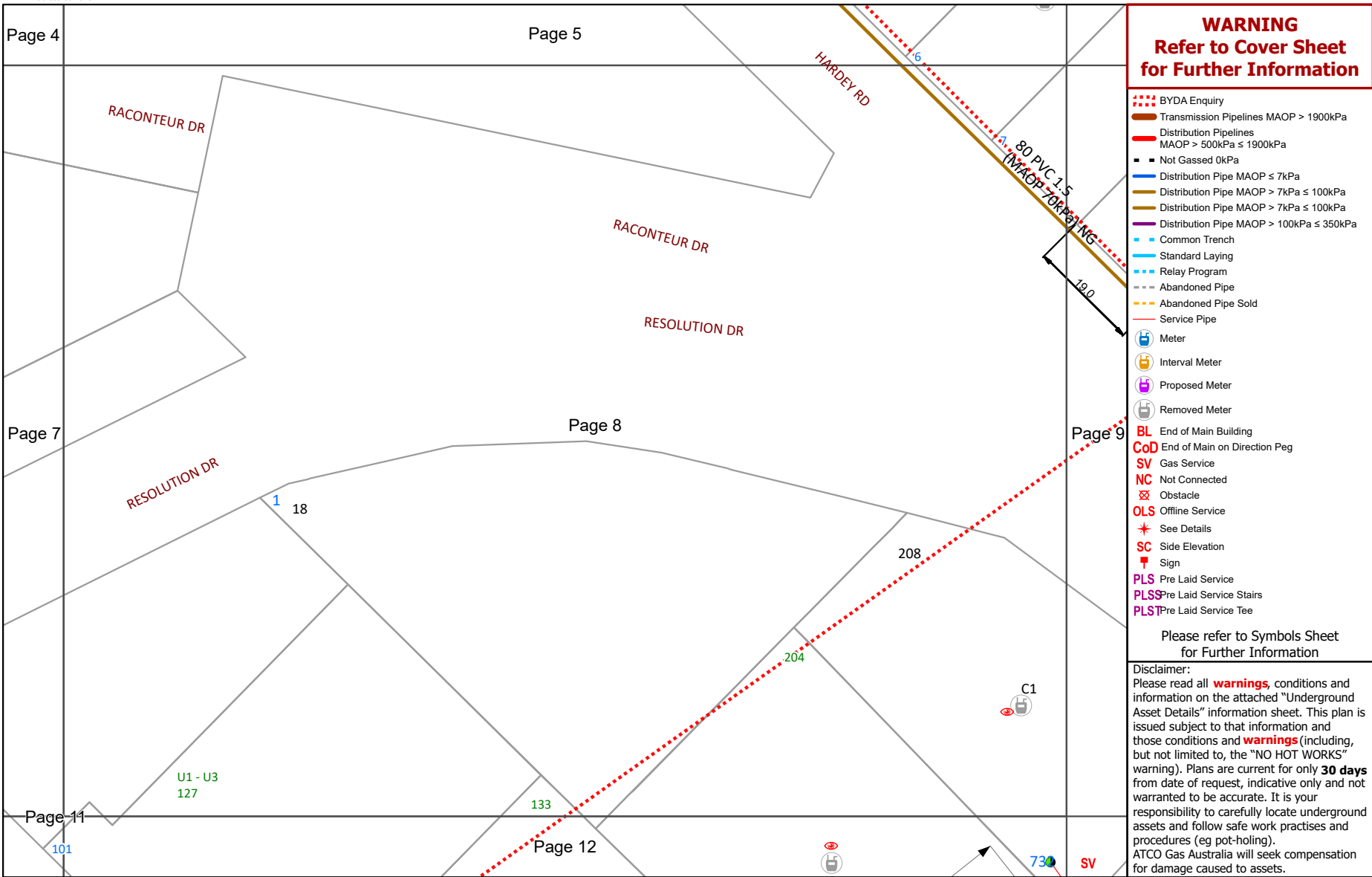
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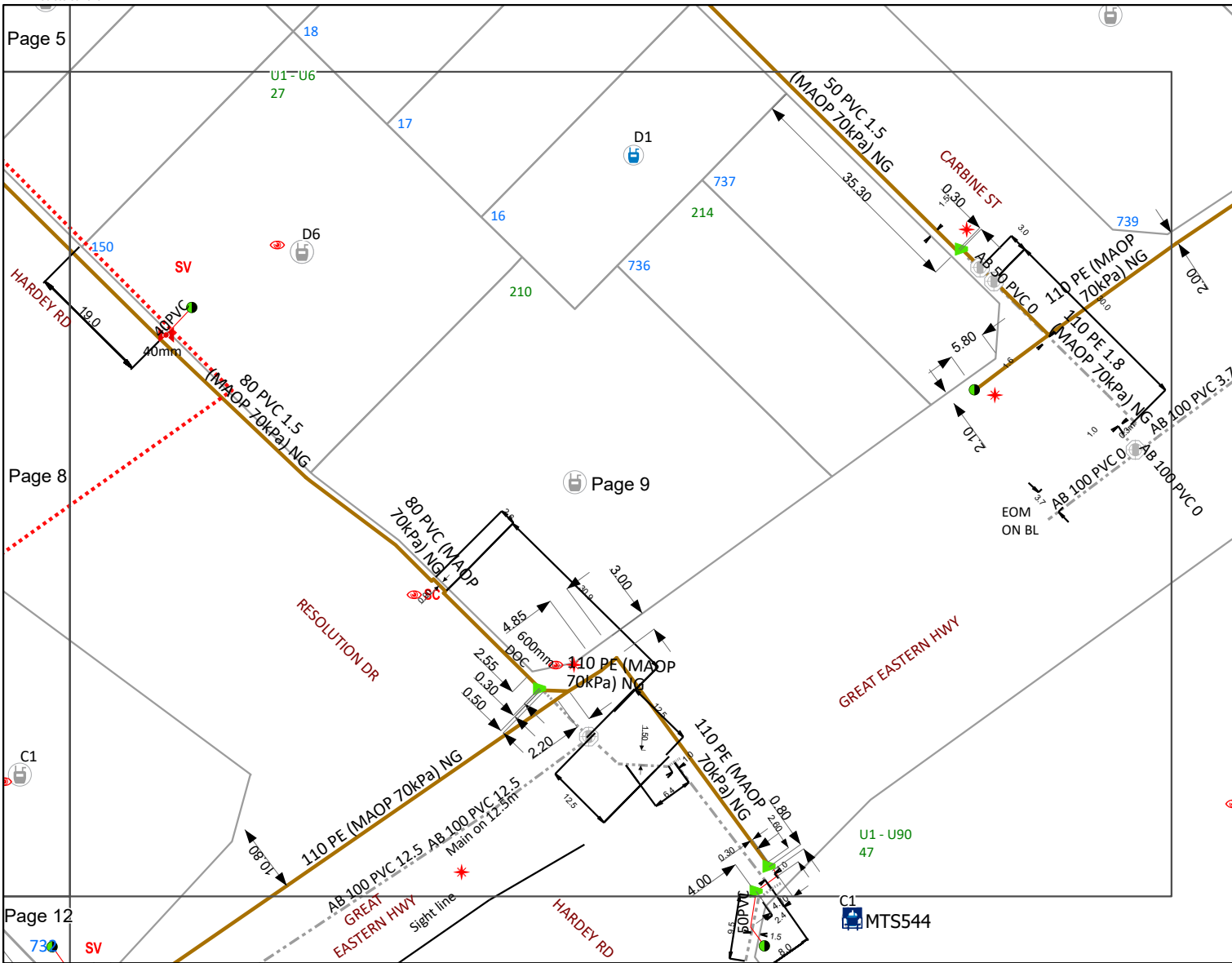
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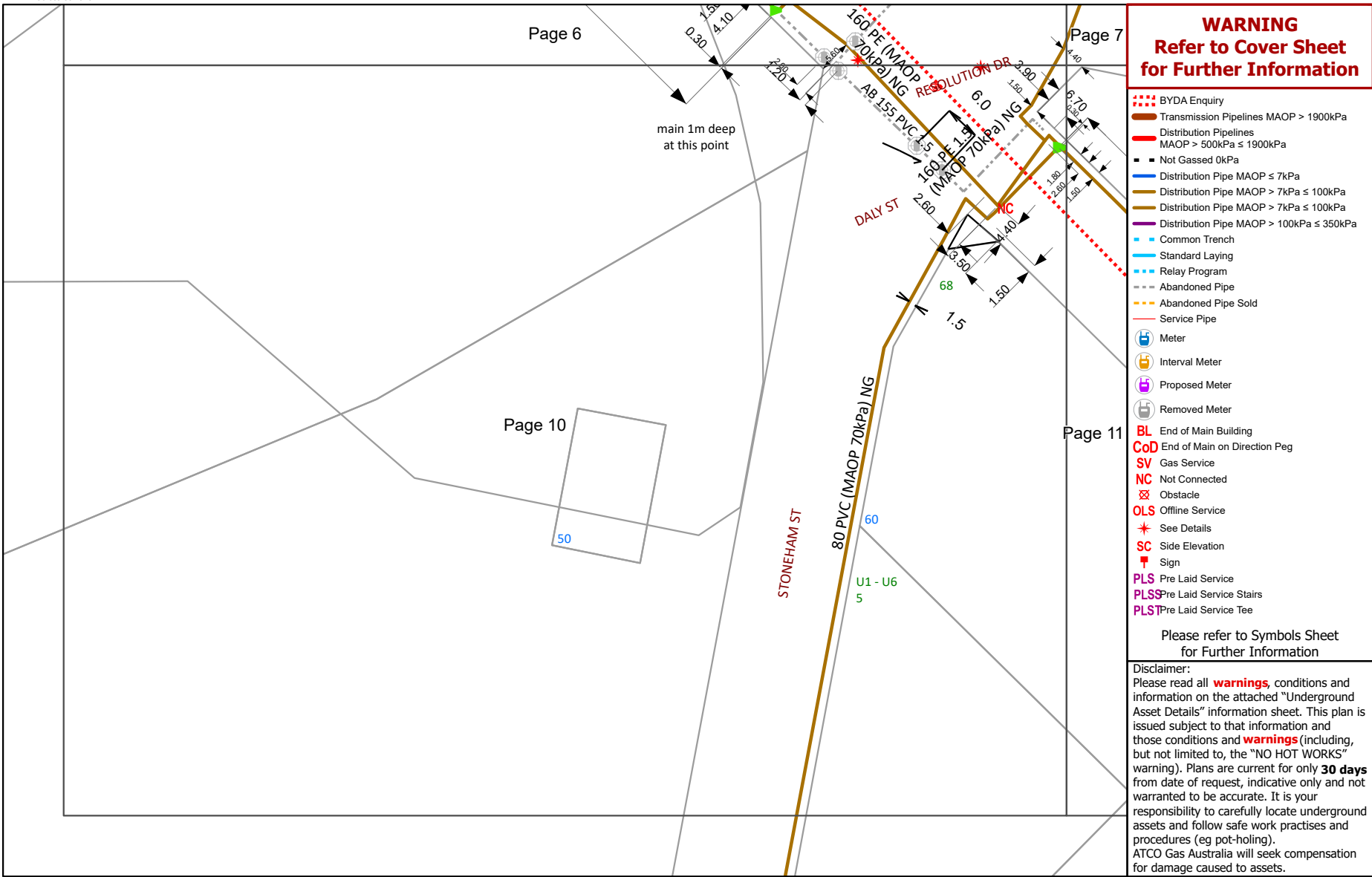
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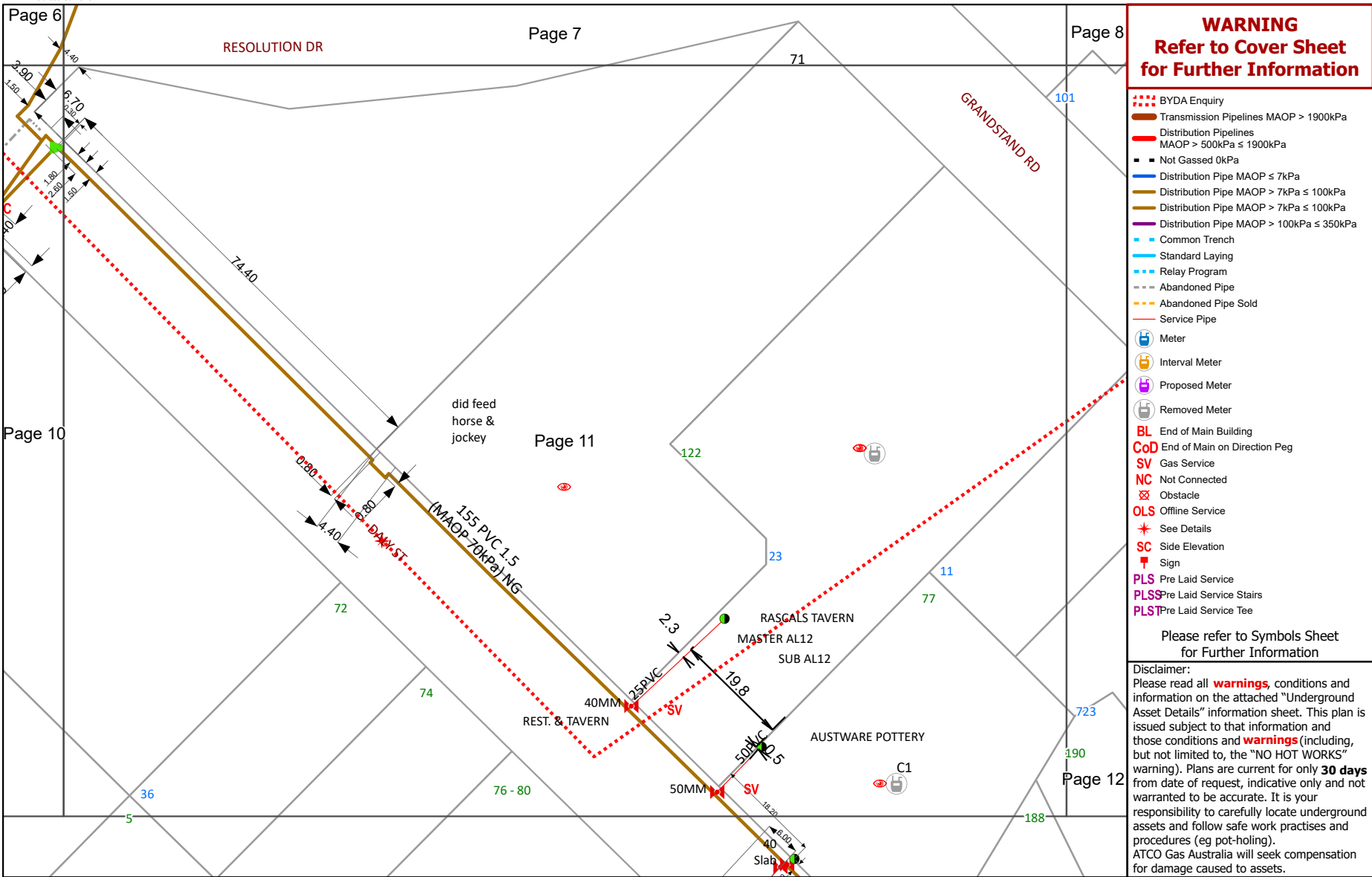
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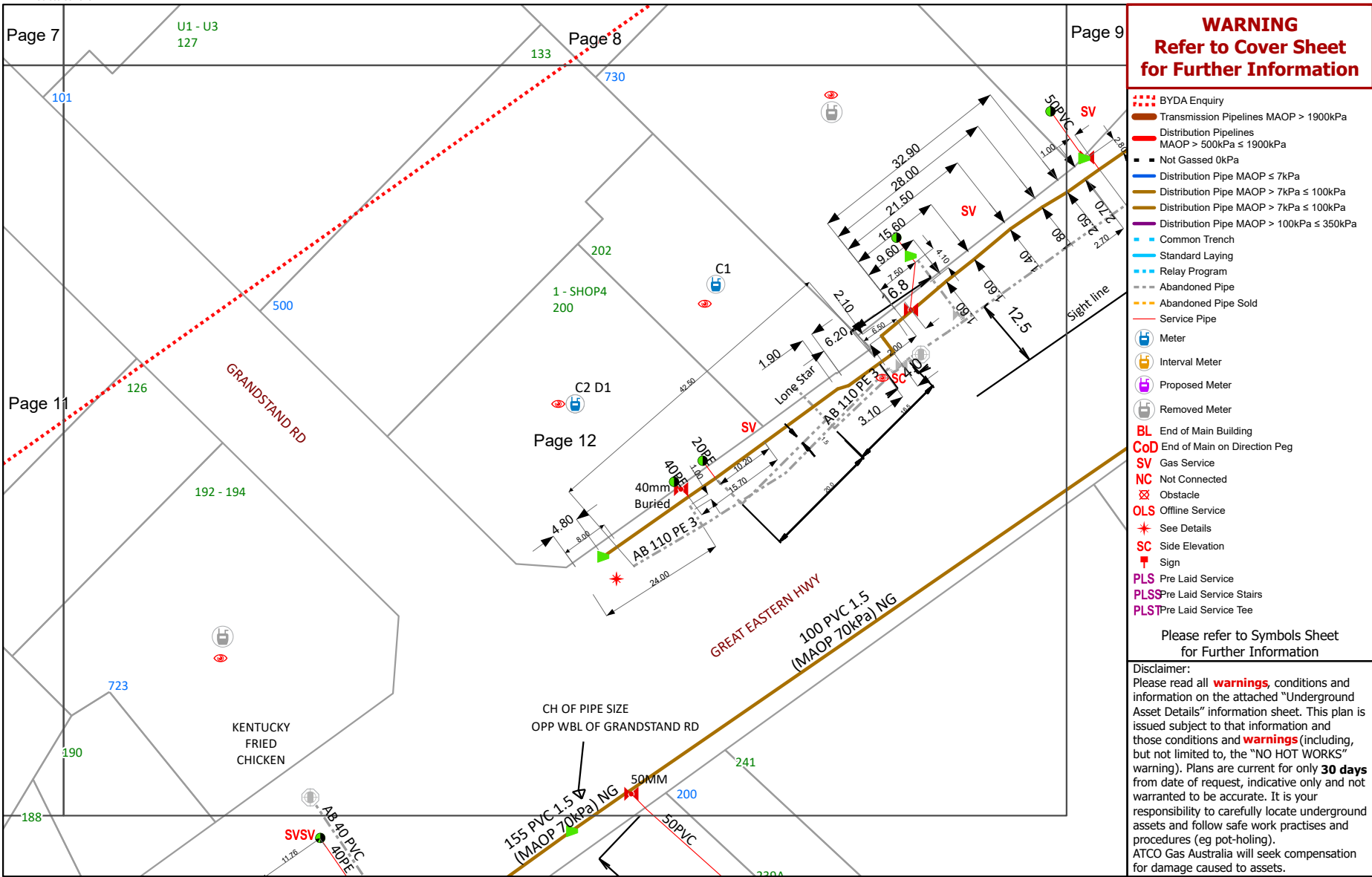
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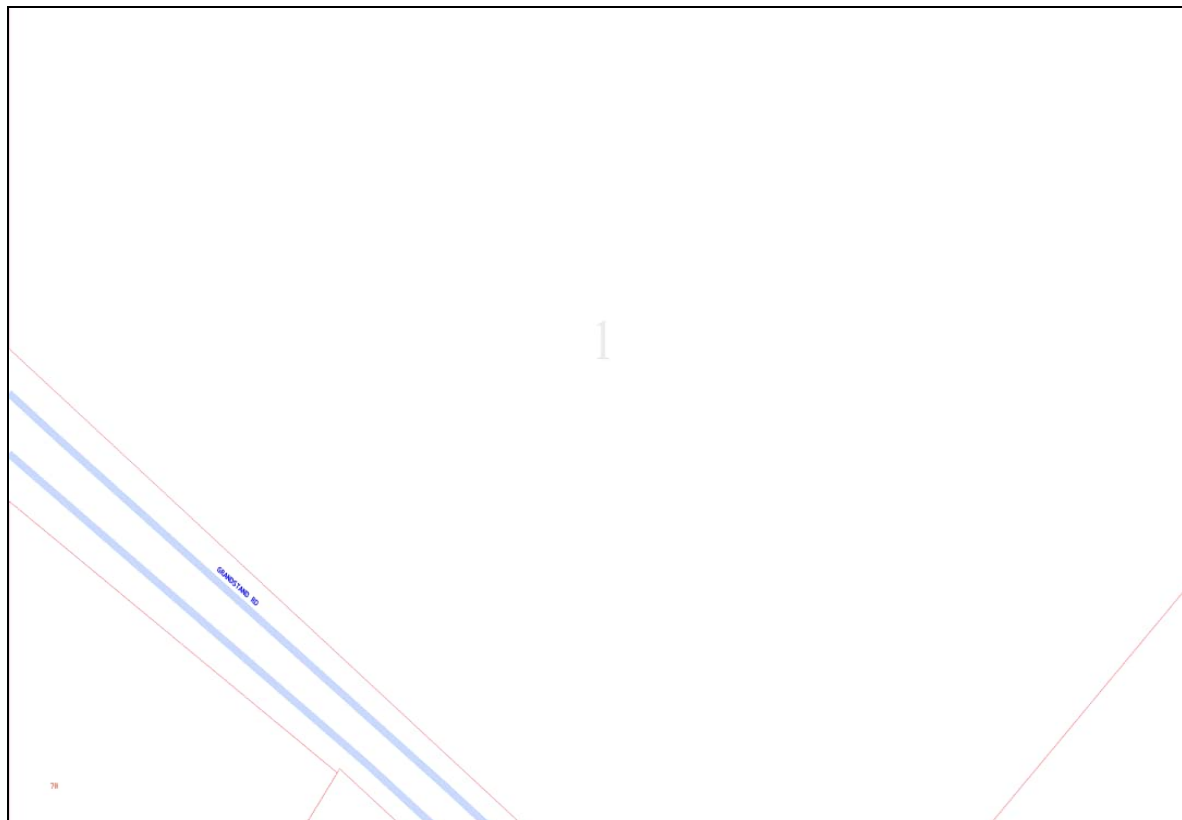
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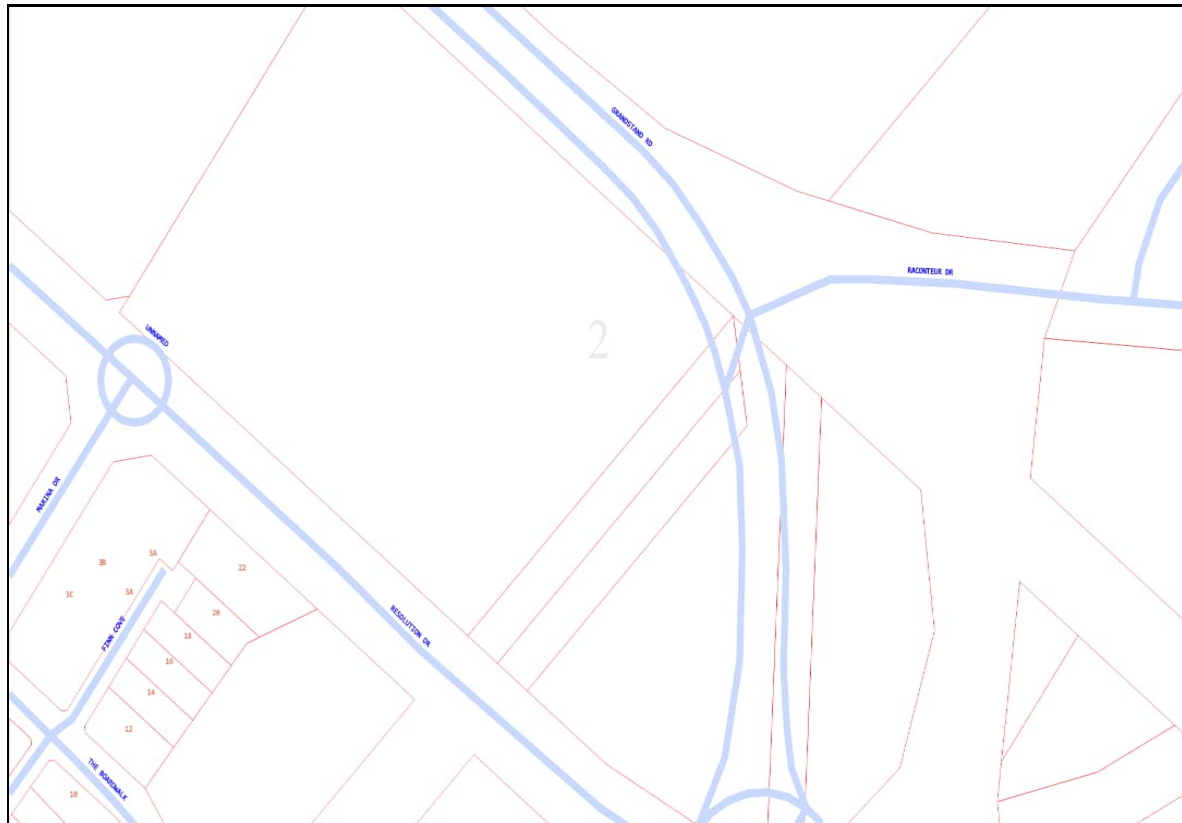
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Phone: Not Supplied
Fax: Not Supplied
Email: jzielinski@tabec.com.au

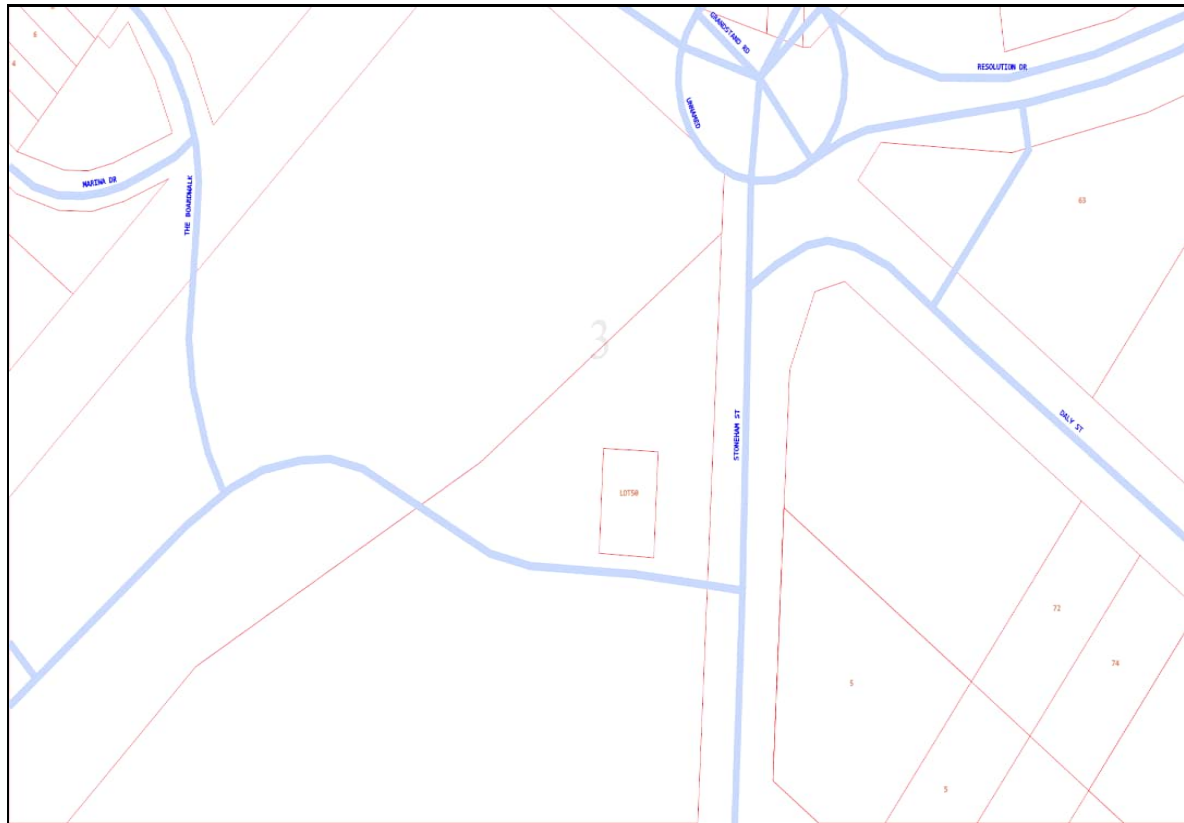
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Sequence #	240900610	
Issue Date:	21/06/2024	
Location:	2 Raconteur Drive , Ascot , WA , 6104	

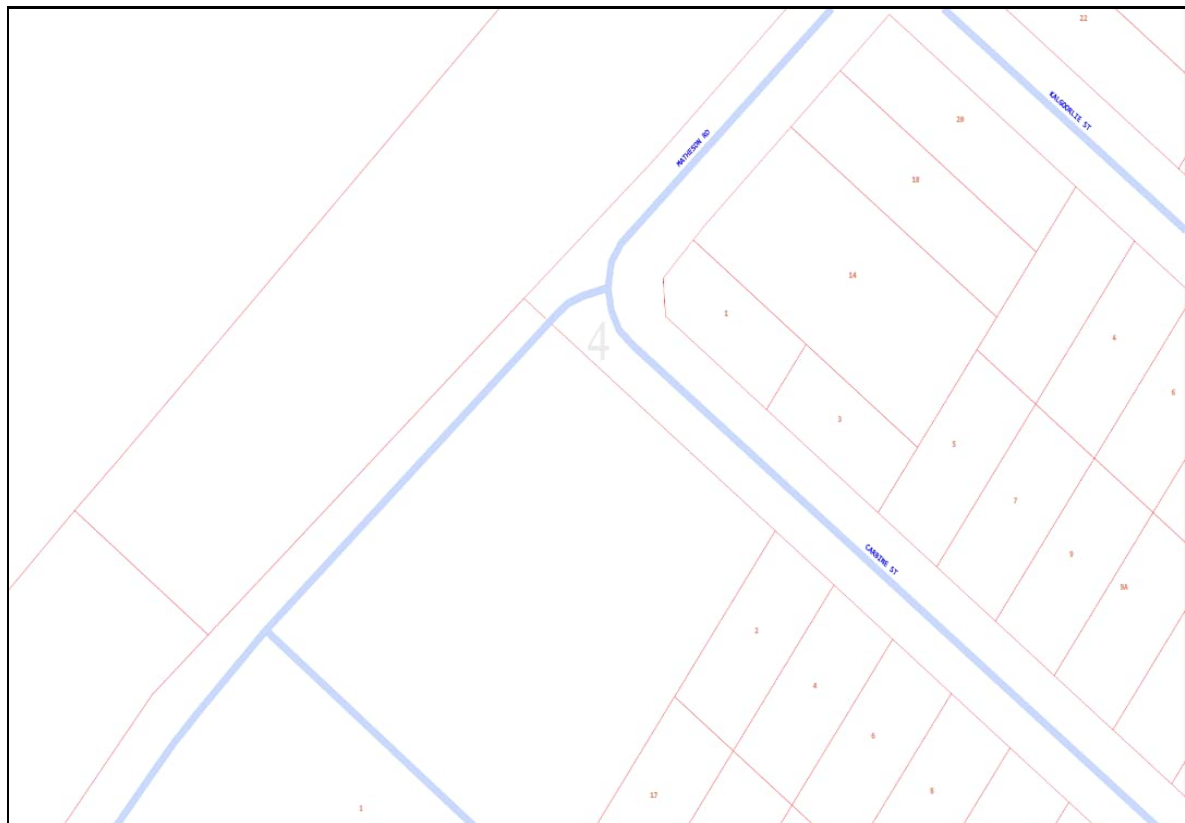
Indicative Plans are tiled below to demonstrate how to layout and read nbn asset plans

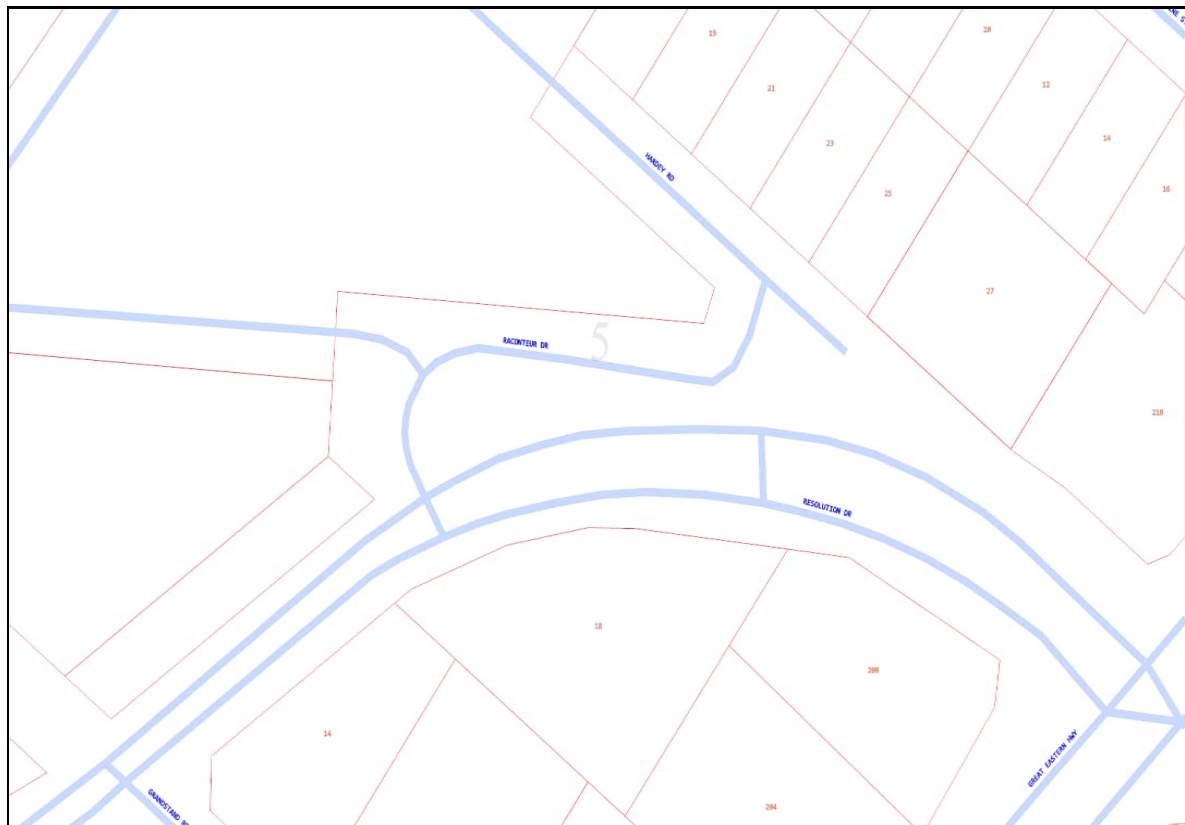
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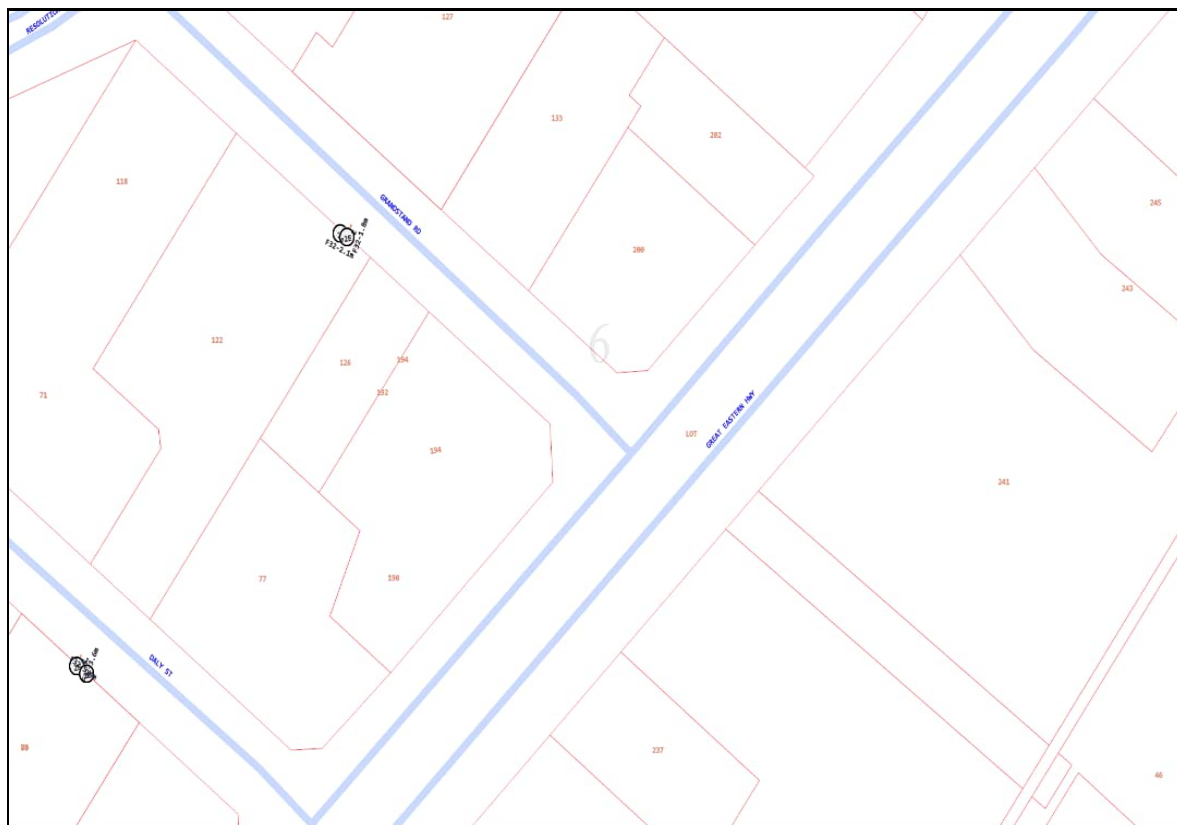













Emergency Contacts

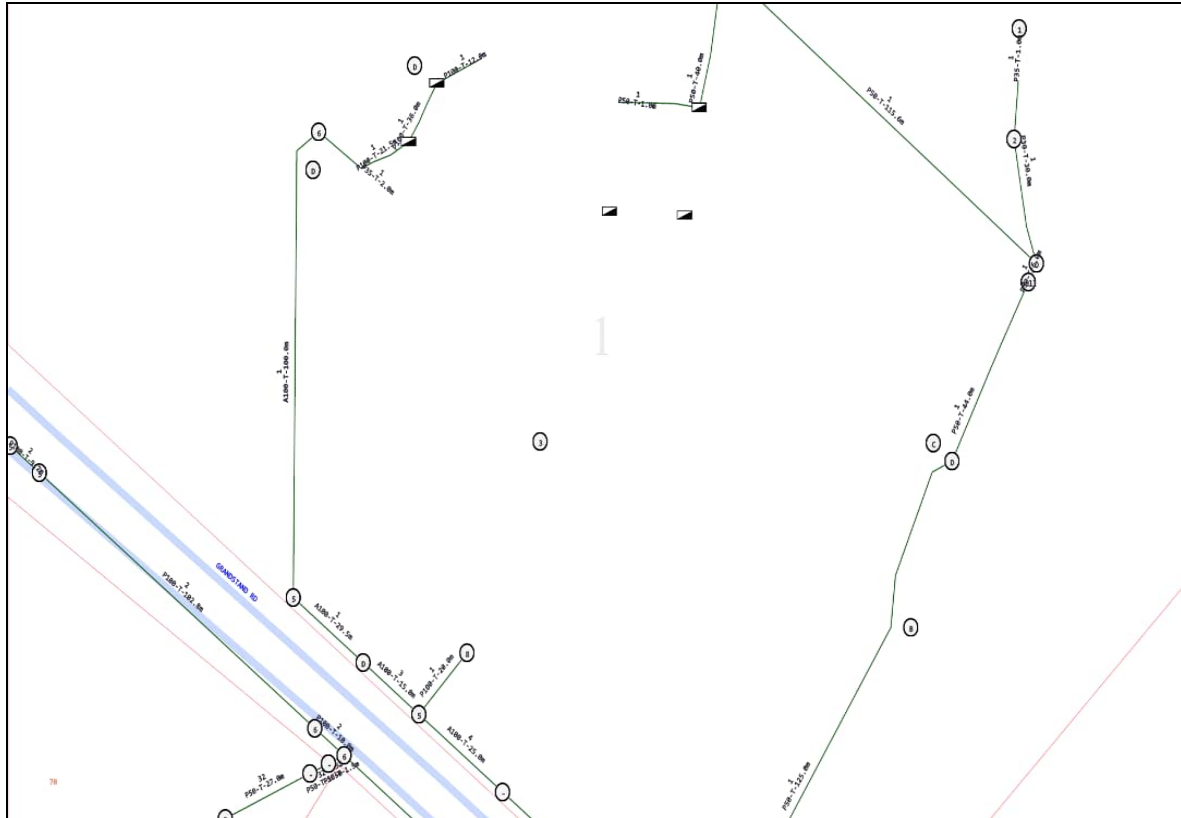
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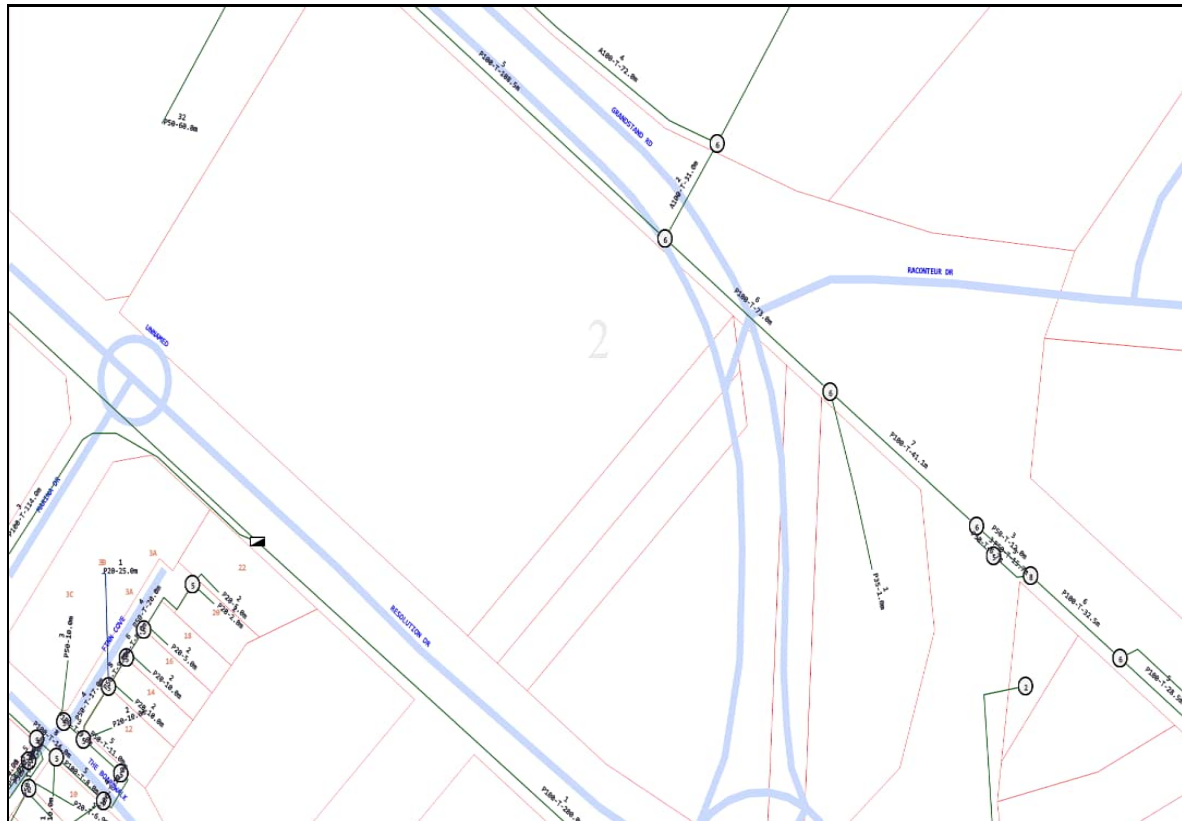
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Phone: Not Supplied
Fax: Not Supplied
Email: jzielinski@tabec.com.au

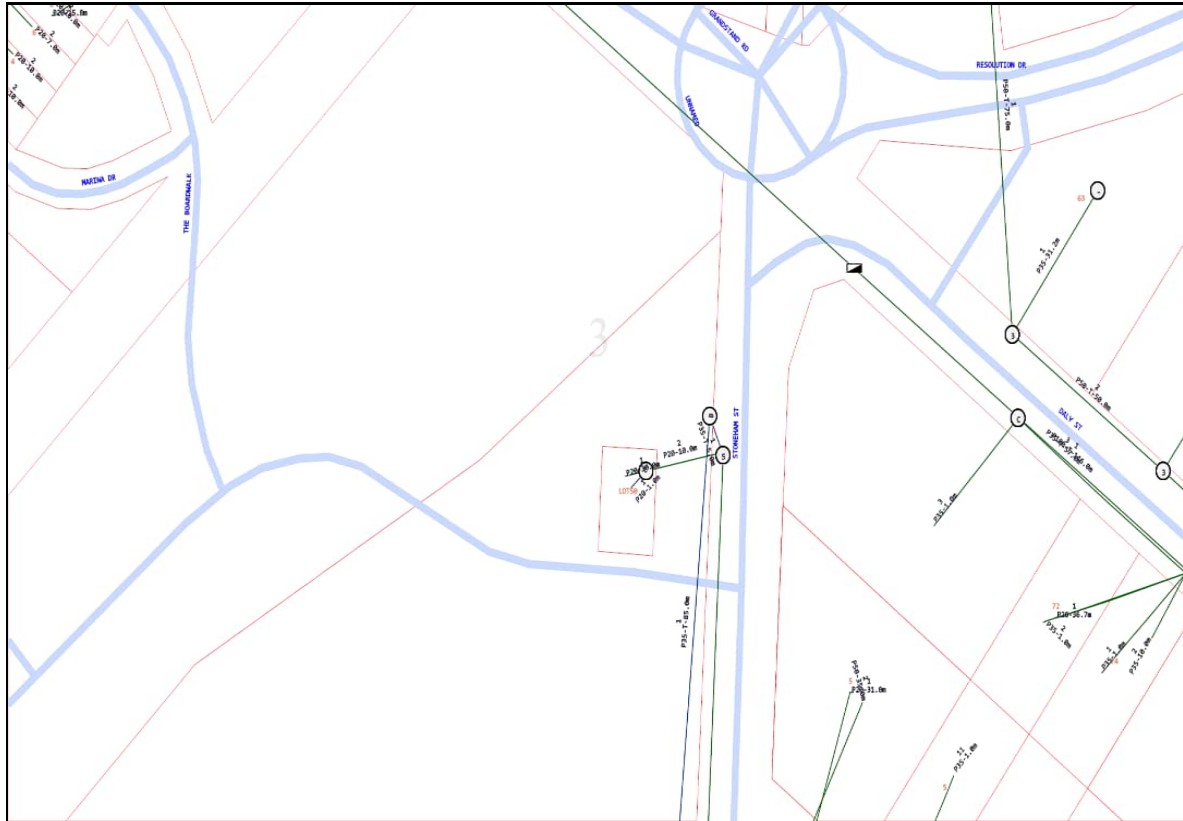
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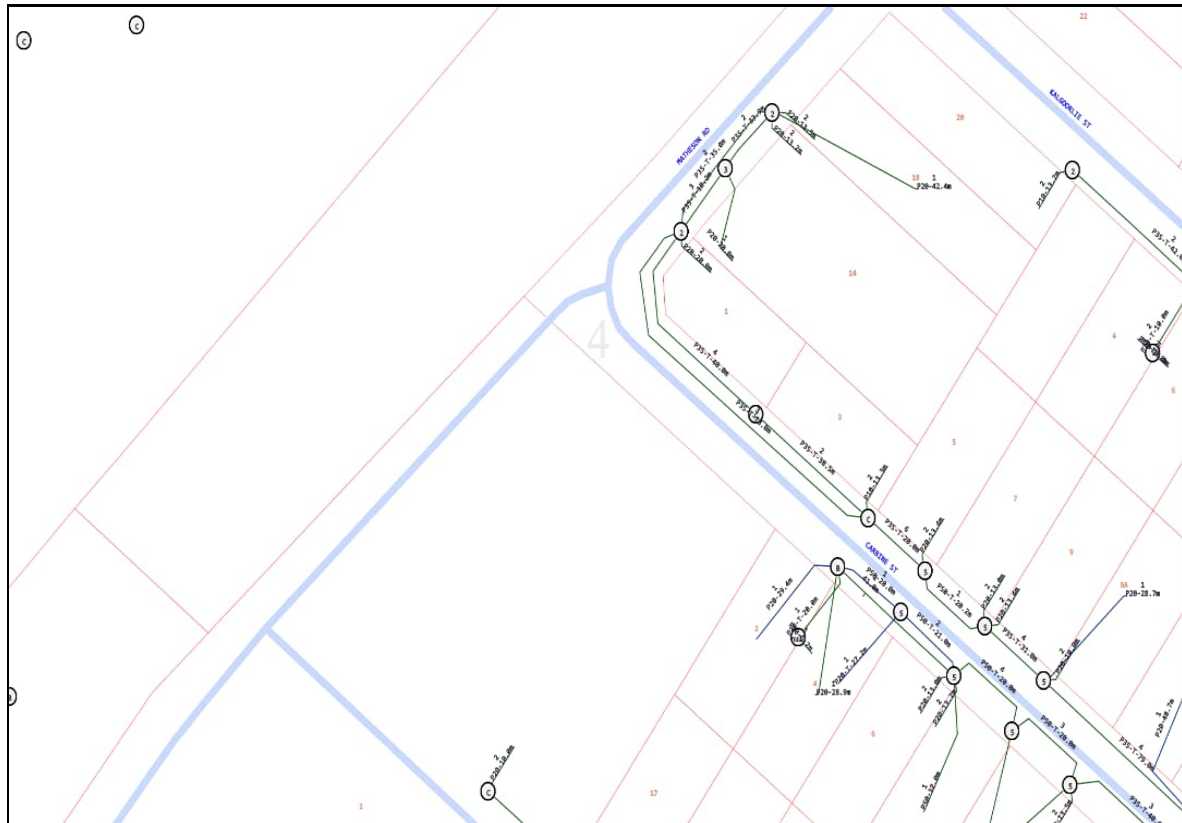
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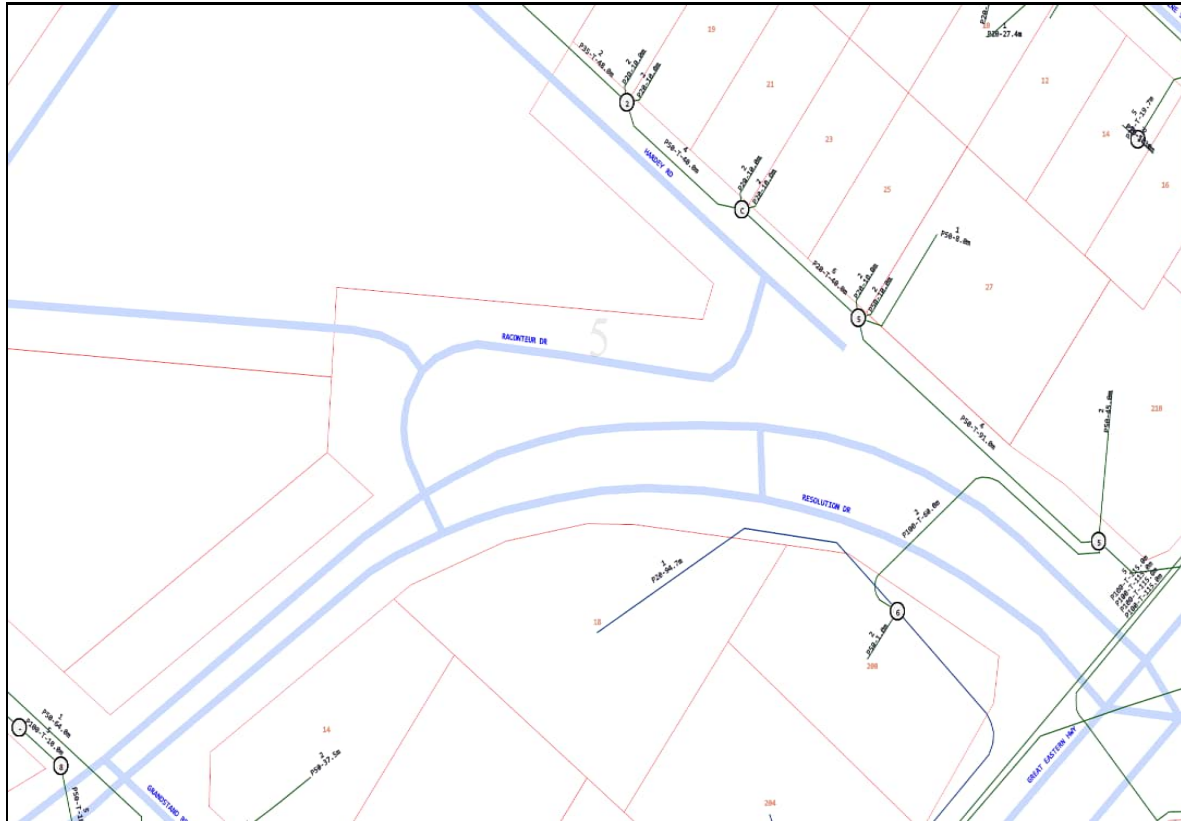
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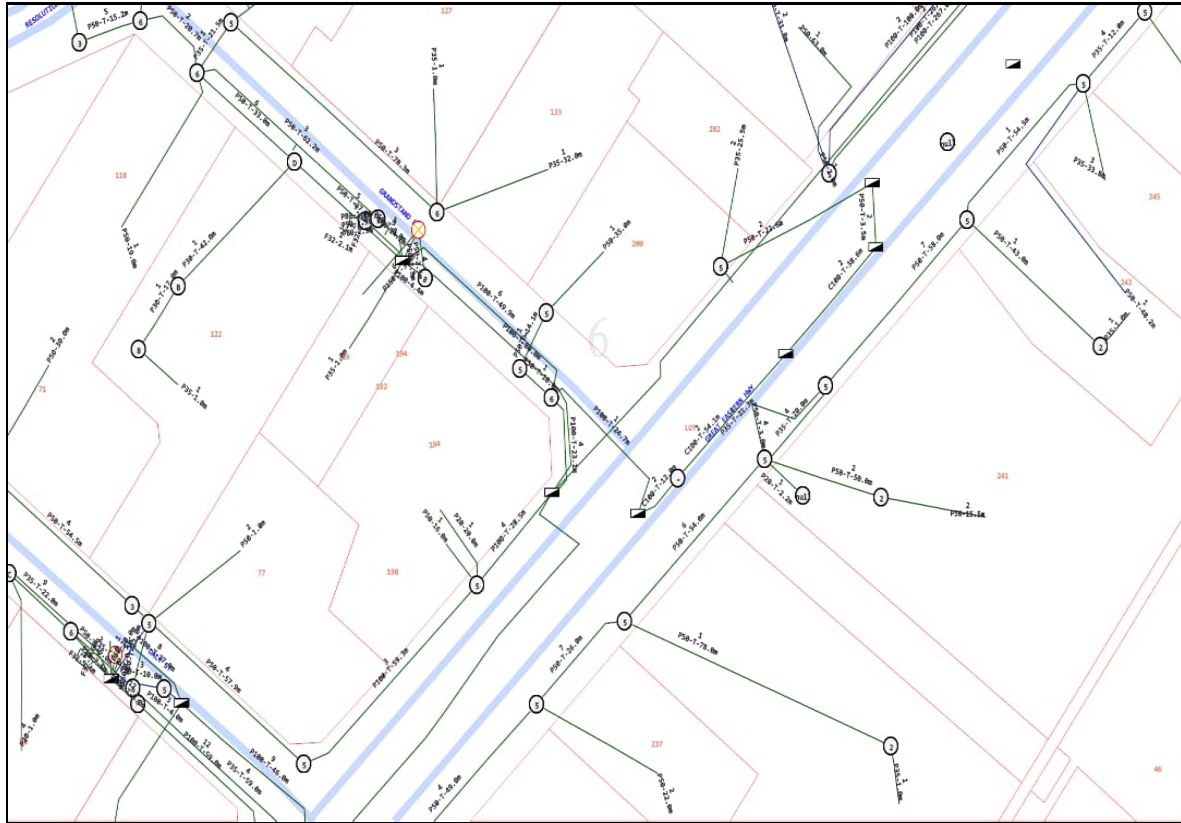






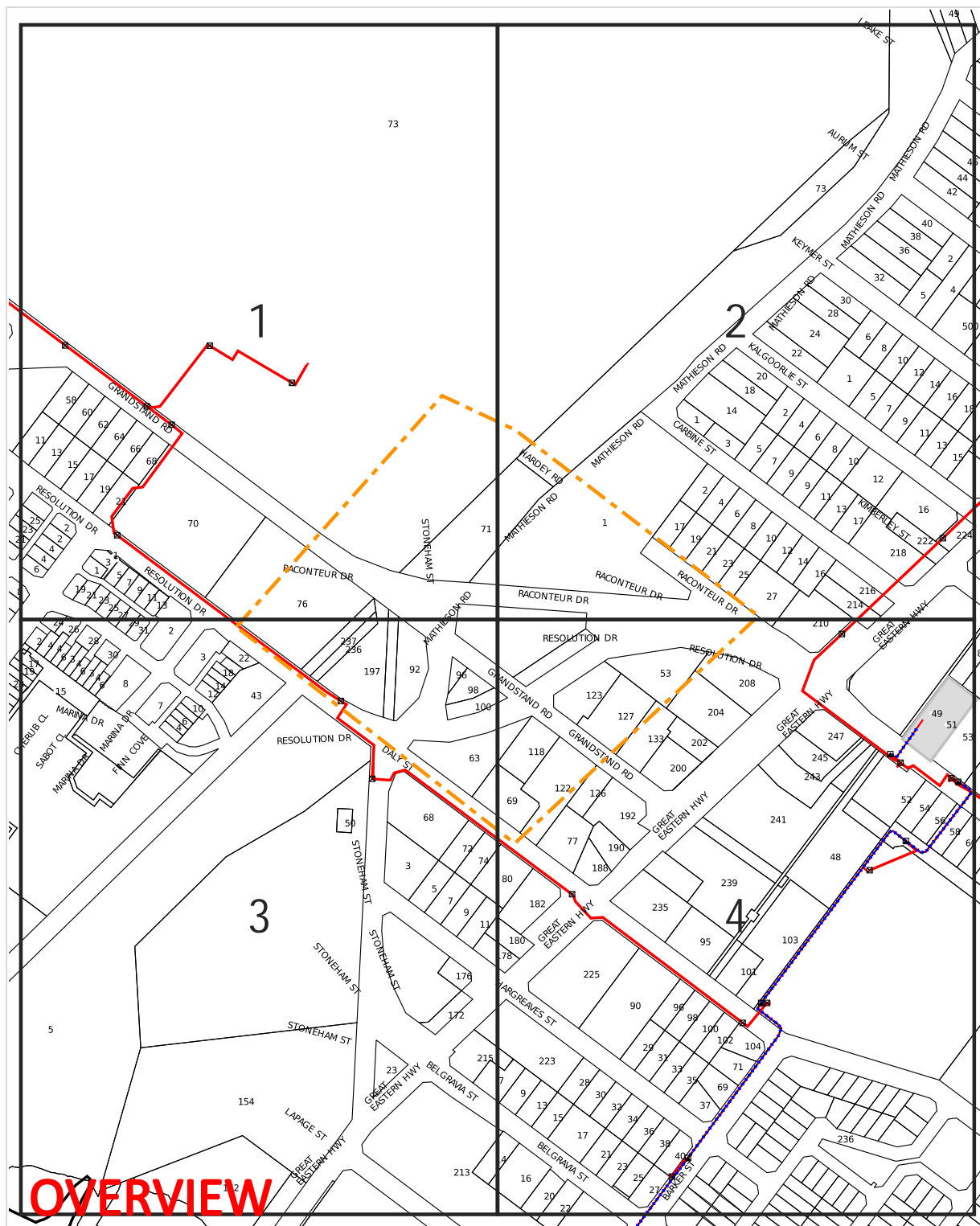






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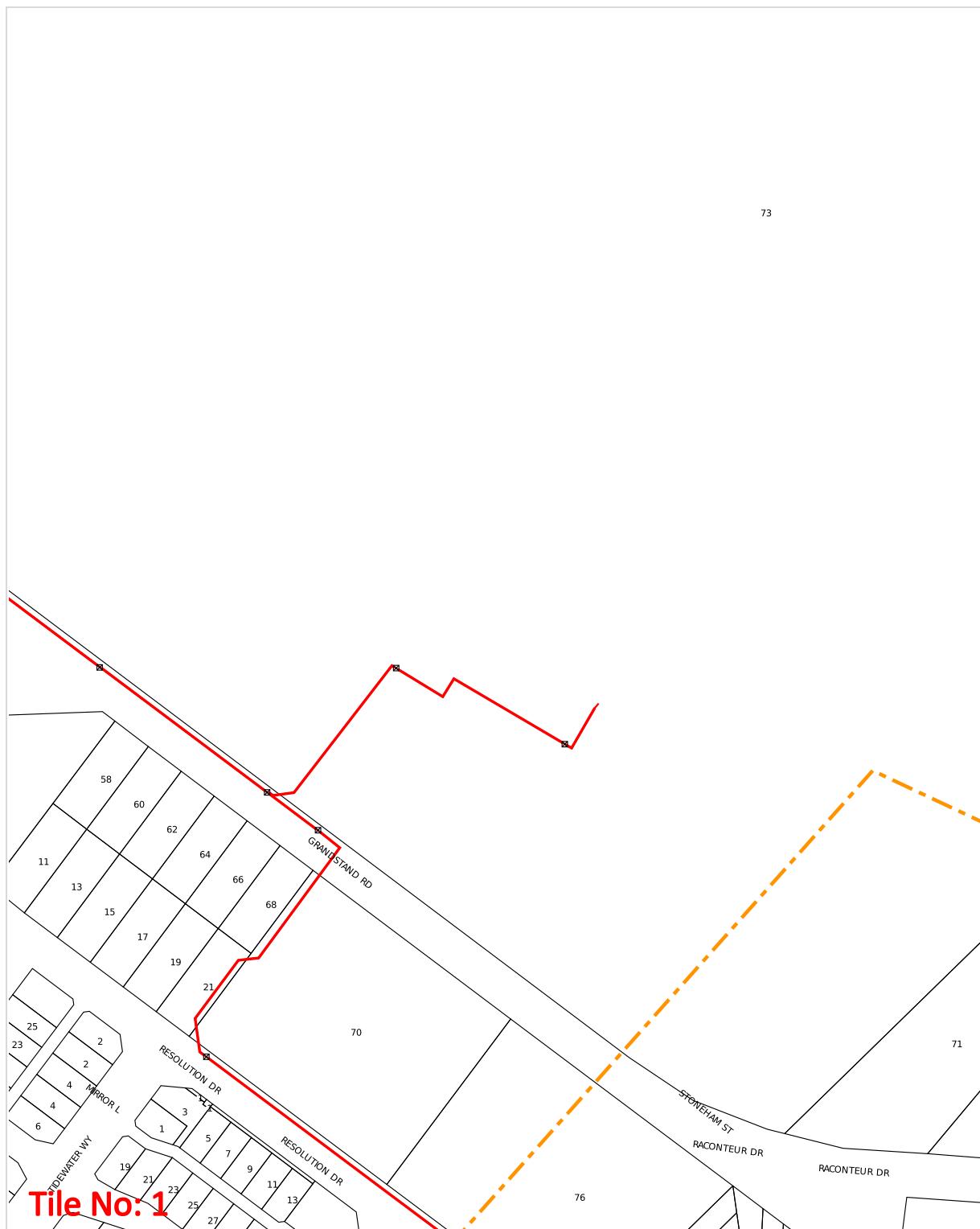
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For urgent onsite assistance contact 1800 505 777
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Sequence Number: 240900607

Date Generated: 21 Jun 2024



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
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Attachment 12.1.4 Engineering Servicing Report



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Sequence Number: 240900607

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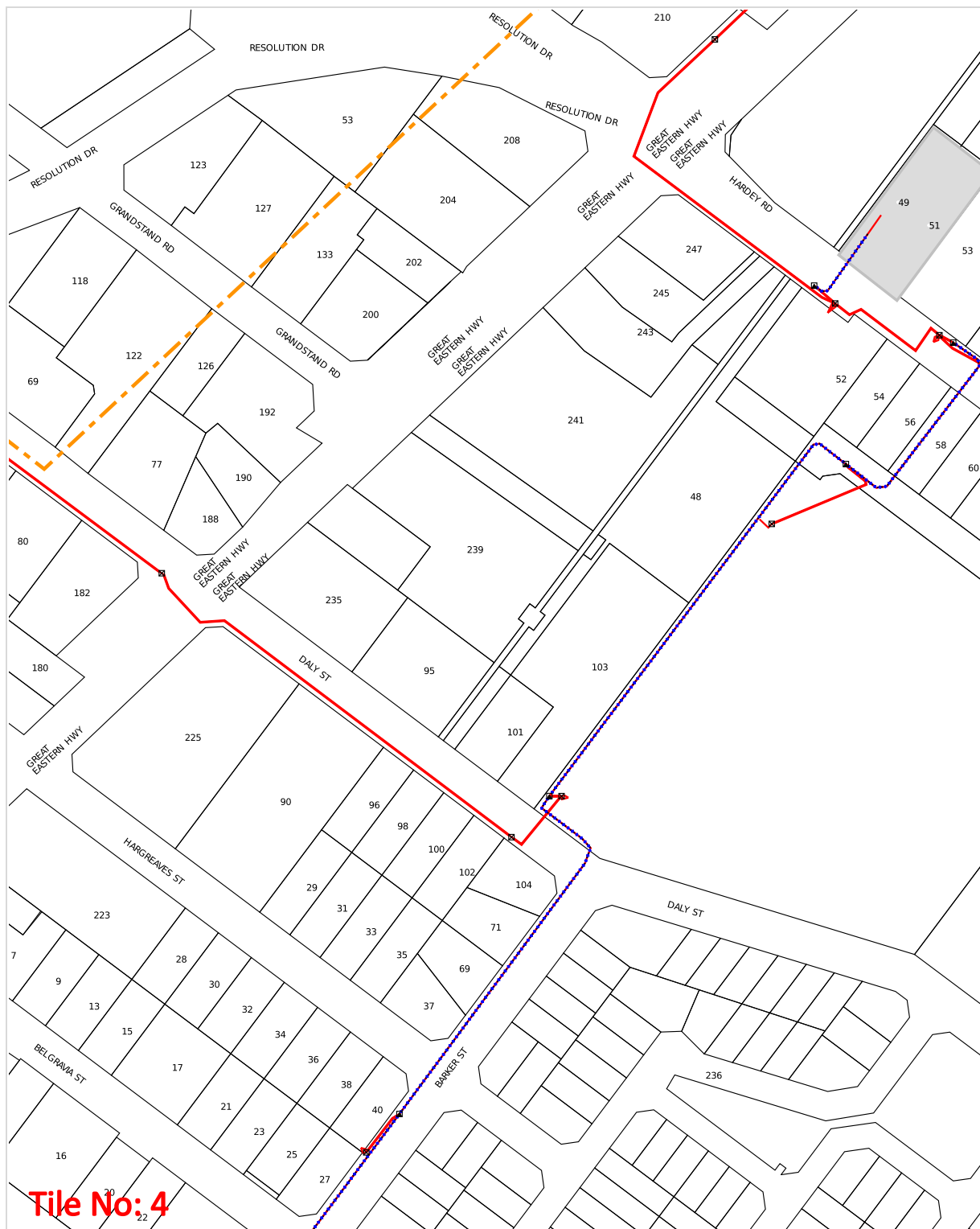


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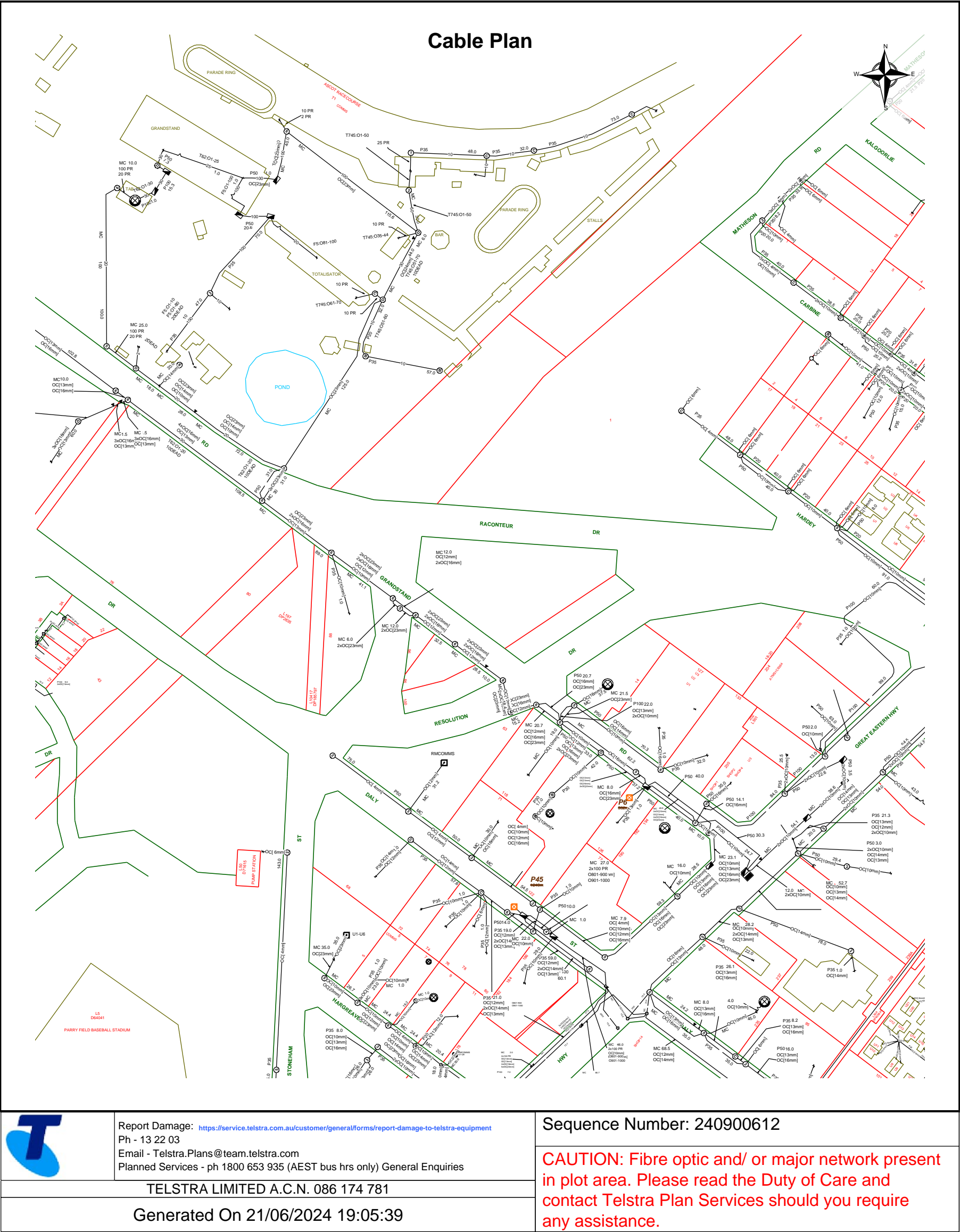
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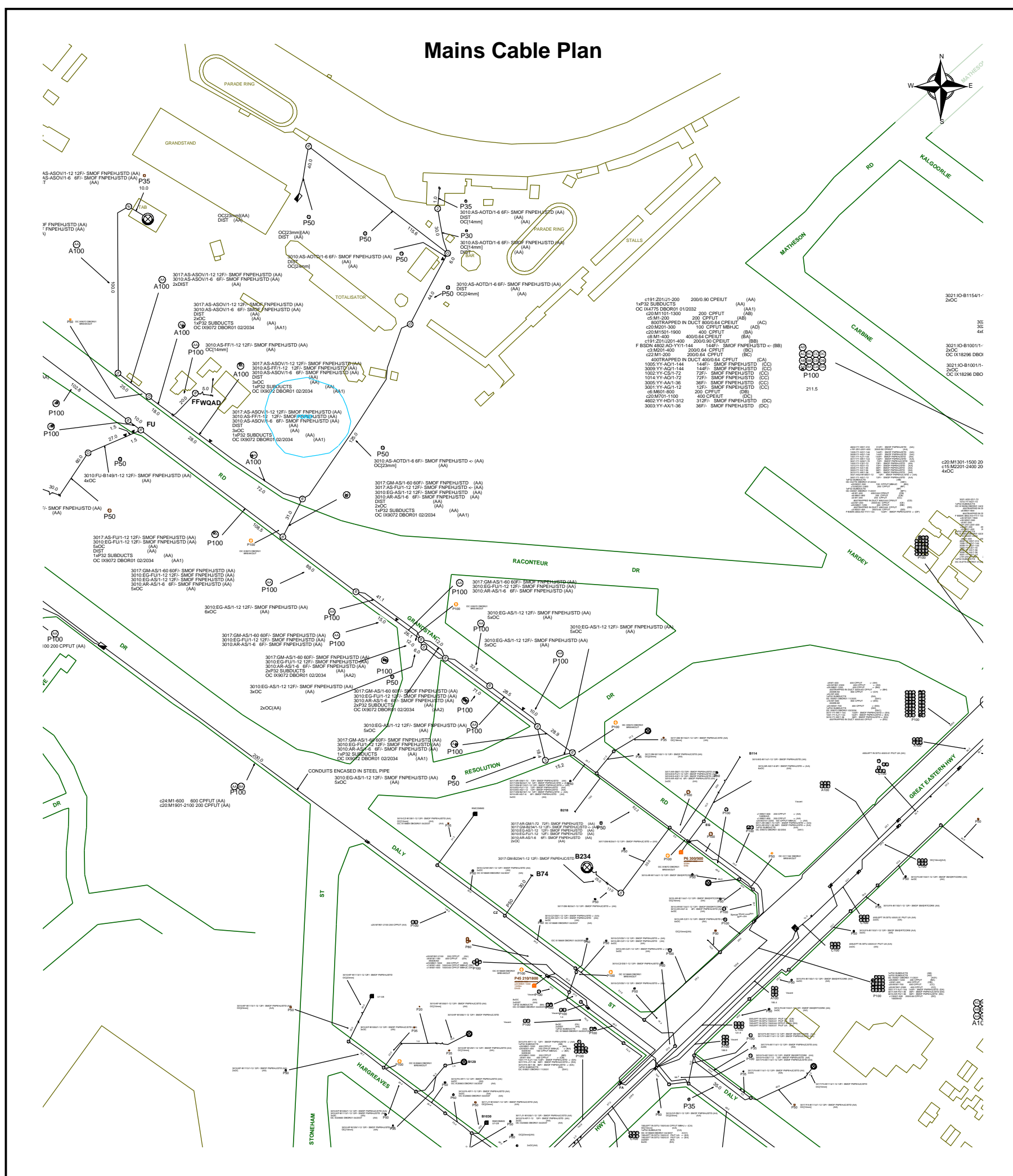
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The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.



Report Damage: <https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment>
Ph - 13 22 03
Email - Telstra.Plans@team.telstra.com
Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

TELSTRA LIMITED A.C.N. 086 174 781

Generated On 21/06/2024 19:05:45

Sequence Number: 240900612

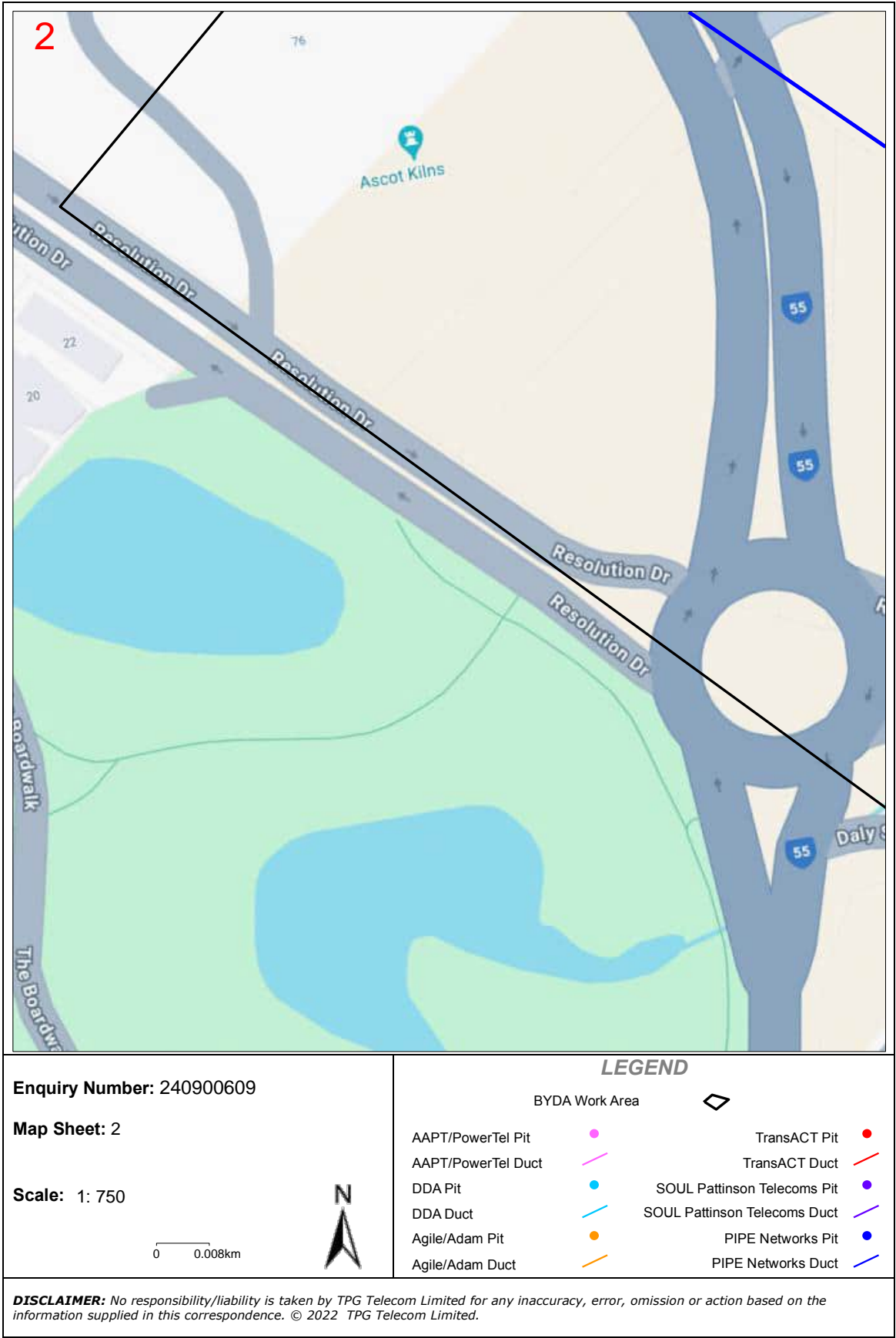
CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

WARNING

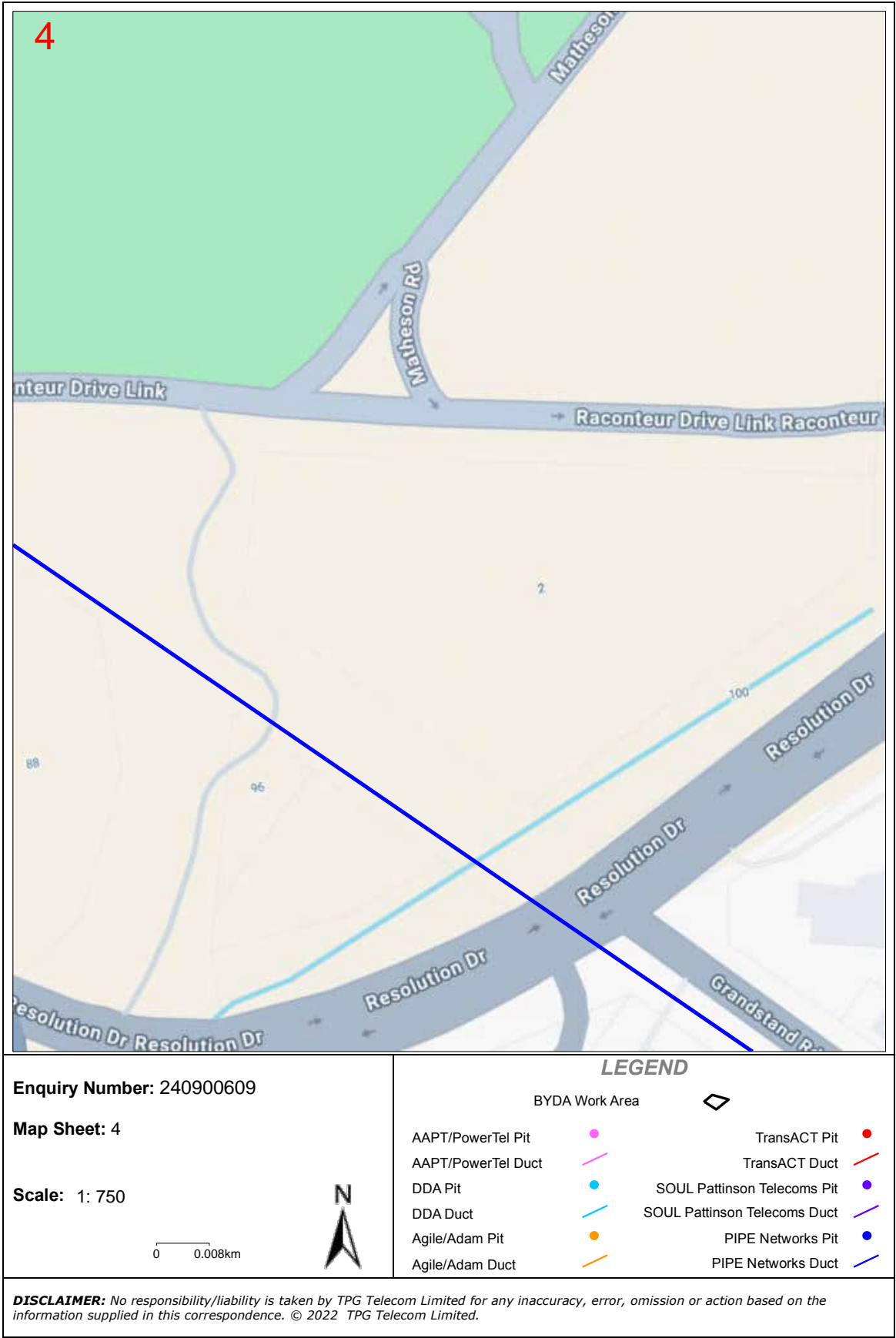
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

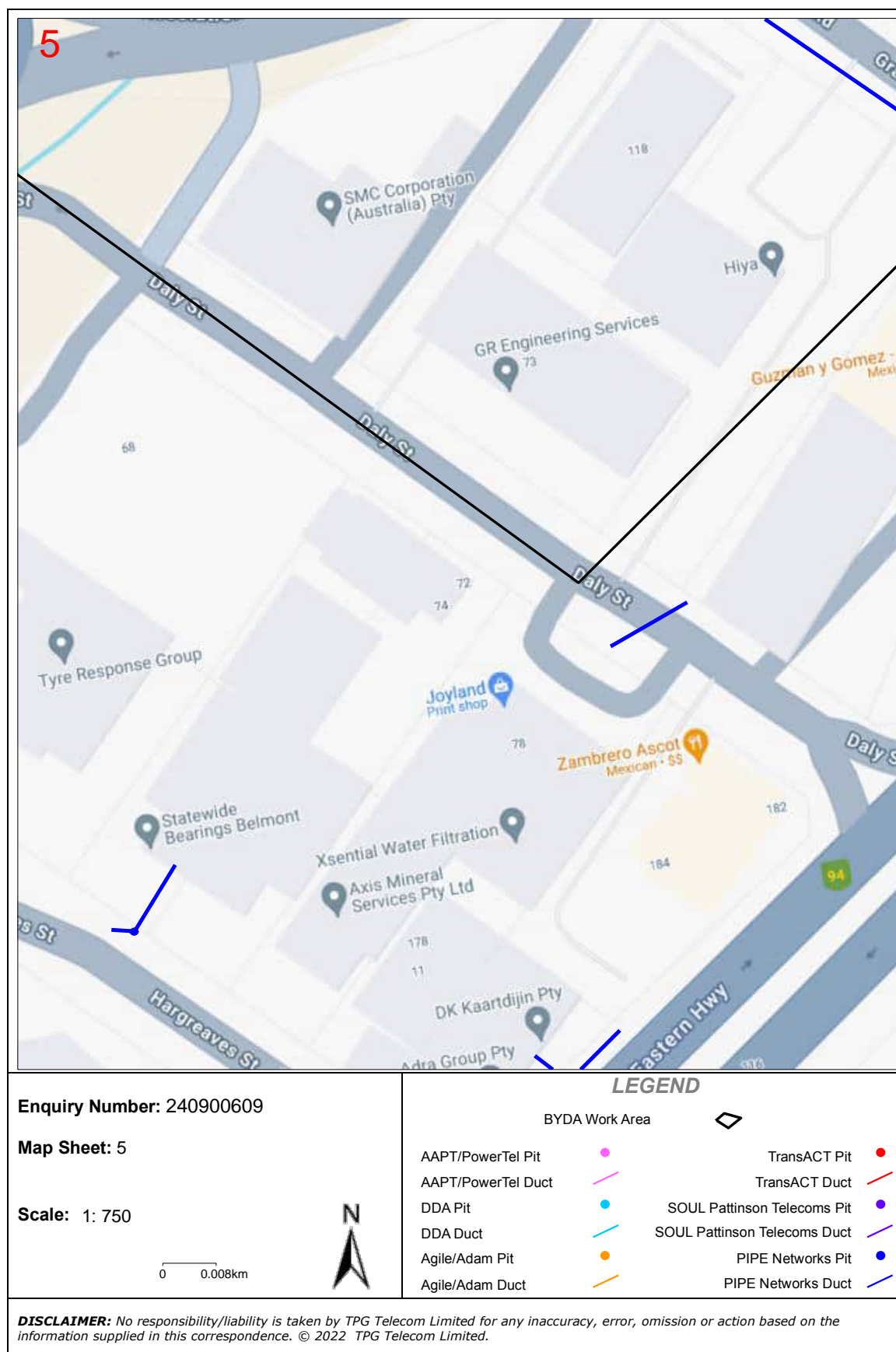
See the Steps- Telstra Duty of Care that was provided in the email response.

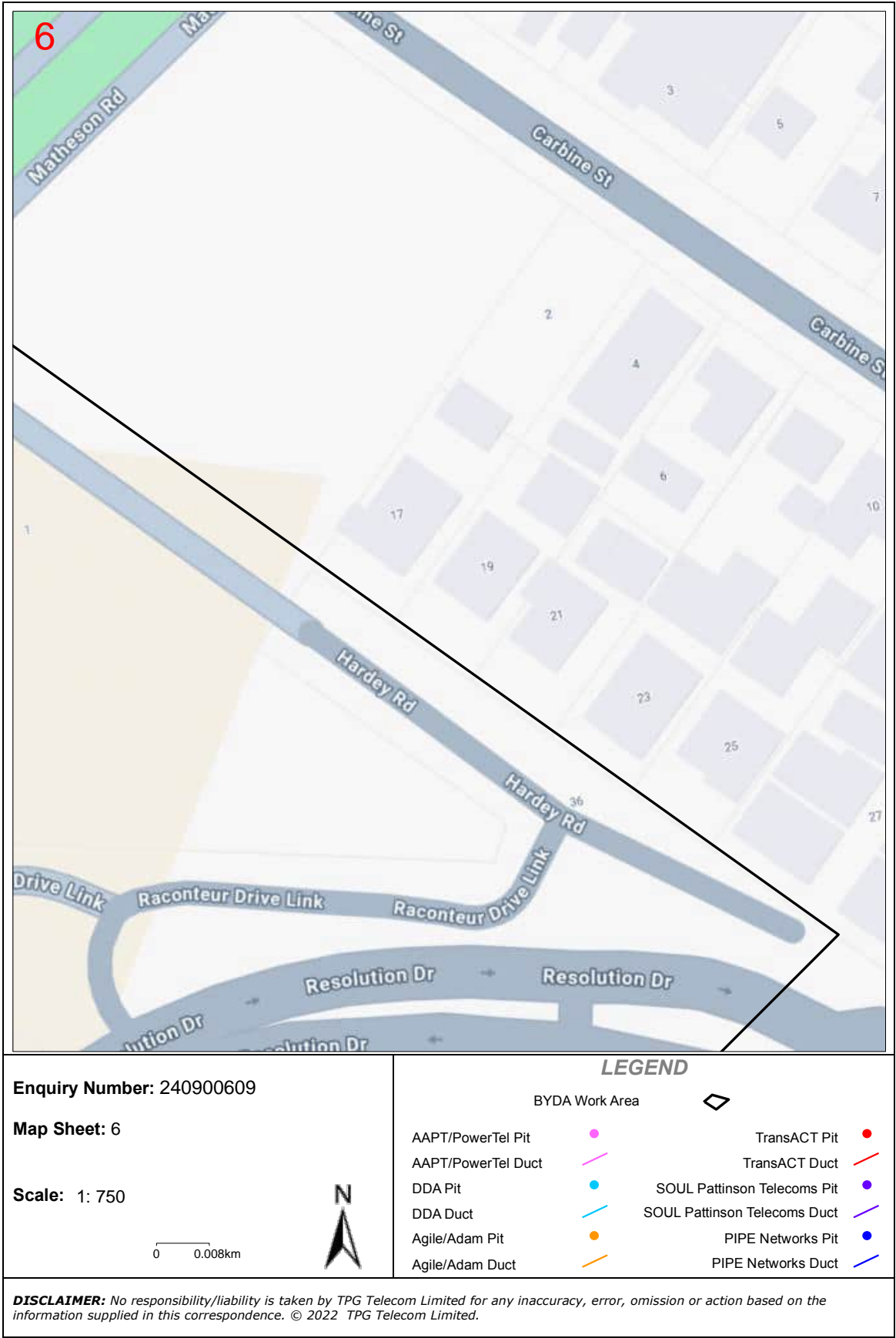




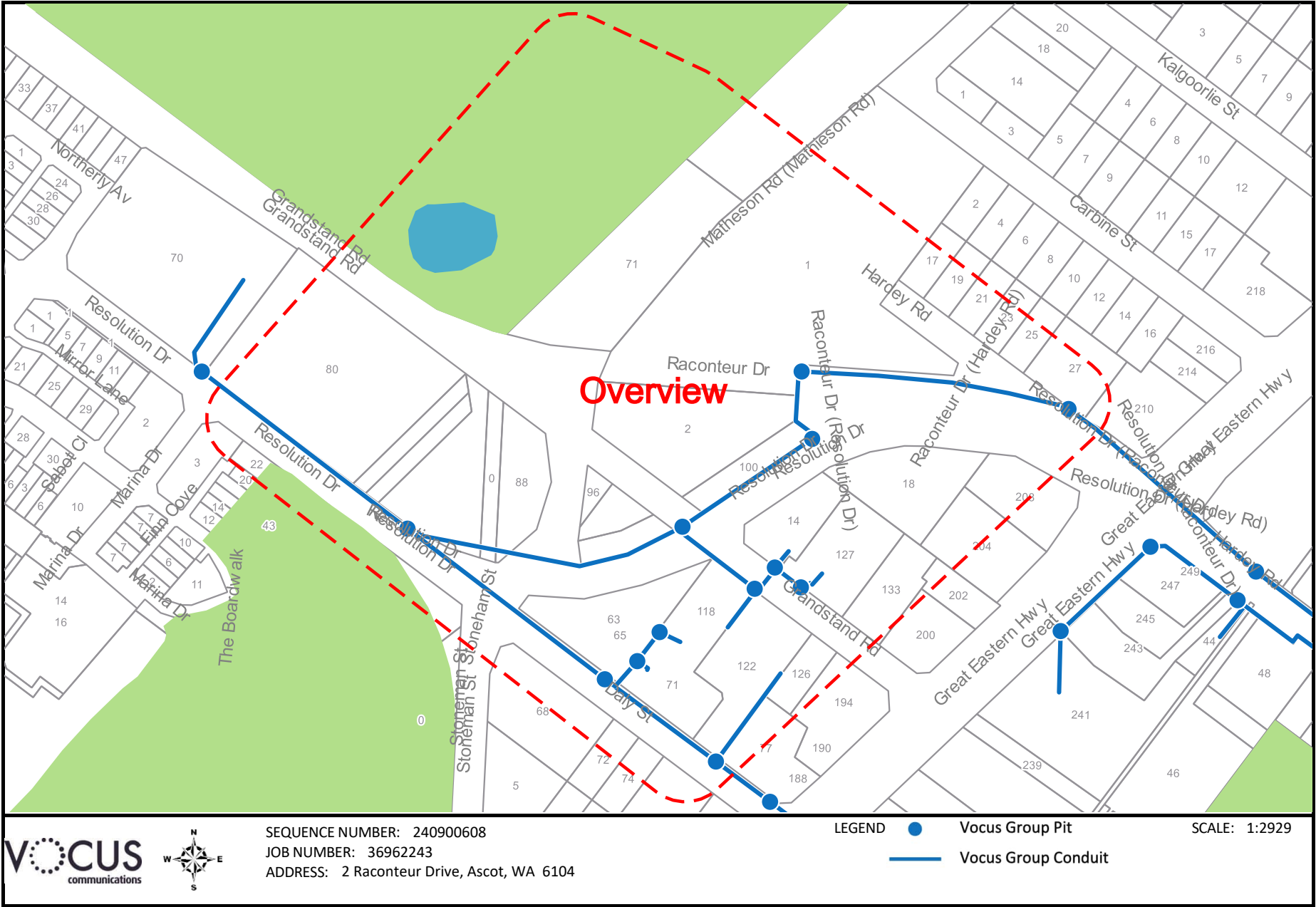


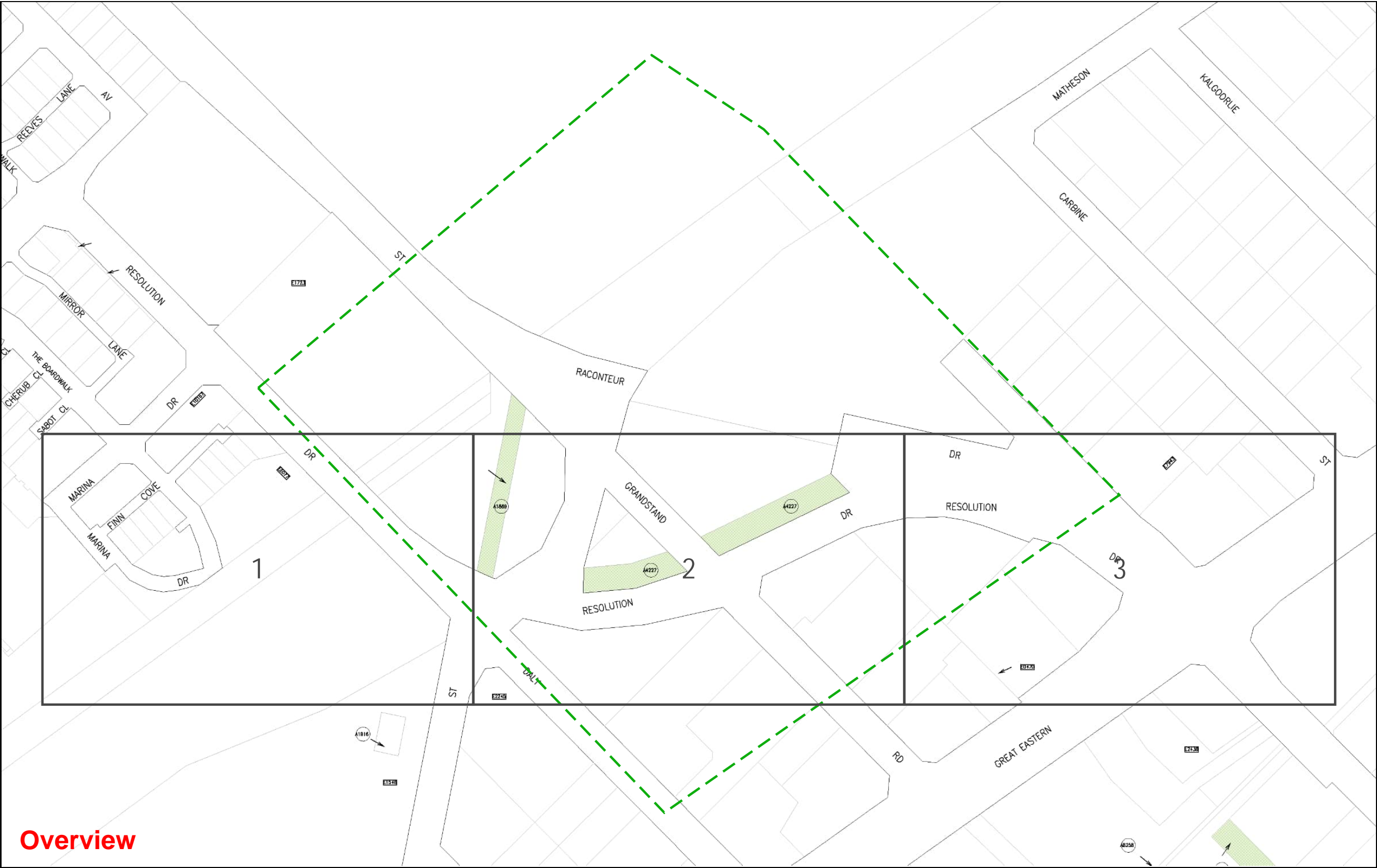












Overview

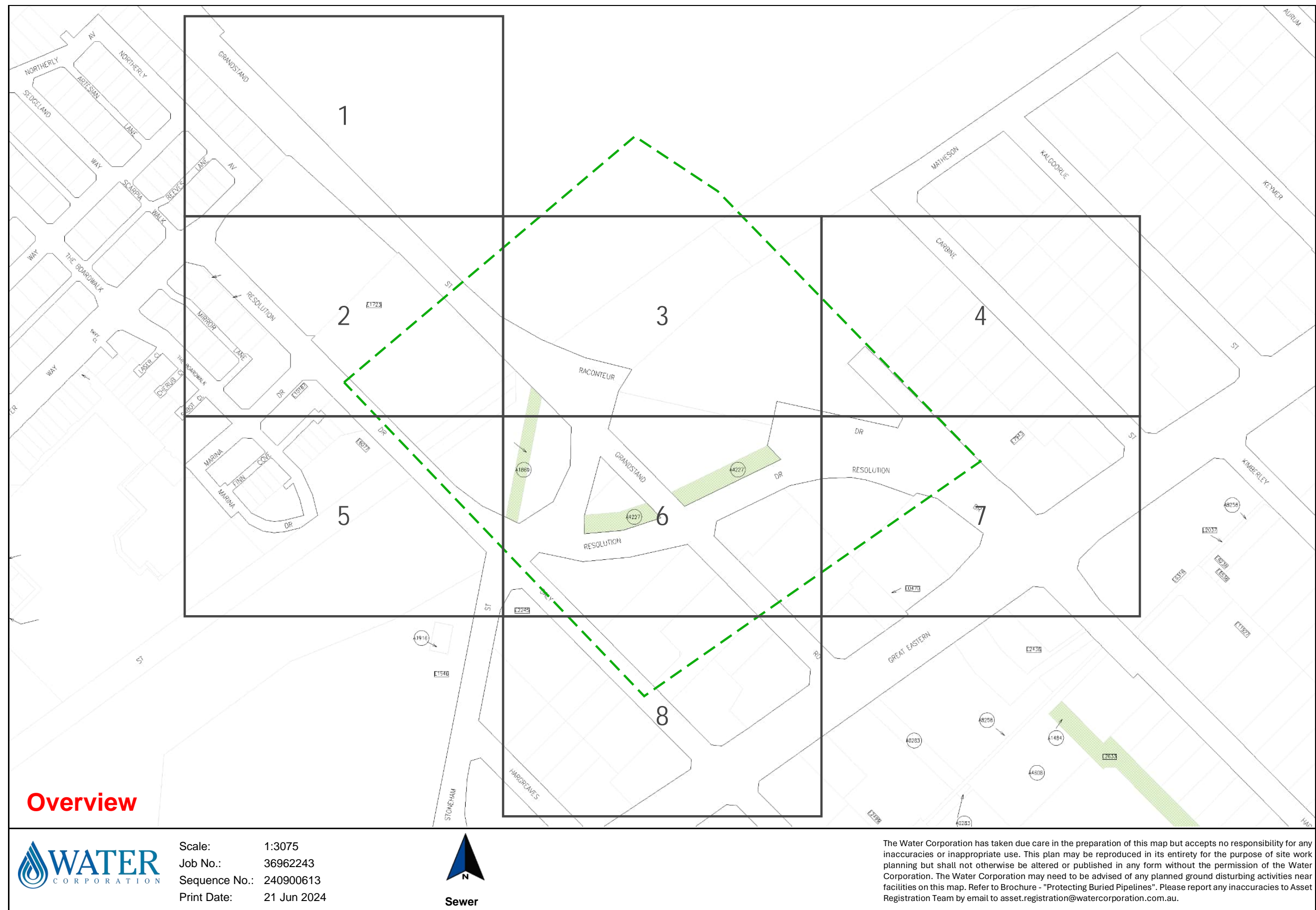


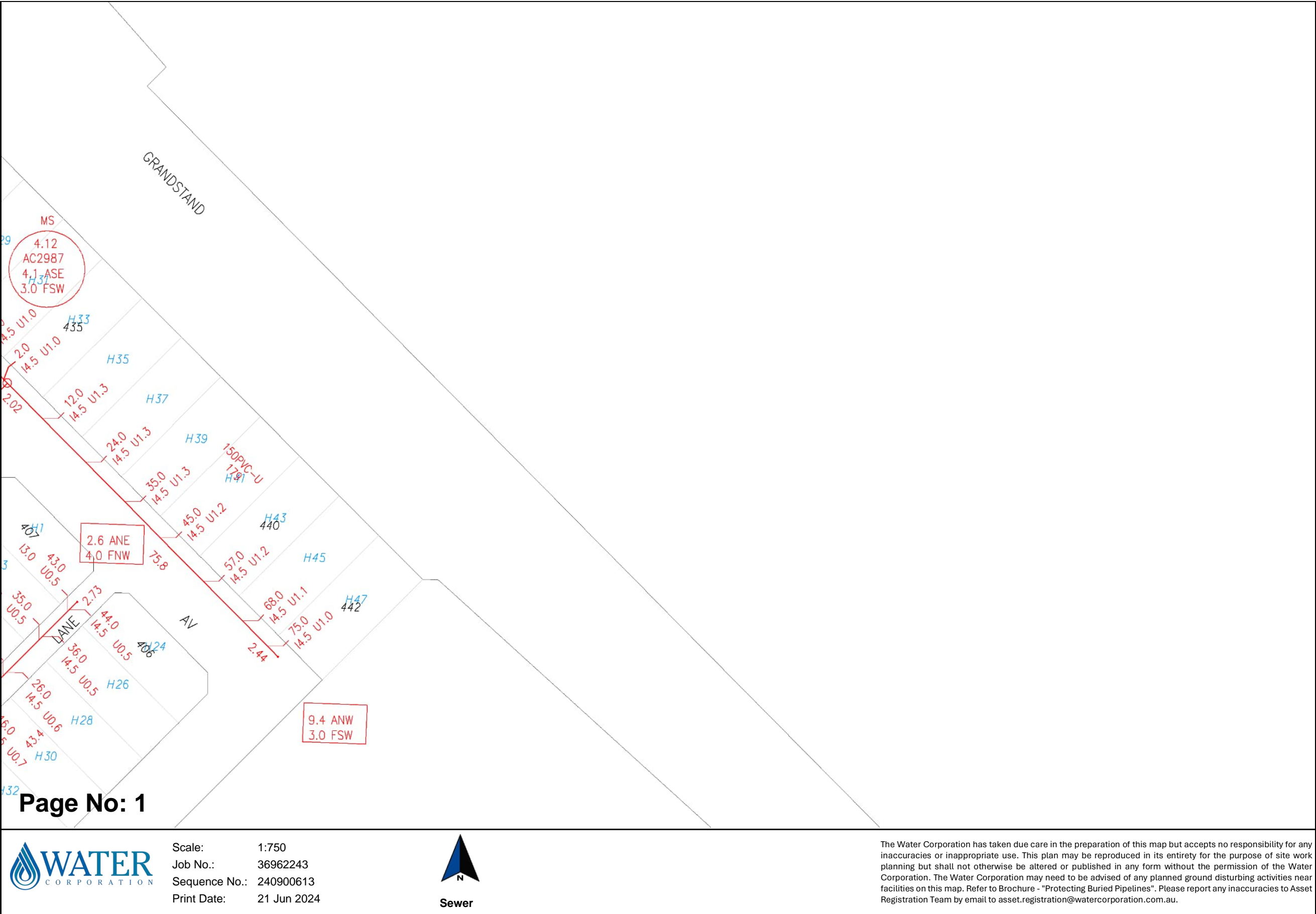
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Sequence No.: 240900613
Print Date: 21 Jun 2024

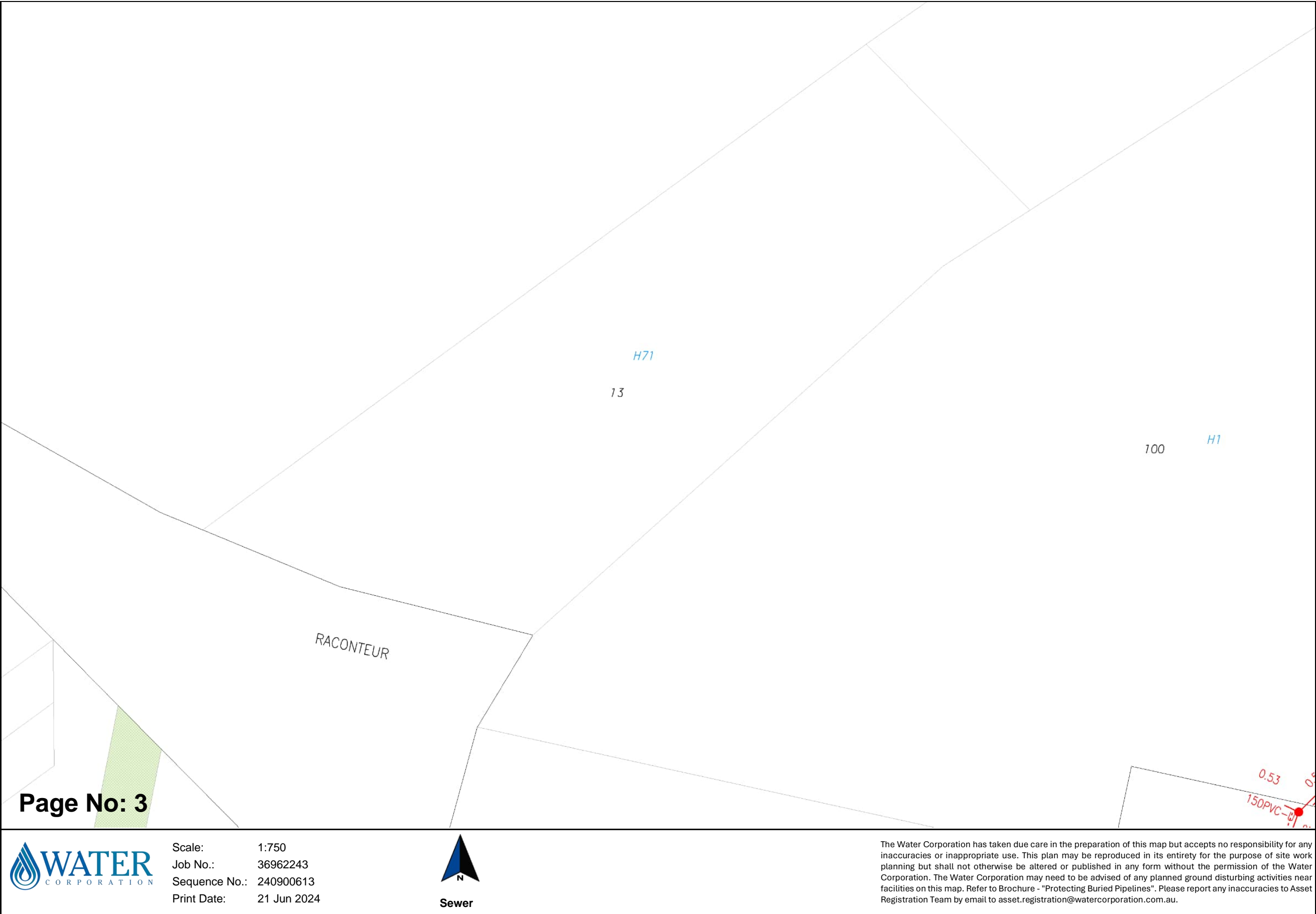


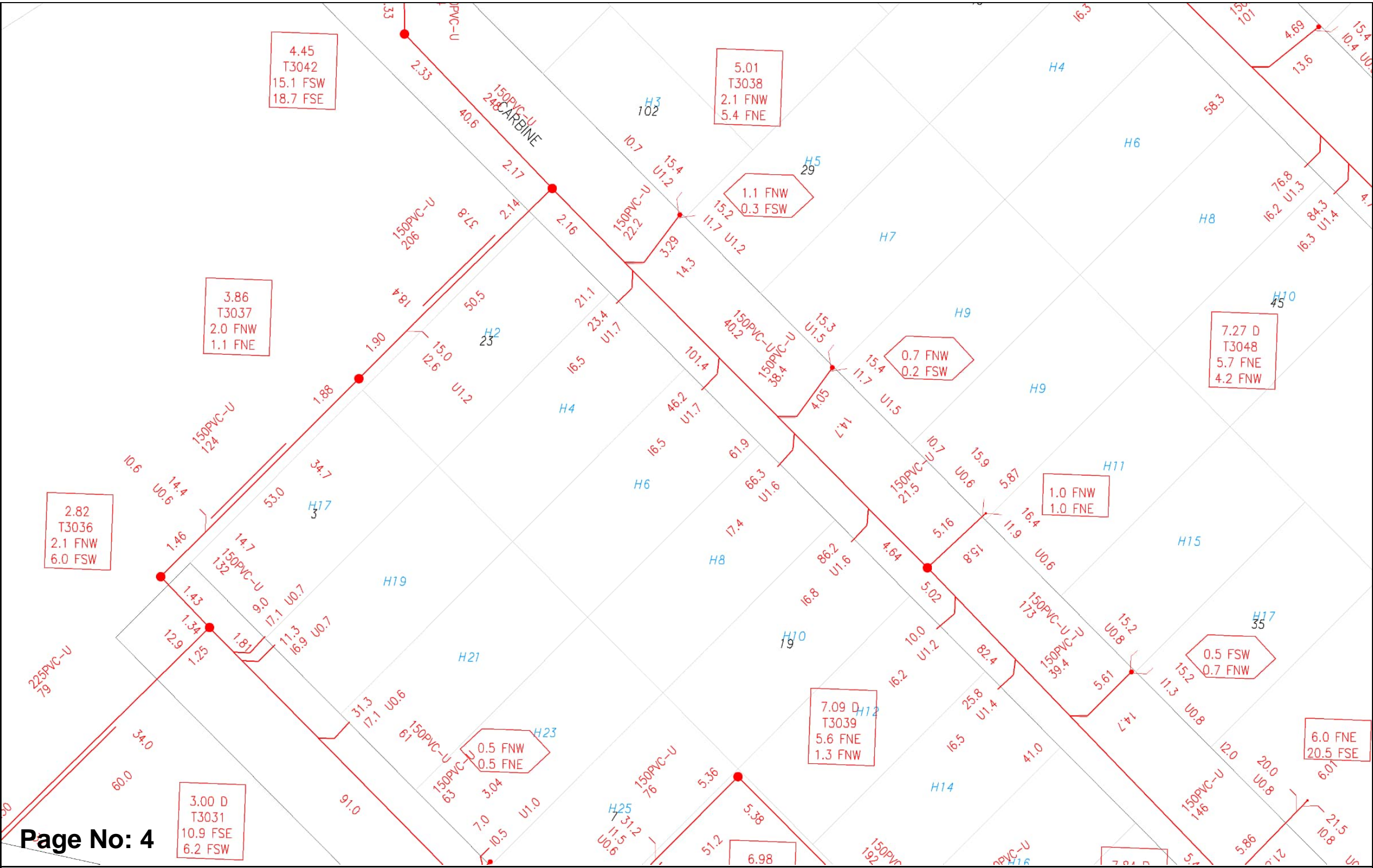
Drainage

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Page No: 4



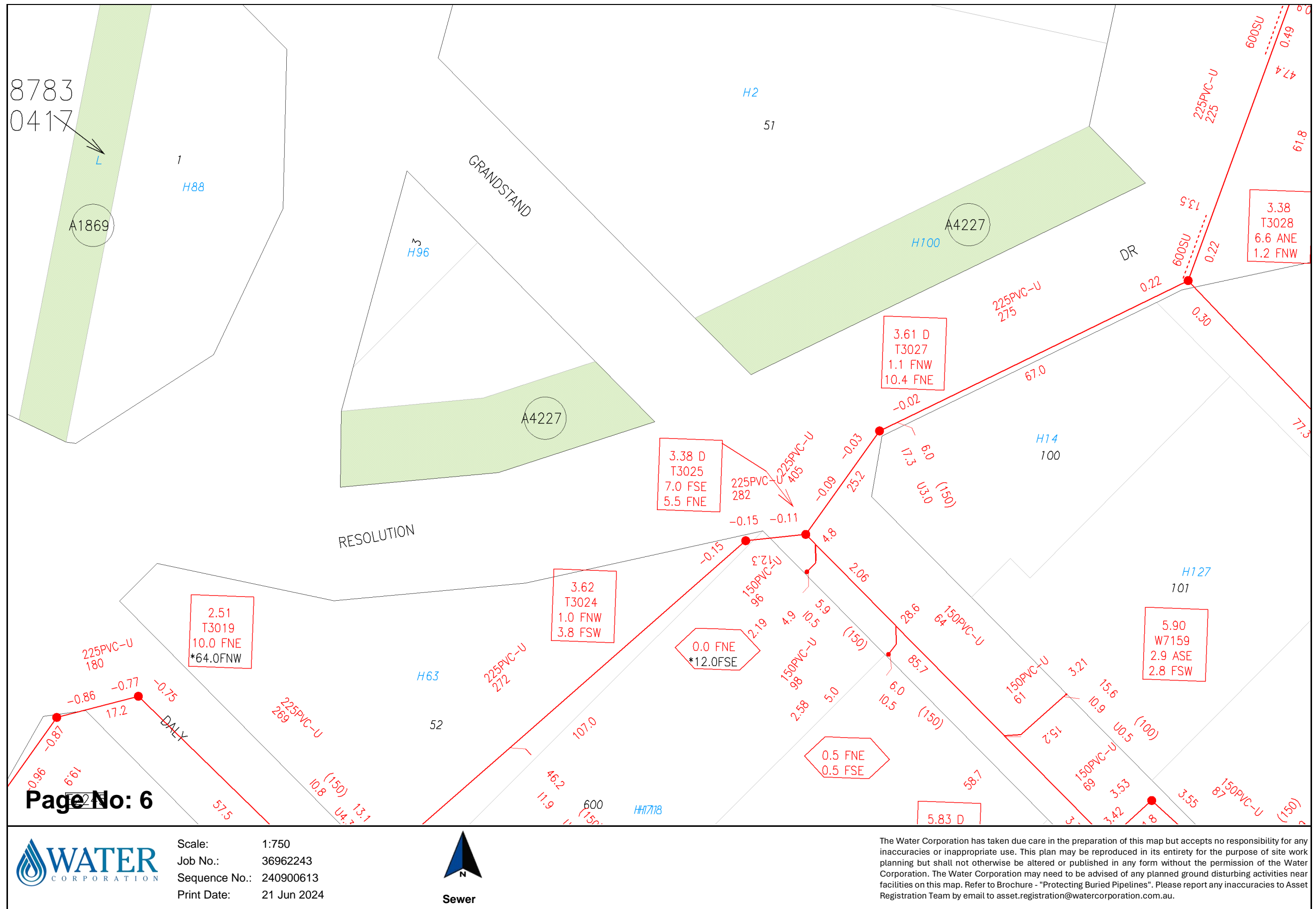
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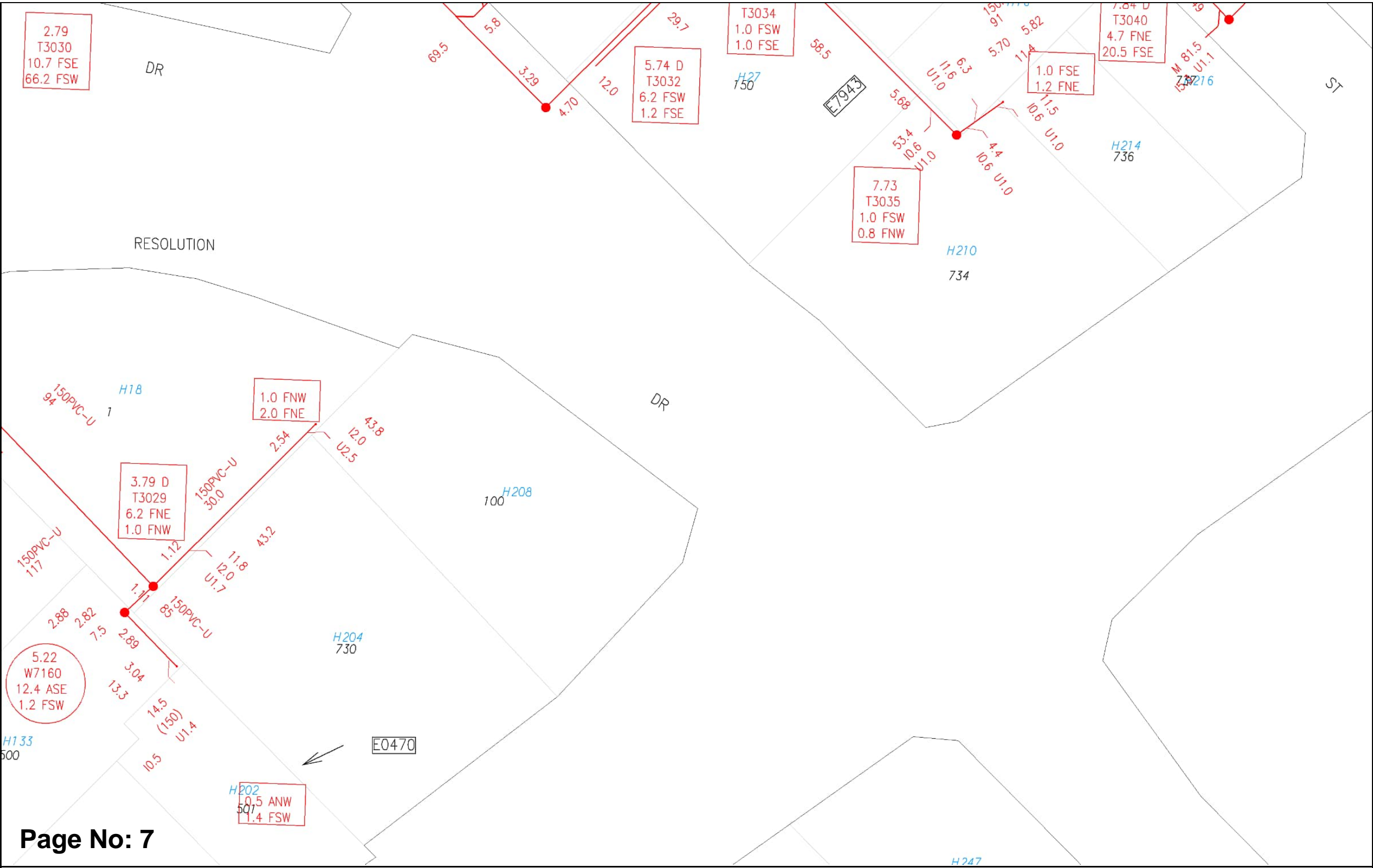


Sewer

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Page No: 7



Scale: 1:750

Job No.: 36962243

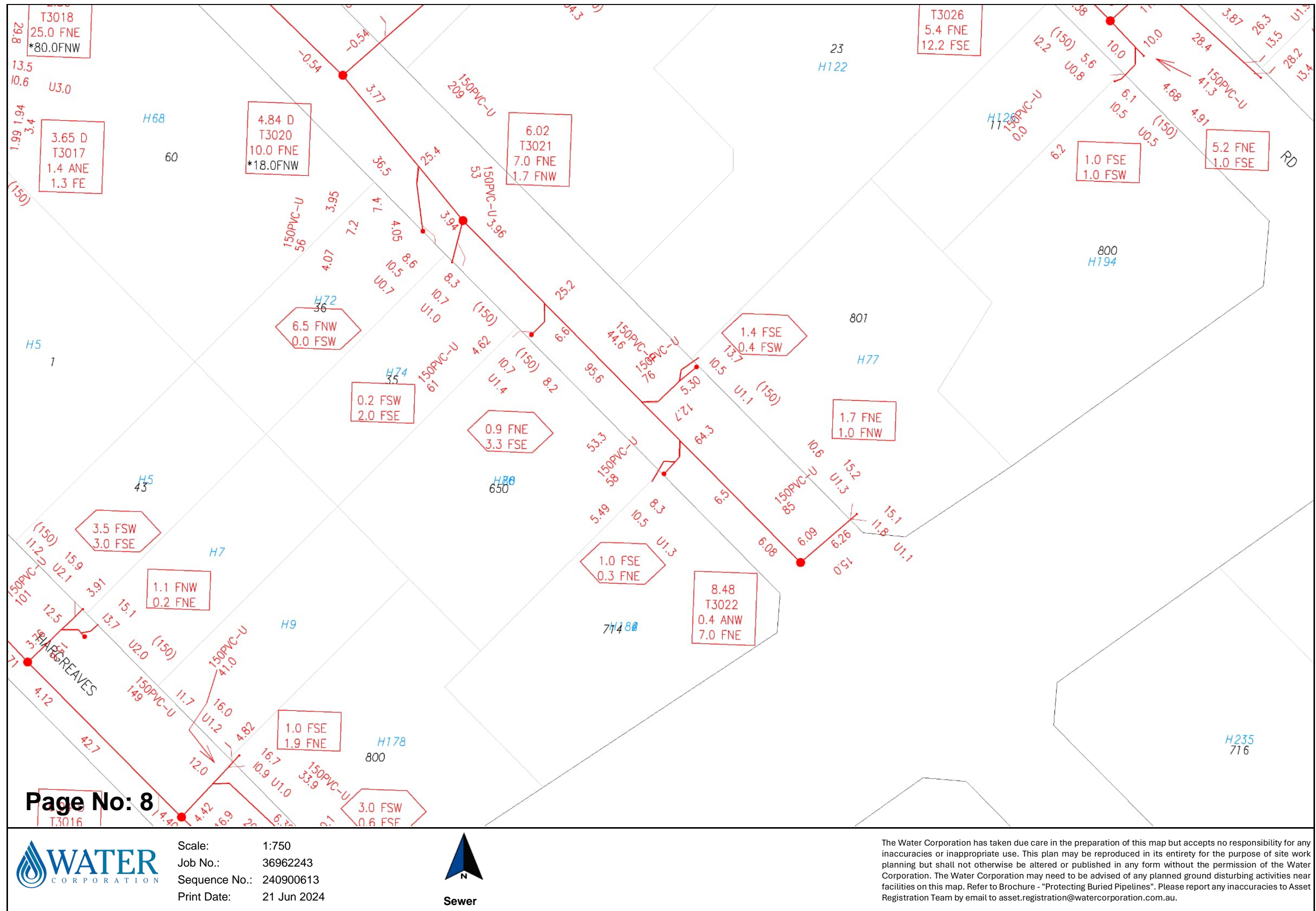
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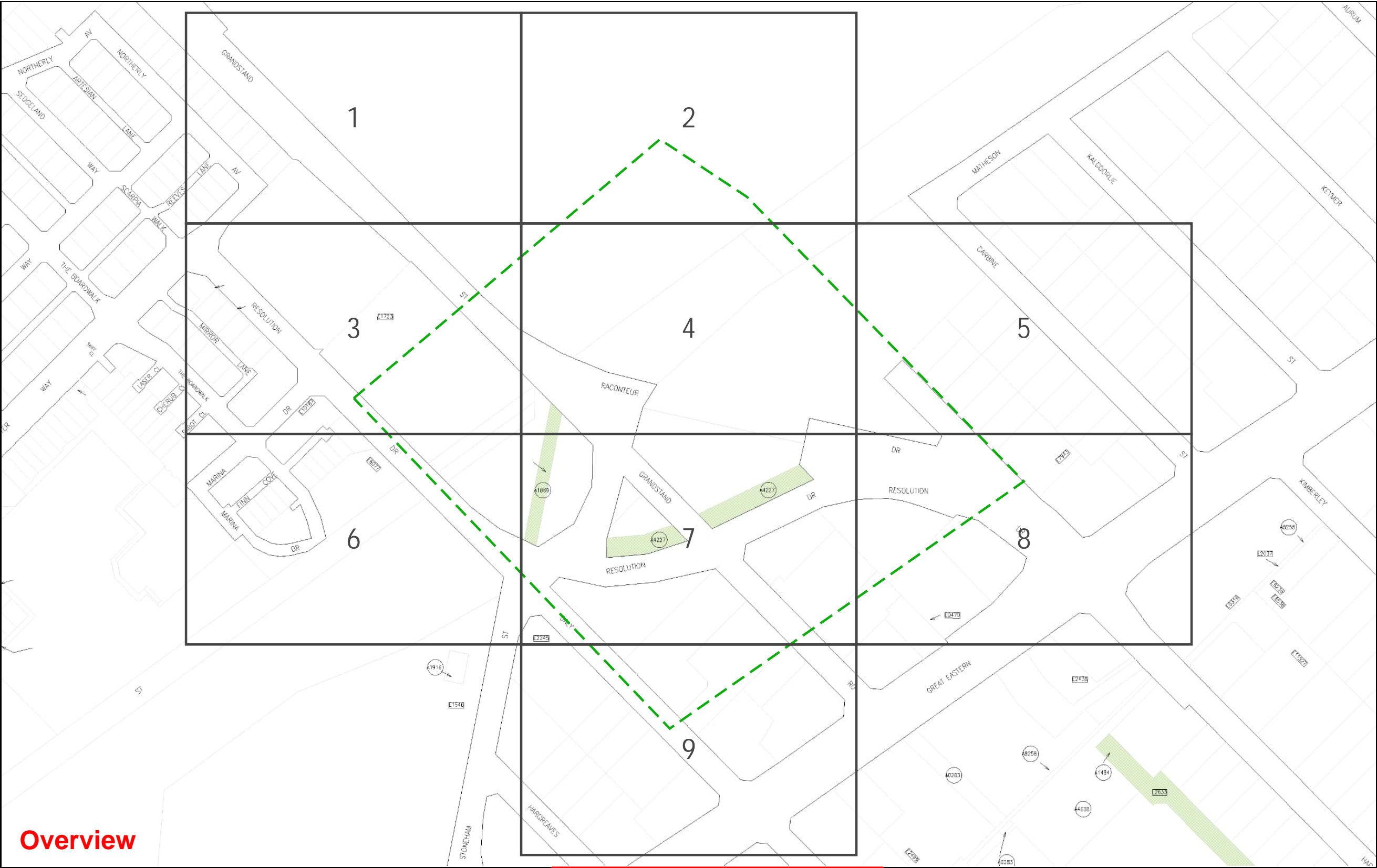
Print Date: 21 Jun 2024



Sewer

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Overview



Scale: 1:3075
Job No.: 36962243
Sequence No.: 240900613
Print Date: 21 Jun 2024



Water

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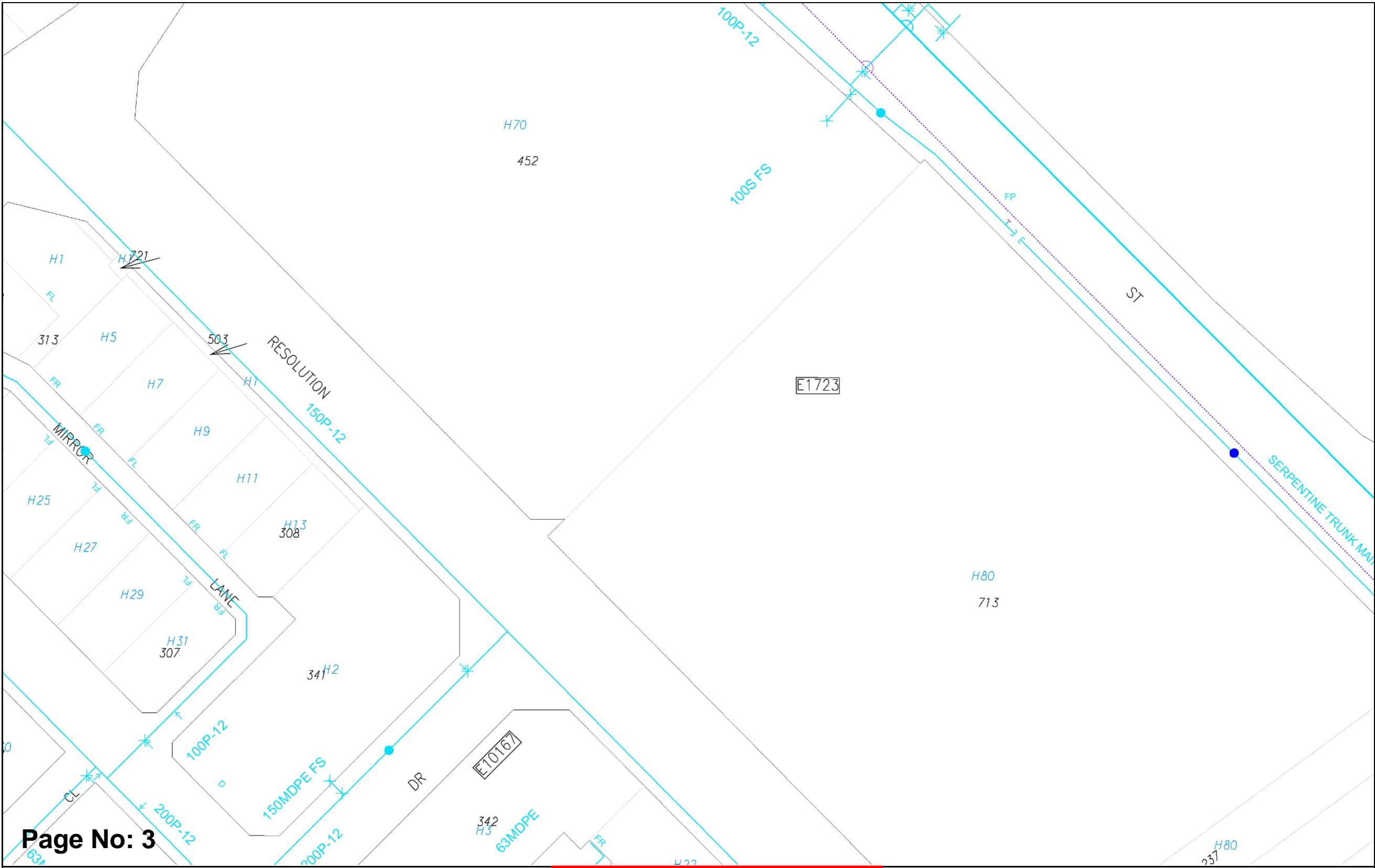
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Page No: 2

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Page No: 3



Scale: 1:750

Job No.: 36962243

Sequence No.: 240900613

Print Date: 21 Jun 2024



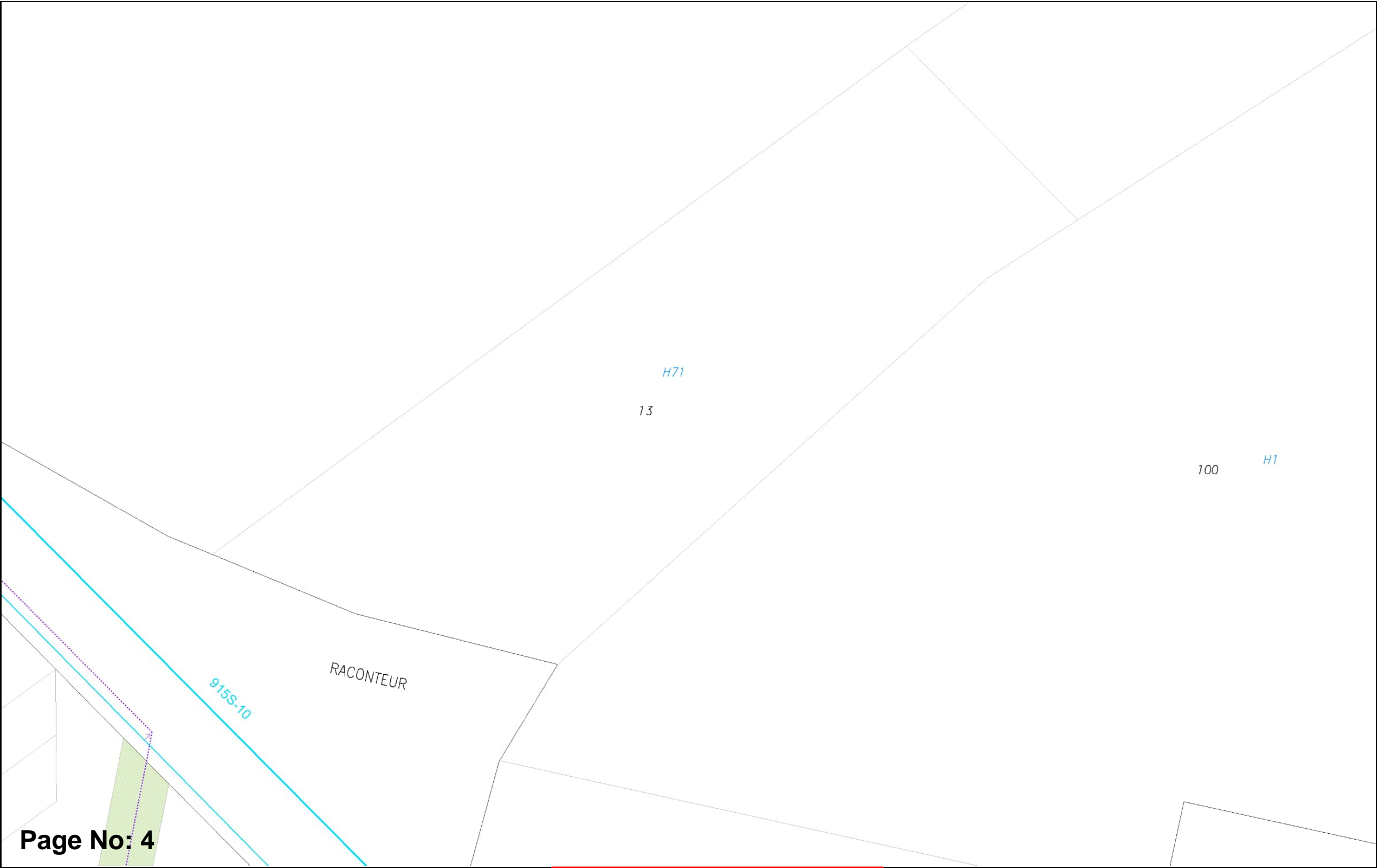
Water

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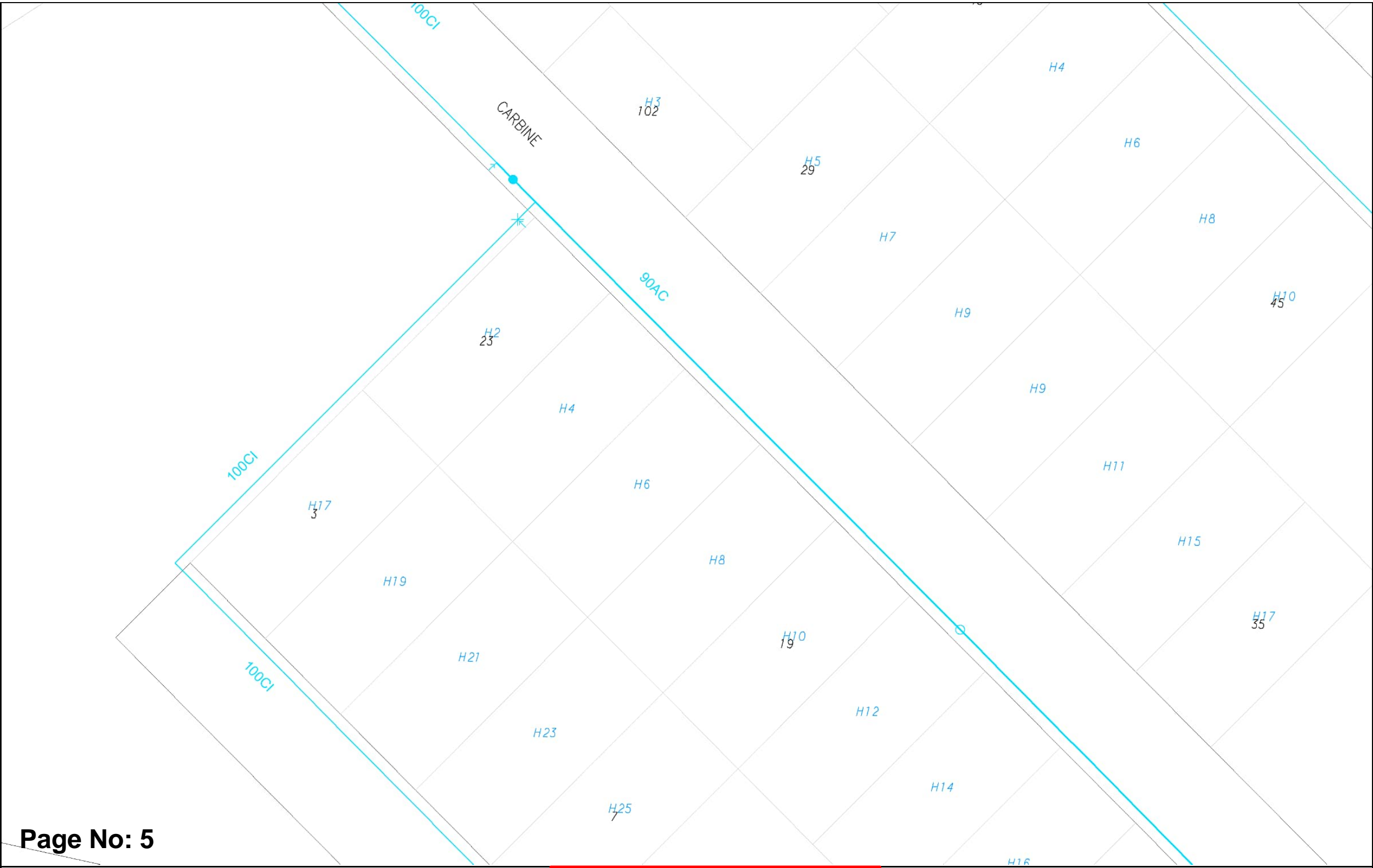
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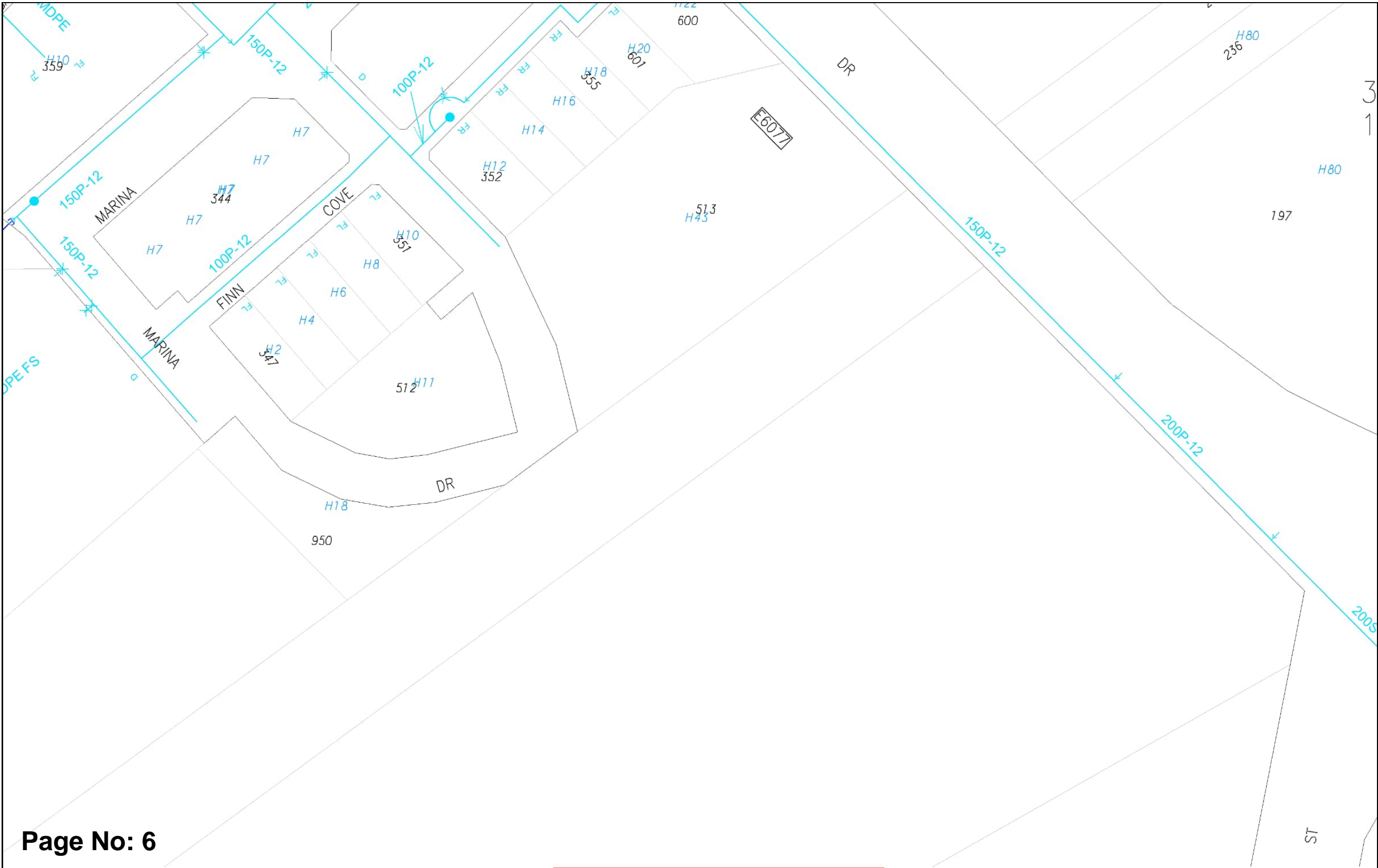
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	Job No.:	36962243			
	Sequence No.:	240900613			
	Print Date:	21 Jun 2024			



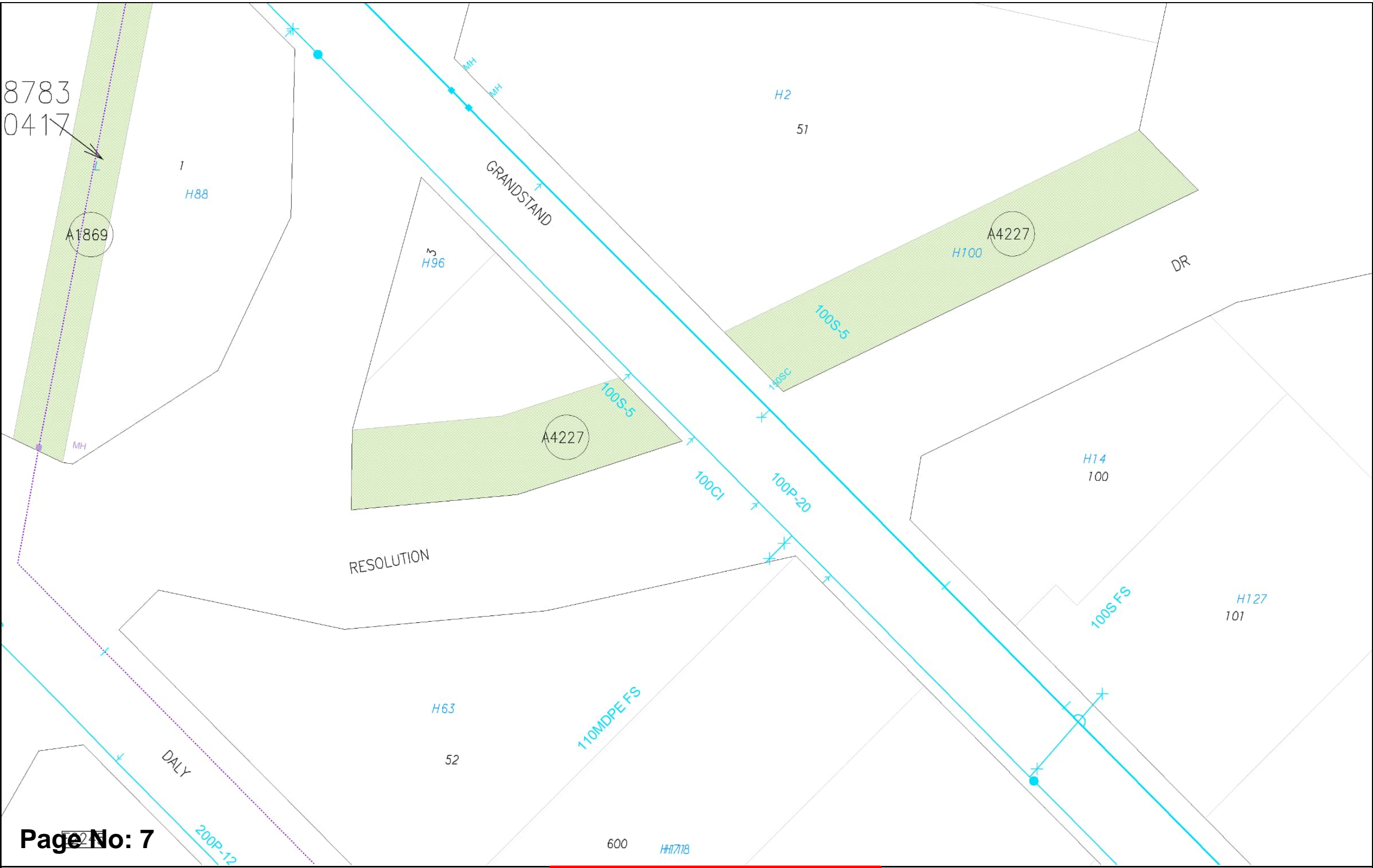
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	Job No.:	36962243			
	Sequence No.:	240900613			
	Print Date:	21 Jun 2024			



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	<p>Scale: 1:750 Job No.: 36962243 Sequence No.: 240900613 Print Date: 21 Jun 2024</p>	 <p>Water</p>	<p>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED</p> <p>Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)</p> <p>Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</p>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
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Scale: 1:750

Job No.: 36962243

Sequence No.: 240900613

Print Date: 21 Jun 2024



Water

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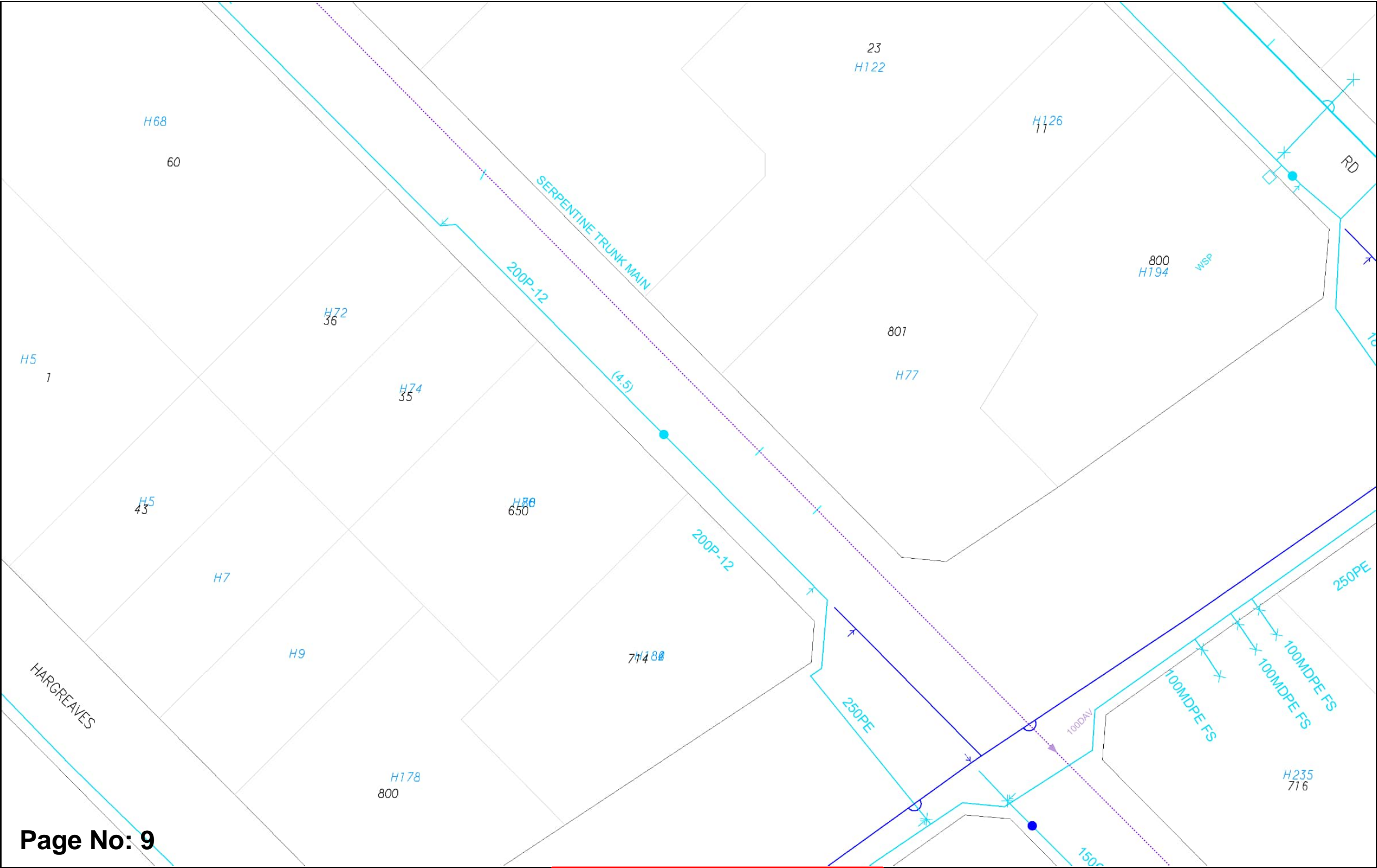
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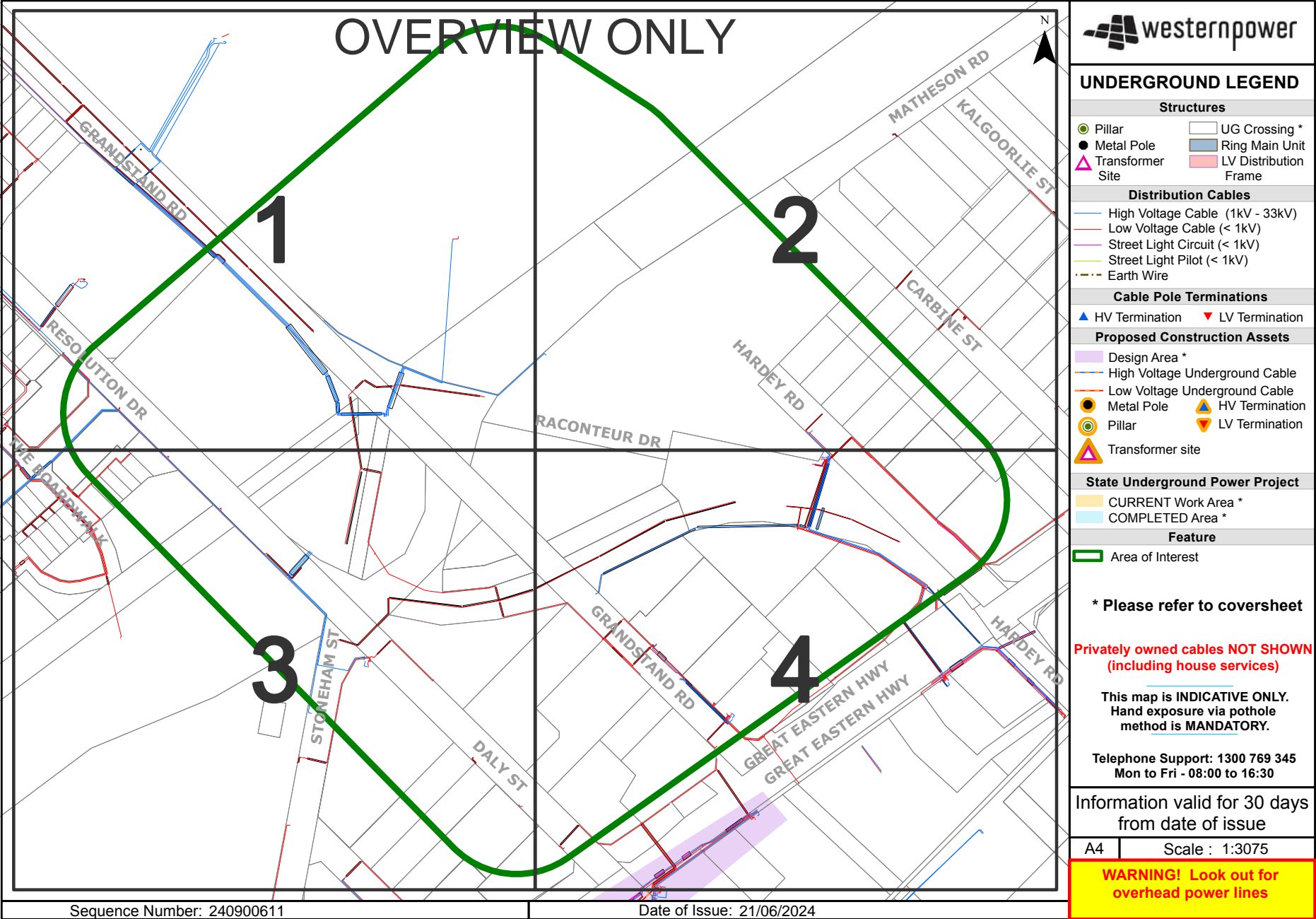
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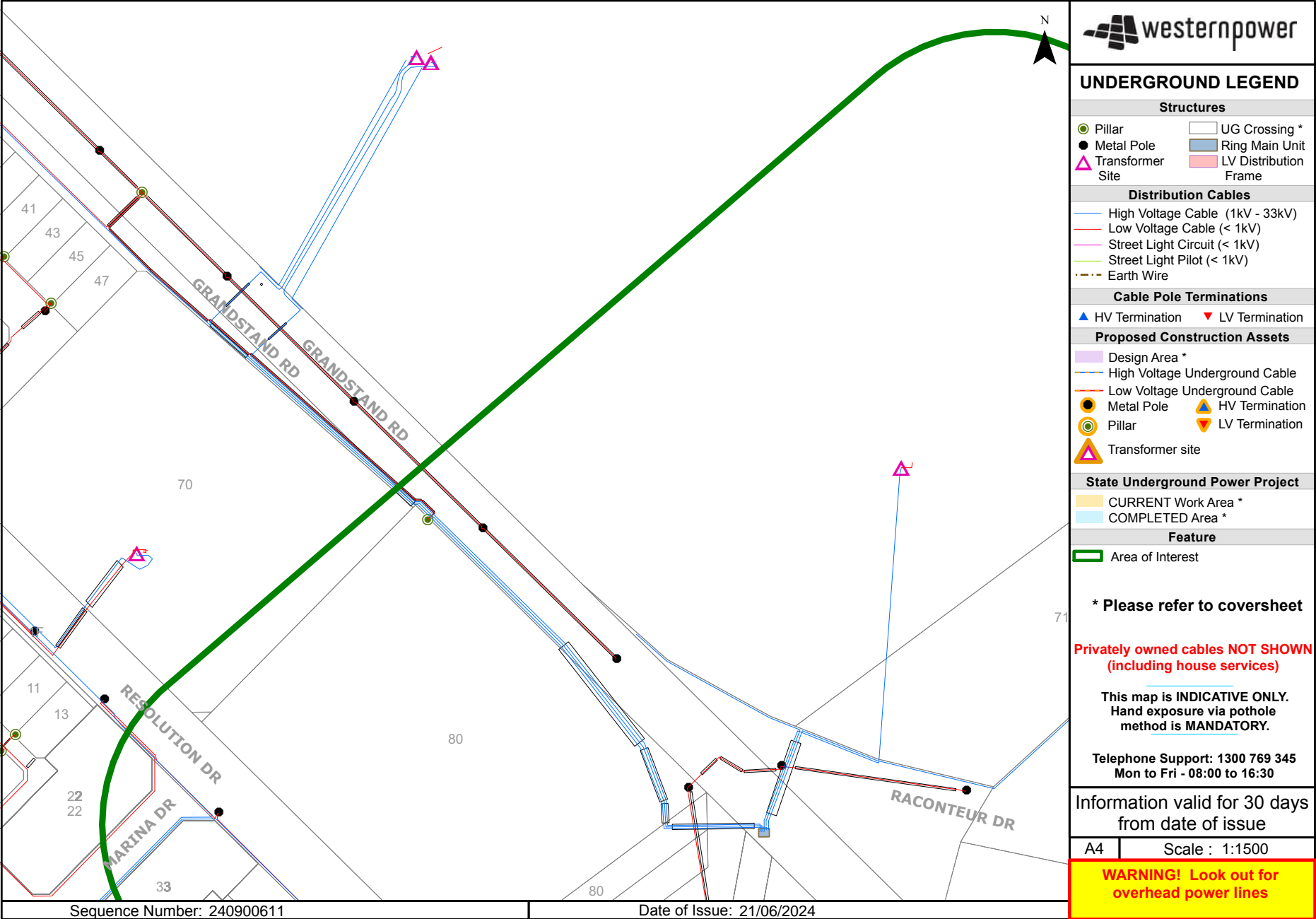
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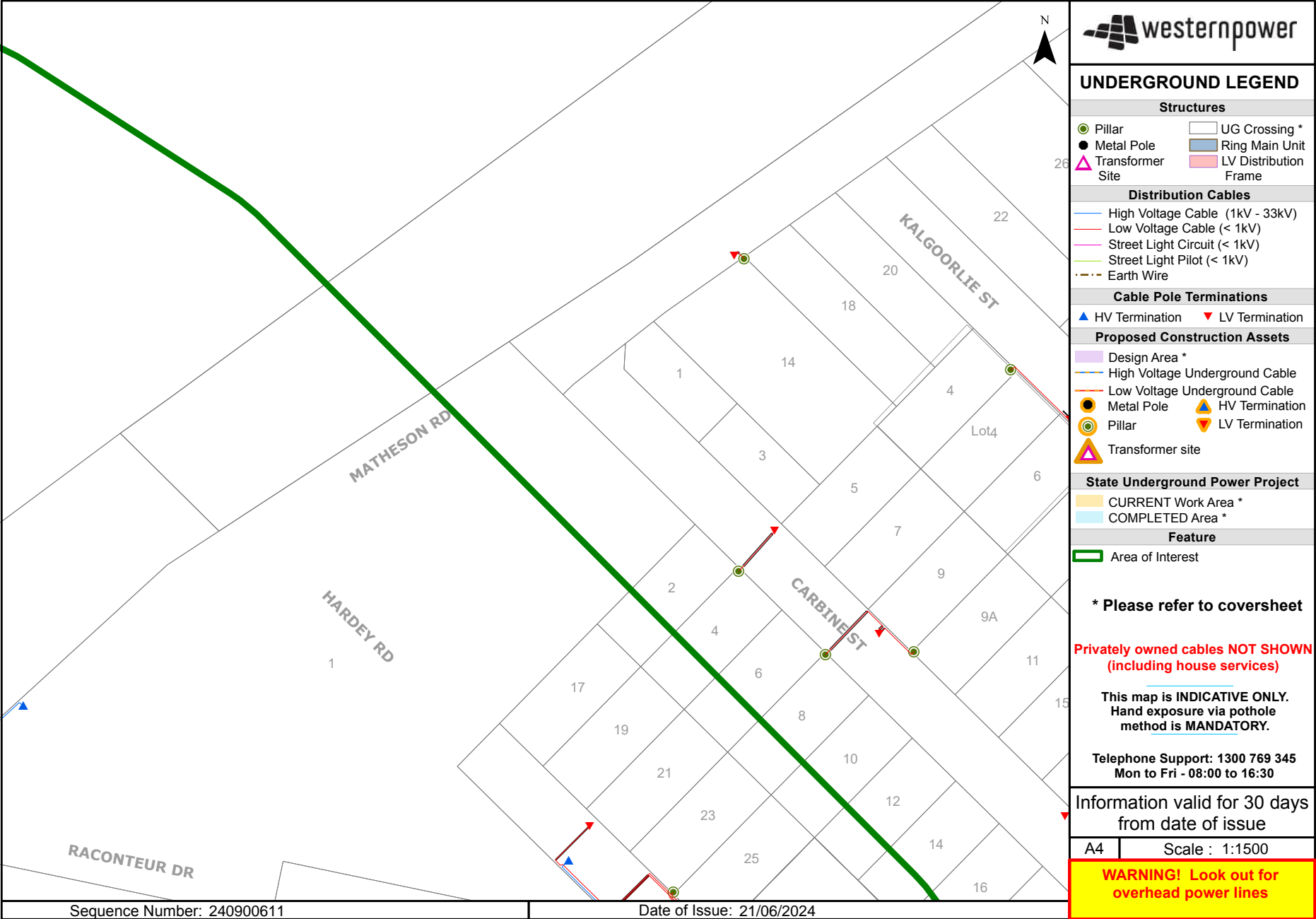


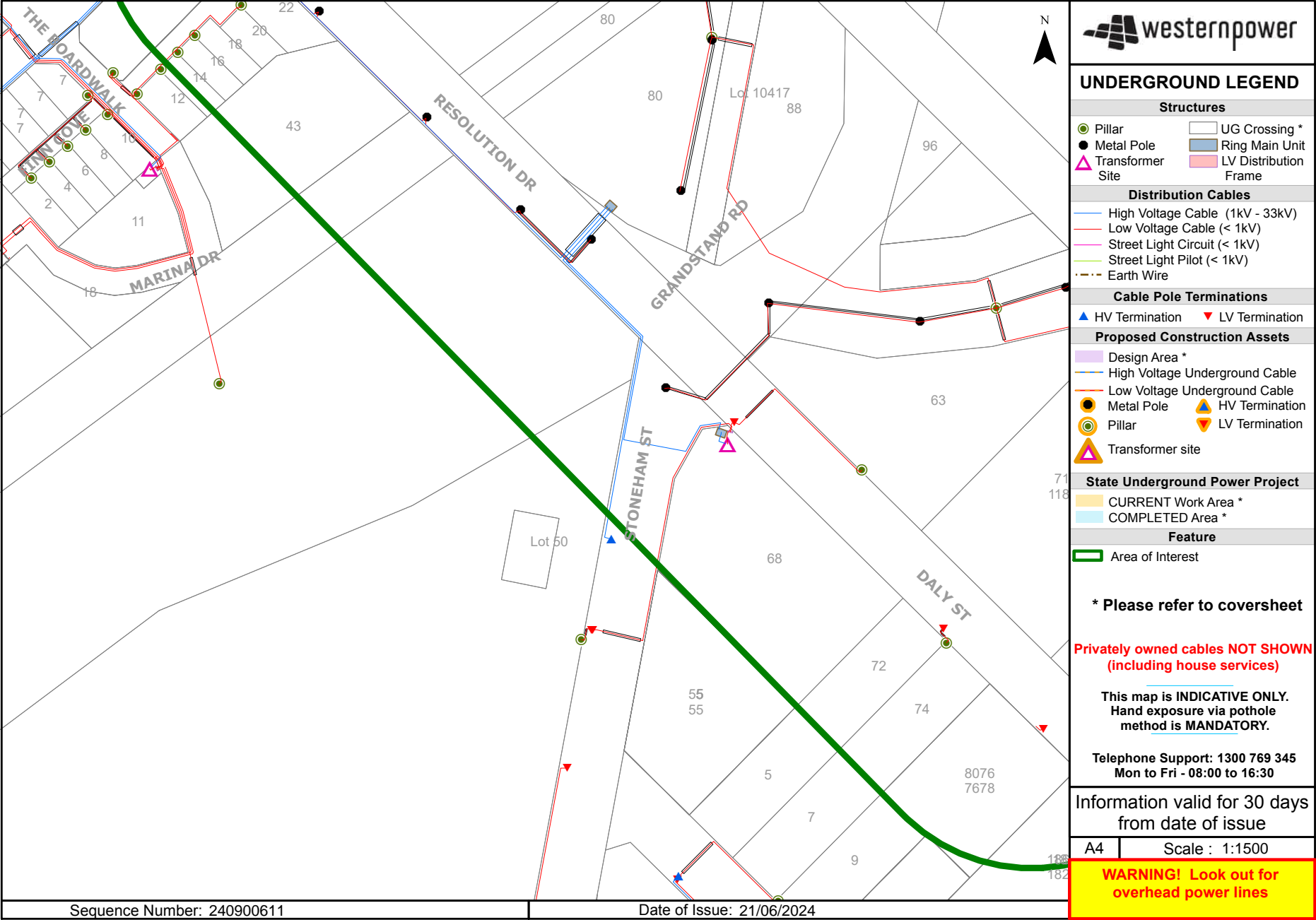
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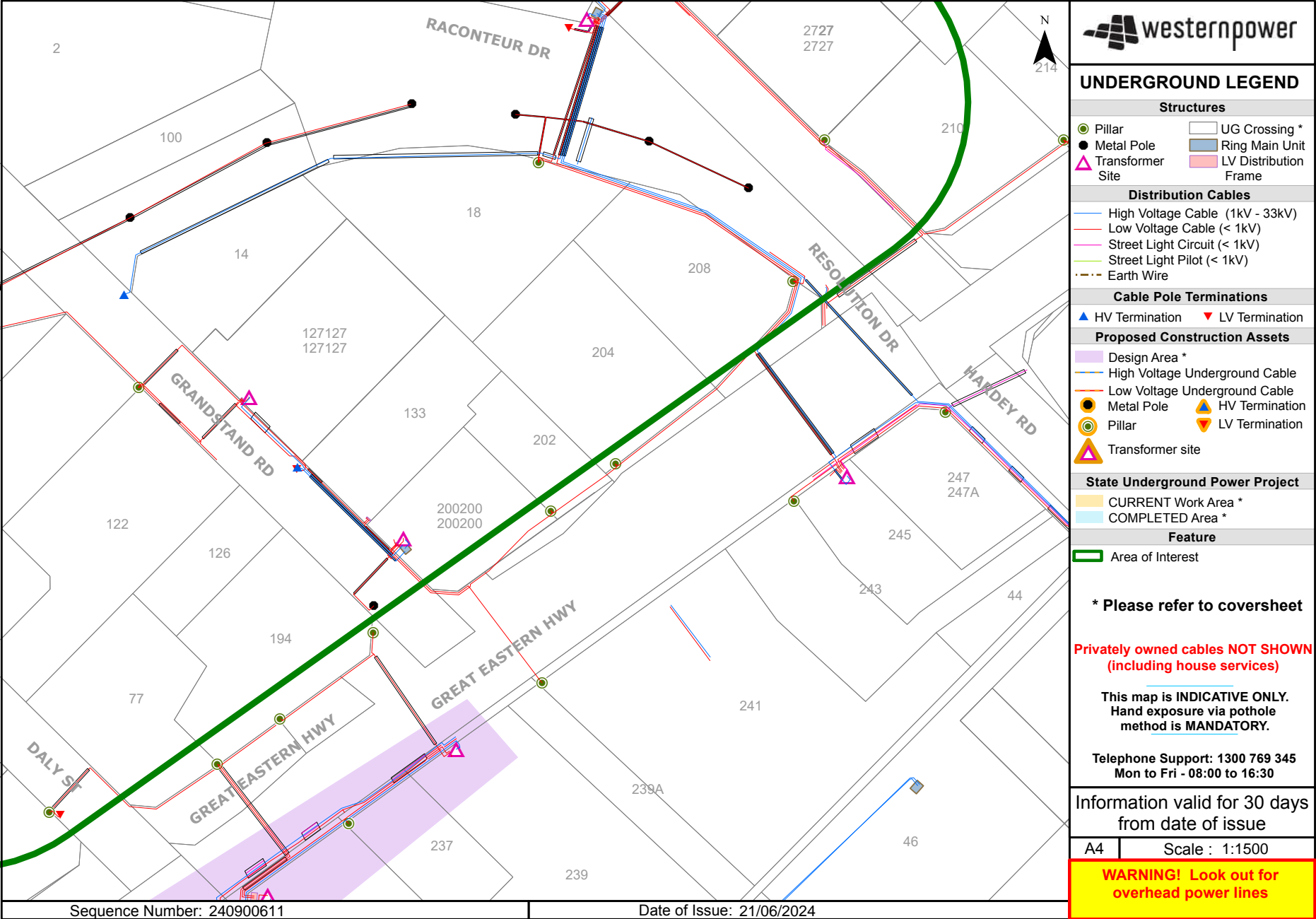
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	Print Date:	21 Jun 2024
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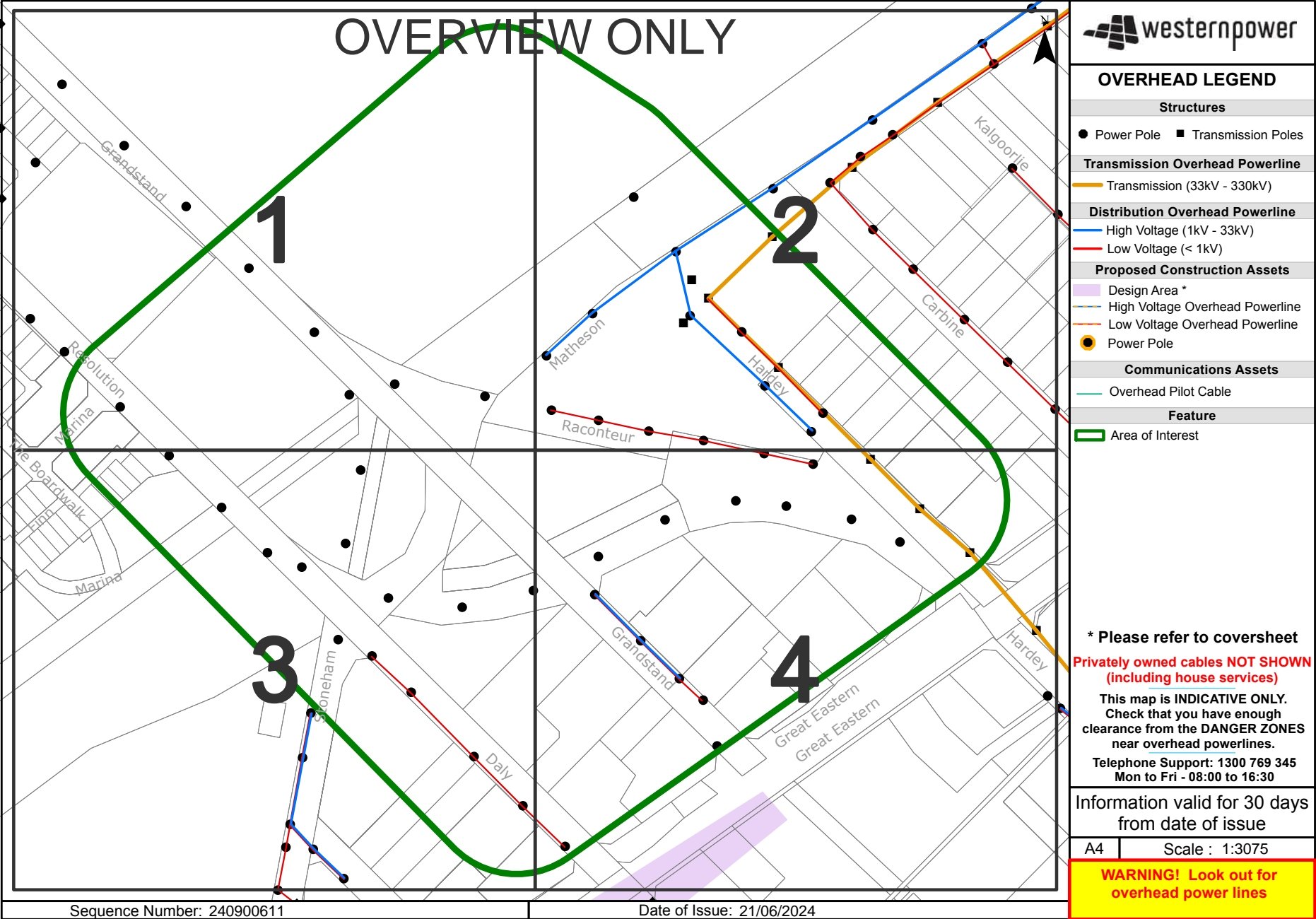


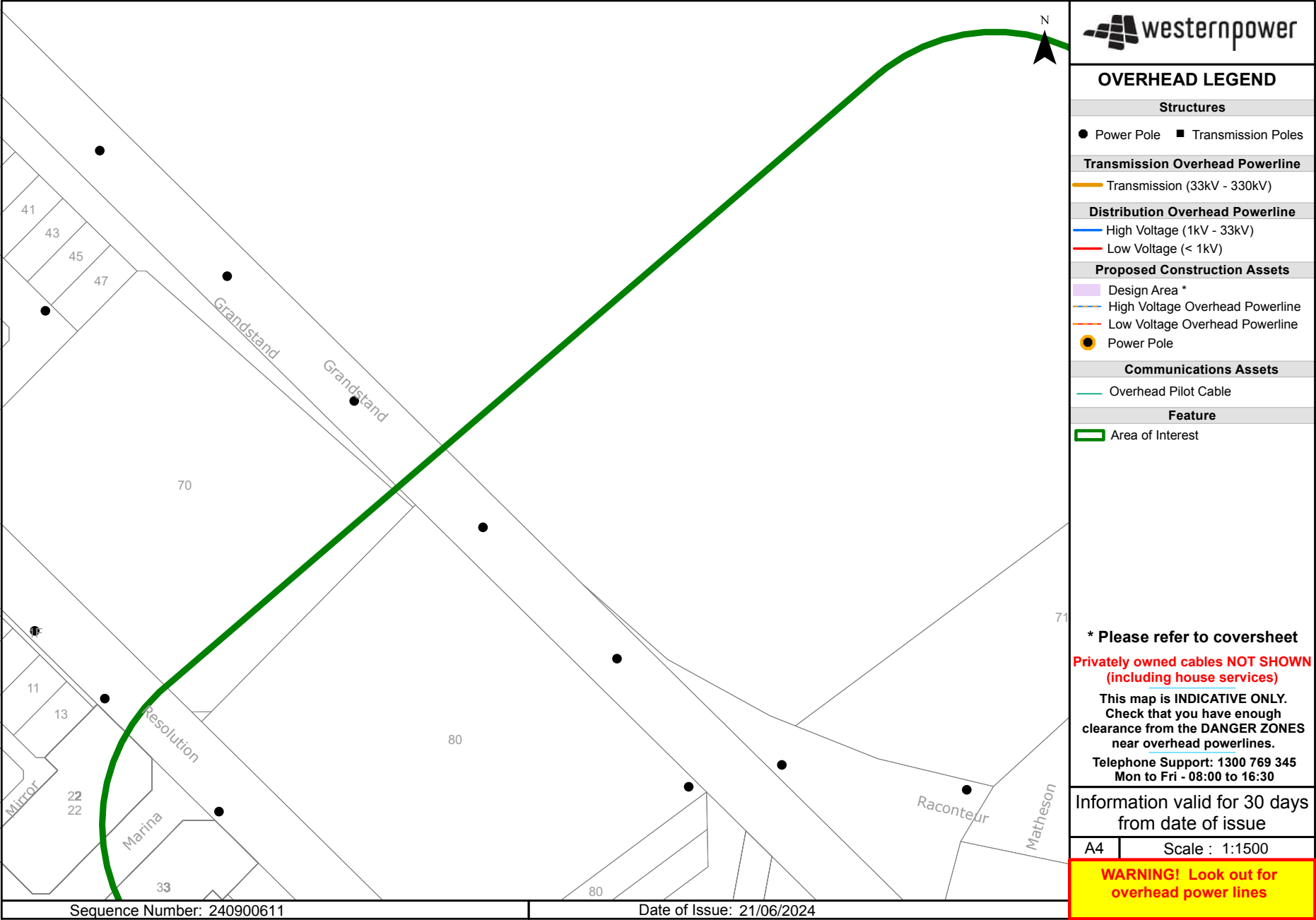


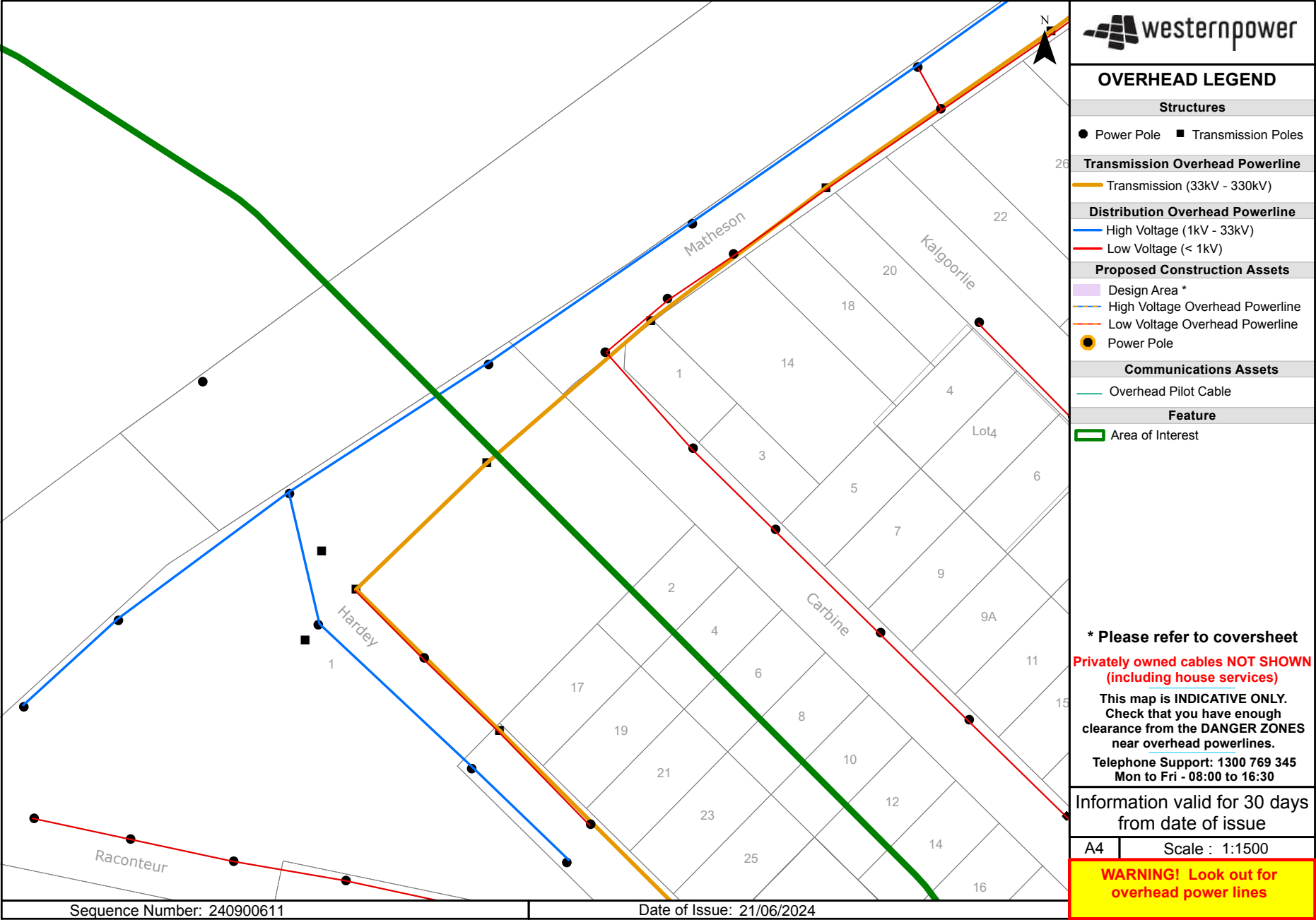


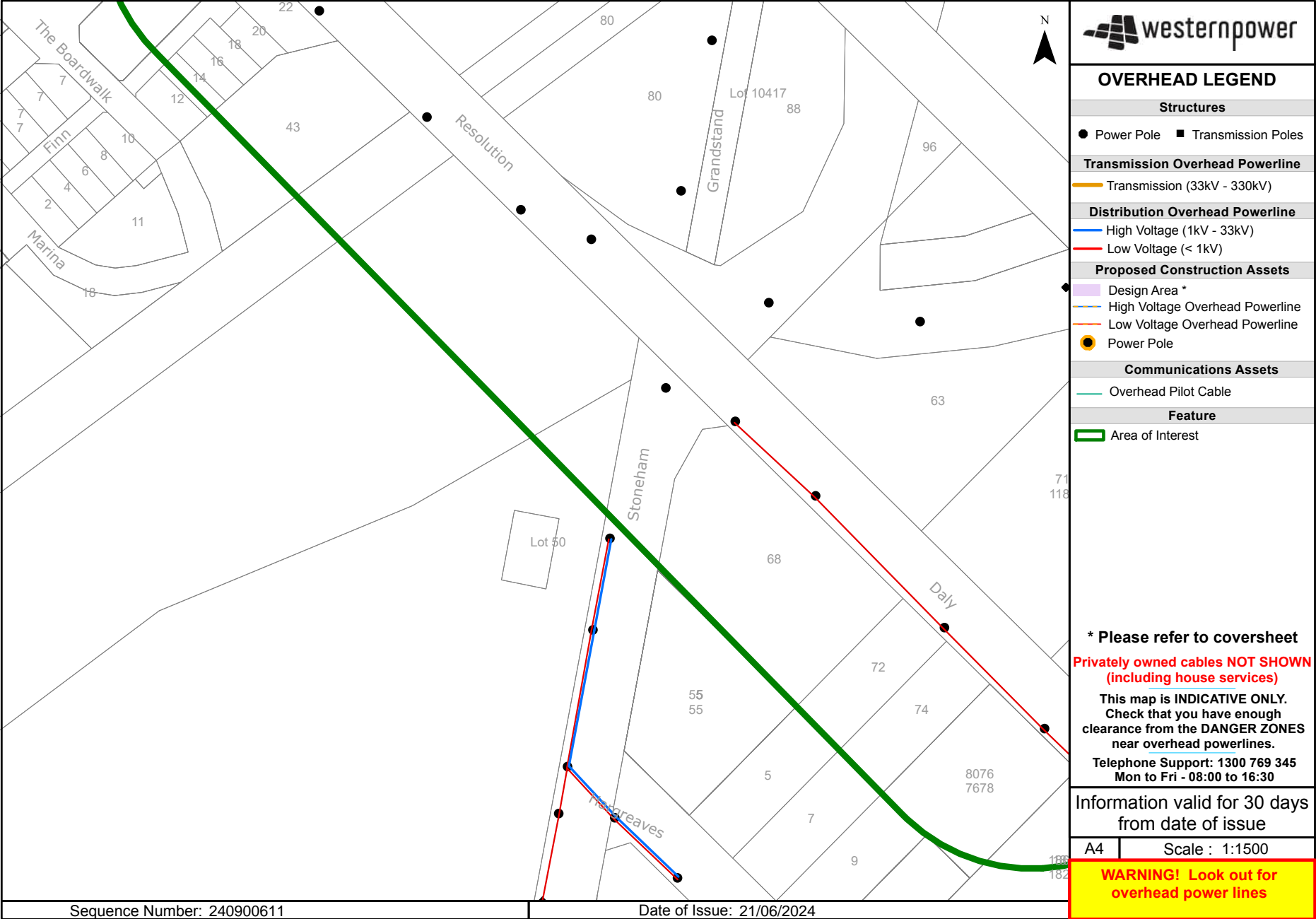


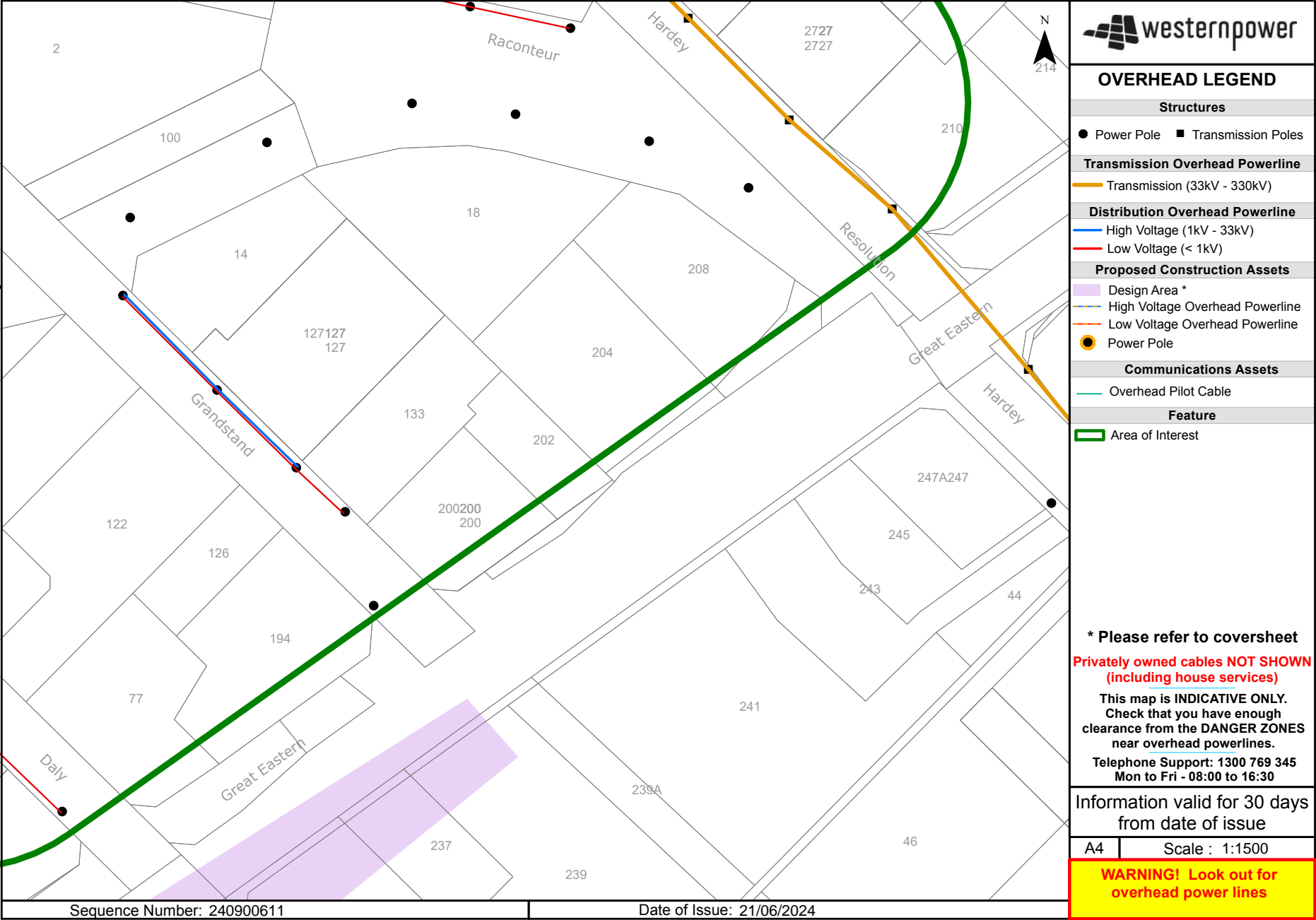












Job ID 36962243

Precinct E



End of document

i This document may exclude some files (eg. DWF or ZIP files)

This document was automatically generated at a point-in-time. Be aware that the source information from which this document was created may have changed since it was produced. This document may contain incomplete or out-of-date information. Always check your enquiry details in the BYDA Referral Service for the most recent information. For copyright information refer to individual responses.

Attachment 12.1.4 Engineering Servicing Report

Job No 36962238



byda.com.au

Contact Details

Contact	Contact number	Company	Enquirer ID
Justin Zielinski	0420 304 451	-	3140642
Email		Address	
jzielinski@tabec.com.au		54 Havelock Street West Perth WA 6005	

Job Site and Enquiry Details

WARNING: The map below only displays the location of the proposed job site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

Enquiry date	Start date	End date	On behalf of	Job purpose	Locations	Onsite activities
21/06/2024	24/06/2024	24/06/2024	Private	Design	Both Road	Planning & Design



Check that the location of the job site is correct. If not, you must submit a new enquiry.

If the scope of works change or plan validity dates expire, you must submit a new enquiry.

Do NOT dig without plans. Safe excavation is your responsibility. If you don't understand the plans or how to proceed safely, please contact the relevant asset owners.

User Reference	Address	Notes/description
Preinct D	70 Grandstand Road Ascot WA 6104	-

Your Responsibility and Duty of Care

- **Lodging an enquiry does not authorise project commencement.** Before starting work, you must obtain all necessary information from all affected asset owners.
- If you don't receive plans within 2 business days, contact the asset owner & quote their sequence number.
- Always follow the 5Ps of Safe Excavation (page 2), and locate assets before commencing work.
- Ensure you comply with State legislative requirements for Duty of Care and safe digging.
- If you damage an underground asset, you MUST advise the asset owner immediately.
- By using the BYDA service, you agree to the [Privacy Policy](#) and [Term of Use](#).
- For more information on safe digging practices, visit www.byda.com.au

Asset Owner Details

Below is a list of asset owners with underground infrastructure in and around your job site. It is your responsibility to identify the presence of these assets. Plans issued by Members are indicative only unless specified otherwise. Note: not all asset owners are registered with BYDA. You must contact asset owners not listed here directly.

Referral ID (Seq. no)	Authority Name	Phone	Status
240900580	ATCO Gas Australia	1300 926 755	NOTIFIED
240900576	NBN Co (WA)	1800 687 626	NOTIFIED
240900574	Optus (WA)	1800 505 777	NOTIFIED
240900578	Telstra (WA)	1800 653 935	NOTIFIED
240900575	Vocus (WA)	1800 262 663	NOTIFIED
240900579	Water Corporation	13 13 95	NOTIFIED
240900577	Western Power	13 10 87	NOTIFIED

END OF UTILITIES LIST

Lodge your FREE enquiry online any time at byda.com.au



ATCO UNDERGROUND ASSET DETAILS ASSETS AFFECTED GAS DIVISION

ASSETS AFFECTED – see accompanying Plan

Justin Zielinski
ATCO Gas Australia
54 Havelock Street
West Perth
WA 6005

Job No: 36962238
Sequence No: 240900580
Date of Issue: 21 June 2024
Phone: 1300 926 755

BYDA Utility Registration Name: Private
BYDA Location: 70 Grandstand Road Ascot WA 6104

ATTENTION: This response to your enquiry has been interpreted from details in your requested DBYD picture location request only (not any street address you gave). It is your duty to ensure the accompanying plan/s match your geographical area of works.

**IF YOU SEE, HEAR, SMELL OR OTHERWISE DETECT GAS,
LEAVE THE IMMEDIATE AREA AND THEN CALL 13 13 52**

Our records indicate that ATCO gas infrastructure **IS PRESENT** in the vicinity of and/or surrounding area of the above enquiry. This response relates only to ATCO assets. Your Duty of Care requires that personnel **Must** at all times comply with, and have on site, this information sheet and the accompanying plan(s). All plans are subject to this information sheet. You should refer to the ATCO Self-service Portal ([Link Here](#)) or if unsure, contact ATCO on **1300 926 755** during business hours.

All information provided is to be used as a guide only (see Disclaimer item 5). It does not absolve you or third parties from your Duty of Care obligations, including to take additional precautions where work has the potential to impact on gas assets, public safety or the environment, or from your duties at law (including Reg 3.21 of the Occupational Safety and Health Regulations 1996).

WARNINGS

- No works of any type within 15 metres of any **CRITICAL GAS ASSET** infrastructure without prior approval from ATCO
- NO HOT WORK** within 15 metres of any gas infrastructure except in compliance with applicable laws & *Australian Standard 1674*. **Do Not** let heat sources or hot works impact on any gas infrastructure and take into consideration that the ground or adjacent structures may also be capable of transmitting heat so as to circumvent protection afforded by a heat shield or barrier
- DANGER** - Gas can cause asphyxiation and is flammable. Keep all ignition sources well away (e.g., flames, matches/ lighters, sparks, electrical devices, vehicles or engines, mobile phones, cameras)
- Gas pipes **Must Not** be unsupported or left without adequate cover or protection without prior approval from ATCO
- Damage to the pipe coating or pipe itself can be very dangerous if not given immediate attention. Report any damage to ATCO immediately on **13 13 52**. **Do Not** attempt to repair any damaged gas infrastructure
- No alteration or removal of live or abandoned gas infrastructure without prior written approval from ATCO
- Any abandoned or proposed gas infrastructure indicated on the gas plans **Must** be treated as live
- Never assume the location or depth of any gas infrastructure. Pipes may not follow straight lines or maintain a constant depth. Always check carefully (e.g., by careful hand digging of potholes)
- Unauthorised repairs or tampering with gas infrastructure may result in prosecution under the *Energy Operators (Powers) Act 1979*. ATCO Gas Australia reserves all rights to recover compensation for loss or damage to its gas infrastructure or other property including for indirect or consequential losses.

Document No: AGA-O&M-WI03-FM01

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Attachment 12.1.4 Engineering Servicing Report

PLANS:

Plans provided are current for **30 days only** from date of request. You must use current plans at all times.

Plans do not show all gas service lines (which connect gas mains to individual meter positions). See condition **3.c)** below.

If plan shows **additional detail** symbols (*) or () in the area of proposed works it is **your duty** to obtain that further detail from the number below.

Plans (including the location of pipes, services, infrastructure and boundaries) are **approximate only**. You **Must** use safe and proper procedures – including **potholing** (see condition **4** below).

Plans are not a guide as to gas availability for connection purposes.

To call ATCO: Weekdays from 7.30am to 3.30pm, call – 1300 926 755 After hours, weekends and emergencies, call – 13 13 52

CONDITIONS FOR WORKS IN THE VICINITY OF ATCO ASSETS

1. Compliance with Warnings

You **Must** comply with the Warnings contained in this information sheet and the accompanying plan(s).

2. Compliance with 'Working around Gas Infrastructure' Document ([Link Here](#)) applicable laws and duty of care

All work (including but not limited to using Excavator's Augers, Directional, drilling machines, 'Ditch Witch' type trenching machine, Loader, Dozer, Skid Steer (Bob Cat)) **Must** comply with all applicable requirements in the 'Working around Gas Infrastructure' Document and with all applicable laws and Australian Standards. All due care must be exercised to locate any gas infrastructure in the vicinity and when conducting any works near them.

3. All Gas Infrastructure

All work that may have any impact upon any gas infrastructure (see **3.a)**, **b)** and **c)** below for examples) should be carefully planned with notification to ATCO well in advance of commencement. Contact ATCO on **1300 926 755** or visit Atco's online self-service portal ([Link Here](#)). Amongst other things, this includes excavation of or near gas pipelines, boring/drilling, crossings of pipelines (including by other underground infrastructure e.g. drains, power cables, etc.), road works and structural installations. In addition:

a) Critical Asset

No works of any type are permitted within 15 meters of these pipelines without prior approval from ATCO. For approvals contact ATCO on **1300 926 755** or visit the Atco online Self-service portal ([Link Here](#))

You **Must** ascertain the location of any Critical Asset, in relation to your proposed work by:

- Locating a straight line between two marker danger signs, and
- Assessing the distance from this line to your proposed work area.

ATCO may require stand-by supervision during your works and will advise of attendance requirements.

b) Non Critical Assets

These pipelines are installed in most streets throughout the Perth metro area and several country centers. Main valves, regulator sets, and test points also exist at intervals along these pipelines. Where work may impact upon these pipelines or assets then ATCO **Must** be contacted as per item **3** above.

c) Gas Services and Meters

If a gas meter is installed on a property, an underground gas service pipe will run from the meter position to the gas main in the street. Plans do not show all gas service lines (with the exception of Critical Assets), but their presence must be anticipated. Most gas meter boxes installed since 1996 will include a sticker giving approximate guidelines for the gas service line location. All due care must be exercised to locate any gas services in the vicinity and when conducting any works near them.

4. Compliance with Safe Work Practices

It is your responsibility to have and comply with adequate safe work practices and procedures. Without limiting your obligations:

PLAN The complete & current Before you Dig Australia documentation and plans must always be on site & referred to for the duration of work. Refer to regulation 3.21 of the Occupational Safety and Health Regulations 1996 and the Utility Providers "Code of Practice" for further useful information.

PREPARE Prepare by reviewing the Before you Dig Australia Documentation and contacting ATCO if you need assistance. Look for onsite ATCO asset and infrastructure clues such as pit lids, marker posts and meters. No works of any type are permitted within 15 meters of a **CRITICAL ASSET** without prior approval from ATCO. For approvals contact ATCO on **1300 926 755** or visit the Atco website Self Service portal ([Link Here](#)) and allow suitable

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Attachment 12.1.4 Engineering Servicing Report

processing time. Atco recommends engaging a [BYDA Certified Locator](#) which includes undertaking electronic location prior to potholing.

POTHOLE Using current Before you Dig Australia plans, all gas pipes should be located (including any deviation in the direction of a gas pipe) by exposing them by careful digging using a HAND SHOVEL. Where the proposed work is parallel to a gas pipeline, pothole every 10 meters along the entire route. Damage to the pipe coating or to the pipe itself can create a very dangerous situation if not given immediate attention. If damage does occur, it **Must** be reported to ATCO immediately on Ph. **13 13 52**.

PROTECT Supervise and monitor all excavations near gas infrastructure using a dedicated spotter. Where any gas infrastructure is required to be exposed, adequate protection of the gas infrastructure is required to prevent potential damage. Also implement appropriate controls when conducting 'hot work' (in accordance with AS 1674) in the vicinity of the ATCO infrastructure such as; isolation; separation distance; the placement of an effective non-combustible barrier of sufficient size and thermal resistance for the intensity, type and duration of heat exposure; gas monitoring; monitoring the environment surrounding the ATCO infrastructure to ensure it is not being impacted by the work, and other controls as necessary.

PROCEED You should **only proceed** with your excavation work after you have planned, prepared, potholed (unless prohibited) and have protective measures in place. All locations markers/pegs are to be removed on completion of works. If you are unsure, **DO NOT** Proceed. Call ATCO on **1300 926 755**

5. Disclaimer and Further Terms

- a) Nothing in this document, any accompanying plan or the 'Additional Information for Working around Gas Infrastructure' (AGA-O&M-PR24) (together called "**Documents**") purports to exclude or modify any term, condition or warranty to the extent that by law it cannot lawfully be excluded or modified by agreement or notice, including but not limited to those contained in Schedule 2 of the *Competition and Consumer Act 2010* (Cth) and corresponding provisions of any state legislation.
- b) If any of ATCO, or their respective related entities, officers, employees, agents, contractors or advisers (together called "**Associates**") is liable for a breach of a term, condition or warranty described in paragraph **5.a)** above, its liability is, to the fullest extent permitted by law, limited to any one or more of the

following as it determines in its absolute discretion:

- i) in relation to goods supplied by them, replacing or repairing the goods, supplying an equivalent item, paying the cost of replacing or repairing the goods or paying the cost of acquiring or hiring an equivalent item; and
- ii) in relation to services supplied by them, the re-supply of the services or the payment of the cost of having the services re-supplied.
- c) Subject to paragraphs **5.a)** and **b)**, but otherwise despite any other provision in the Documents, no representation or warranty is made or given (whether expressly or by implication) by any of ATCO or their respective Associates in respect of any information contained or referred to in any of the Documents or in any other communication from ATCO concerning any of the Documents or the subject matter of any of the

Documents ("Information"). In particular, but without limiting the generality of the foregoing limitation, none of ATCO or their respective Associates makes any warranty or representation as to the truth, accuracy, completeness, reliability, currency, timeliness, quality or fitness for any purpose of or the standard of care taken in the preparation of any Document or Information (including, but not limited to, the accuracy of the scale of, or the location of anything or symbol shown on, any plan or diagram).

- d) Subject to paragraphs **5.a)** and **b)**, to the maximum extent permitted by law, none of ATCO or their respective Associates is liable to any person or other body ("**Recipient**") who receives or otherwise obtains access to all or any part or parts of the Documents or Information, in any way (including, but not limited to, liability for negligence, breach of statutory duty or lack of care) in respect of any cost, expense, damages, loss or liability, including, but not limited to:
 - i) any financial or economic loss, cost, expense or damage, including but not limited to loss of production, loss of profit, loss of revenue, loss of use, loss of contract, loss of goodwill or loss of business opportunity;
 - ii) any new or increased costs or expenses, including but not limited to financing or operating costs;
 - iii) any failure to achieve any actual or anticipated saving in respect of any cost or expense;
 - iv) any cost, expense, damage or loss resulting from any liability of the Recipient to any other person or body howsoever and whensoever arising, suffered or incurred by the Recipient in relation to, or in connection with, the disclosure to them of, or use of, or reliance on, all or any

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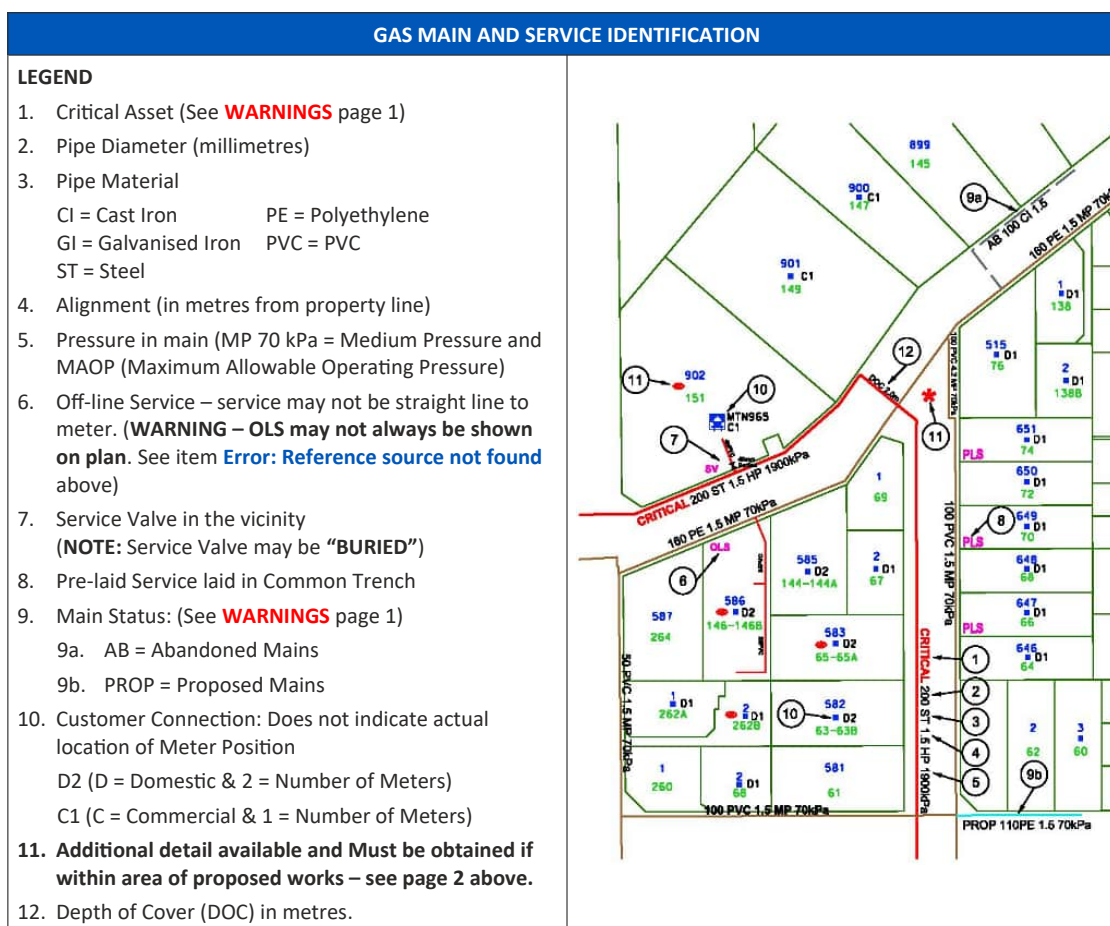
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part or parts of the Documents or Information.

- e) By using any Document or Information, each Recipient is taken to represent and warrant to ATCO that the Recipient will comply with the conditions and other terms referred to in the Documents or Information, including but not limited to conditions that:
- the Recipient **Must** comply with the conditions in numbered paragraphs 1 to 4 above and this paragraph 5;
 - as between ATCO and each Recipient, ATCO owns the Information and all rights and title in and to the Information are to remain vested in ATCO;
 - no Recipient has any right, title or interest in the Information or, except as expressly provided for in the Documents, any license or right to copy, alter, modify, publish or otherwise use or deal with the Information without prior written approval from ATCO;
 - ATCO makes no representation and gives no warranty as to its right to disclose any Information;
 - the Recipient relies on any Information entirely at its own risk and expense;
 - the Recipient **Must** undertake its own independent due diligence and investigations in relation to the Information;
 - none of ATCO or their respective Associates owes the Recipient any duty of care in respect of the Information; and
 - none of ATCO or their respective Associates is under any obligation to correct, update or revise any Documents or Information.



IF UNSURE, PLEASE CONTACT ATCO ON 1300 926 755

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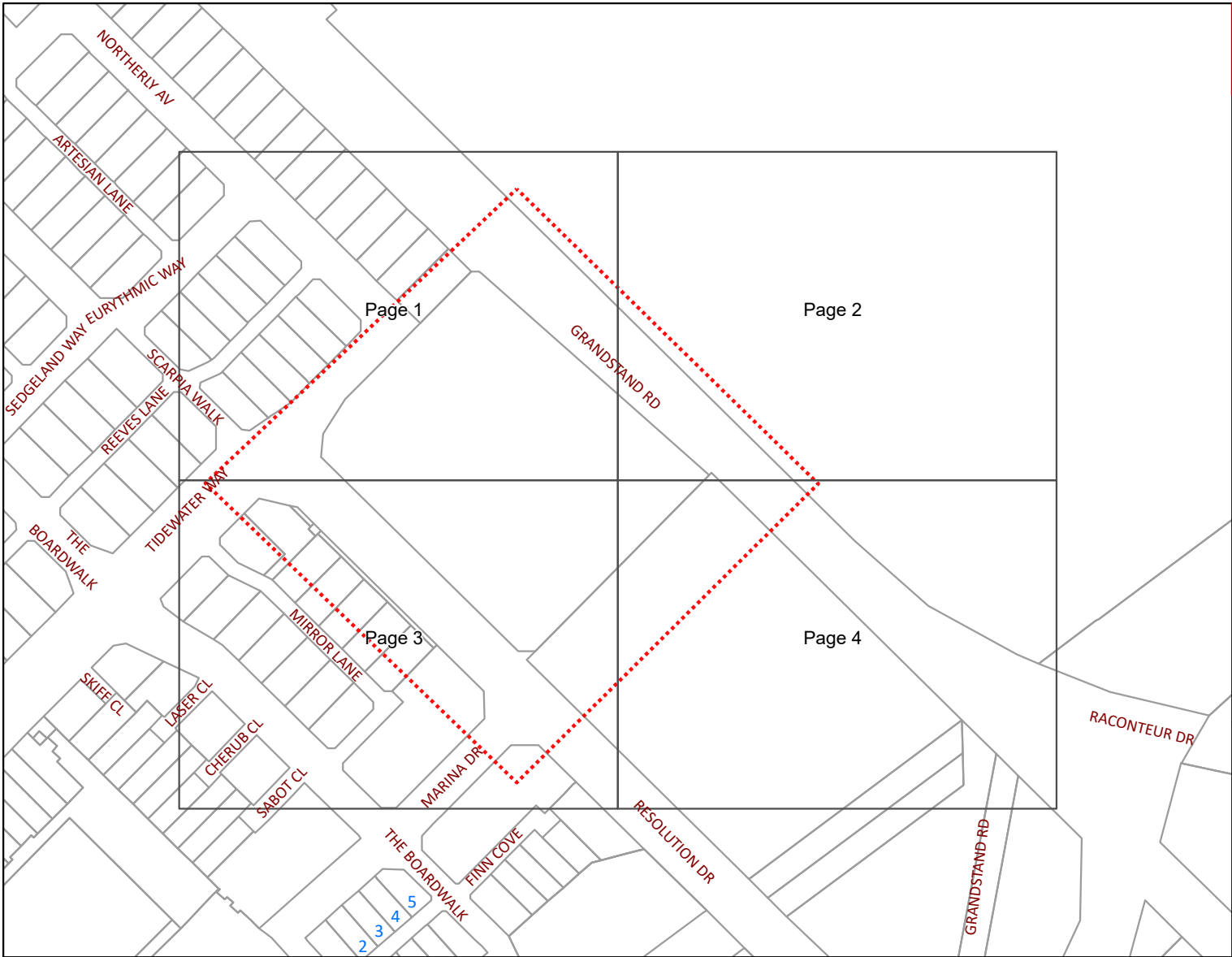
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)
Index Sheet

Seq # 240900580
Job # 36962238

BYDA Location: 70 Grandstand Road Ascot 6104
Scale: 1:2,000



WARNING
Refer to Cover Sheet
for Further Information

BYDA Enquiry
 Detailed map page

Please refer to Symbols Sheet
for Further Information

Disclaimer:
Please read all **warnings**, conditions and information on the attached "Underground Asset Details" information sheet. This plan is issued subject to that information and those conditions and **warnings** (including, but not limited to, the "NO HOT WORKS" warning). Plans are current for only **30 days** from date of request, indicative only and not warranted to be accurate. It is your responsibility to carefully locate underground assets and follow safe work practises and procedures (eg pot-holing). ATCO Gas Australia will seek compensation for damage caused to assets.

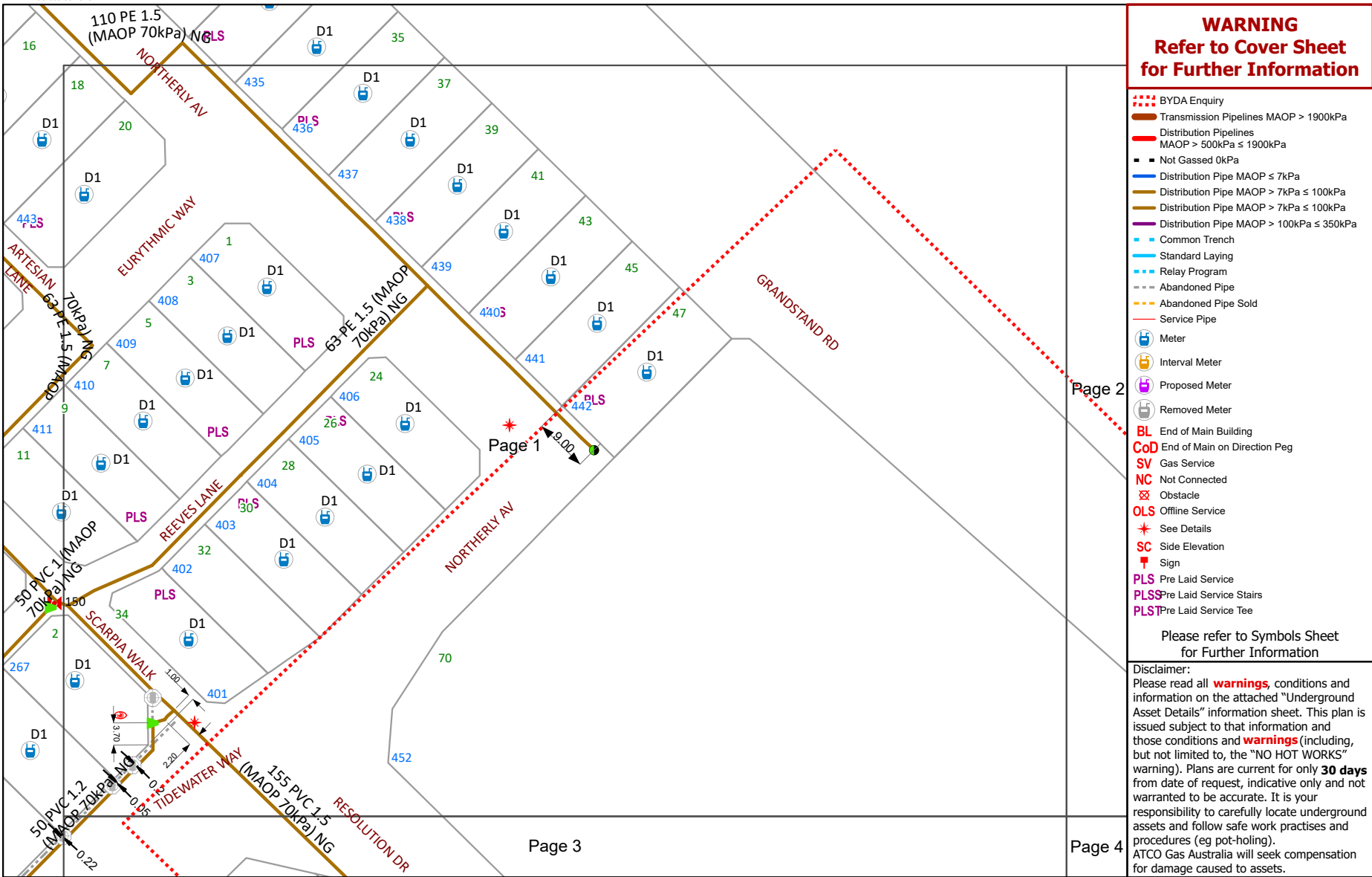
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Date: 21/06/24 (valid for 30 days)

Seq # 240900580
Job # 36962238

BYDA Location: 70 Grandstand Road Ascot 6104
Scale: 1:800



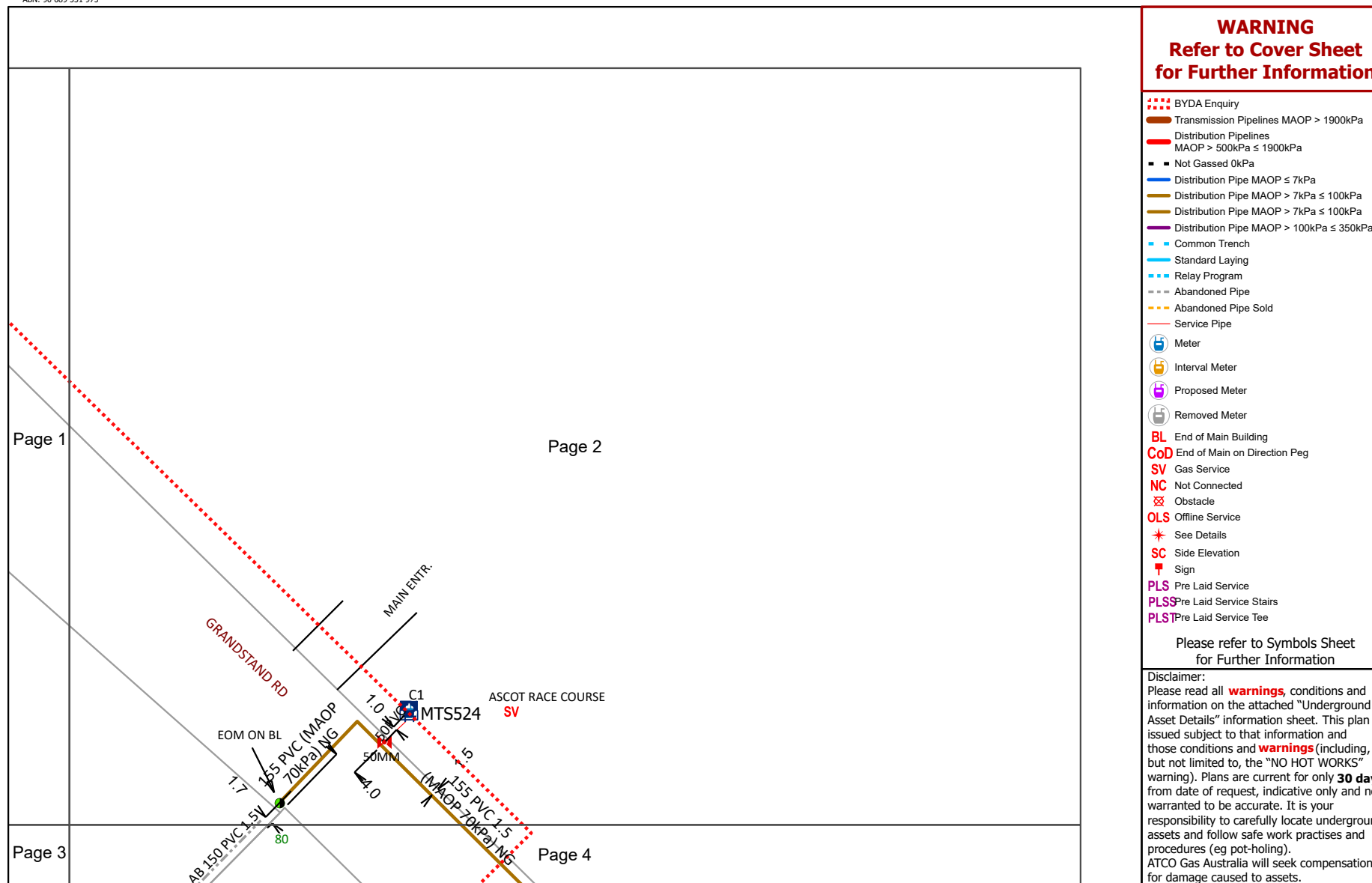
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ATCO
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ABN: 90 089 531 975

Seq # 240900580
Job # 36962238

BYDA Location: 70 Grandstand Road Ascot 6104
Scale: 1:800



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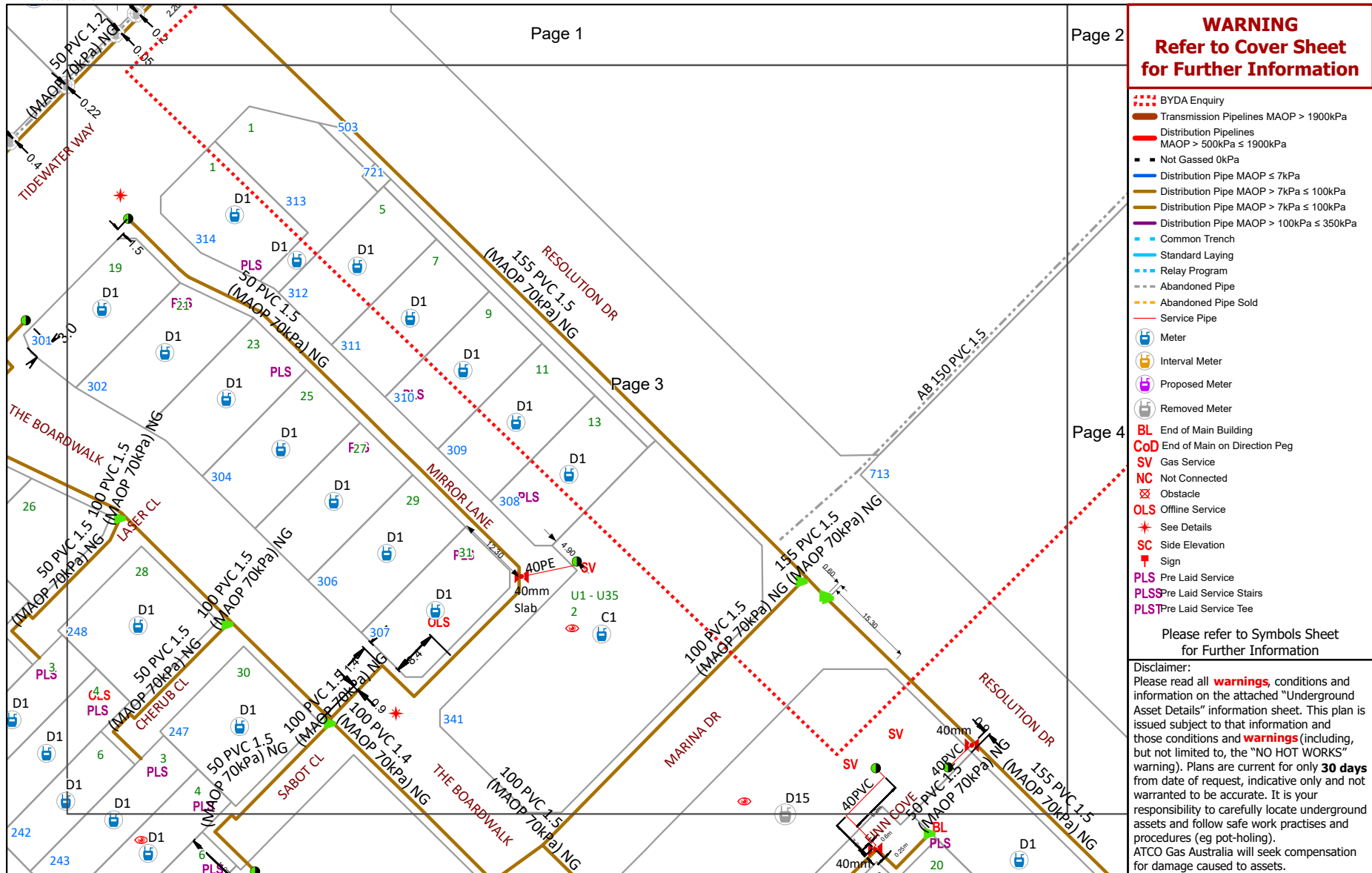
Date: 21/06/24 (valid for 30 days)

Seq # 240900580

Job # 36962238

BYDA Location: 70 Grandstand Road Ascot 6104

Scale: 1:800



WARNING
Refer to Cover Sheet
for Further Information

- BYDA Enquiry
- Transmission Pipelines MAOP > 1900kPa
- Distribution Pipelines MAOP > 500kPa ≤ 1900kPa
- Not Gassed 0kPa
- Distribution Pipe MAOP ≤ 7kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 100kPa ≤ 350kPa
- Common Trench
- Standard Laying
- Relay Program
- Abandoned Pipe
- Abandoned Pipe Sold
- Service Pipe
- Meter
- Interval Meter
- Proposed Meter
- Removed Meter
- BL End of Main Building
- CoD End of Main on Direction Peg
- SV Gas Service
- NC Not Connected
- X Obstacle
- OLS Offline Service
- ★ See Details
- SC Side Elevation
- T Sign
- PLS Pre Laid Service
- PLSS Pre Laid Service Stairs
- PLST Pre Laid Service Tee

Please refer to Symbols Sheet
for Further Information

Disclaimer:
Please read all **warnings**, conditions and information on the attached "Underground Asset Details" information sheet. This plan is issued subject to that information and those conditions and **warnings** (including, but not limited to, the "NO HOT WORKS" warning). Plans are current for only **30 days** from date of request, indicative only and not warranted to be accurate. It is your responsibility to carefully locate underground assets and follow safe work practises and procedures (eg pot-holing). ATCO Gas Australia will seek compensation for damage caused to assets.

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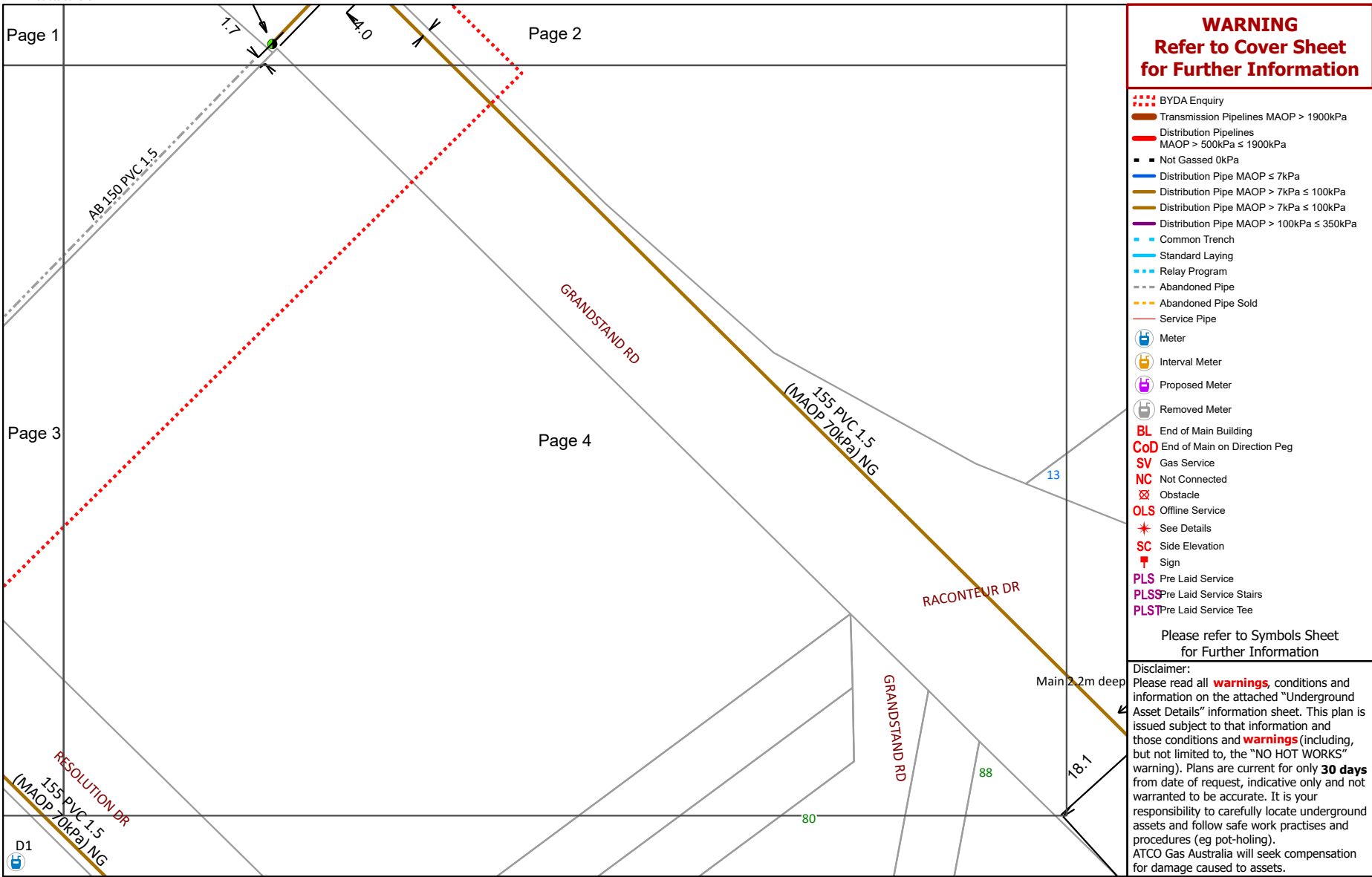
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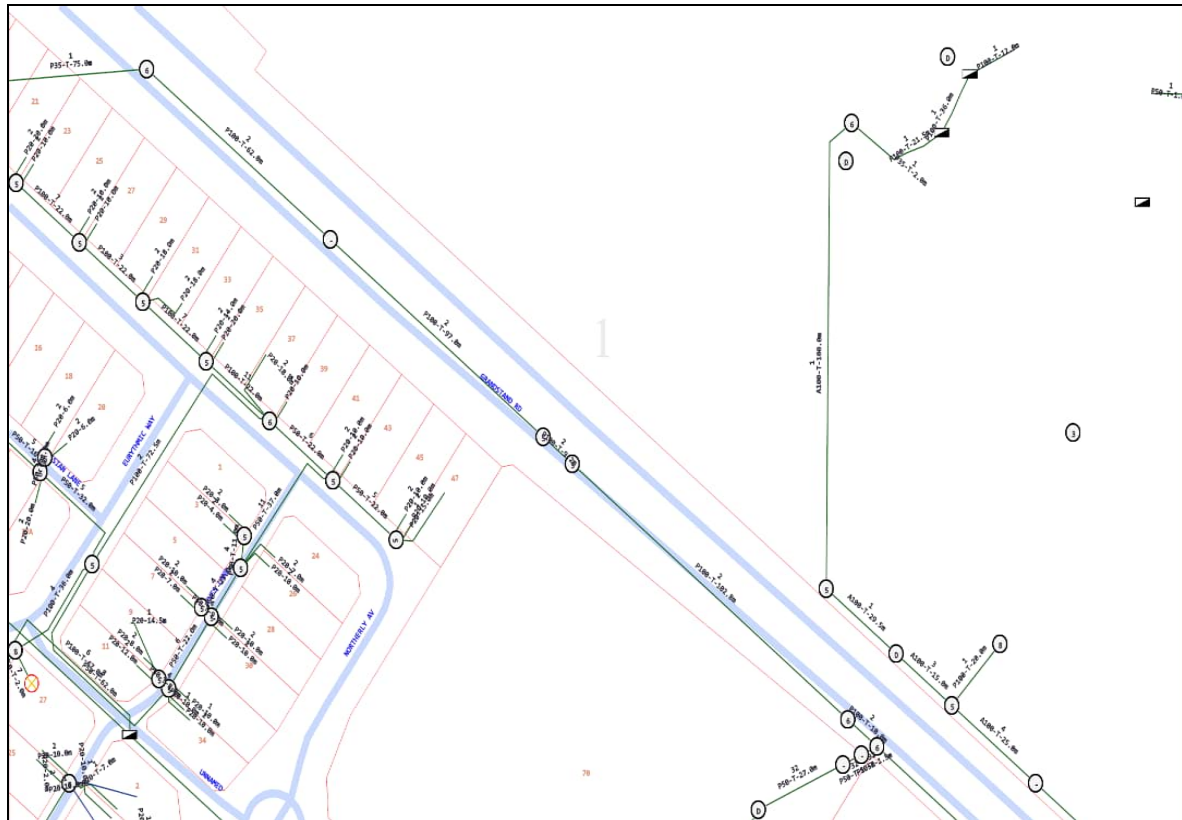
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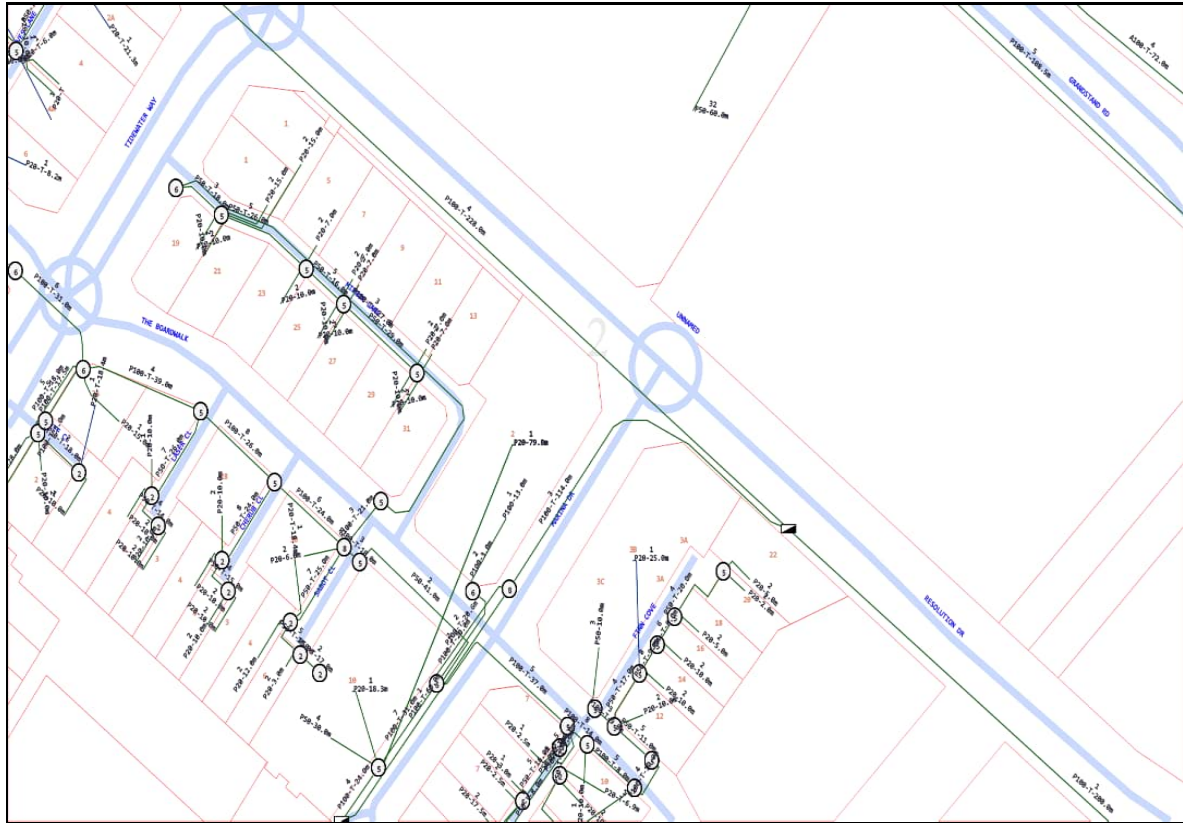
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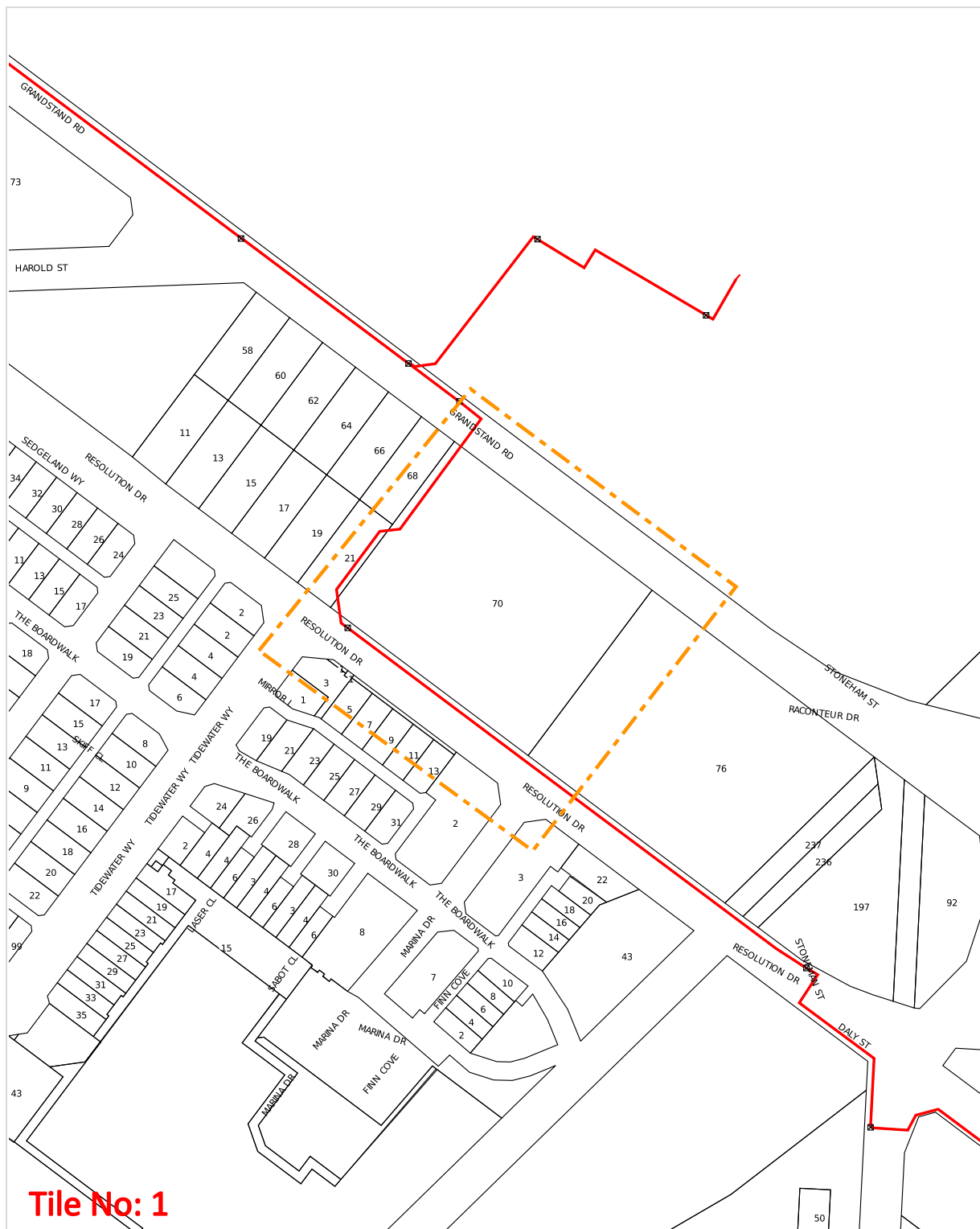
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Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.



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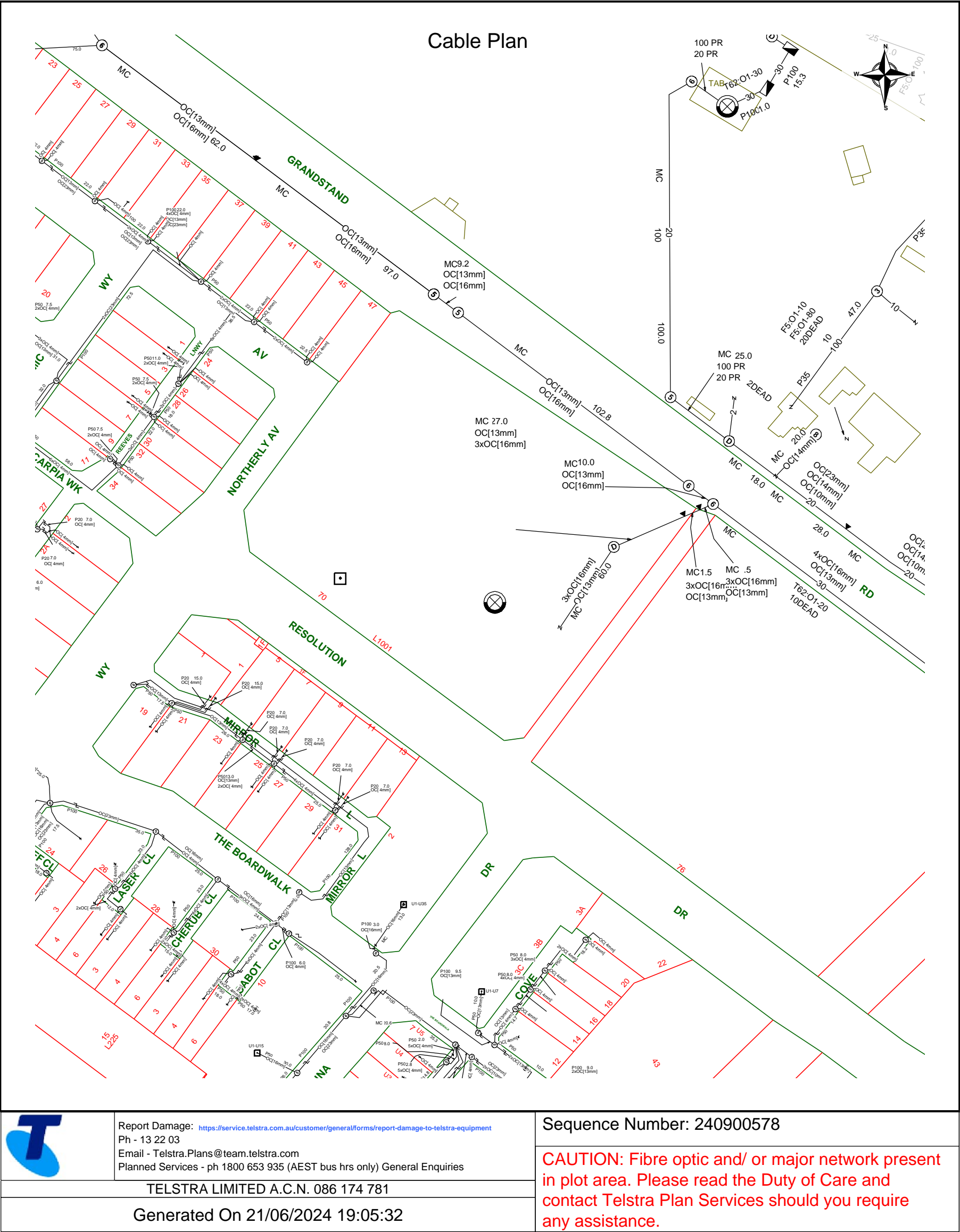
Date Generated: 21 Jun 2024



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208



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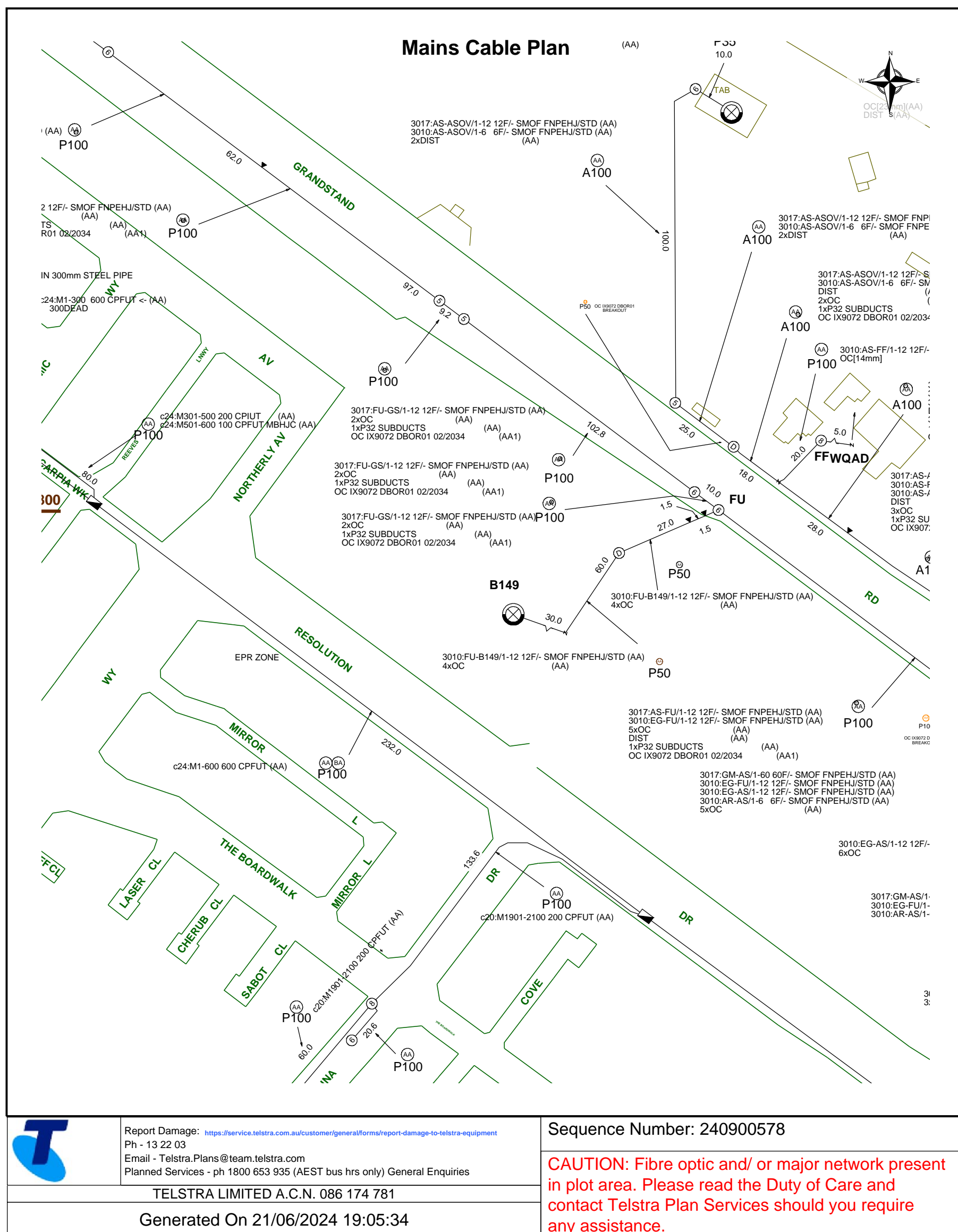


The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING

Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

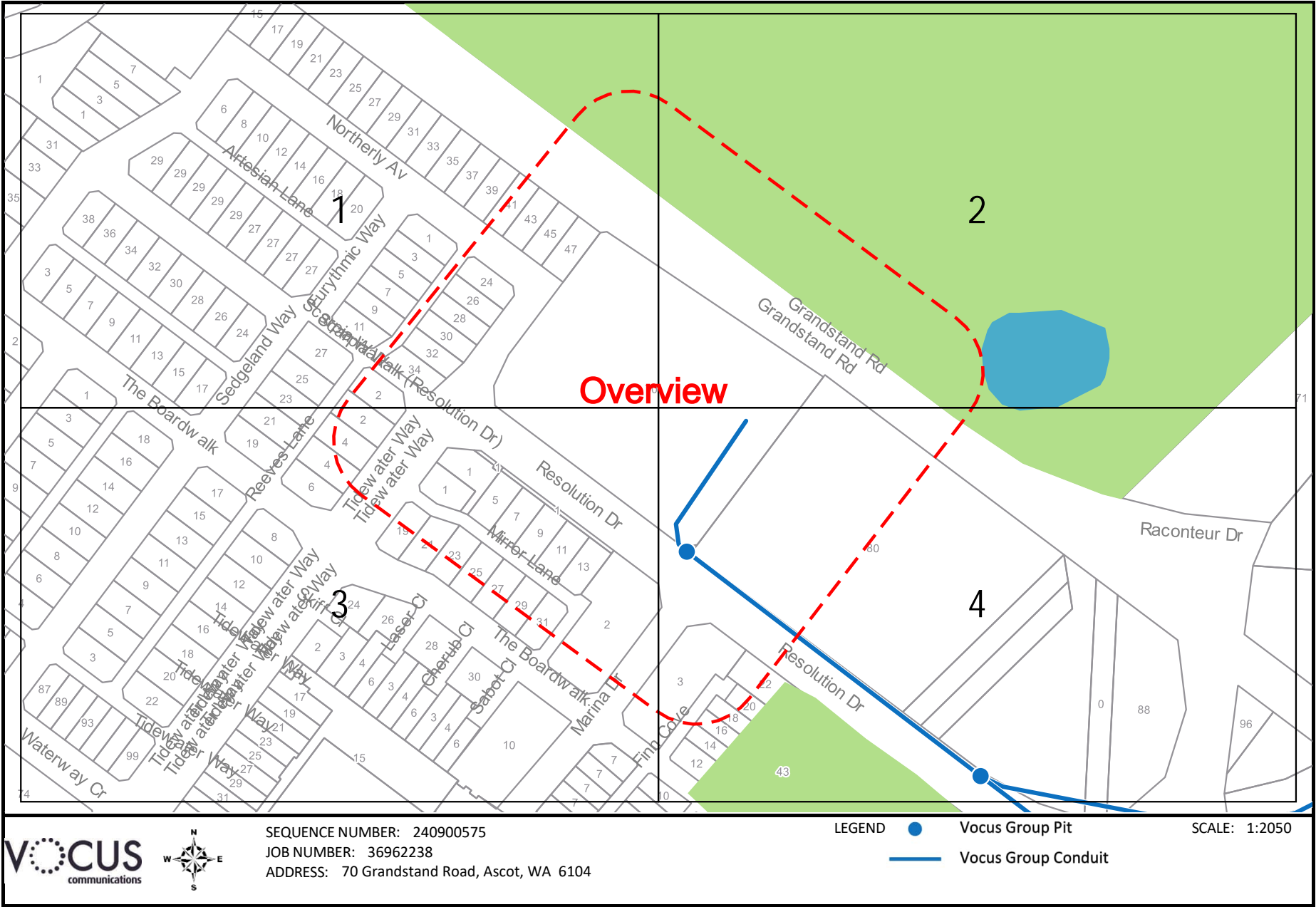
See the Steps- Telstra Duty of Care that was provided in the email response.



WARNING

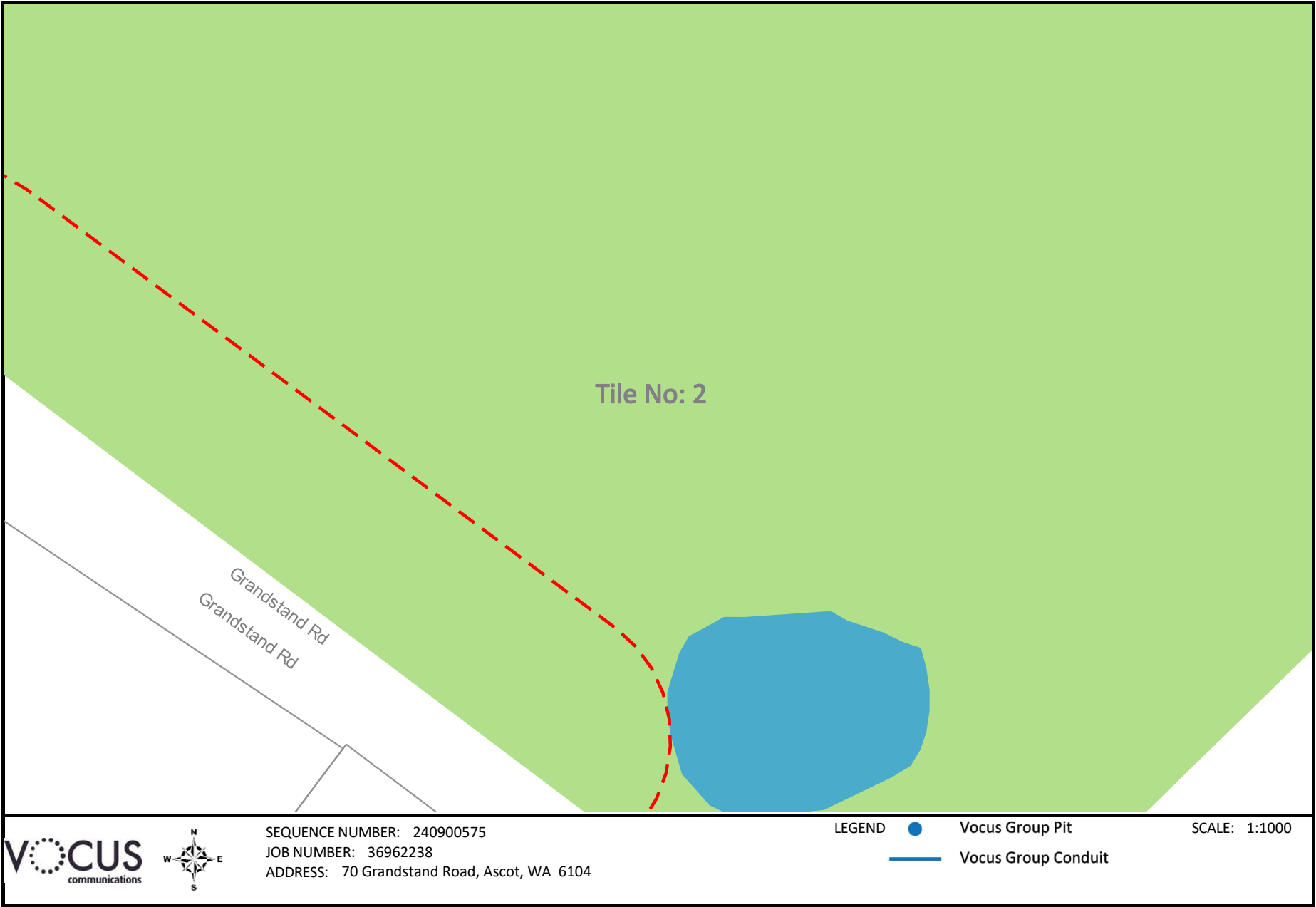
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.

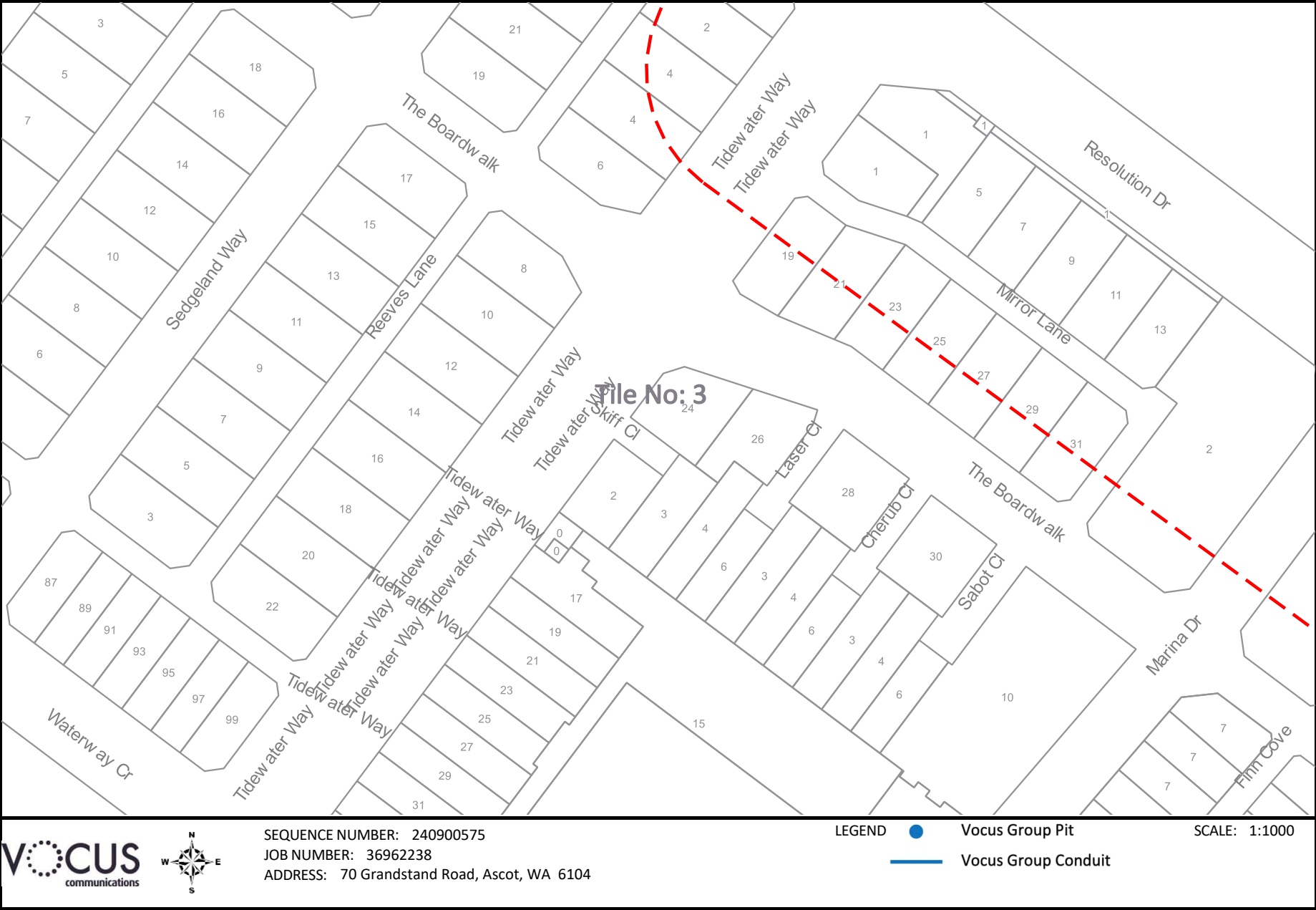


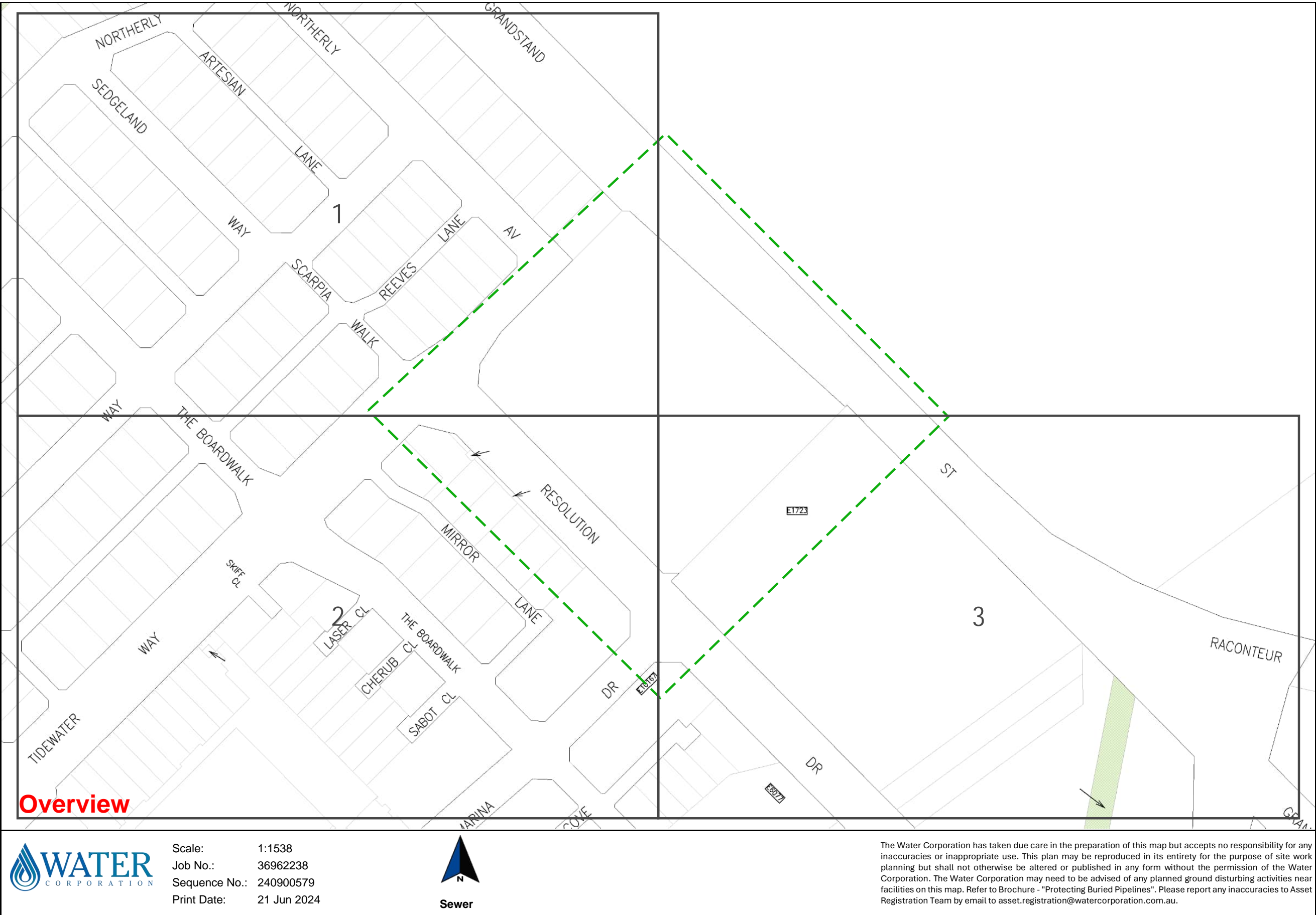
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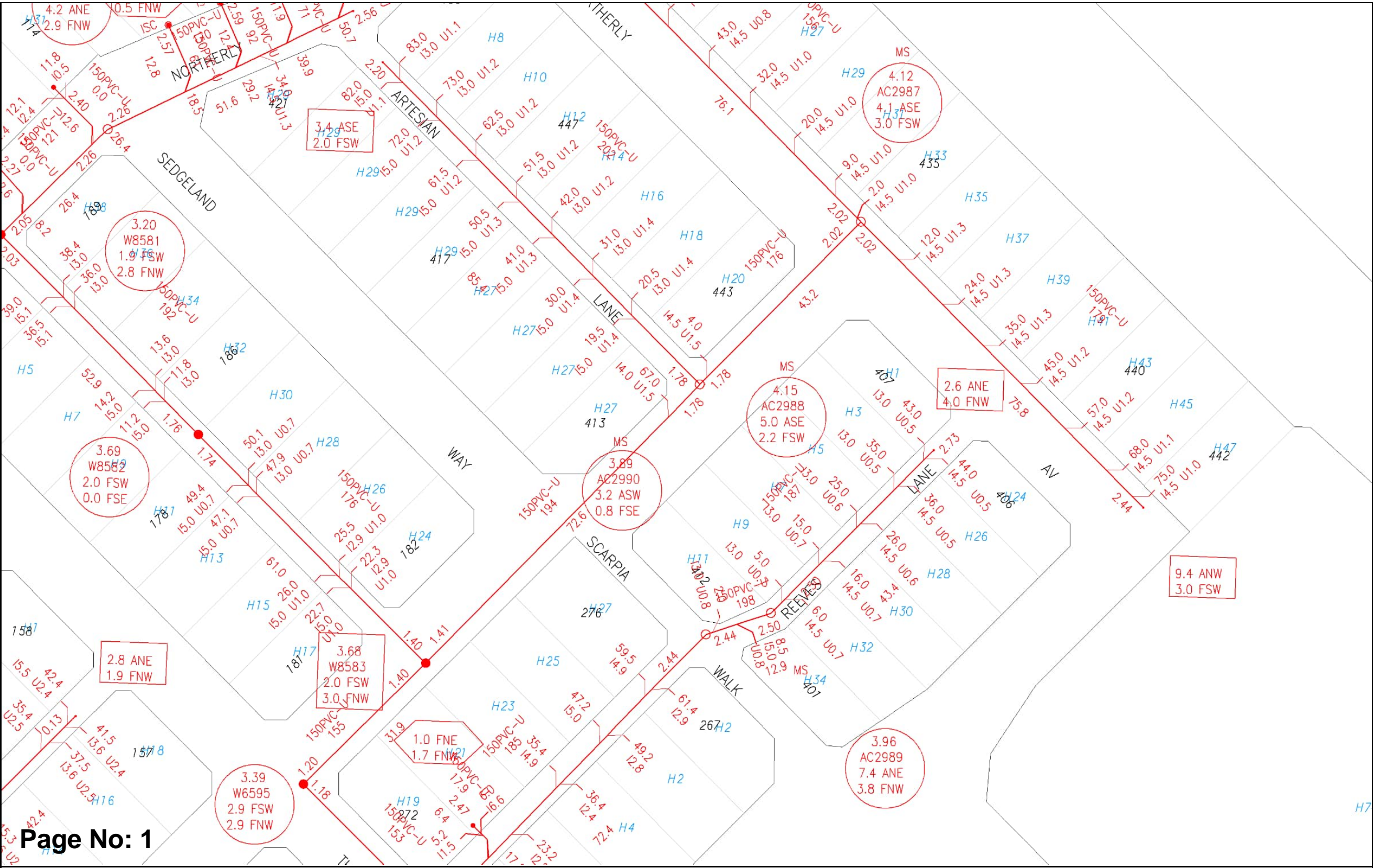




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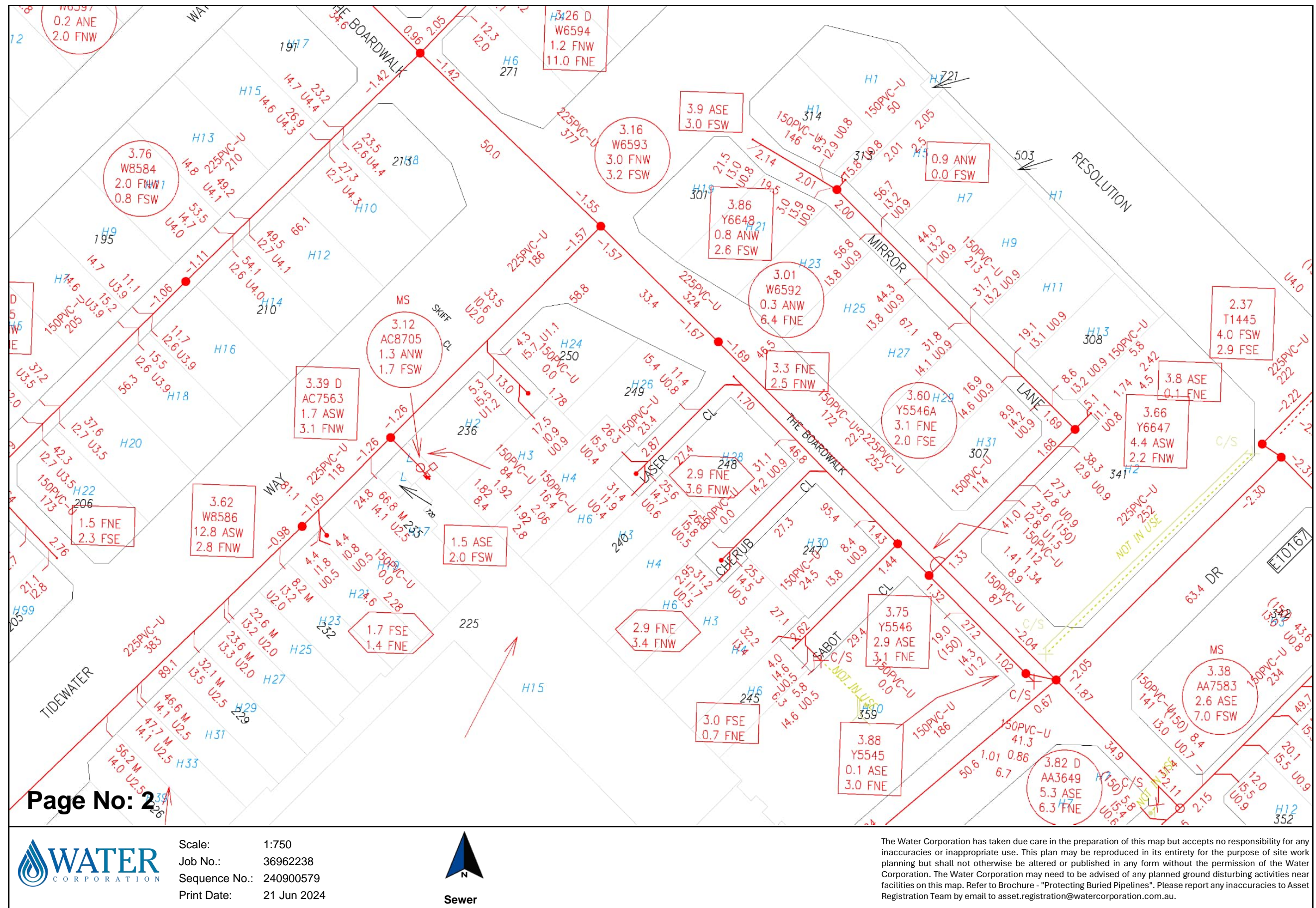


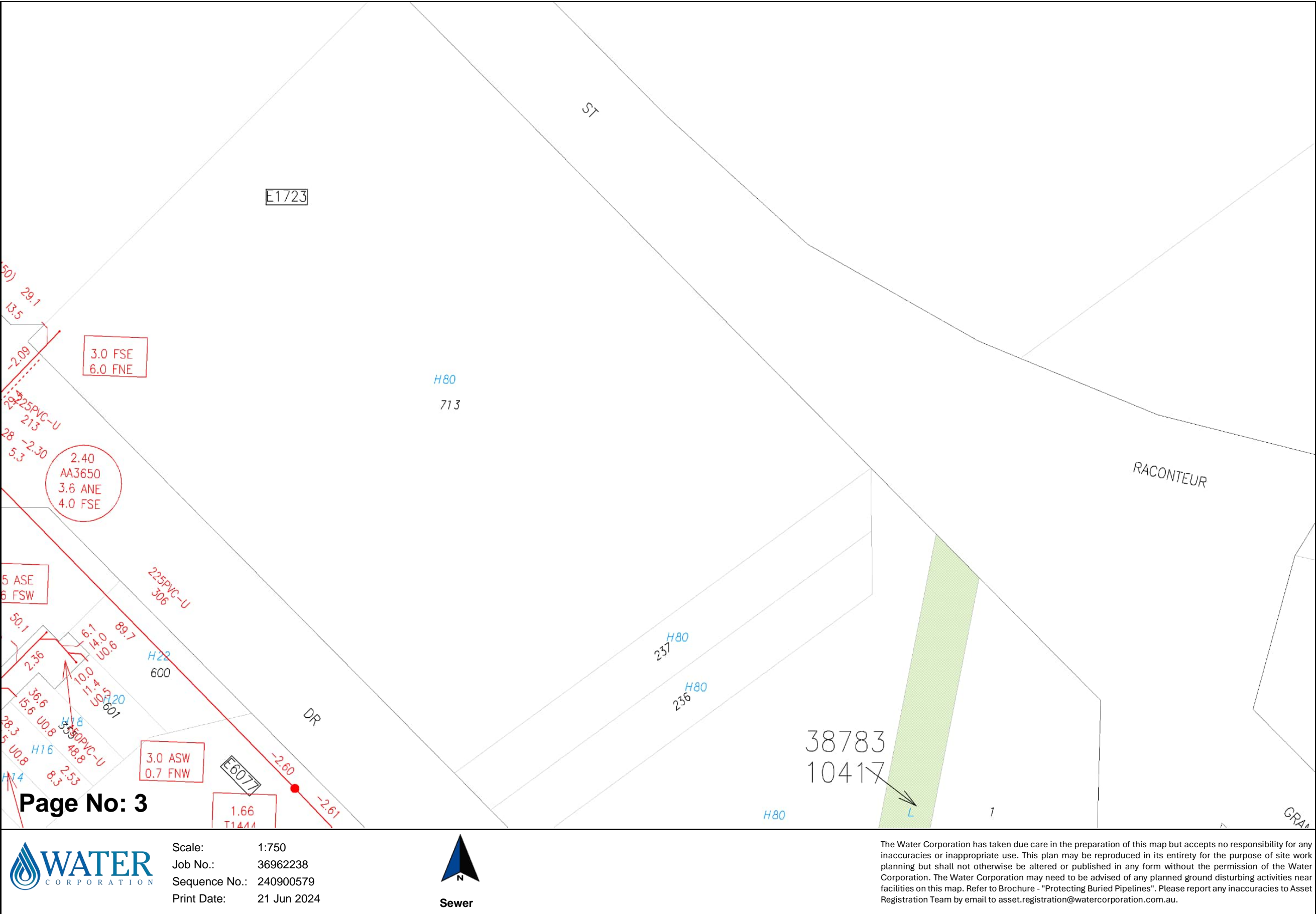
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Sequence No.:	240900579
Print Date:	21 Jun 2024

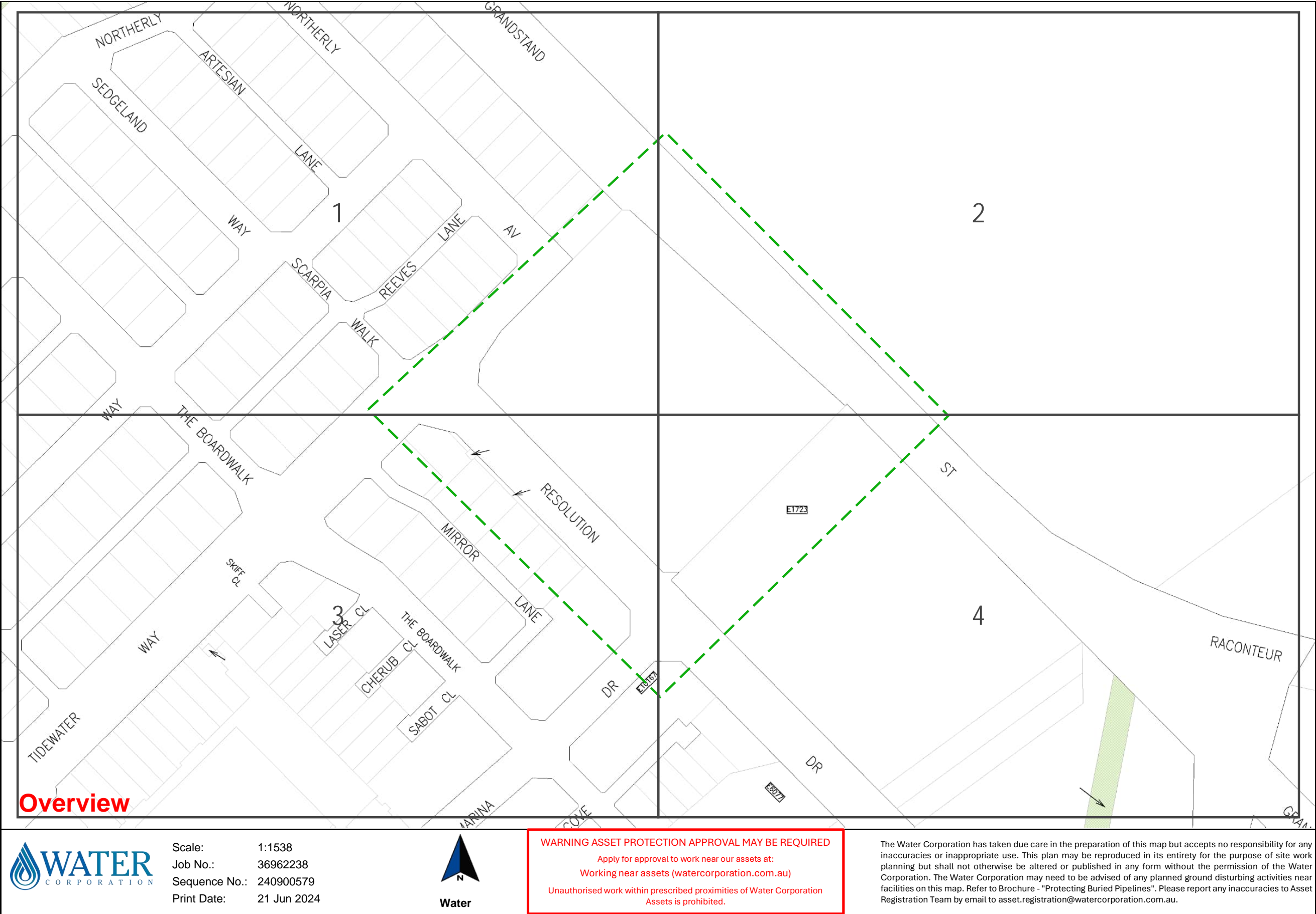


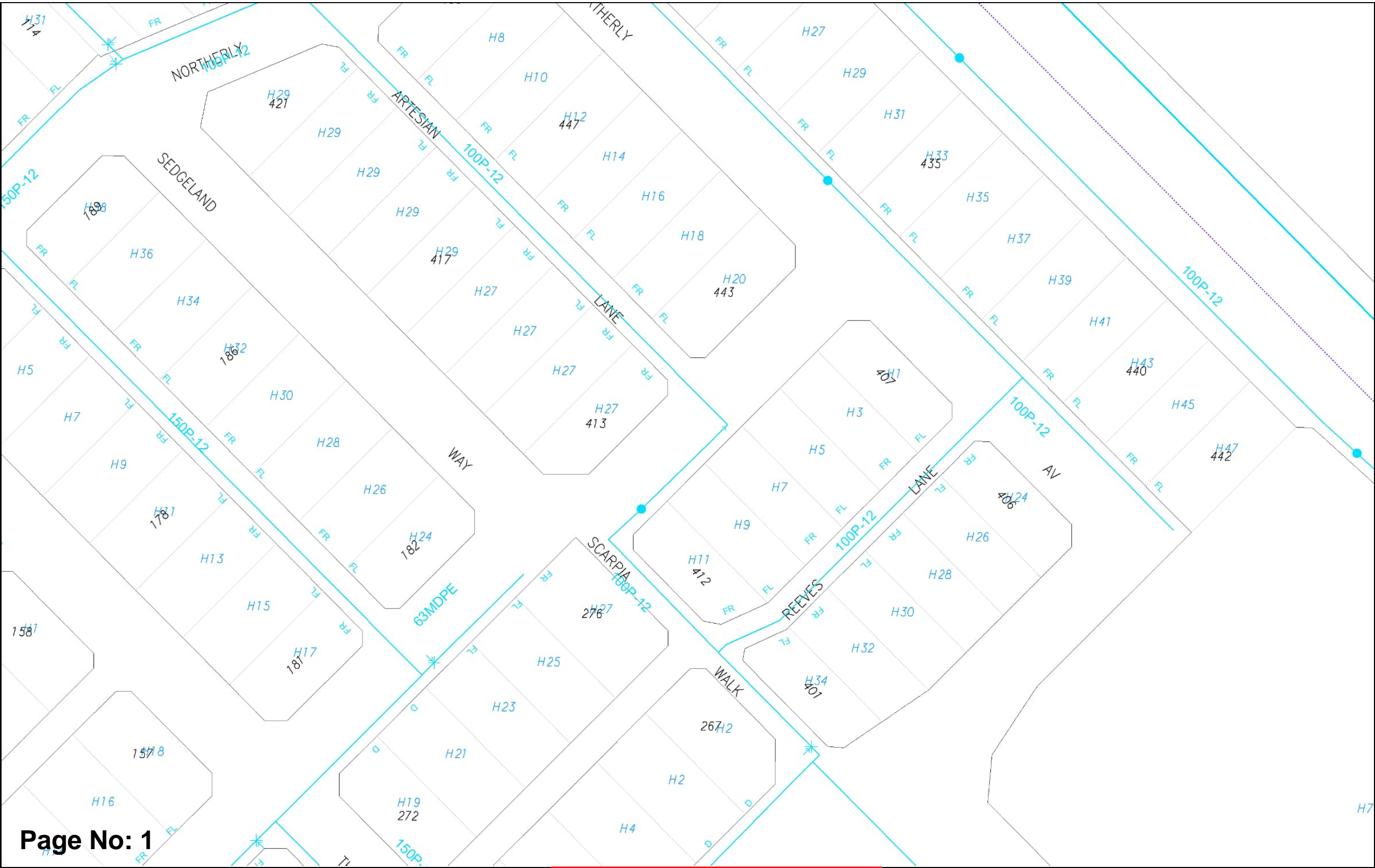
Sewer

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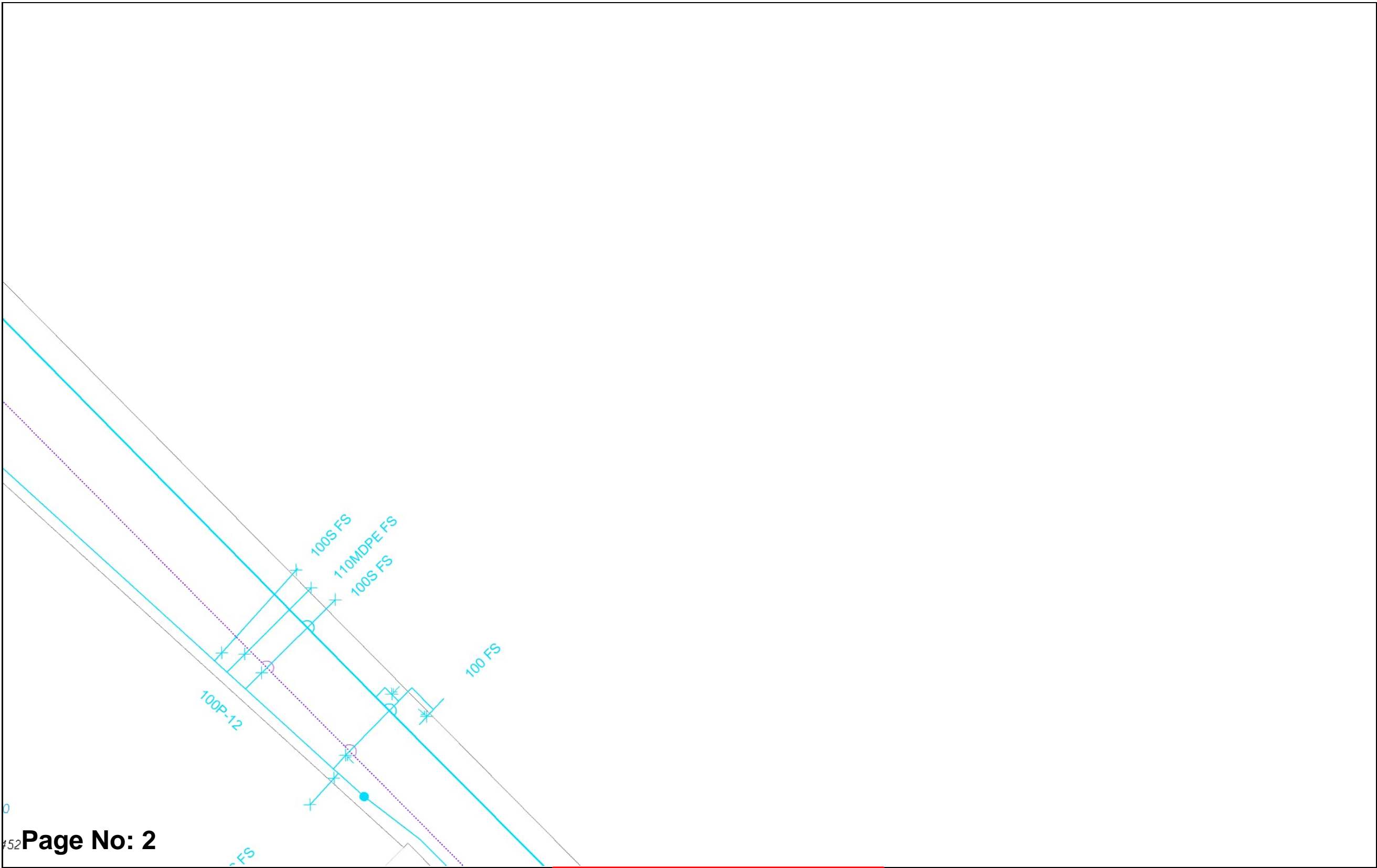






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	Sequence No.:	240900579
	Print Date:	21 Jun 2024
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	Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)	
	Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.	
	The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au .	





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Job No.: 36962238

Sequence No.: 240900579

Print Date: 21 Jun 2024



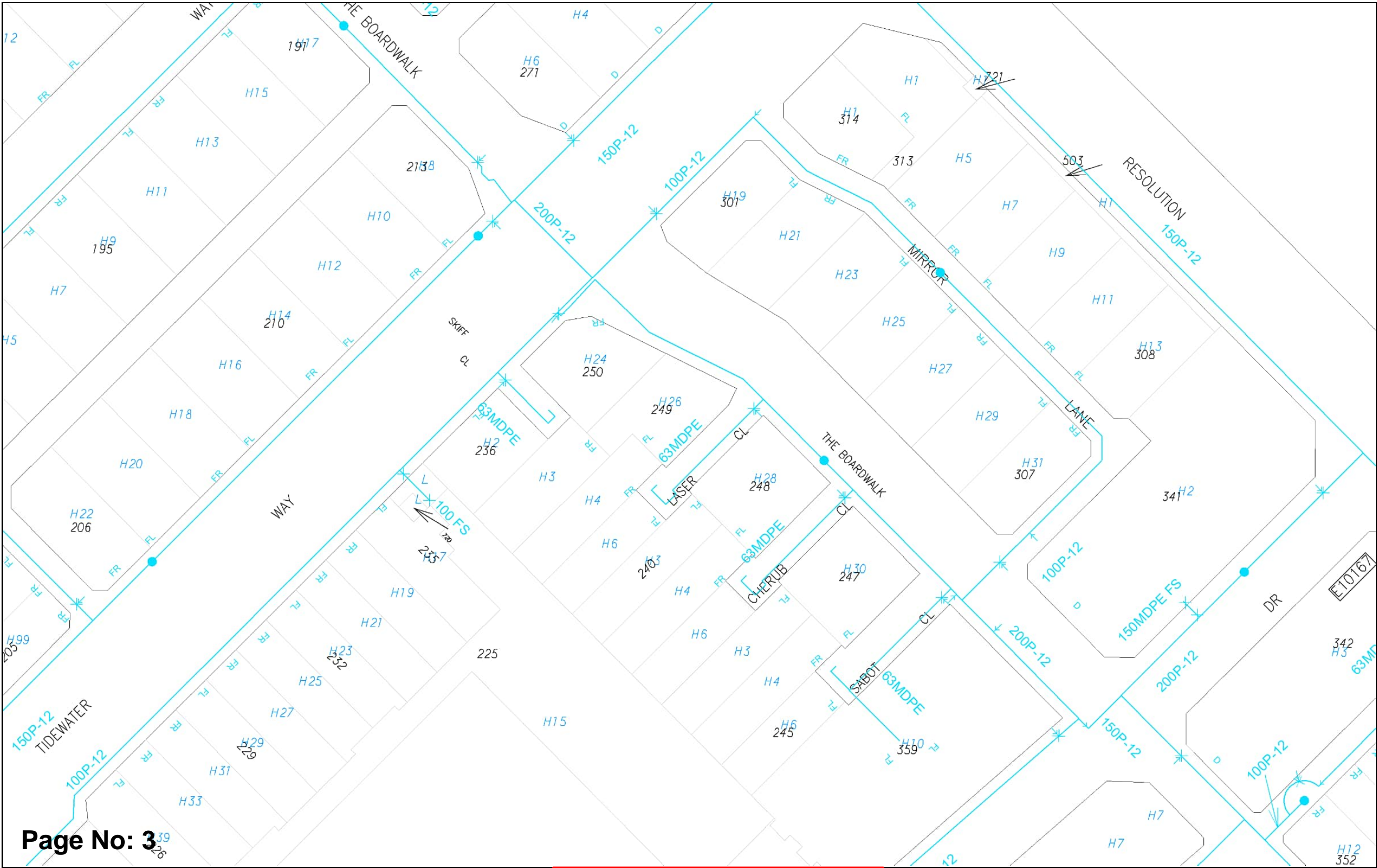
Water

WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED

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[Working near assets \(watercorporation.com.au\)](http://watercorporation.com.au)

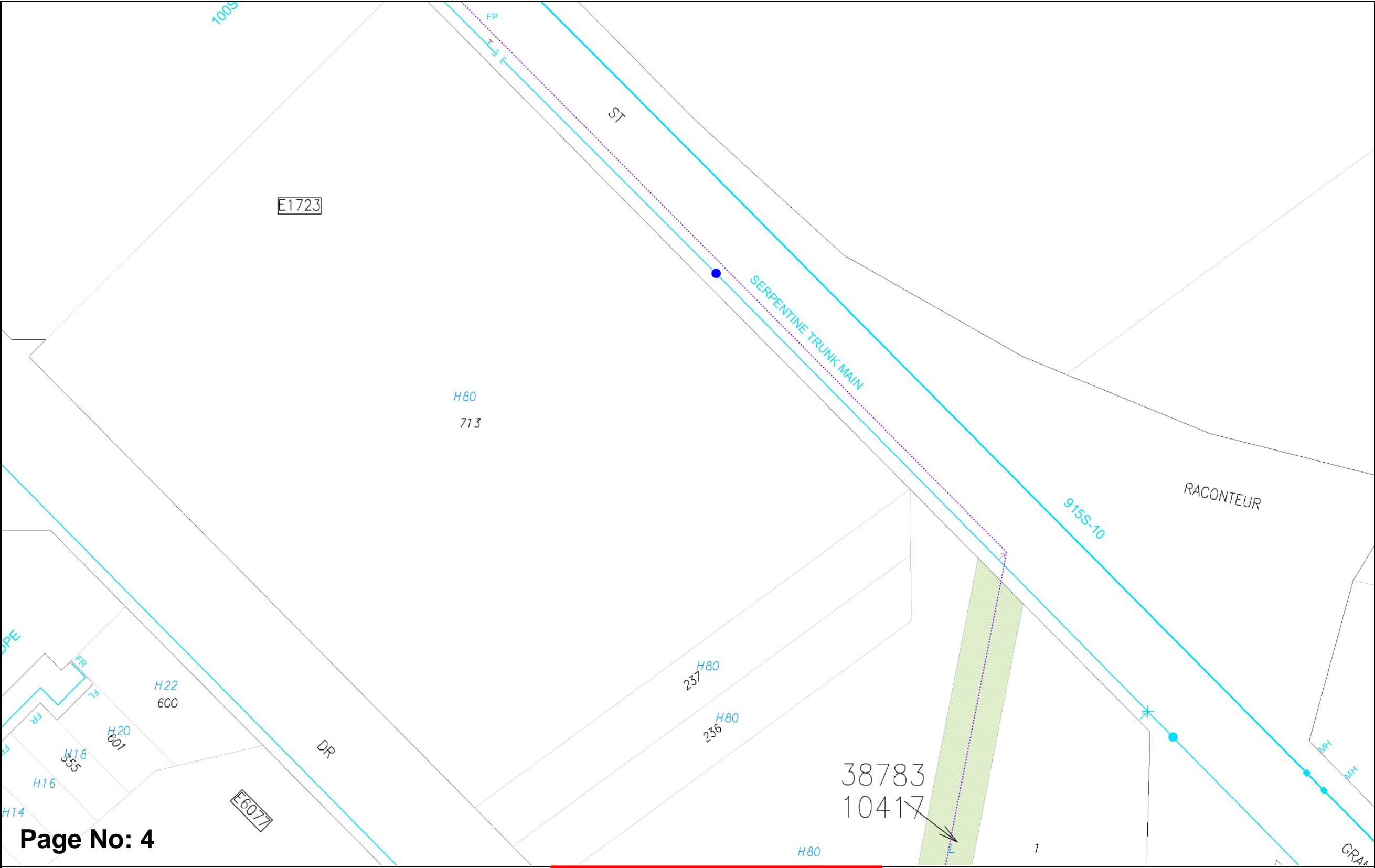
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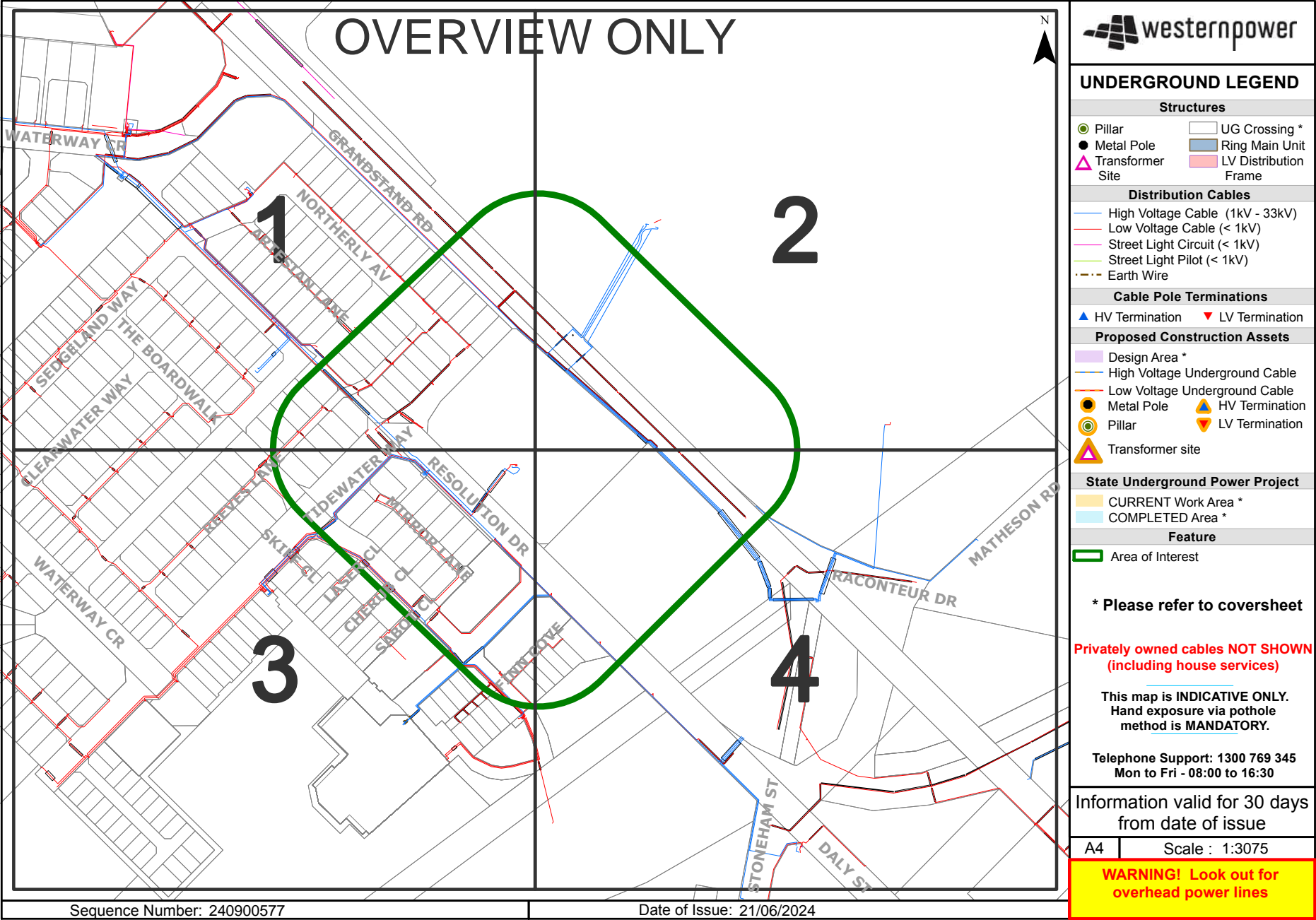
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	Sequence No.:	240900579			
	Print Date:	21 Jun 2024			



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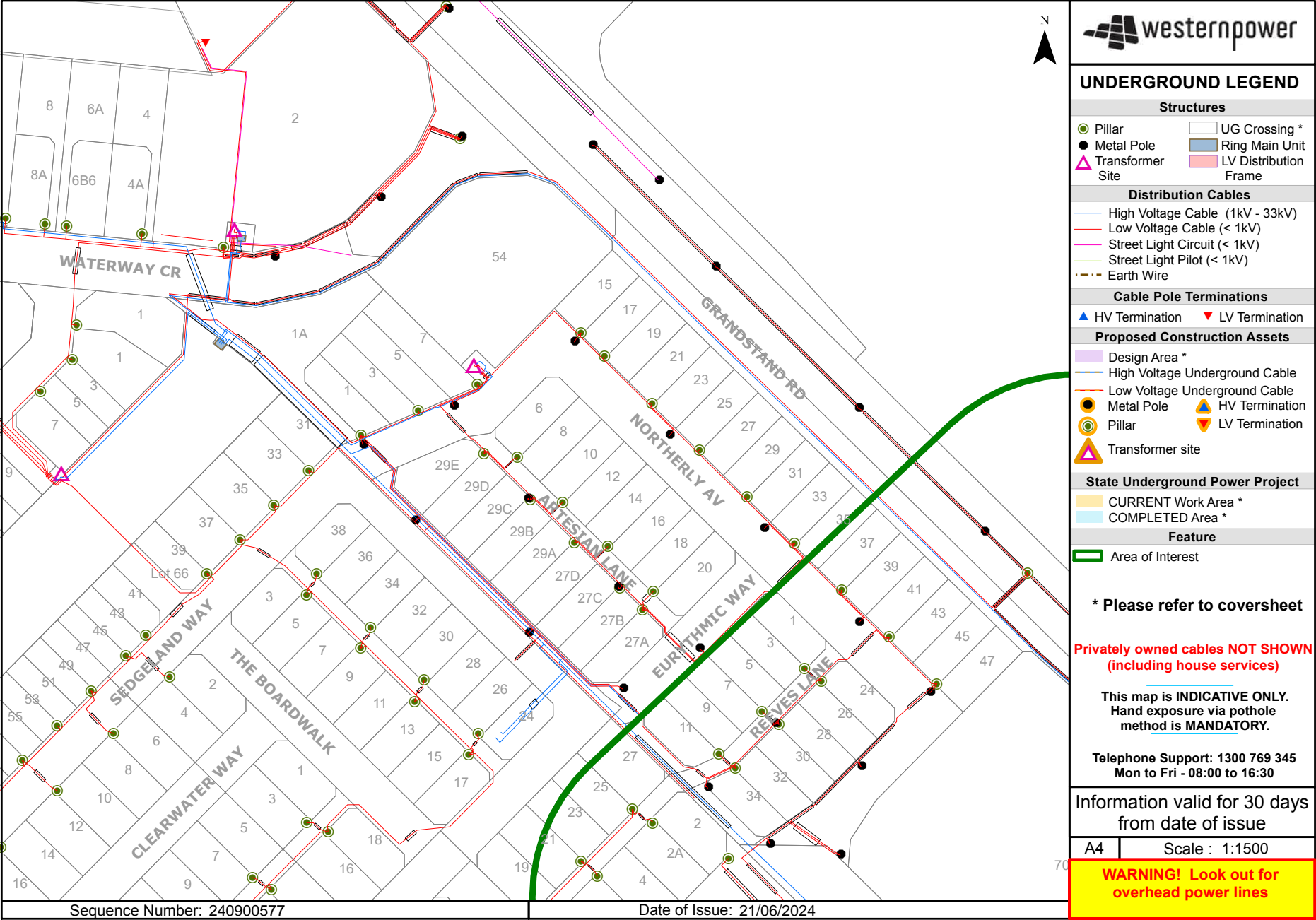
	Scale:	1:750	 Water	<div>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED Apply for approval to work near our assets at: Working near assets (watercorporation.com.au) Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</div>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
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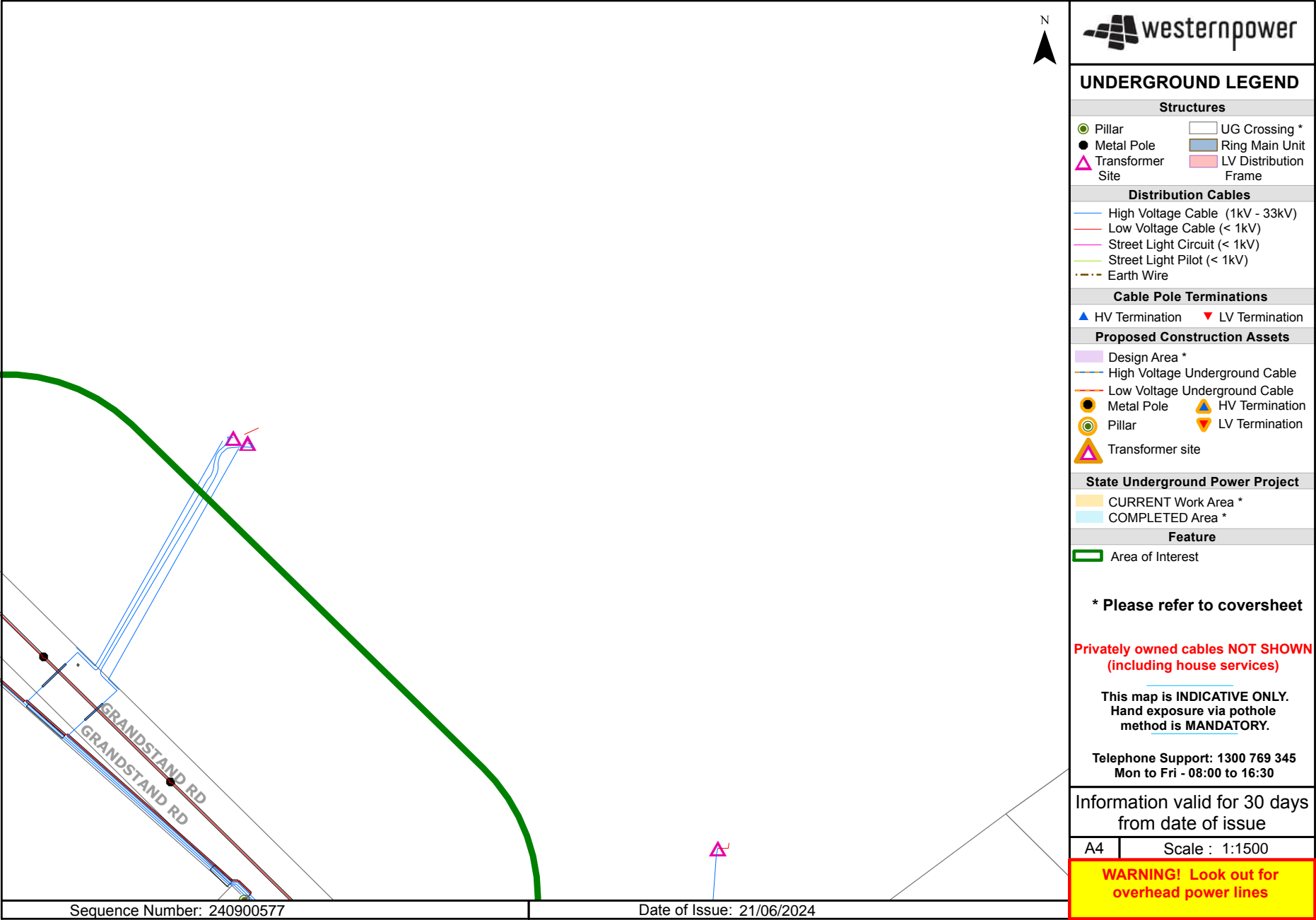


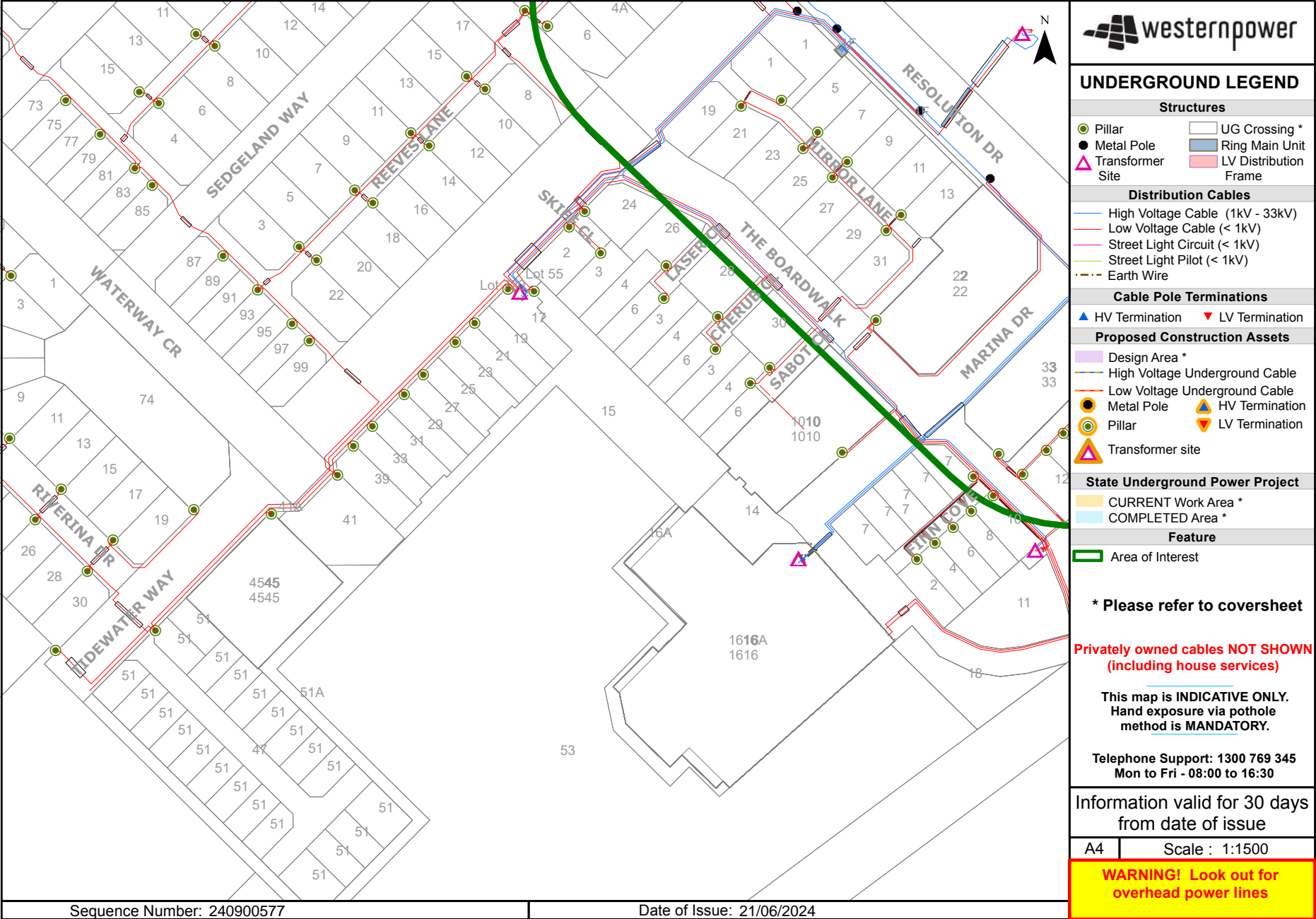
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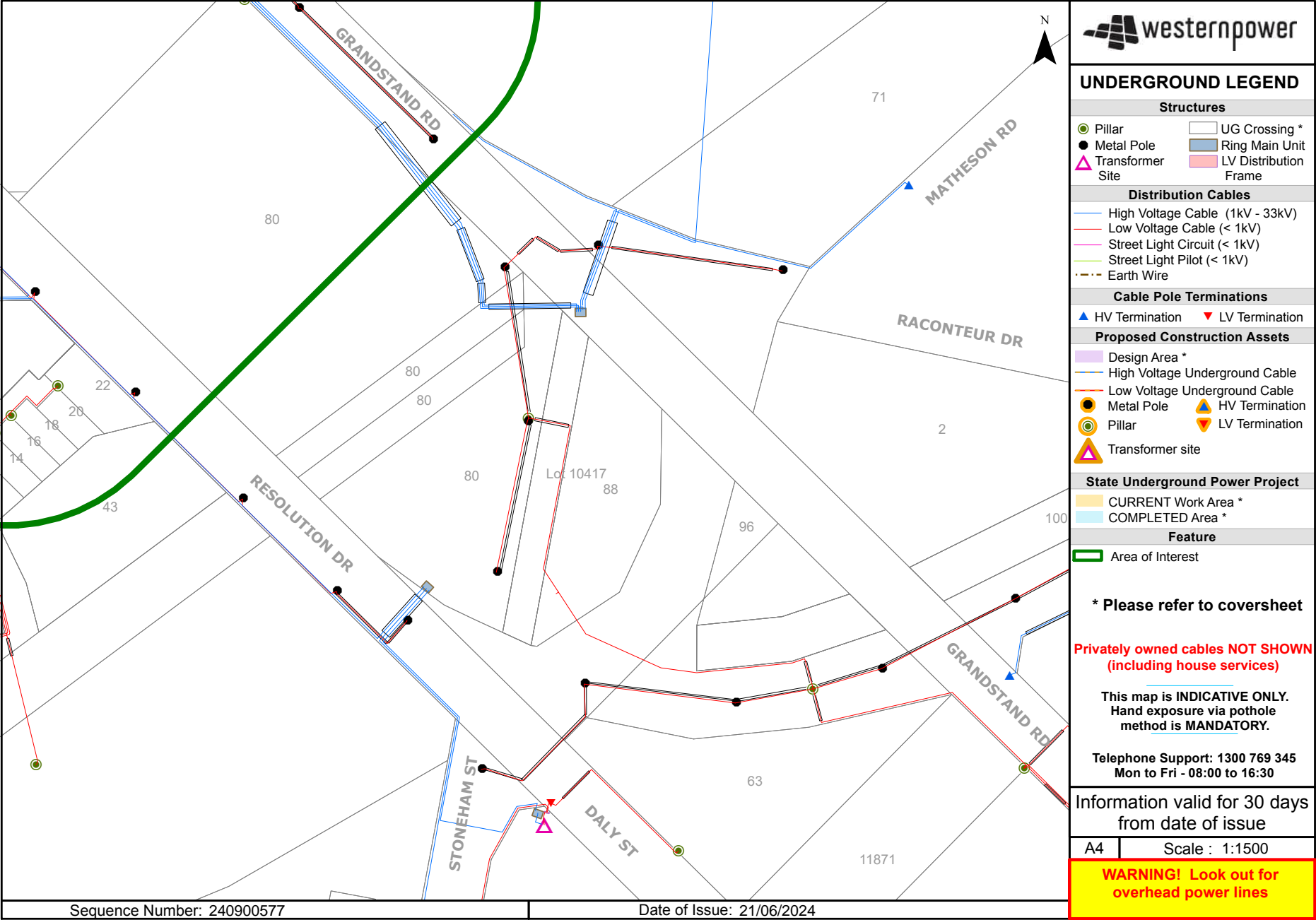
COMPLETED Area *

Area of Interest









Job ID 36962238

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Attachment 12.1.4 Engineering Servicing Report

Job No 36962250



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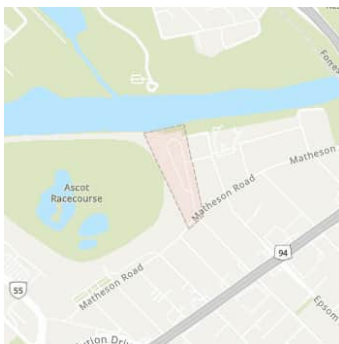
Contact Details

Contact	Contact number	Company	Enquirer ID
Justin Zielinski	0420 304 451	-	3140642
Email		Address	
jzielinski@tabec.com.au		54 Havelock Street West Perth WA 6005	

Job Site and Enquiry Details

WARNING: The map below only displays the location of the proposed job site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

Enquiry date	Start date	End date	On behalf of	Job purpose	Locations	Onsite activities
21/06/2024	24/06/2024	24/06/2024	Private	Design	Both Road	Planning & Design



Check that the location of the job site is correct. If not, you must submit a new enquiry.

If the scope of works change or plan validity dates expire, you must submit a new enquiry.

Do NOT dig without plans. Safe excavation is your responsibility. If you don't understand the plans or how to proceed safely, please contact the relevant asset owners.

User Reference	Address	Notes/description
Precinct C - 2	71 Matheson Road Ascot WA 6104	-

Your Responsibility and Duty of Care

- **Lodging an enquiry does not authorise project commencement.** Before starting work, you must obtain all necessary information from all affected asset owners.
- If you don't receive plans within 2 business days, contact the asset owner & quote their sequence number.
- Always follow the 5Ps of Safe Excavation (page 2), and locate assets before commencing work.
- Ensure you comply with State legislative requirements for Duty of Care and safe digging.
- If you damage an underground asset, you MUST advise the asset owner immediately.
- By using the BYDA service, you agree to the [Privacy Policy](#) and [Term of Use](#).
- For more information on safe digging practices, visit www.byda.com.au

Asset Owner Details

Below is a list of asset owners with underground infrastructure in and around your job site. It is your responsibility to identify the presence of these assets. Plans issued by Members are indicative only unless specified otherwise. Note: not all asset owners are registered with BYDA. You must contact asset owners not listed here directly.

Referral ID (Seq. no)	Authority Name	Phone	Status
240900653	ATCO Gas Australia	1300 926 755	NOTIFIED
240900649	NBN Co (WA)	1800 687 626	NOTIFIED
240900651	Telstra (WA)	1800 653 935	NOTIFIED
240900652	Water Corporation	13 13 95	NOTIFIED
240900650	Western Power	13 10 87	NOTIFIED

END OF UTILITIES LIST

Lodge your FREE enquiry online any time at byda.com.au

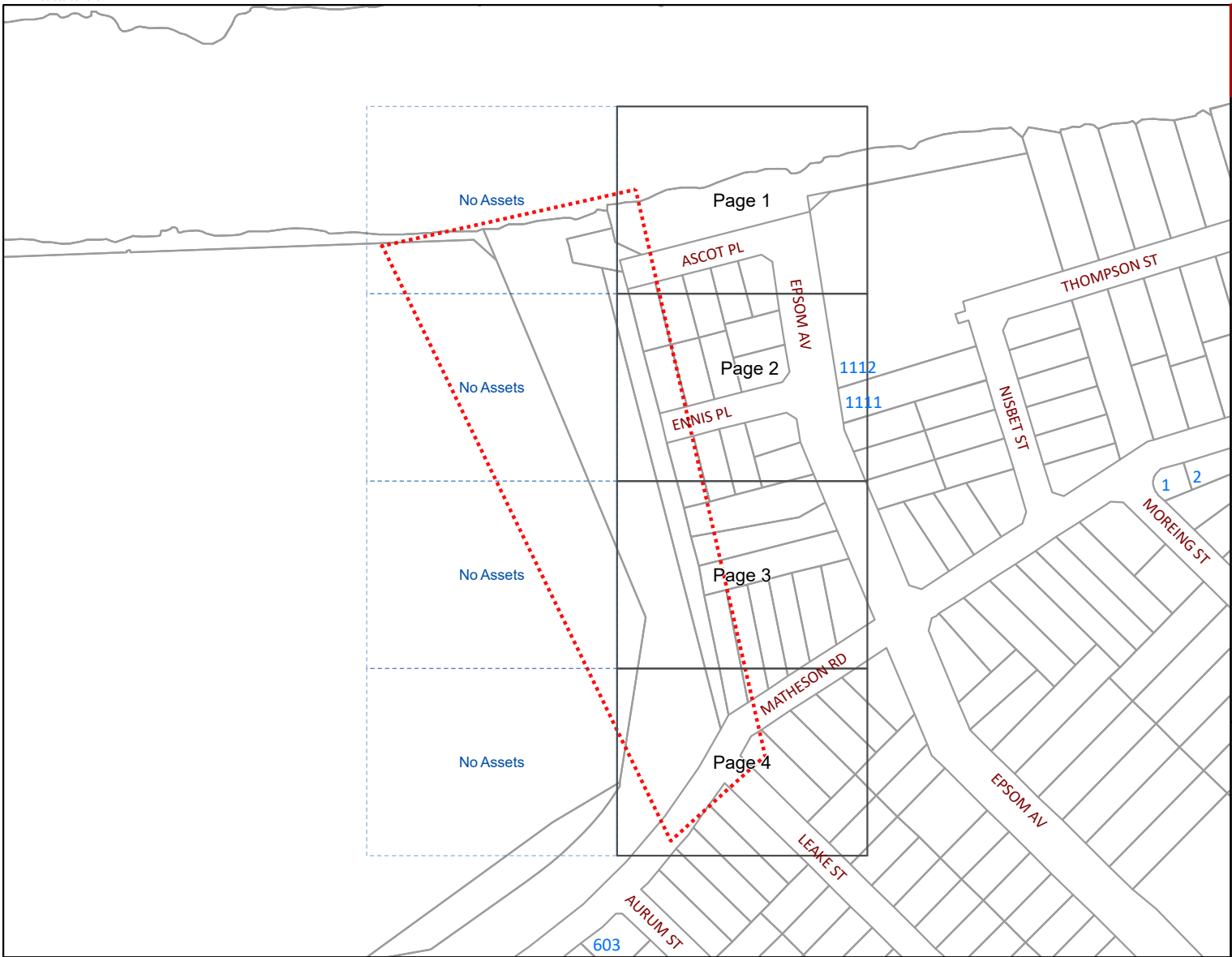
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)
Index Sheet

Seq # 240900653
Job # 36962250

BYDA Location: 71 Matheson Road Ascot 6104
Scale: 1:3,500



WARNING
Refer to Cover Sheet
for Further Information

BYDA Enquiry

Detailed map page

No dig site assets

Please refer to Symbols Sheet
for Further Information

Disclaimer:

Please read all **warnings**, conditions and information on the attached "Underground Asset Details" information sheet. This plan is issued subject to that information and those conditions and **warnings** (including, but not limited to, the "NO HOT WORKS" warning). Plans are current for only **30 days** from date of request, indicative only and not warranted to be accurate. It is your responsibility to carefully locate underground assets and follow safe work practises and procedures (eg pot-holing). ATCO Gas Australia will seek compensation for damage caused to assets.

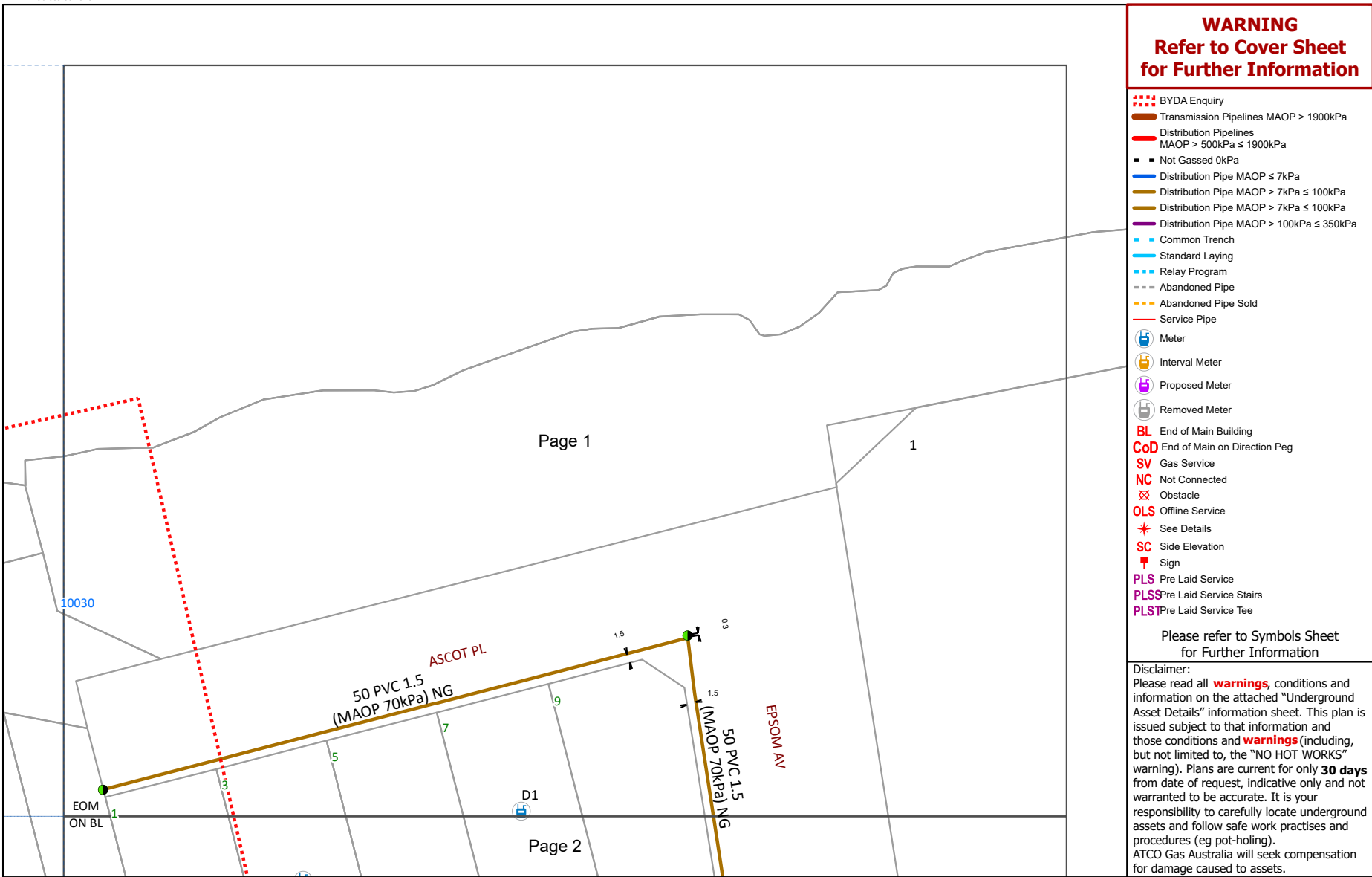
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Date: 21/06/24 (valid for 30 days)

Seq # 240900653
Job # 36962250

BYDA Location: 71 Matheson Road Ascot 6104
Scale: 1:800



WARNING
Refer to Cover Sheet for Further Information

- BYDA Enquiry
- Transmission Pipelines MAOP > 1900kPa
- Distribution Pipelines MAOP > 500kPa ≤ 1900kPa
- Not Gassed 0kPa
- Distribution Pipe MAOP ≤ 7kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 100kPa ≤ 350kPa
- Common Trench
- Standard Laying
- Relay Program
- Abandoned Pipe
- Abandoned Pipe Sold
- Service Pipe
- Meter
- Interval Meter
- Proposed Meter
- Removed Meter
- BL End of Main Building
- CoD End of Main on Direction Peg
- SV Gas Service
- NC Not Connected
- Obstacle
- OLS Offline Service
- See Details
- SC Side Elevation
- Sign
- PLS Pre Laid Service
- PLSS Pre Laid Service Stairs
- PLST Pre Laid Service Tee

Please refer to Symbols Sheet for Further Information

Disclaimer:
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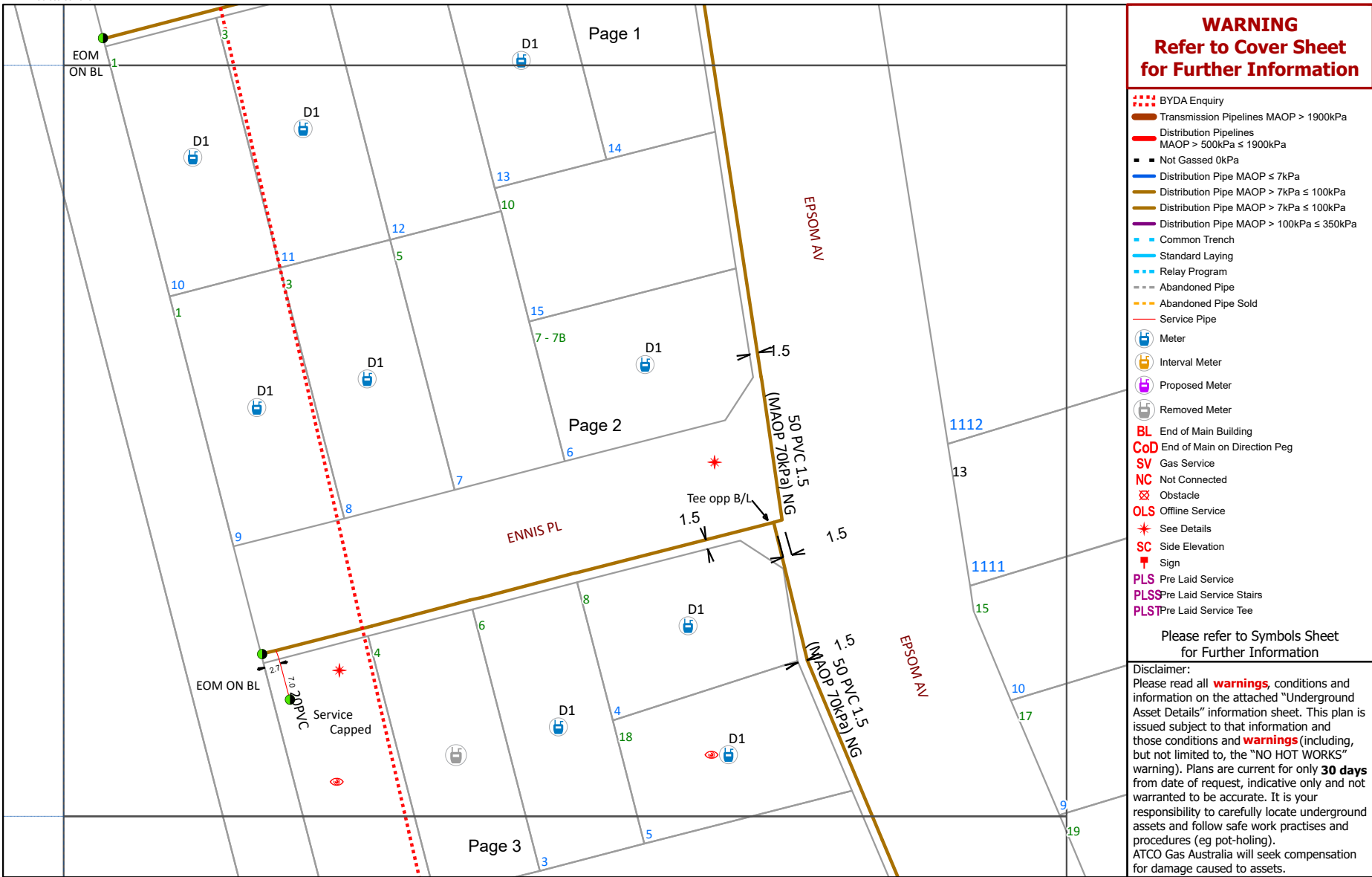
Plans generated by SmarterWX™ Automate



Date: 21/06/24 (valid for 30 days)

Seq # 240900653
Job # 36962250

BYDA Location: 71 Matheson Road Ascot 6104
Scale: 1:800



WARNING
Refer to Cover Sheet
for Further Information

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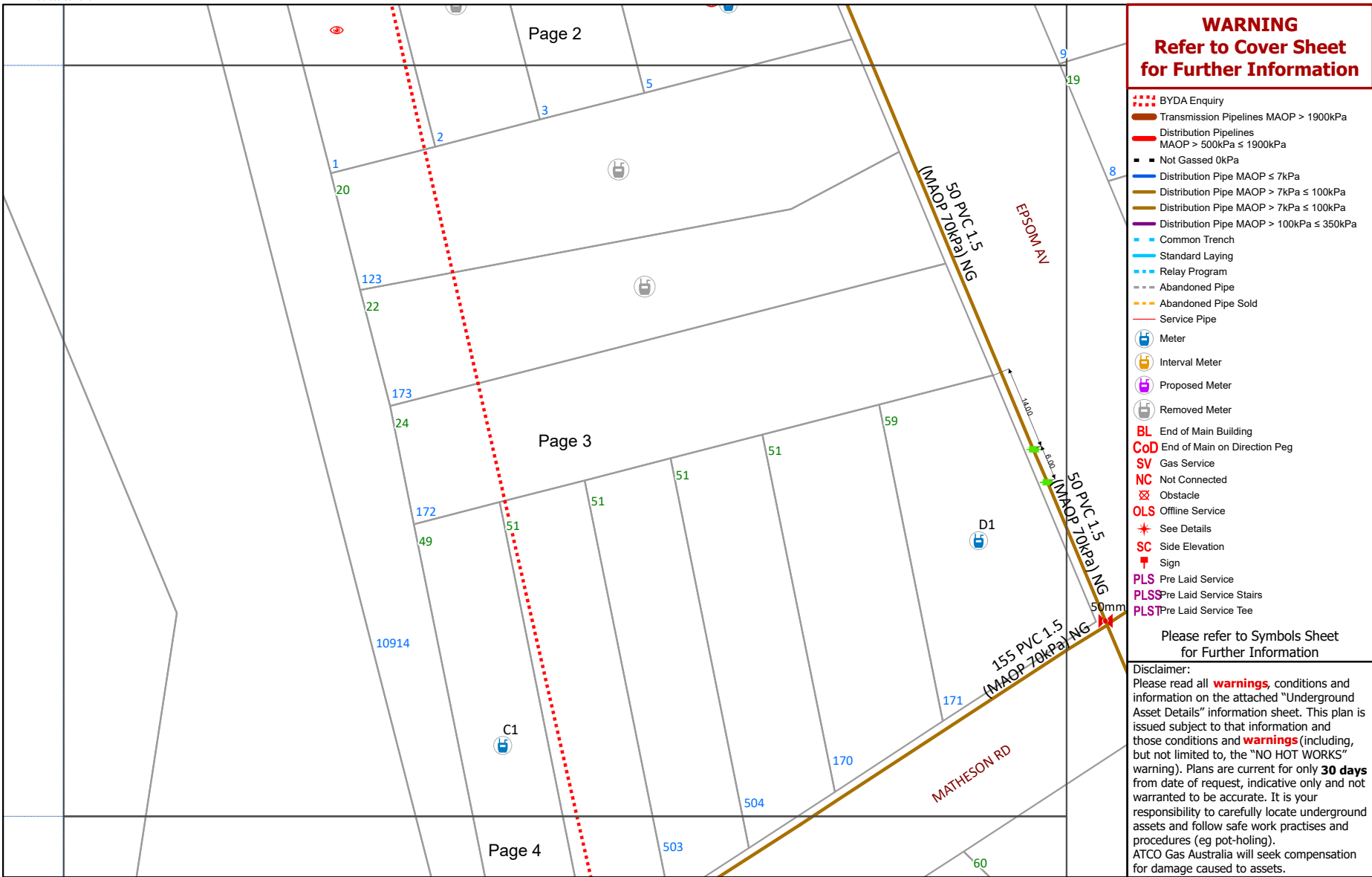
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)

Seq # 240900653
Job # 36962250

BYDA Location: 71 Matheson Road Ascot 6104
Scale: 1:800



WARNING
Refer to Cover Sheet
for Further Information

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- Transmission Pipelines MAOP > 1900kPa
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Please refer to Symbols Sheet
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Plans generated by SmarterWX™ Automate

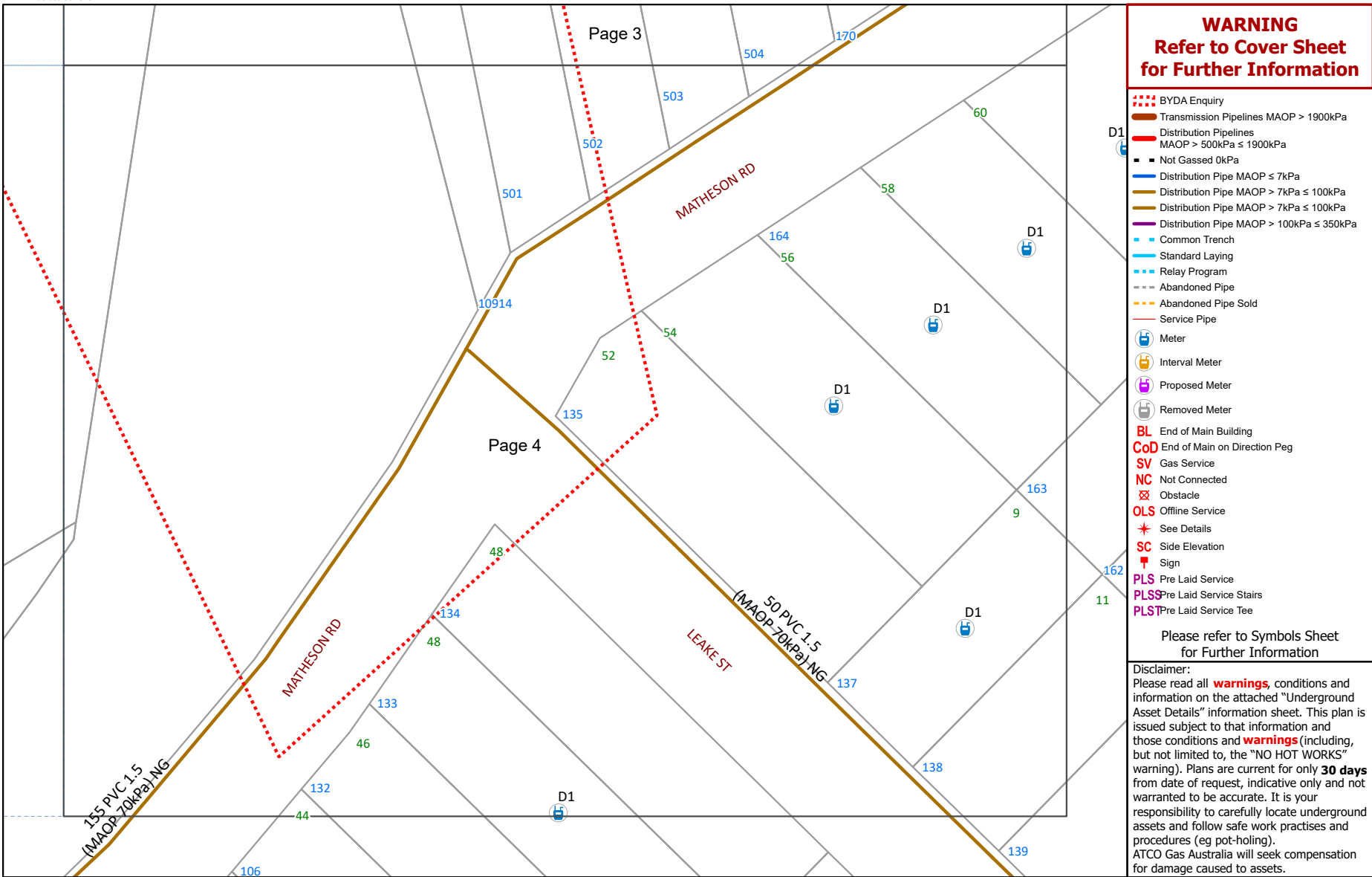
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Date: 21/06/24 (valid for 30 days)

Seq # 240900653
Job # 36962250

BYDA Location: 71 Matheson Road Ascot 6104
Scale: 1:800



WARNING
Refer to Cover Sheet
for Further Information

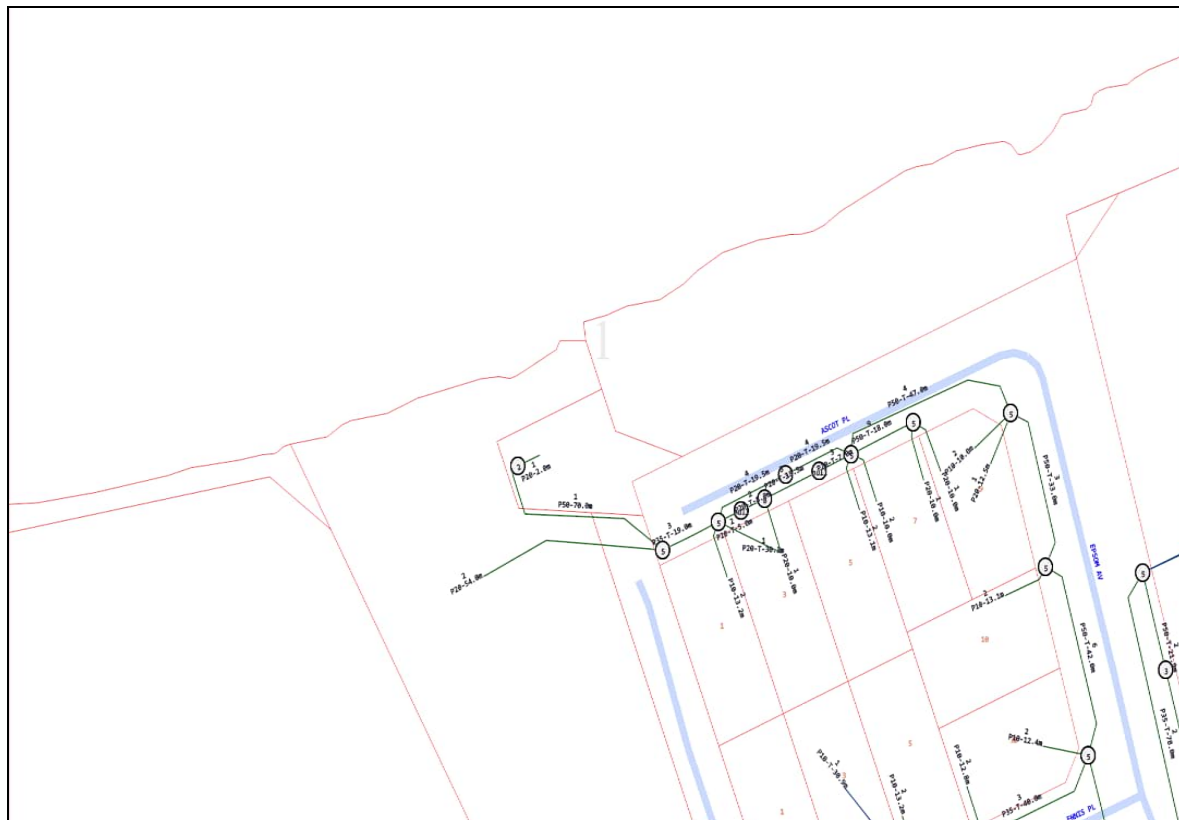
- BYDA Enquiry
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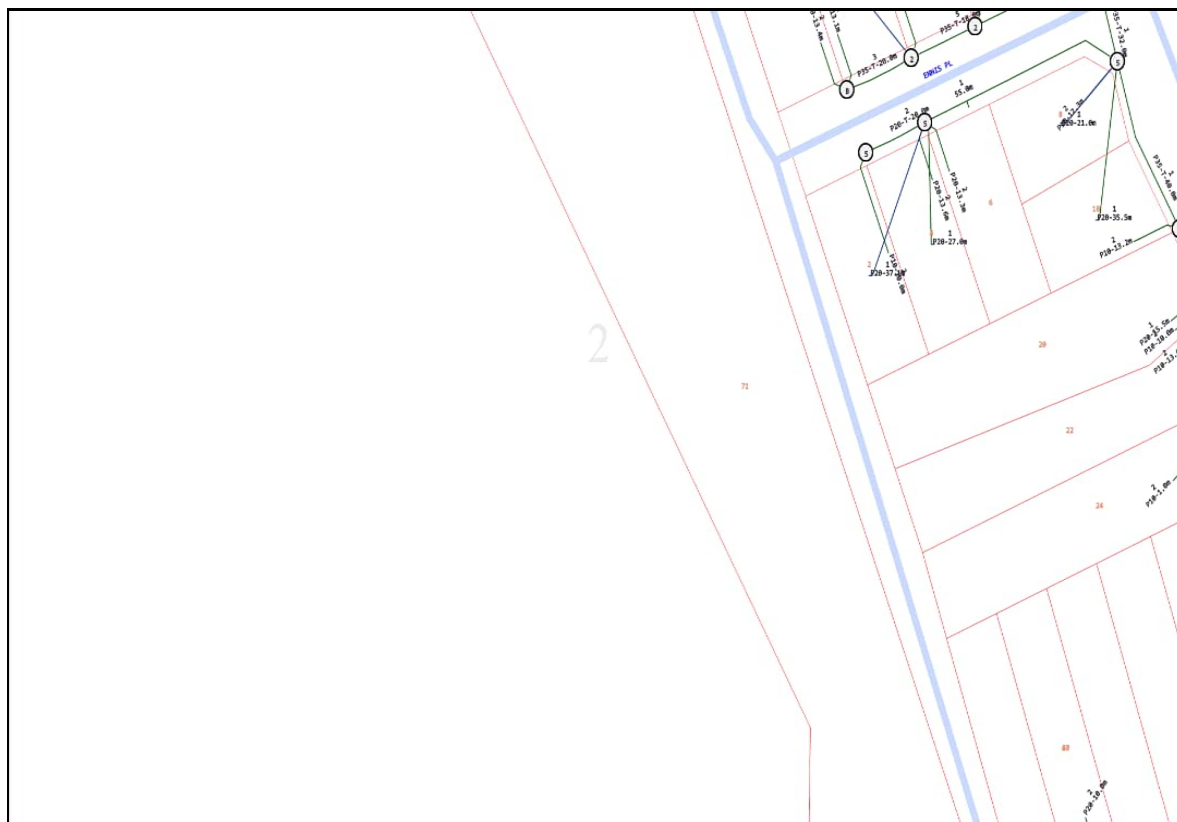
Please refer to Symbols Sheet
for Further Information

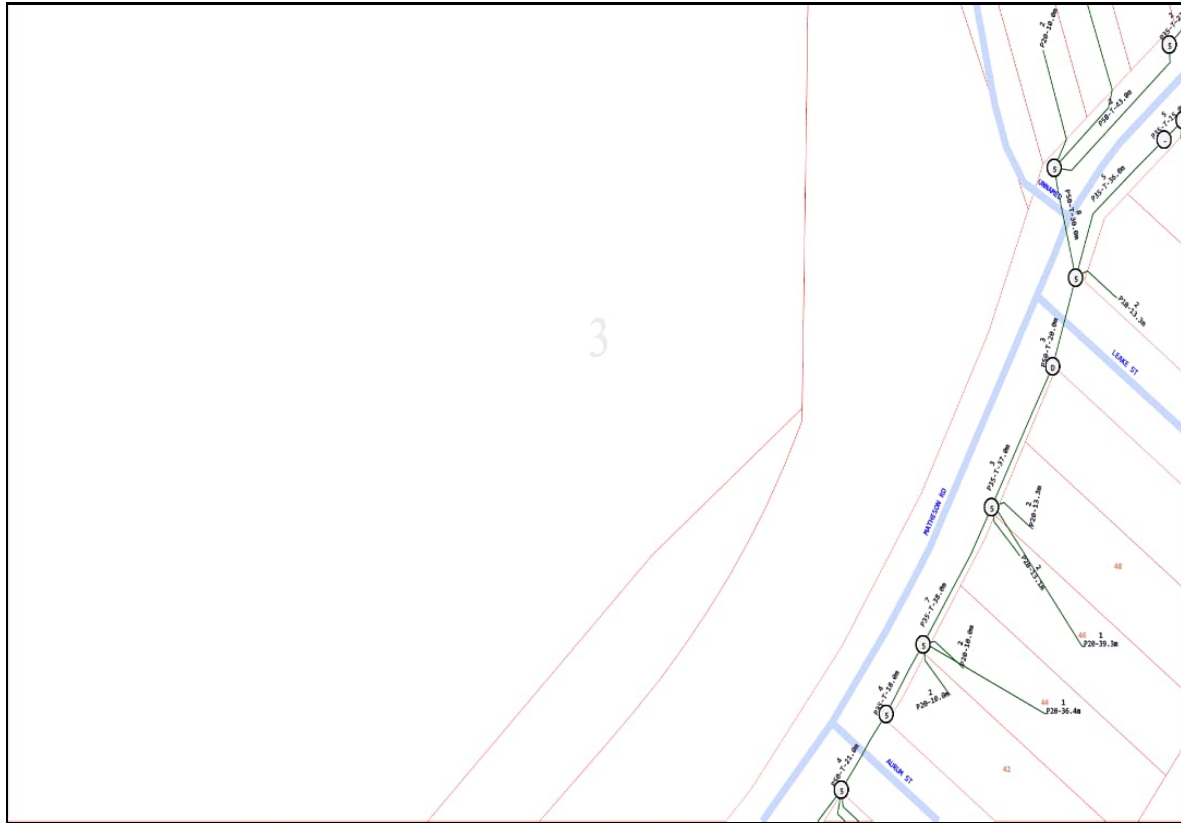
Disclaimer:
Please read all **warnings**, conditions and information on the attached "Underground Asset Details" information sheet. This plan is issued subject to that information and those conditions and **warnings** (including, but not limited to, the "NO HOT WORKS" warning). Plans are current for only **30 days** from date of request, indicative only and not warranted to be accurate. It is your responsibility to carefully locate underground assets and follow safe work practises and procedures (eg pot-holing). ATCO Gas Australia will seek compensation for damage caused to assets.

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Plans generated by SmarterWX™ Automate

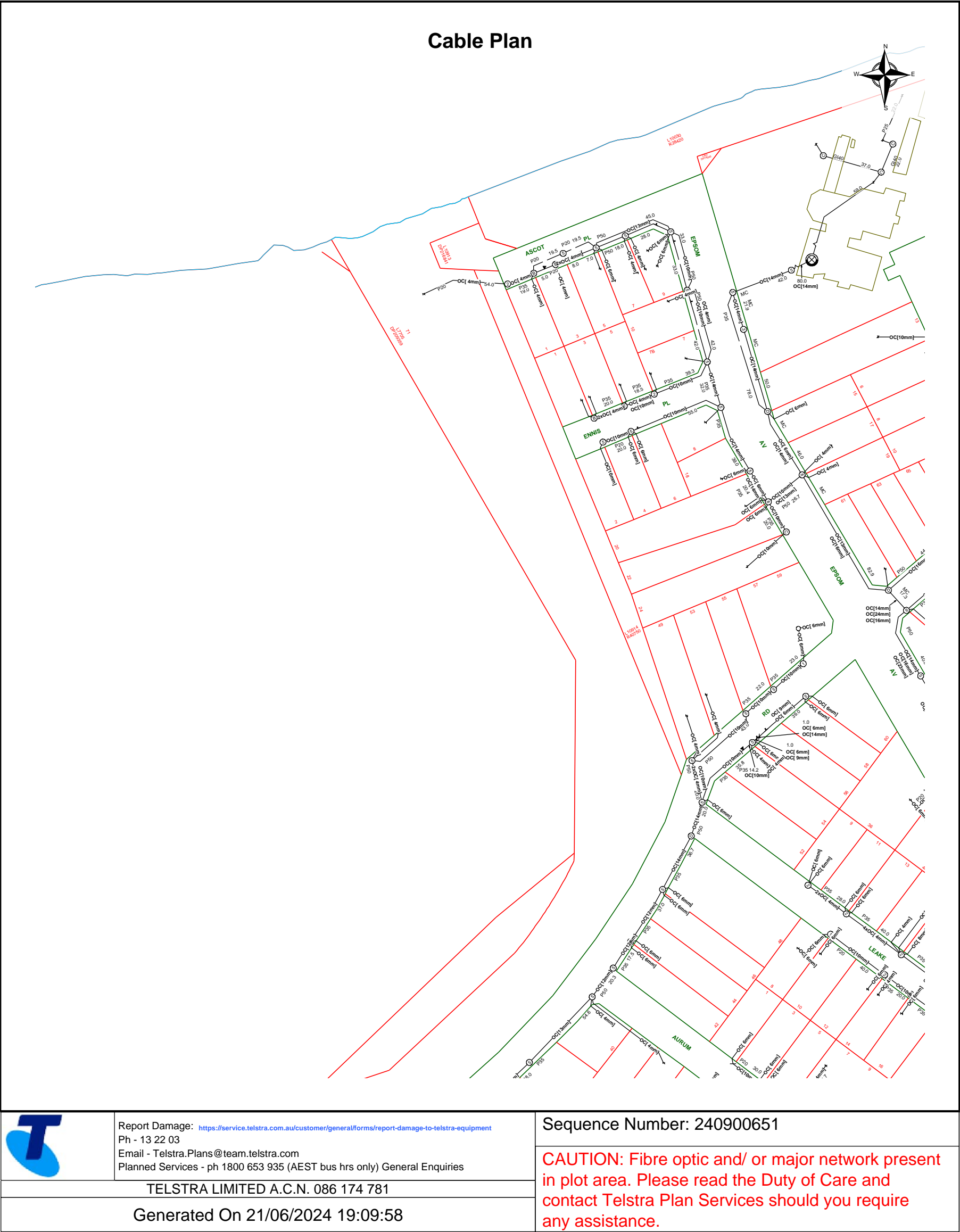






Emergency Contacts

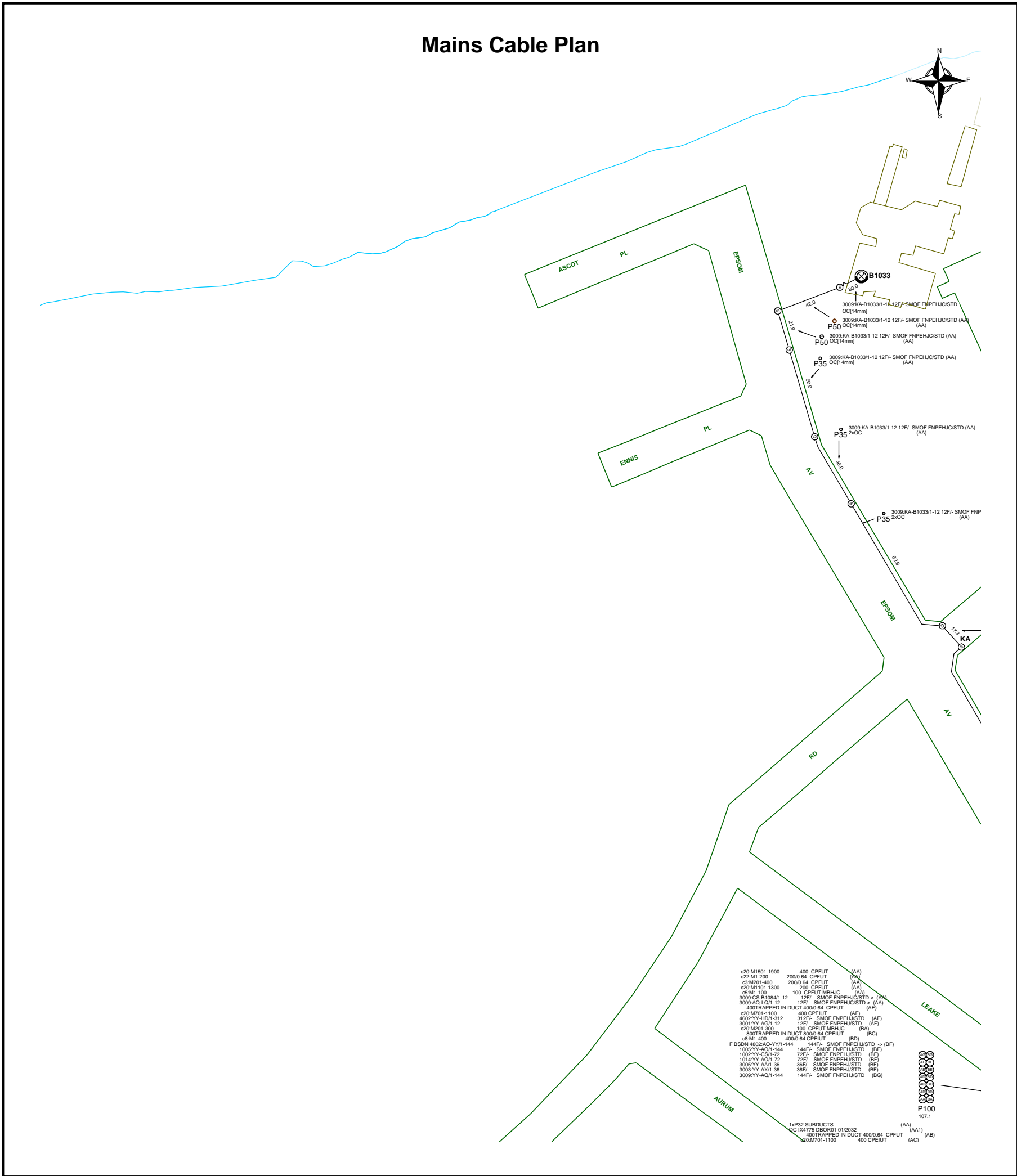
You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.




The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.



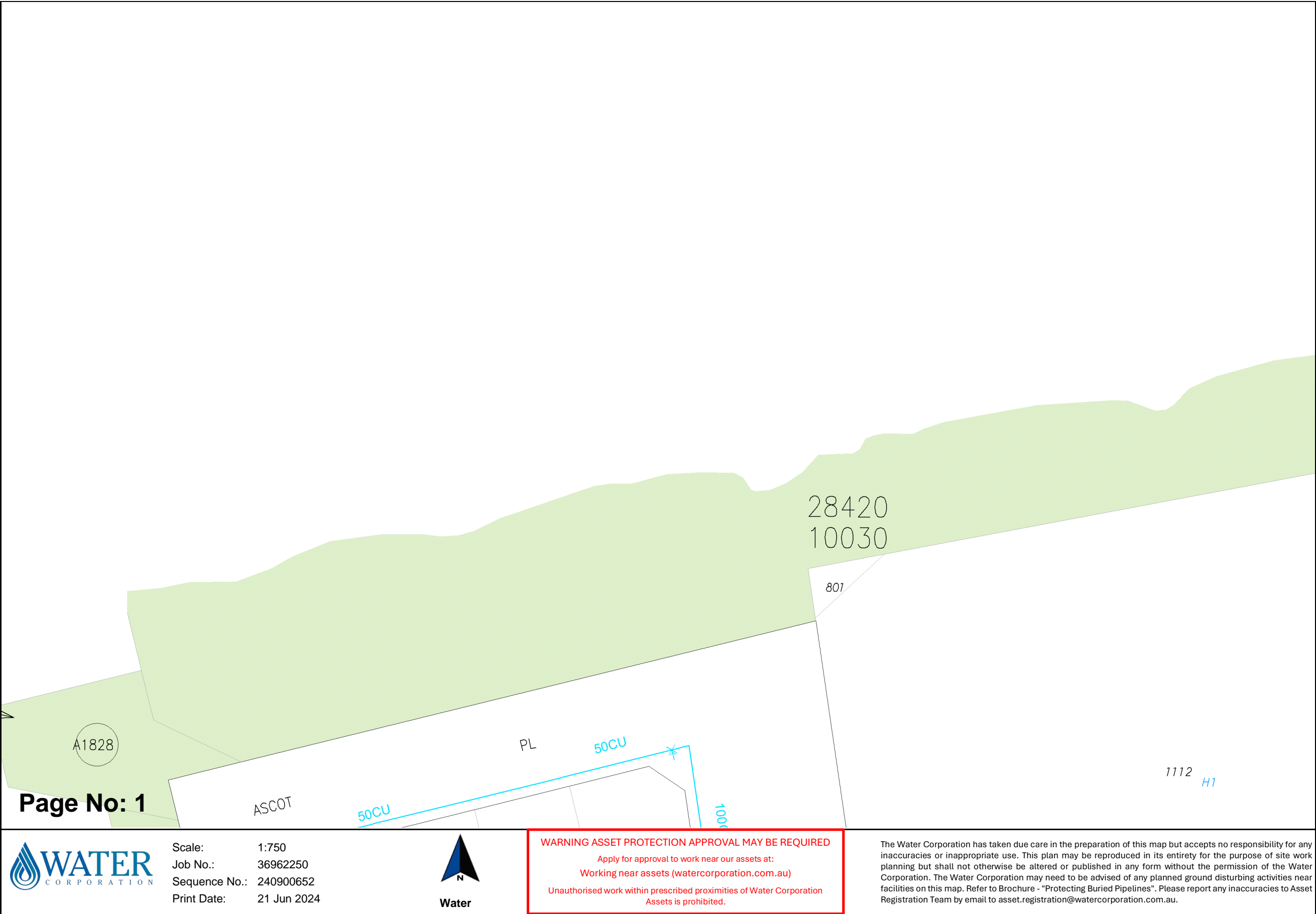
	Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment Ph - 13 22 03 Email - Telstra.Plans@team.telstra.com Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries	Sequence Number: 240900651
	TELSTRA LIMITED A.C.N. 086 174 781 Generated On 21/06/2024 19:09:59	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

<p>WARNING</p> <p>Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.</p> <p>See the Steps- Telstra Duty of Care that was provided in the email response.</p>
--



Overview

	Scale:	1:3075	 Water	WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED Apply for approval to work near our assets at: Working near assets (watercorporation.com.au) Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.	The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au .
	Job No.:	36962250			
	Sequence No.:	240900652			
	Print Date:	21 Jun 2024			





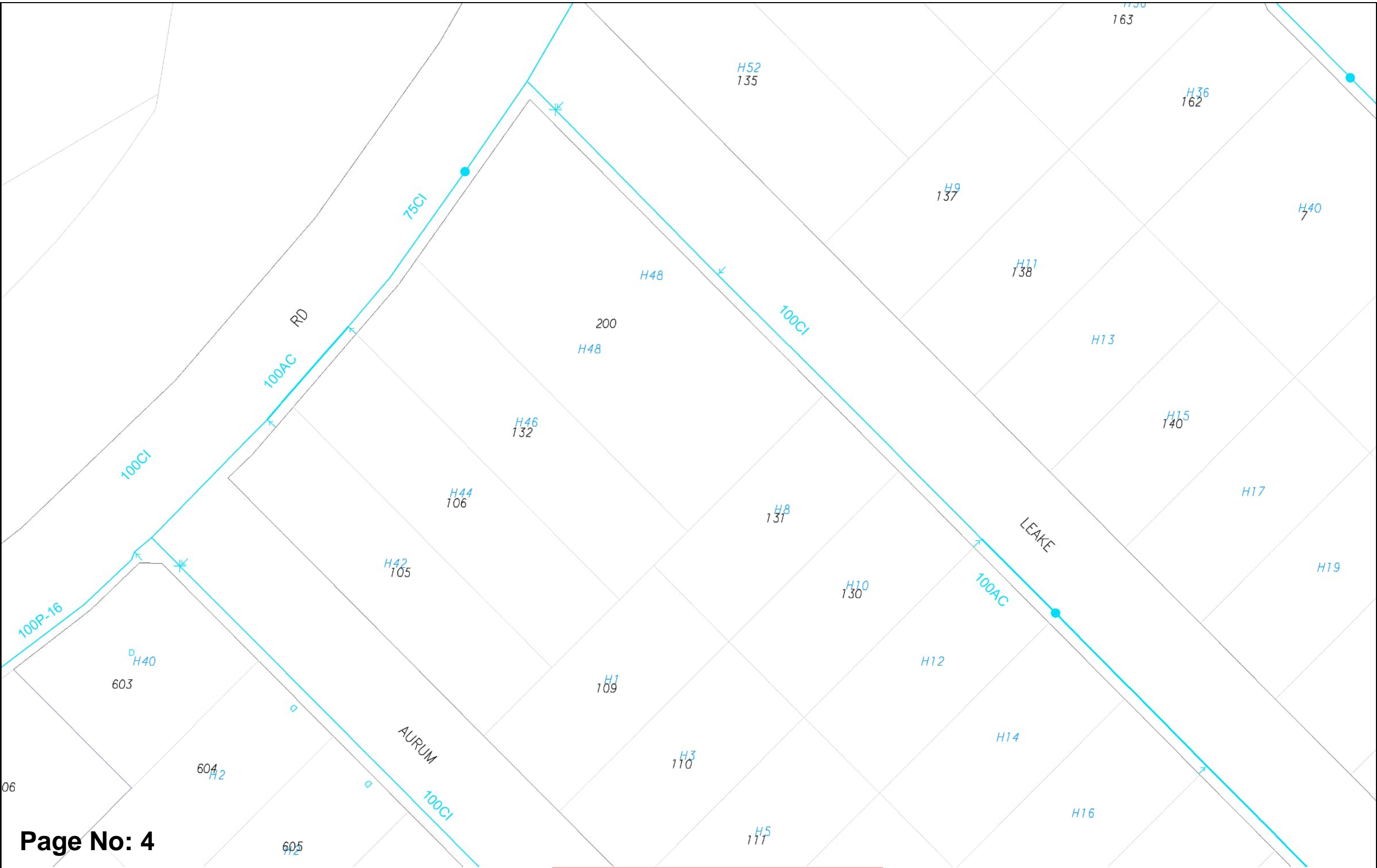
Page No: 2

	Scale:	1:750
	Job No.:	36962250
	Sequence No.:	240900652
	Print Date:	21 Jun 2024
 Water		
WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED Apply for approval to work near our assets at: Working near assets (watercorporation.com.au) Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.		
<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>		



Page No: 3

	<p>Scale: 1:750 Job No.: 36962250 Sequence No.: 240900652 Print Date: 21 Jun 2024</p>		<p>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED Apply for approval to work near our assets at: Working near assets (watercorporation.com.au) Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</p>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
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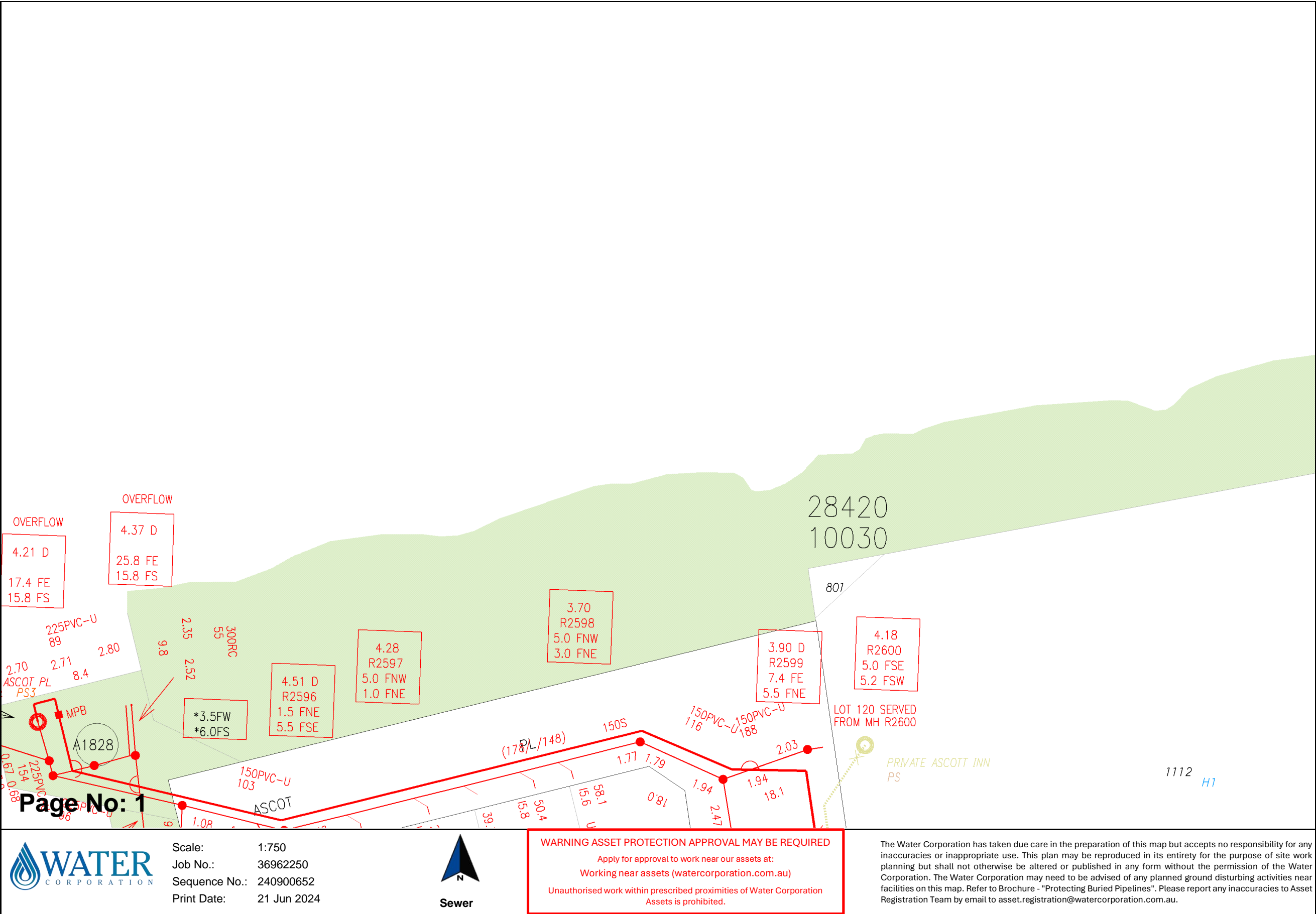
Page No: 4

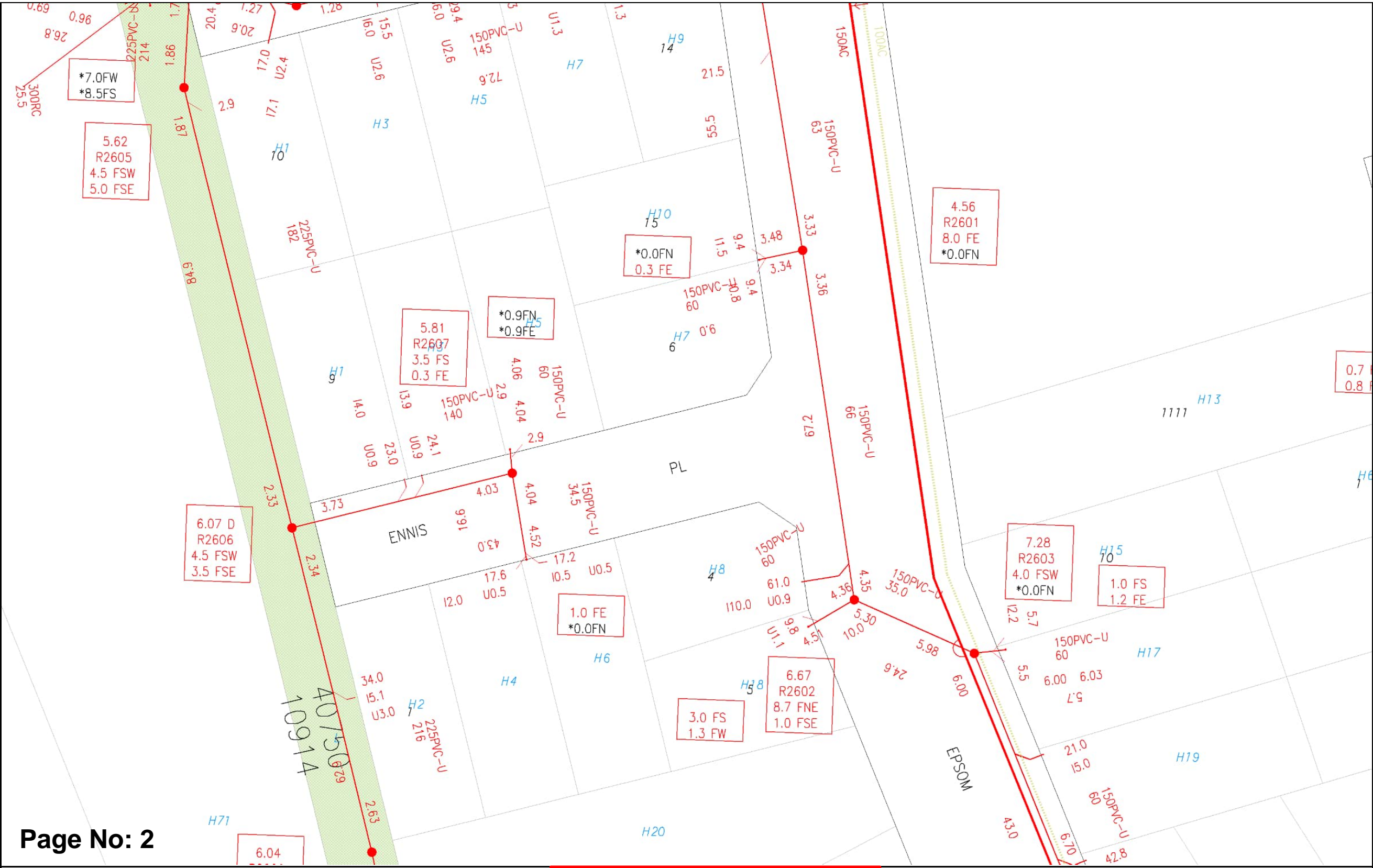
	<p>Scale: 1:750 Job No.: 36962250 Sequence No.: 240900652 Print Date: 21 Jun 2024</p>	 <p>Water</p>	<p>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED</p> <p>Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)</p> <p>Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</p>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
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Overview


	Scale:	1:3075	 <p>Sewer</p>	<p>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED</p> <p>Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)</p> <p>Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</p>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
	Job No.:	36962250			
	Sequence No.:	240900652			
	Print Date:	21 Jun 2024			







Scale: 1:750
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Sequence No.: 240900652
Print Date: 21 Jun 2024



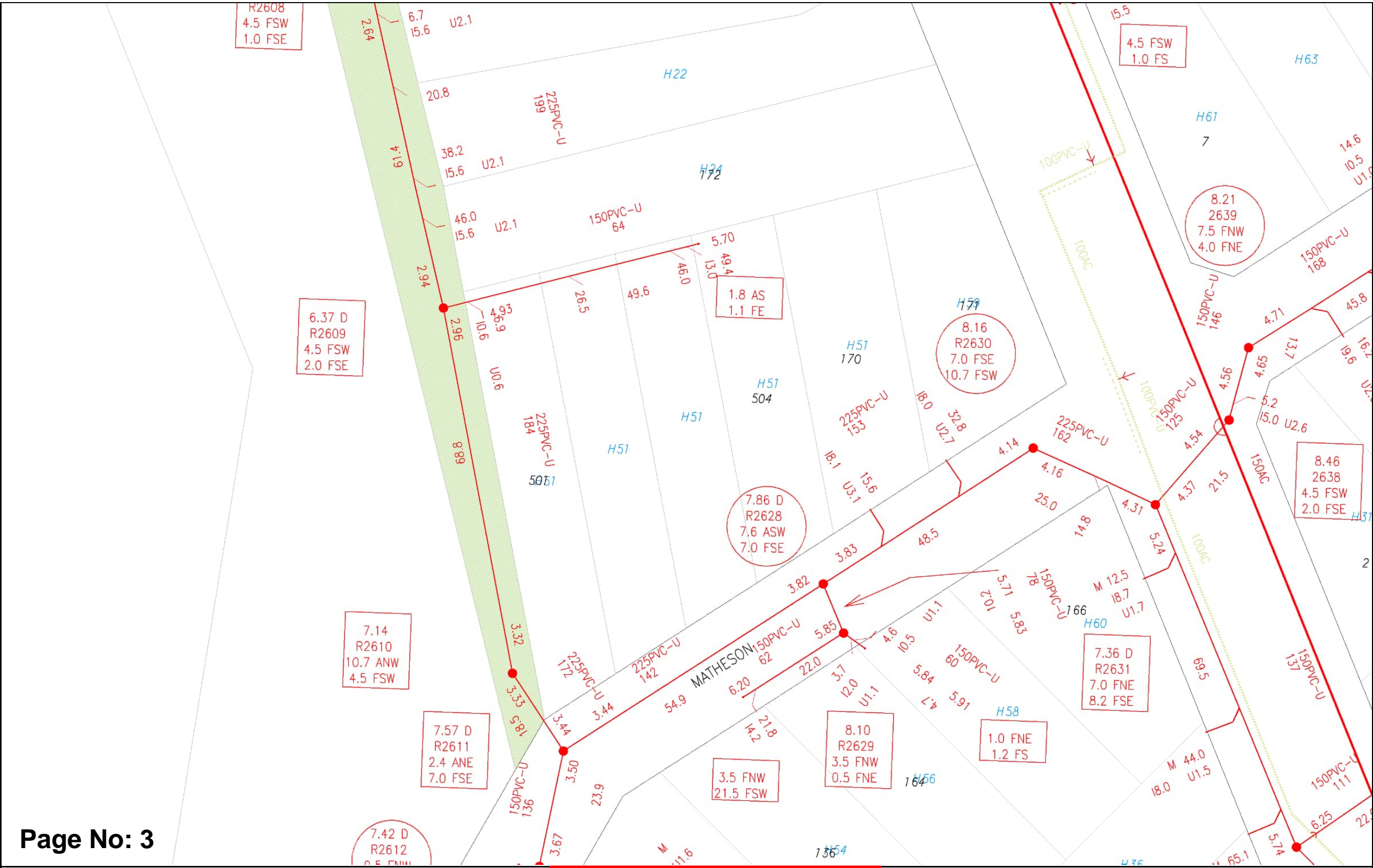
Sewer

WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED

Apply for approval to work near our assets at:
[Working near assets \(watercorporation.com.au\)](http://Working near assets (watercorporation.com.au))

Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.

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Page No: 3



Scale: 1:750
Job No.: 36962250
Sequence No.: 240900652
Print Date: 21 Jun 2024



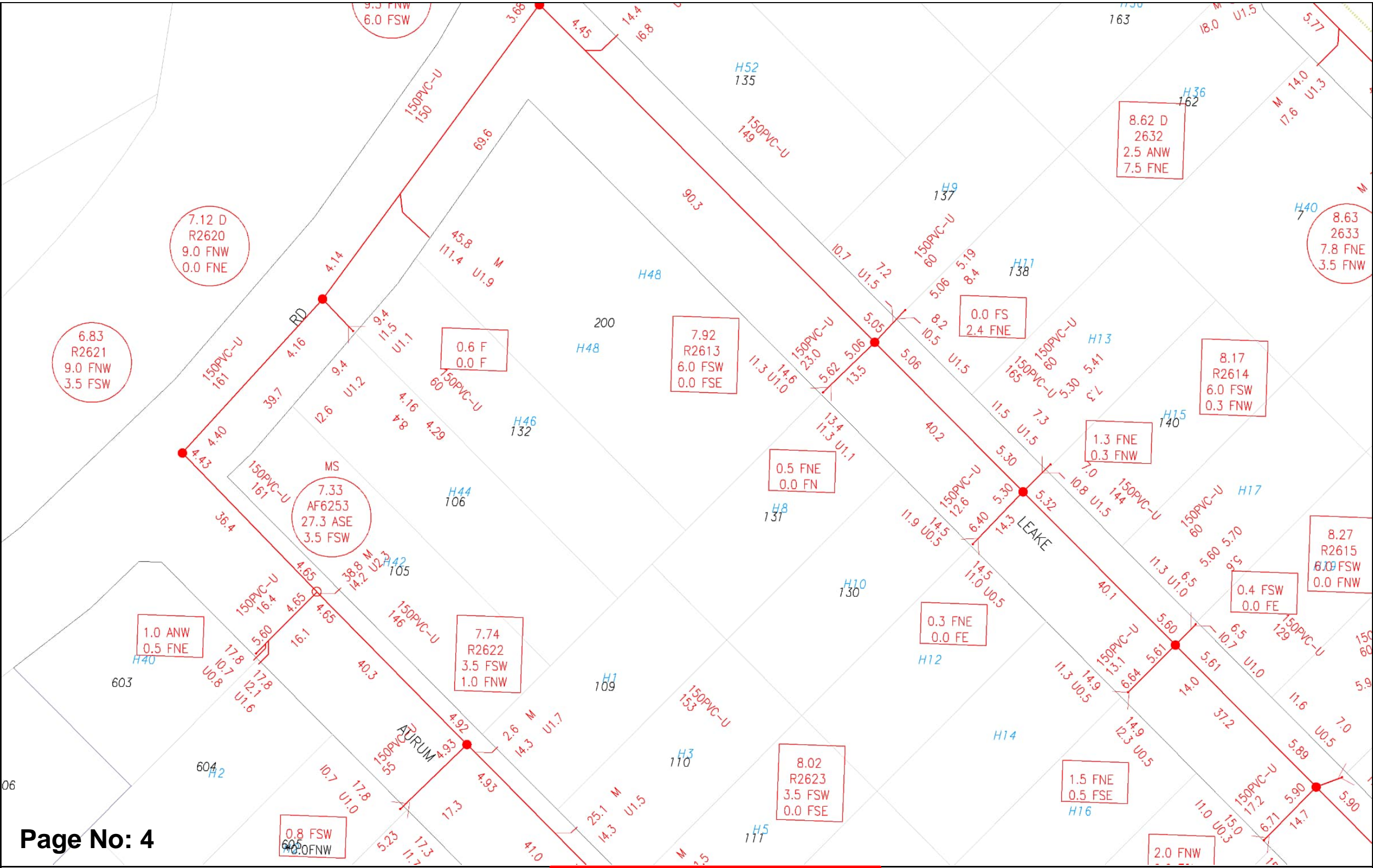
Sewer

WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED

Apply for approval to work near our assets at:
[WorkingNearAssets \(watercorporation.com.au\)](http://WorkingNearAssets.watercorporation.com.au)

Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.

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Page No: 4



Scale: 1:750
Job No.: 36962250
Sequence No.: 240900652
Print Date: 21 Jun 2024



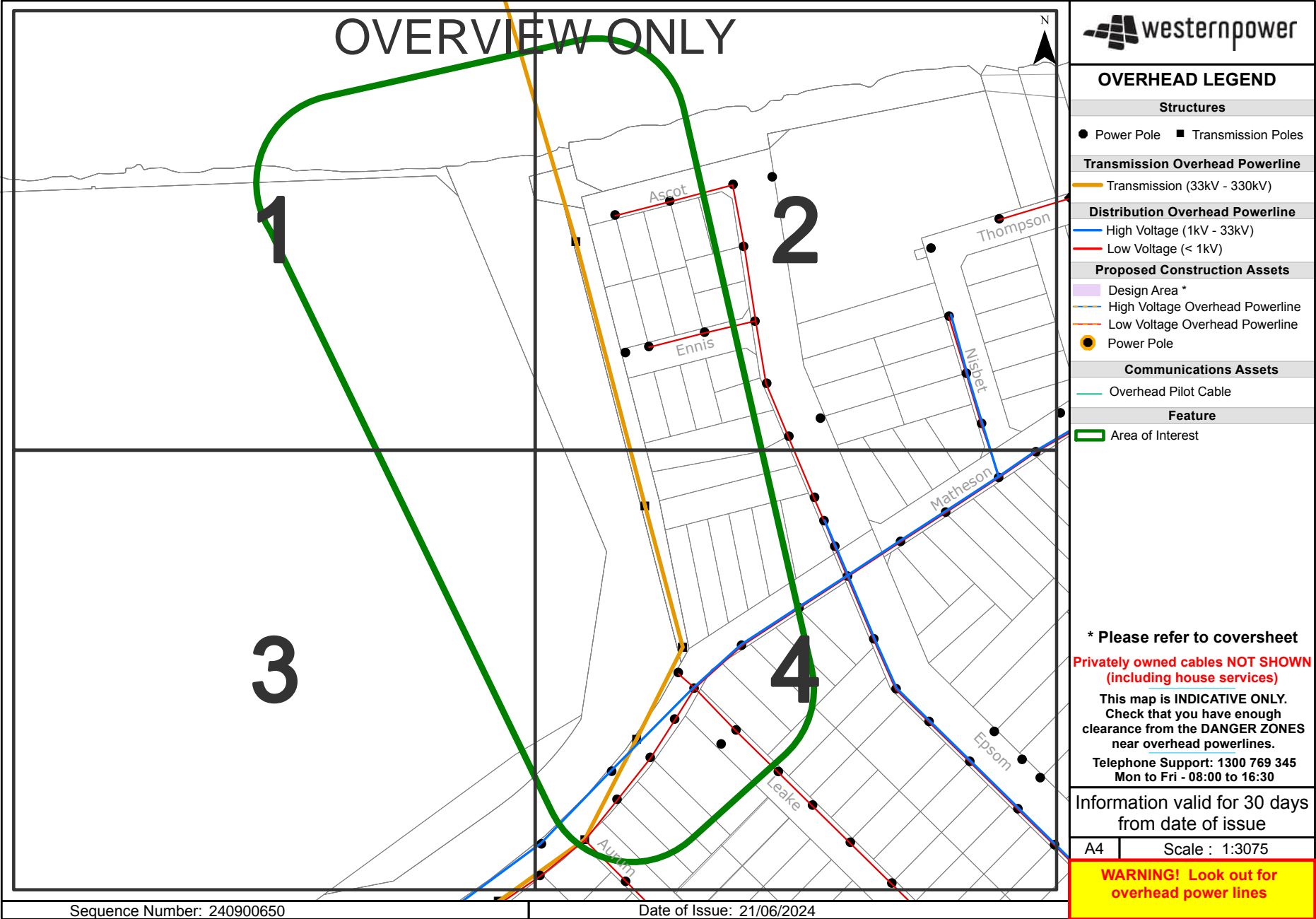
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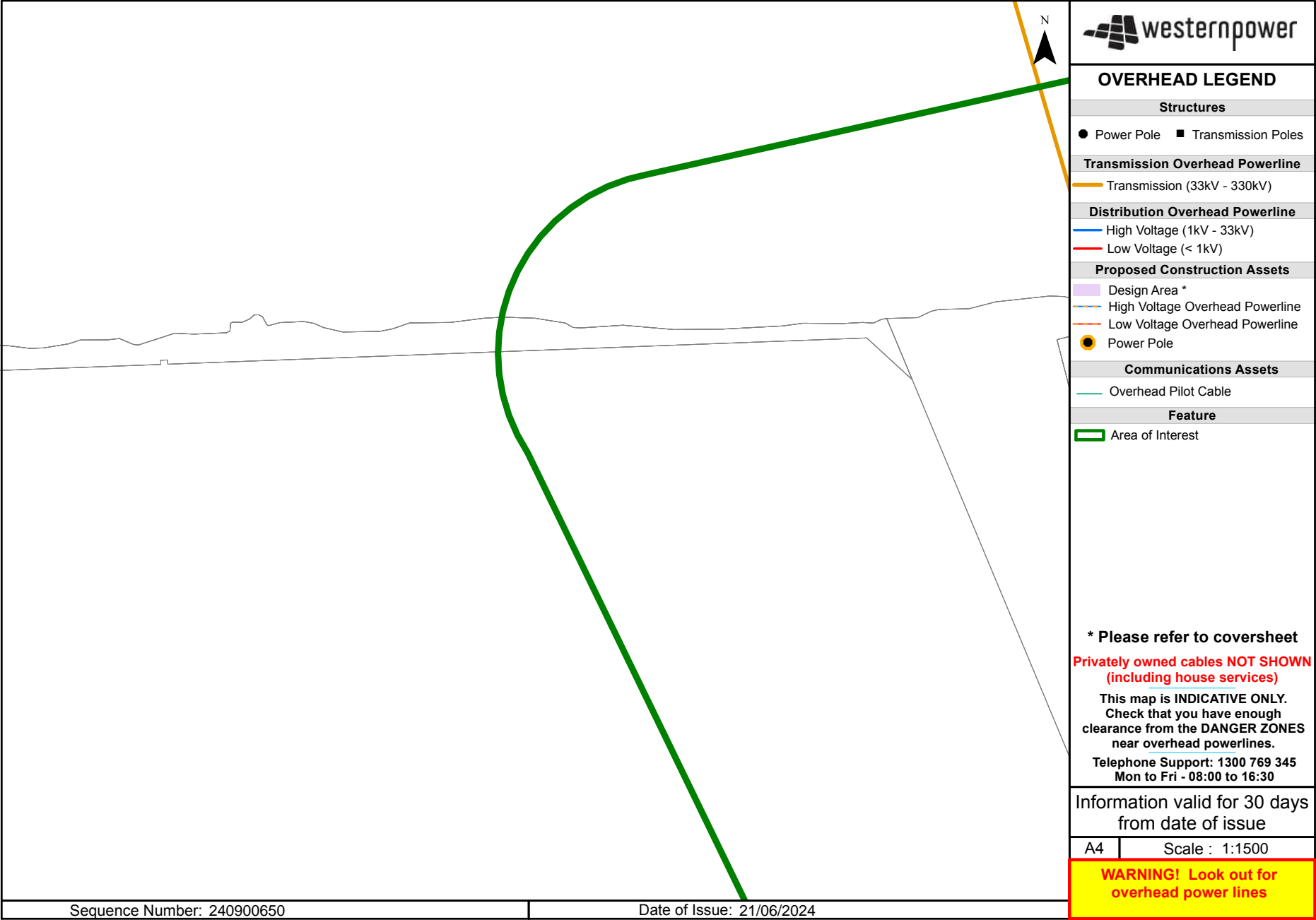
WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED

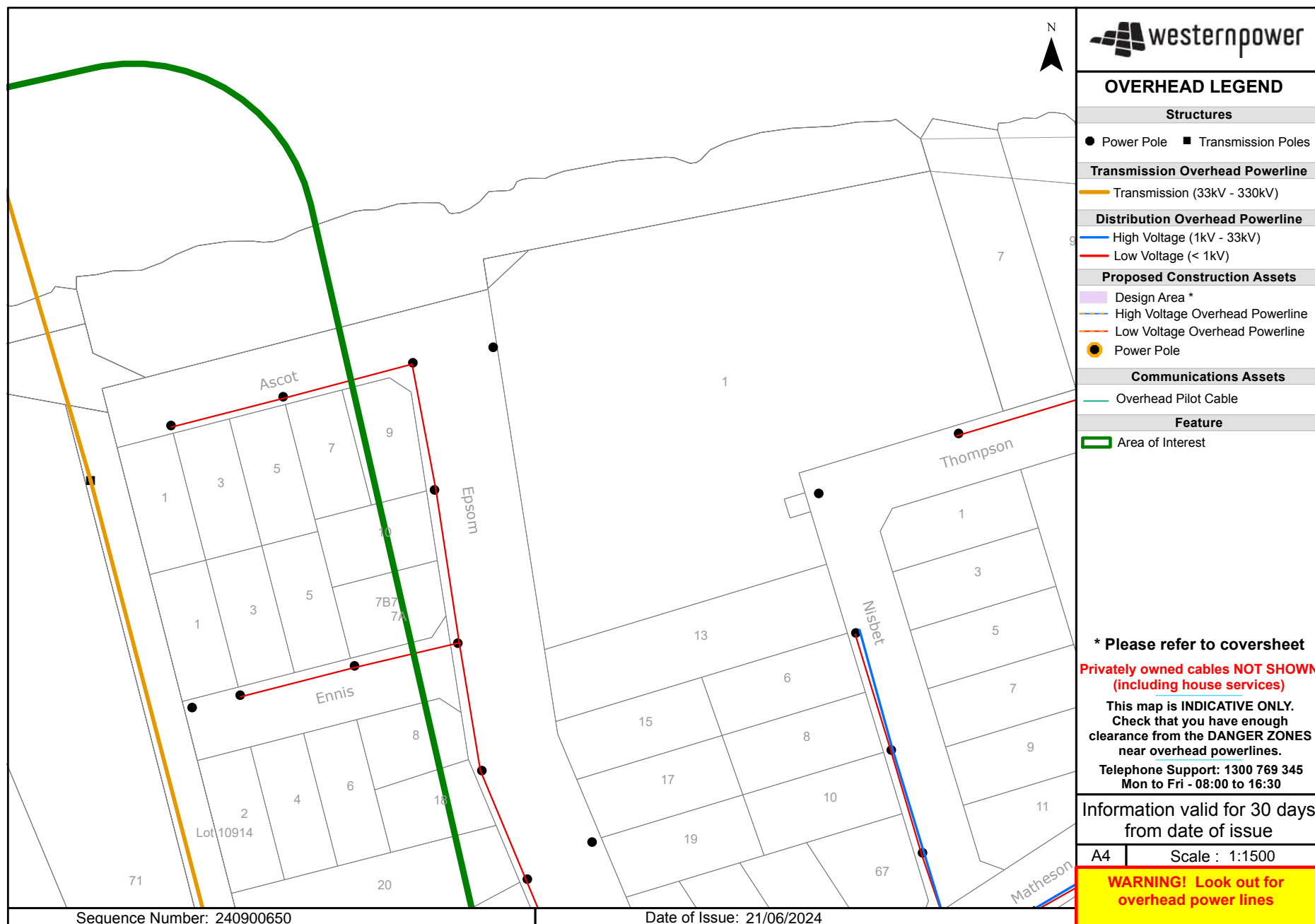
Apply for approval to work near our assets at:
WorkingNearAssets.watercorporation.com.au

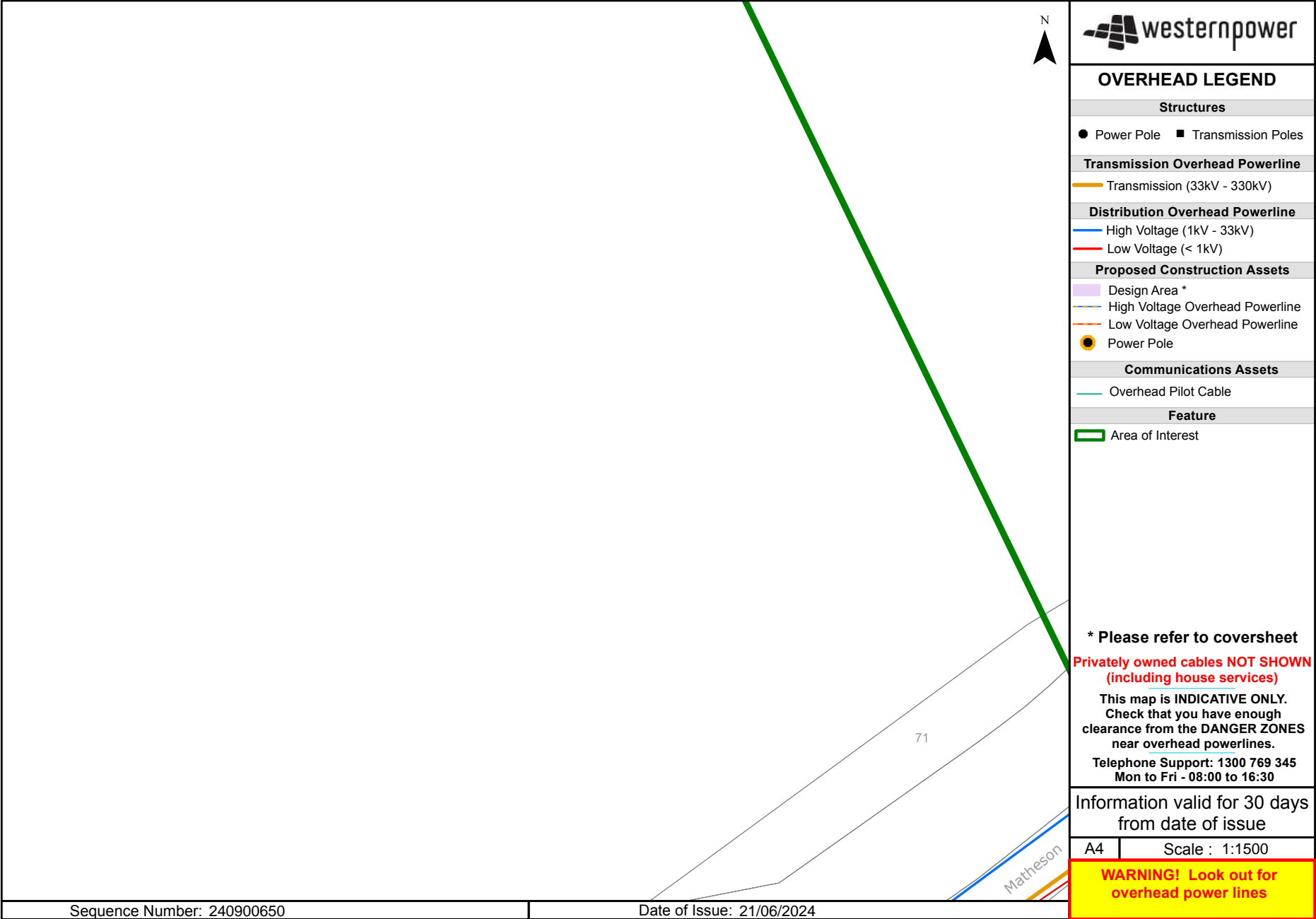
Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.

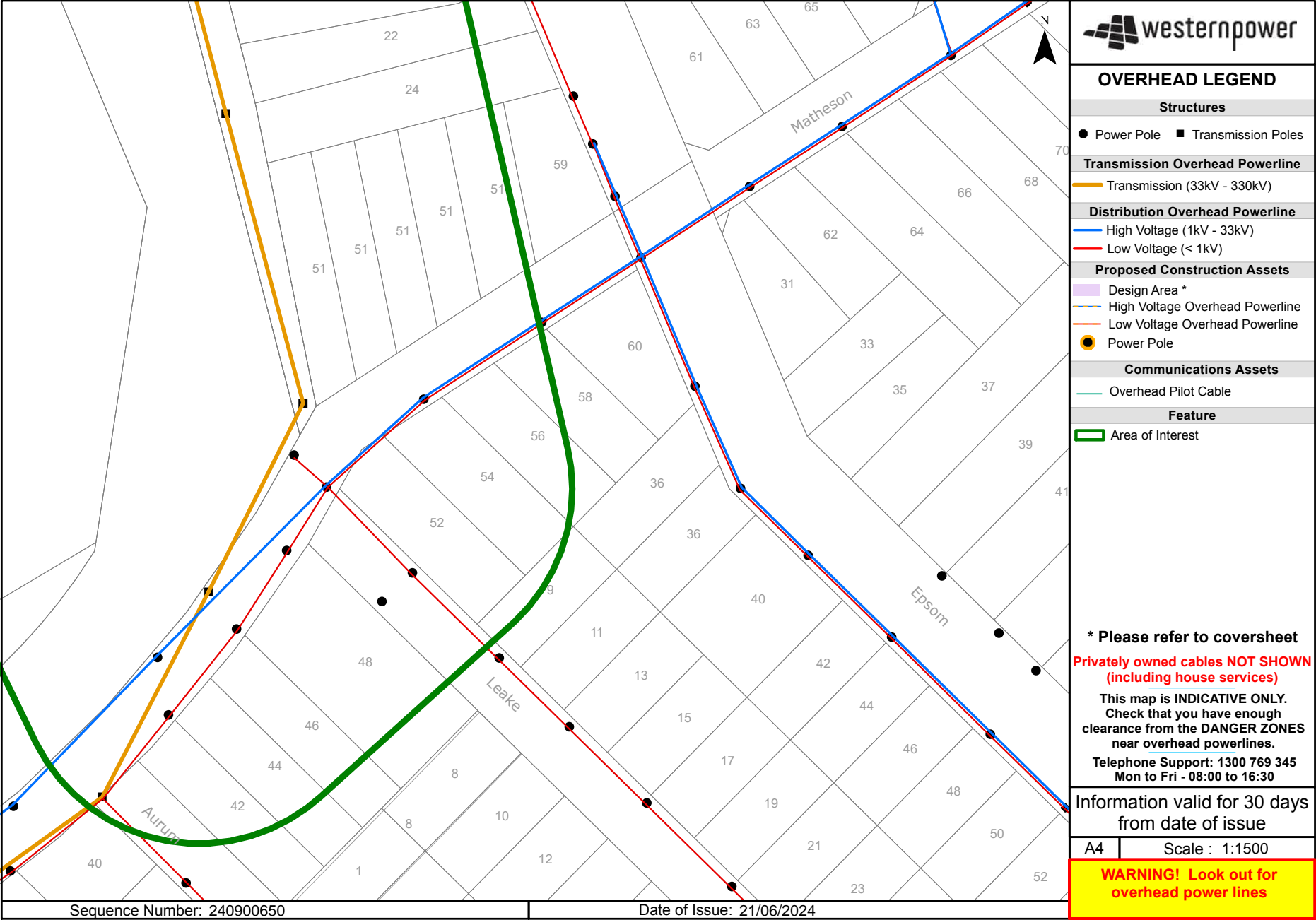
The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.

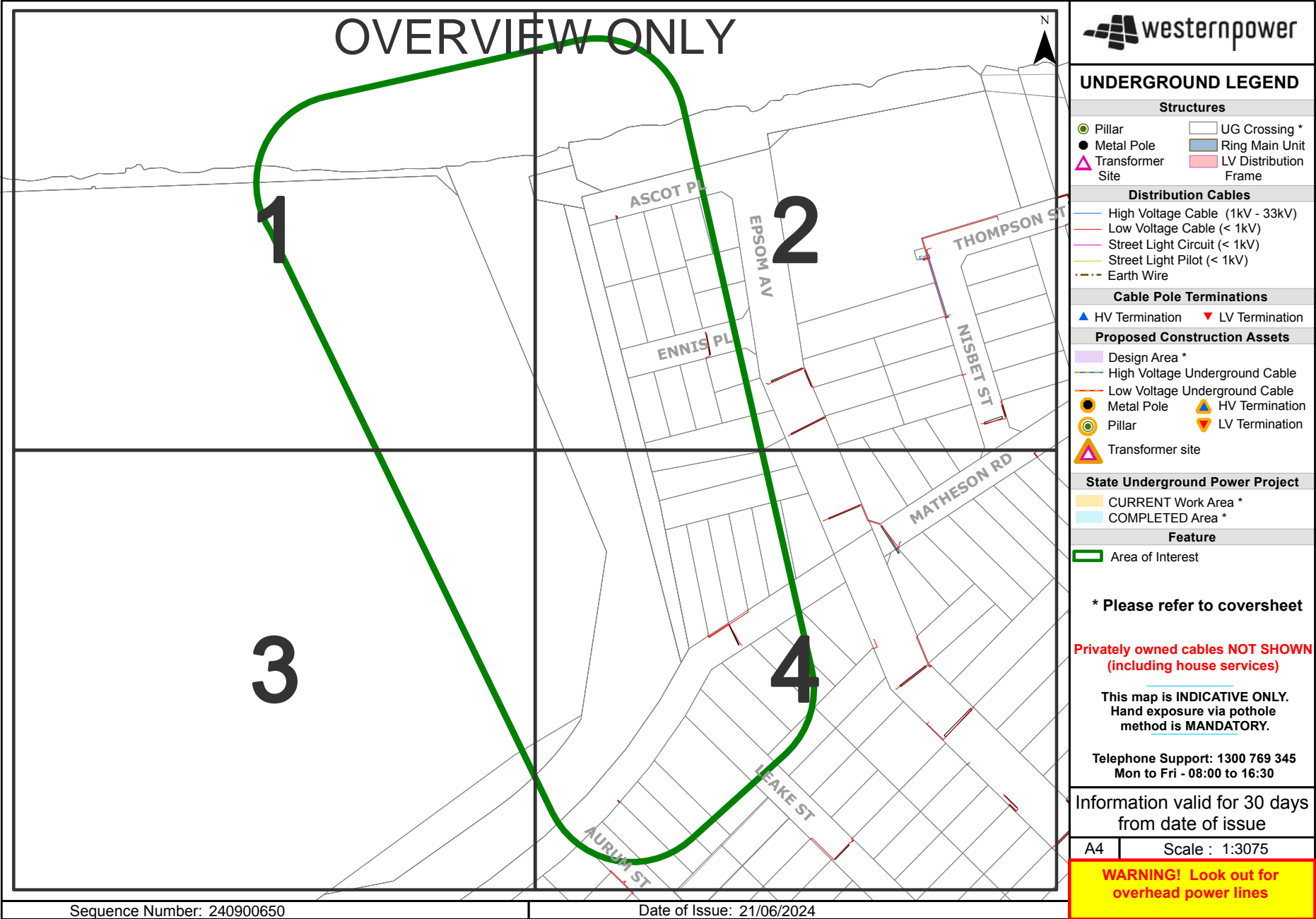


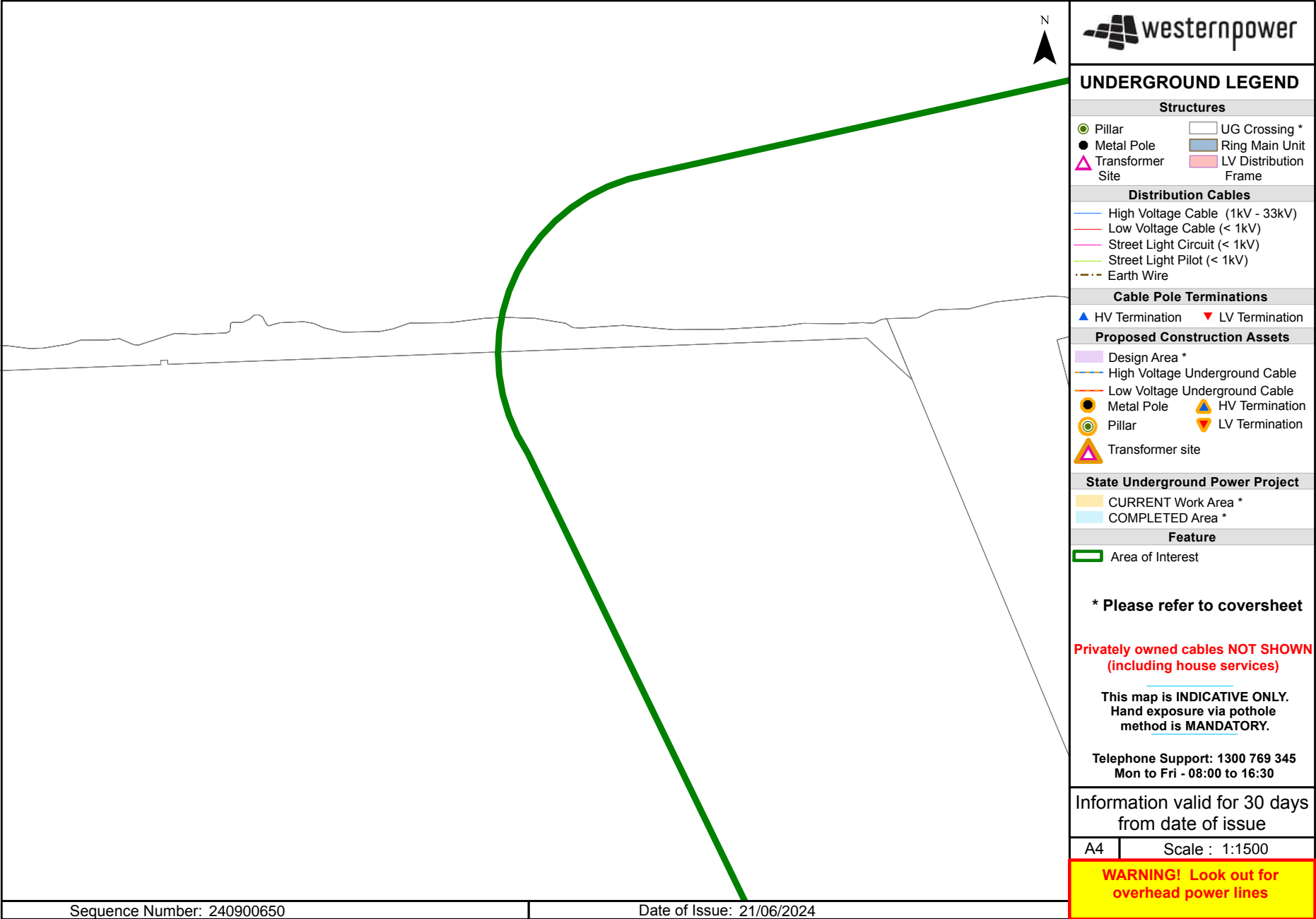


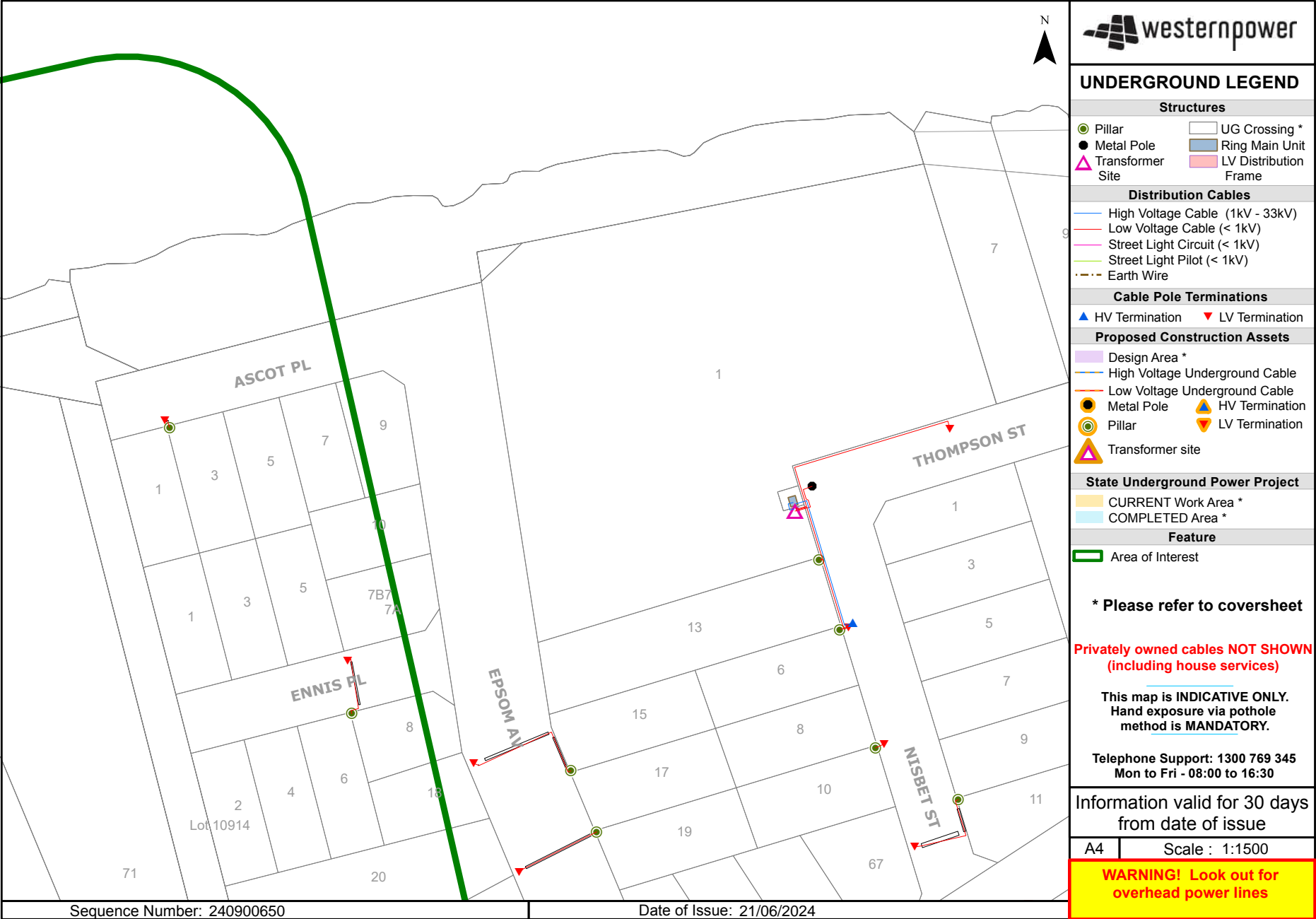


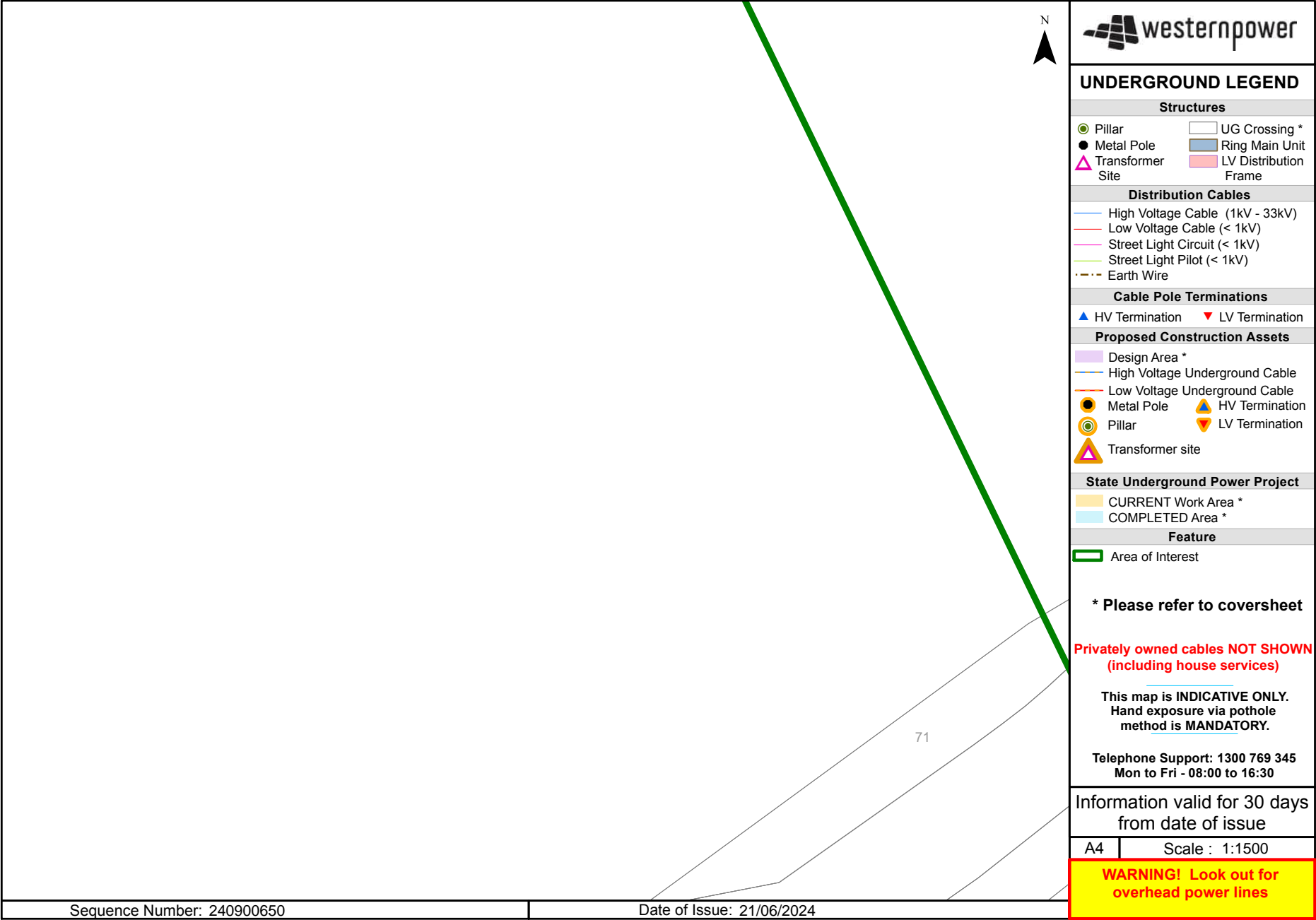


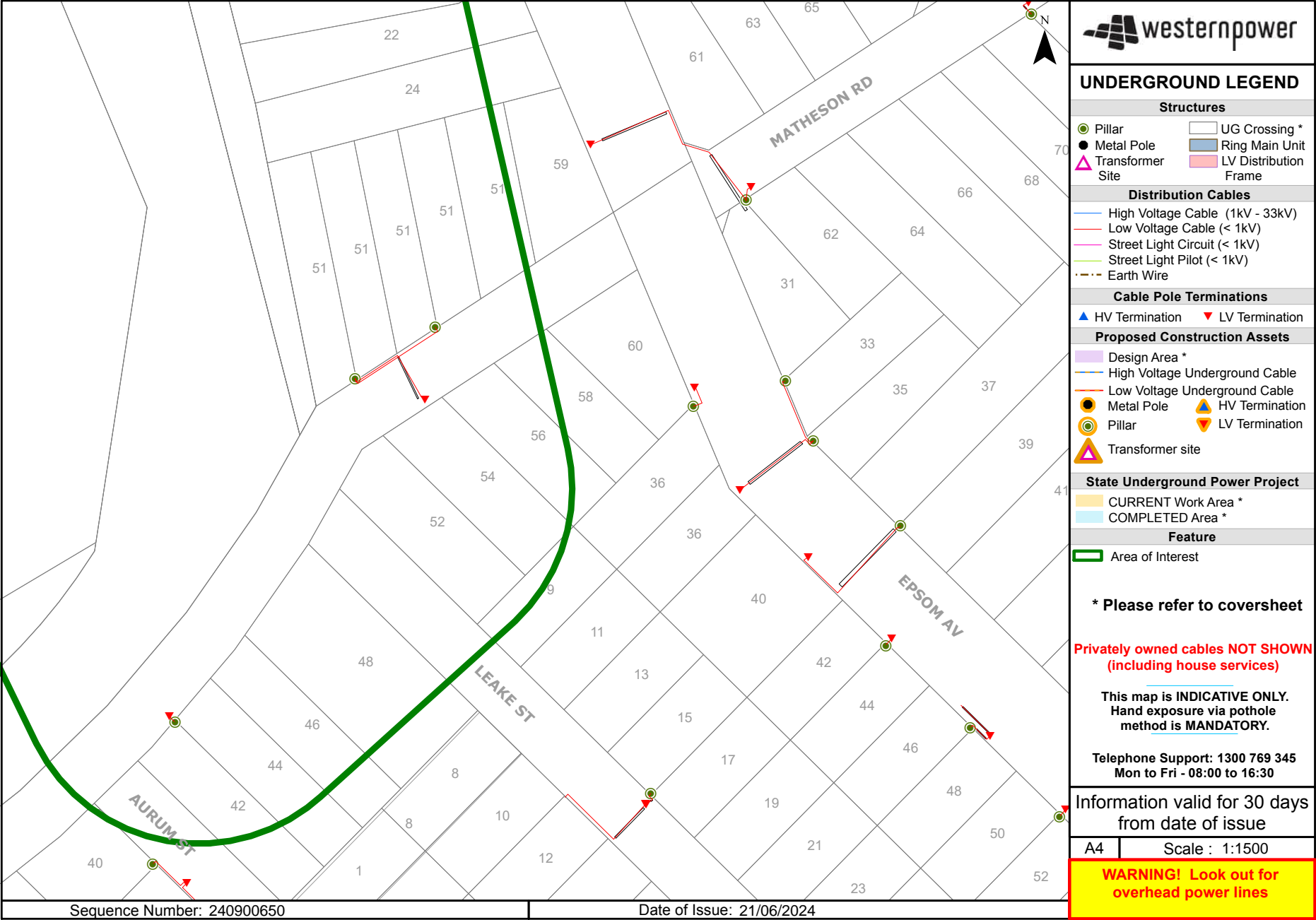












Attachment 12.1.4 Engineering Servicing Report

Job No 36962248



byda.com.au

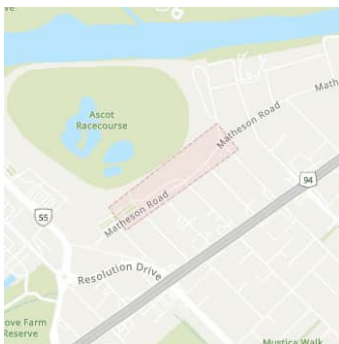
Contact Details

Contact	Contact number	Company	Enquirer ID
Justin Zielinski	0420 304 451	-	3140642
Email		Address	
jzielinski@tabec.com.au		54 Havelock Street West Perth WA 6005	

Job Site and Enquiry Details

WARNING: The map below only displays the location of the proposed job site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

Enquiry date	Start date	End date	On behalf of	Job purpose	Locations	Onsite activities
21/06/2024	24/06/2024	24/06/2024	Private	Design	Both Road	Planning & Design



Check that the location of the job site is correct. If not, you must submit a new enquiry.

If the scope of works change or plan validity dates expire, you must submit a new enquiry.

Do NOT dig without plans. Safe excavation is your responsibility. If you don't understand the plans or how to proceed safely, please contact the relevant asset owners.

User Reference	Address	Notes/description
Precinct C - 1	30 Matheson Road Ascot WA 6104	-

Your Responsibility and Duty of Care

- **Lodging an enquiry does not authorise project commencement.** Before starting work, you must obtain all necessary information from all affected asset owners.
- If you don't receive plans within 2 business days, contact the asset owner & quote their sequence number.
- Always follow the 5Ps of Safe Excavation (page 2), and locate assets before commencing work.
- Ensure you comply with State legislative requirements for Duty of Care and safe digging.
- If you damage an underground asset, you MUST advise the asset owner immediately.
- By using the BYDA service, you agree to the [Privacy Policy](#) and [Term of Use](#).
- For more information on safe digging practices, visit www.byda.com.au

Asset Owner Details

Below is a list of asset owners with underground infrastructure in and around your job site. It is your responsibility to identify the presence of these assets. Plans issued by Members are indicative only unless specified otherwise. Note: not all asset owners are registered with BYDA. You must contact asset owners not listed here directly.

Referral ID (Seq. no)	Authority Name	Phone	Status
240900641	ATCO Gas Australia	1300 926 755	NOTIFIED
240900637	NBN Co (WA)	1800 687 626	NOTIFIED
240900639	Telstra (WA)	1800 653 935	NOTIFIED
240900640	Water Corporation	13 13 95	NOTIFIED
240900638	Western Power	13 10 87	NOTIFIED

END OF UTILITIES LIST

Lodge your FREE enquiry online any time at byda.com.au

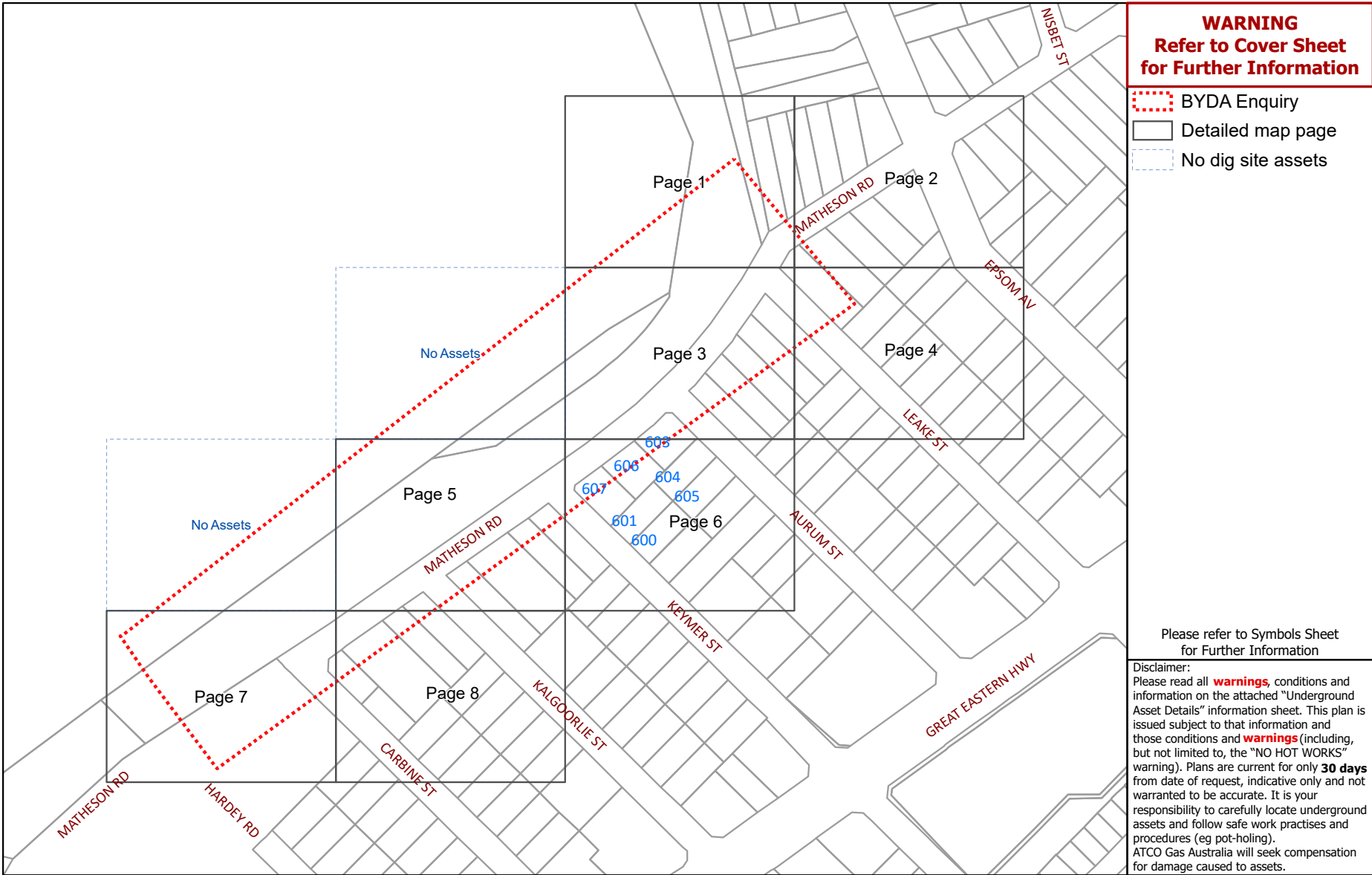
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)
Index Sheet

Seq # 240900641
Job # 36962248

BYDA Location: 30 Matheson Road Ascot 6104
Scale: 1:3,500



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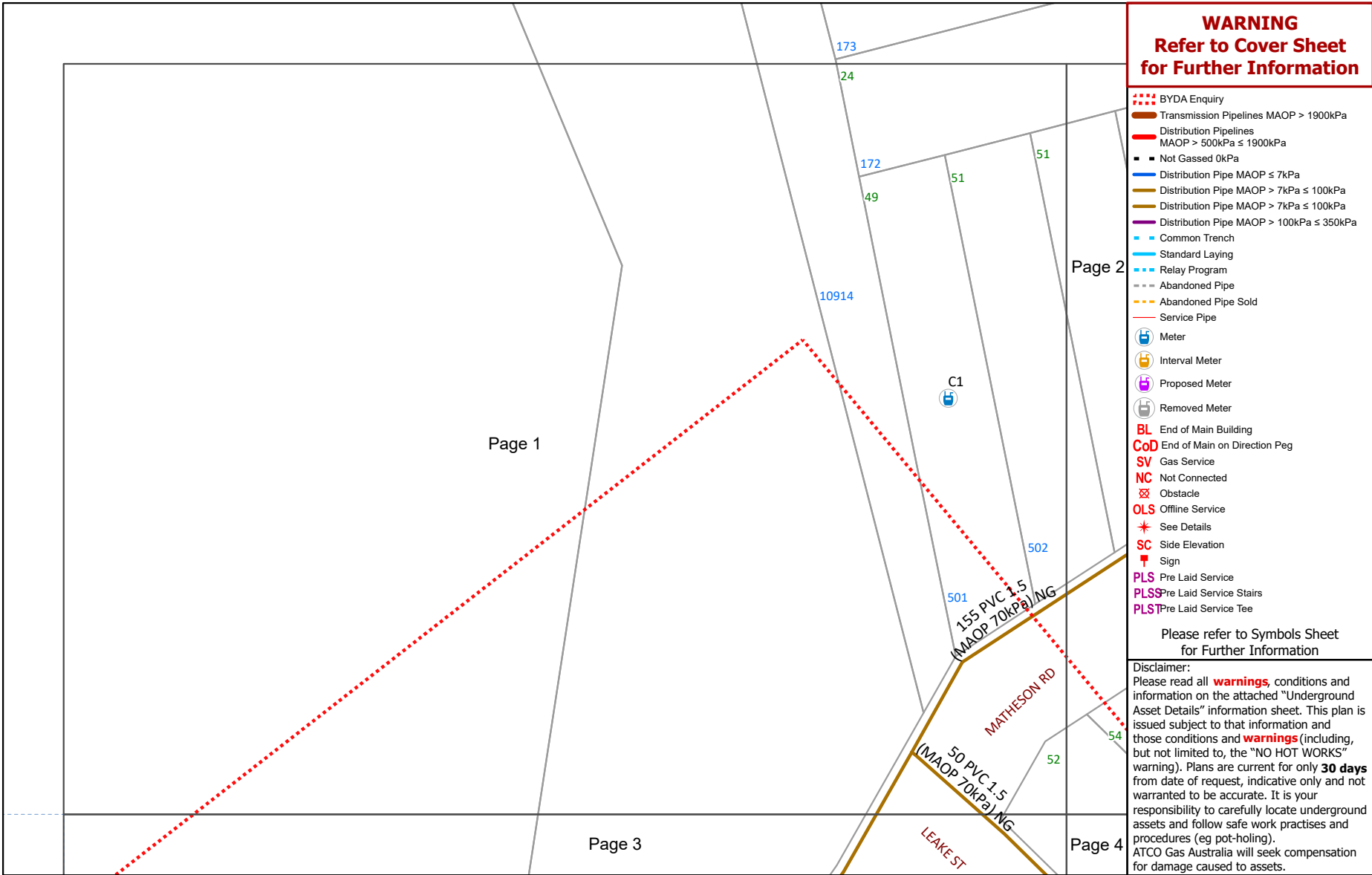
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)

Seq # 240900641
Job # 36962248

BYDA Location: 30 Matheson Road Ascot 6104
Scale: 1:800



WARNING
Refer to Cover Sheet
for Further Information

- BYDA Enquiry
- Transmission Pipelines MAOP > 1900kPa
- Distribution Pipelines MAOP > 500kPa ≤ 1900kPa
- Not Gassed 0kPa
- Distribution Pipe MAOP ≤ 7kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 100kPa ≤ 350kPa
- Common Trench
- Standard Laying
- Relay Program
- Abandoned Pipe
- Abandoned Pipe Sold
- Service Pipe
- Meter
- Interval Meter
- Proposed Meter
- Removed Meter
- BL End of Main Building
- CoD End of Main on Direction Peg
- SV Gas Service
- NC Not Connected
- Obstacle
- OLS Offline Service
- See Details
- SC Side Elevation
- Sign
- PLS Pre Laid Service
- PLSS Pre Laid Service Stairs
- PLST Pre Laid Service Tee

Please refer to Symbols Sheet
for Further Information

Disclaimer:
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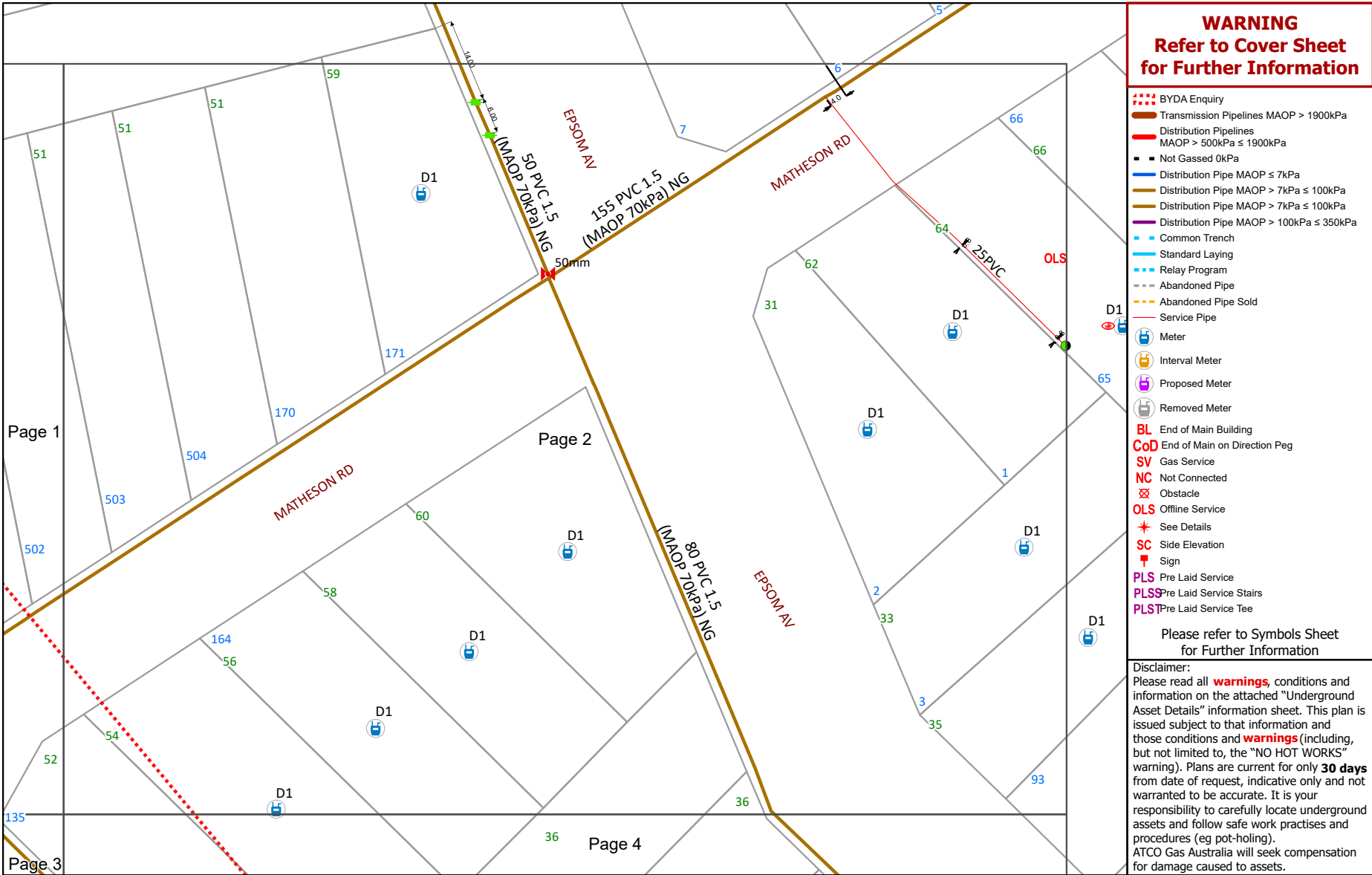
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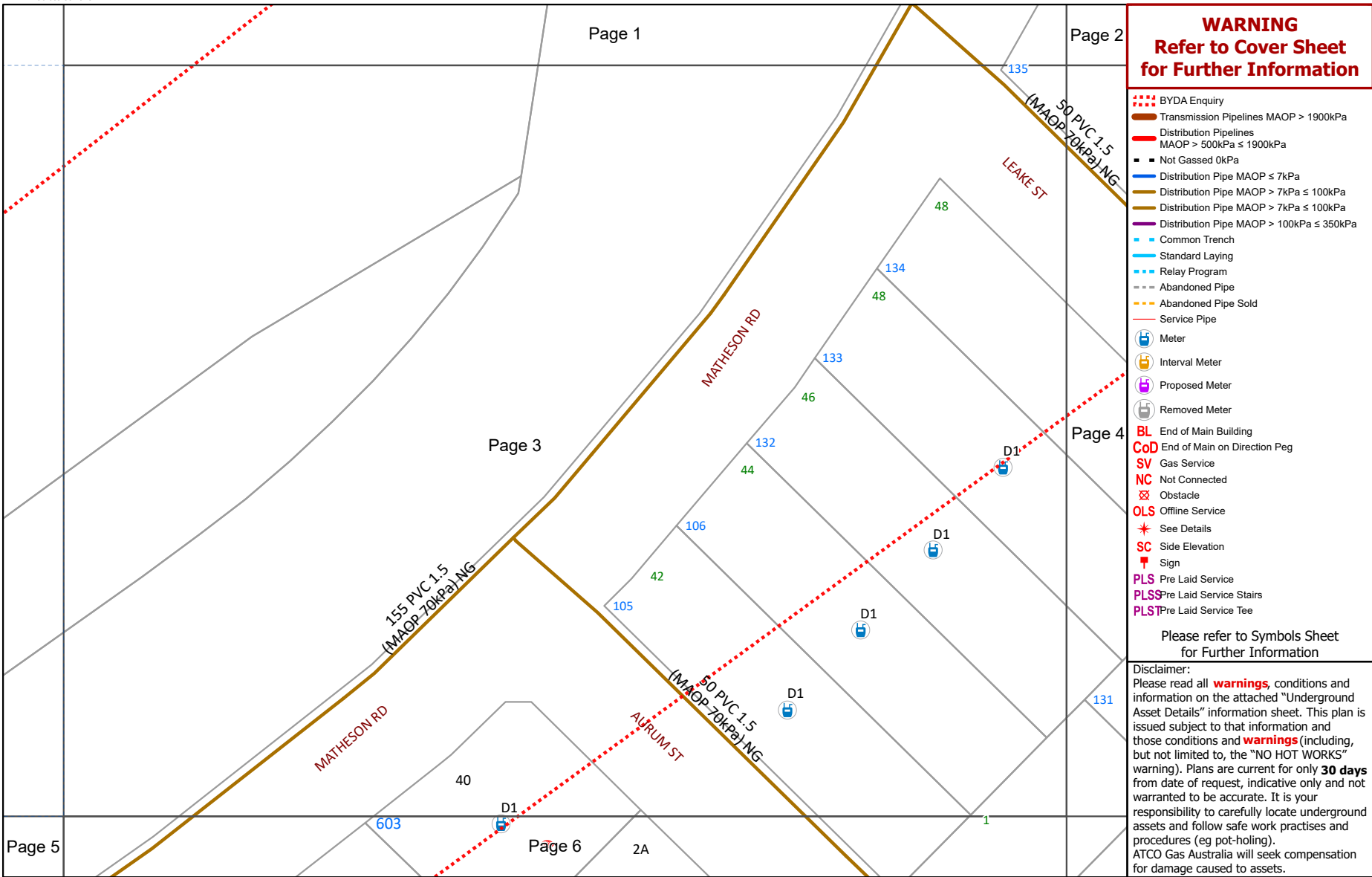
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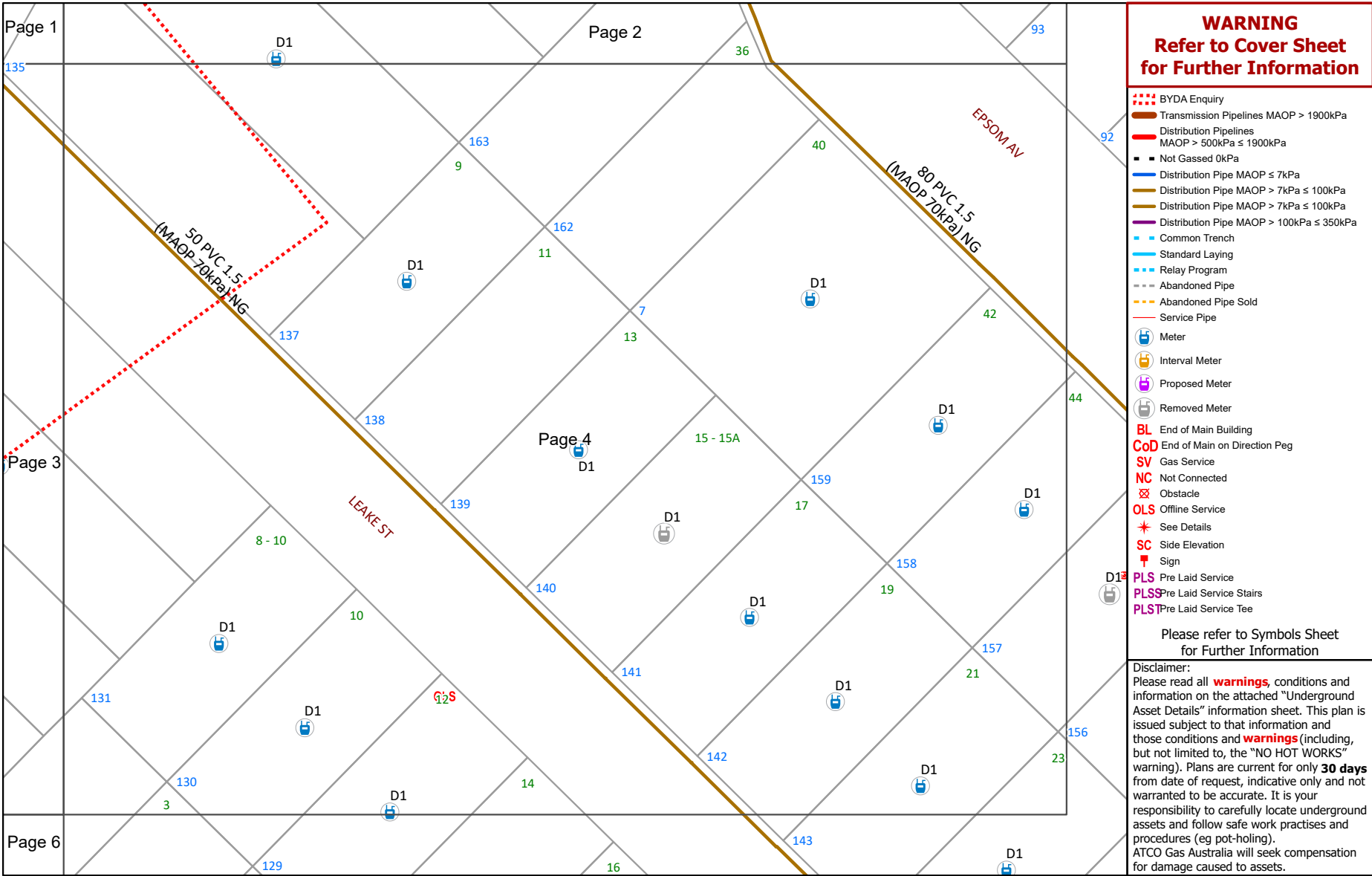
Plans generated by SmarterWX™ Automate



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Plans generated by SmarterWX™ Automate

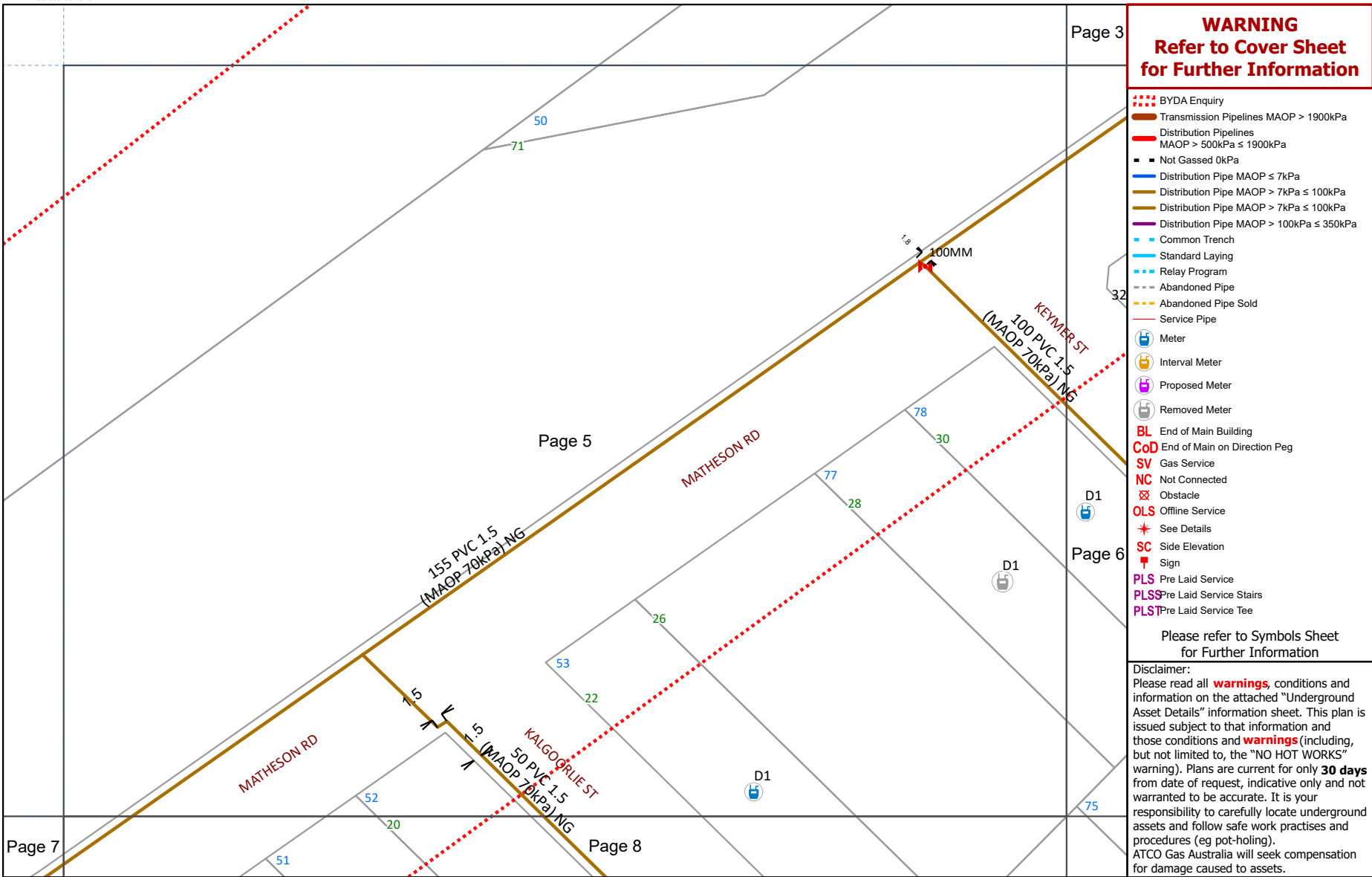
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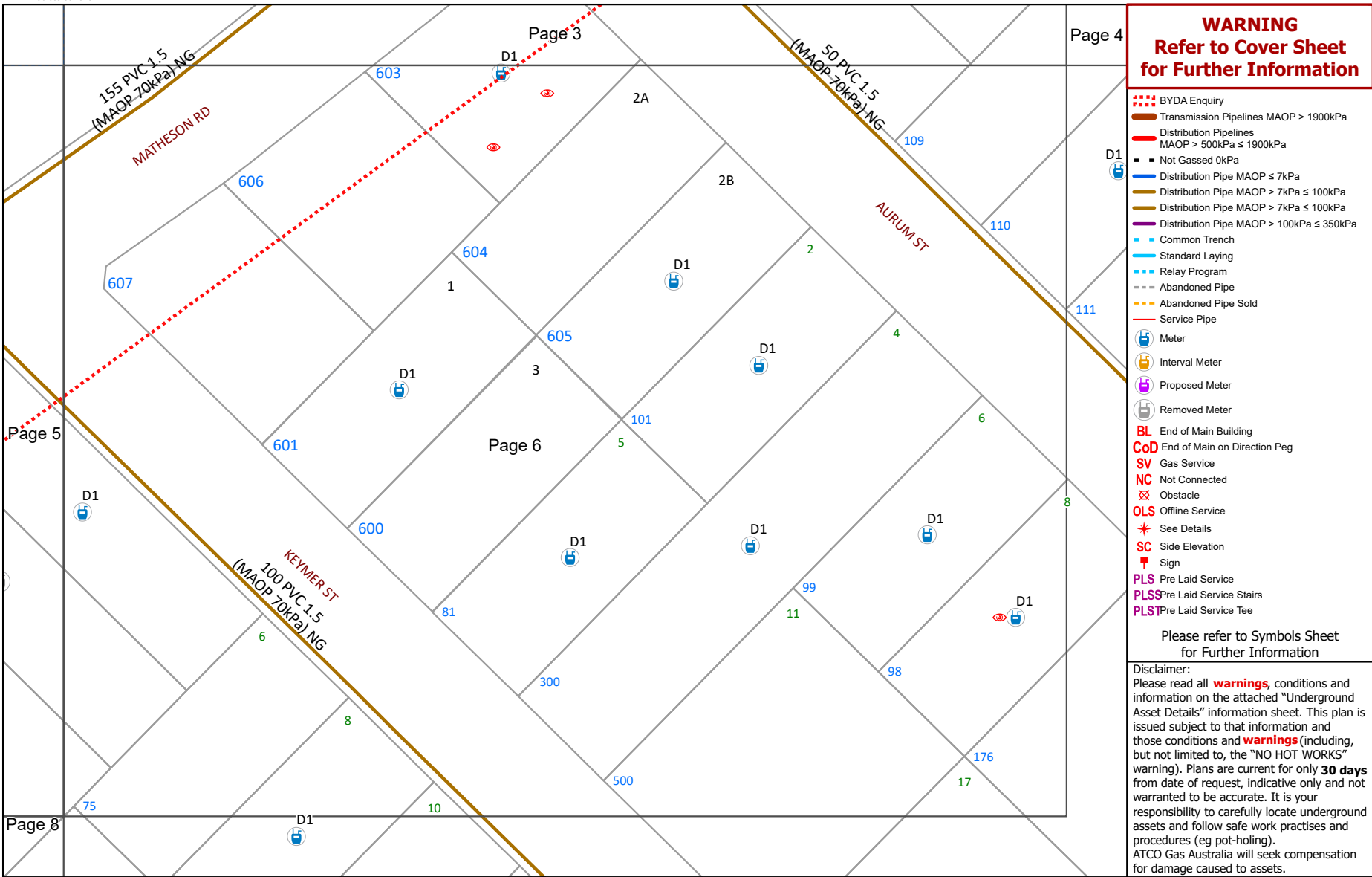
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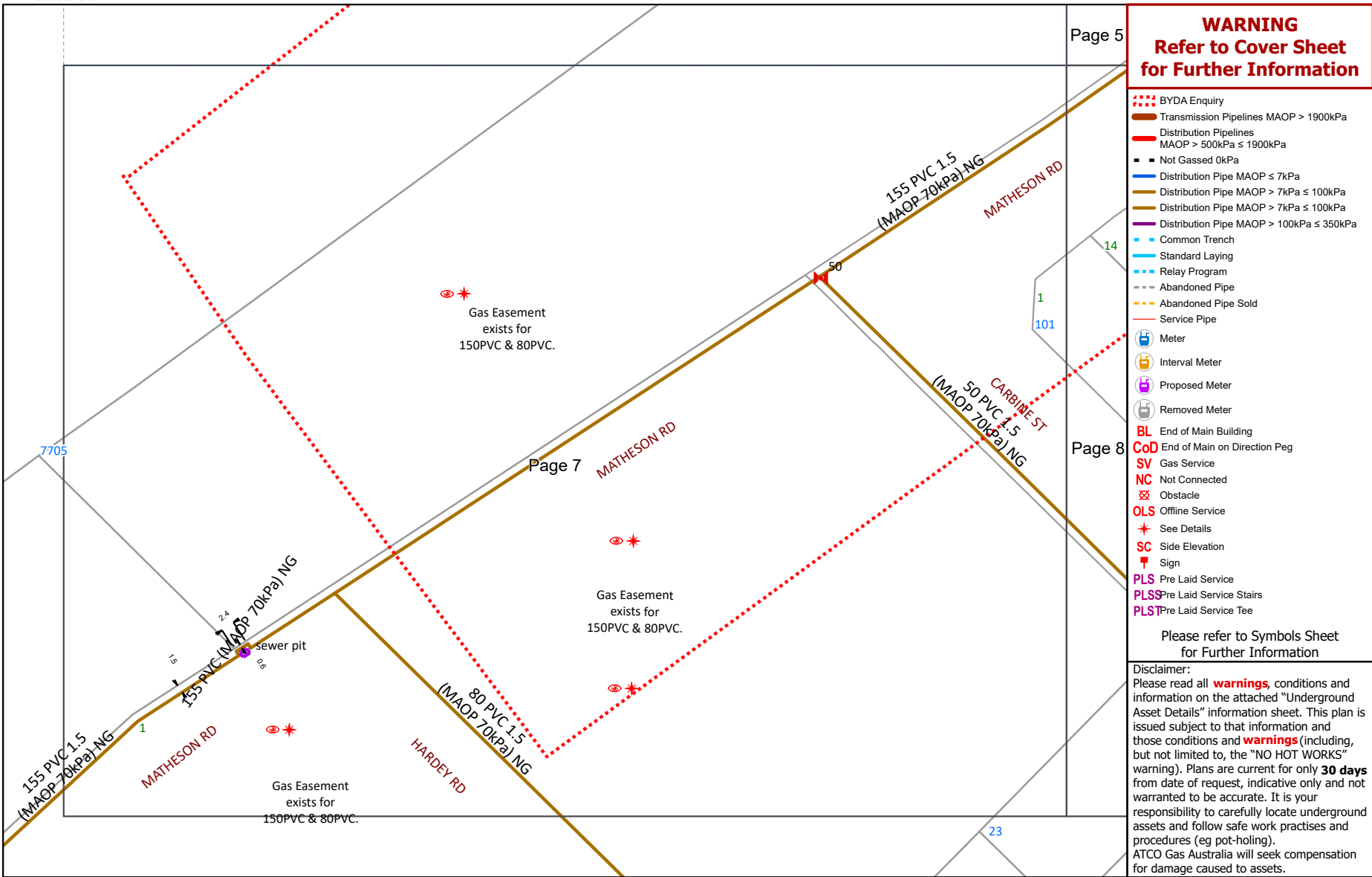
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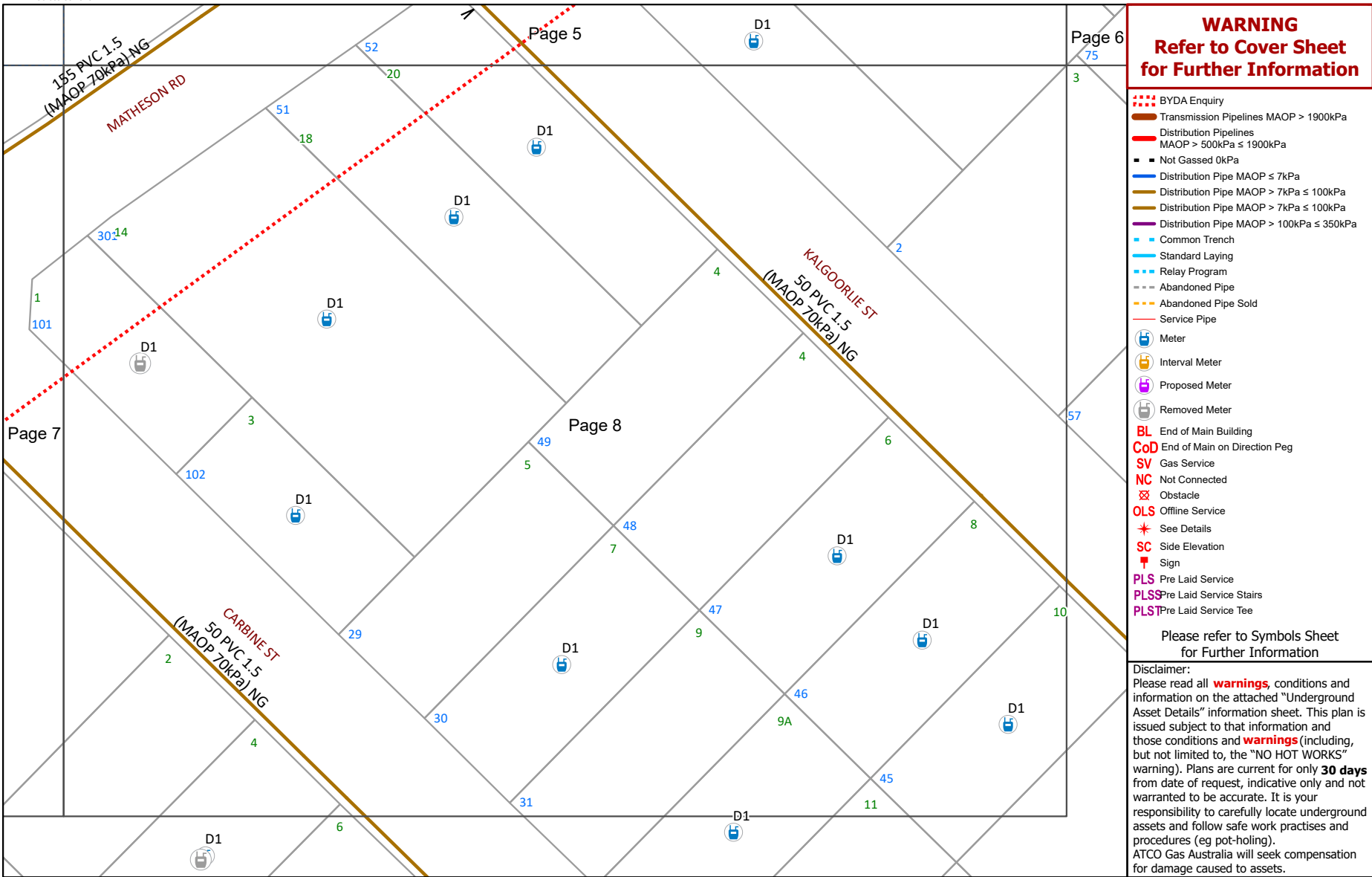
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Plans generated by SmarterWX™ Automate

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ATCO UNDERGROUND ASSET DETAILS ASSETS AFFECTED

GAS DIVISION

ASSETS AFFECTED – see accompanying Plan

Justin Zielinski
ATCO Gas Australia
54 Havelock Street
West Perth
WA 6005

Job No: 36962248
Sequence No: 240900641
Date of Issue: 21 June 2024
Phone: 1300 926 755

BYDA Utility Registration Name: Private
BYDA Location: 30 Matheson Road Ascot WA 6104

ATTENTION: This response to your enquiry has been interpreted from details in your requested DBYD picture location request only (not any street address you gave). It is your duty to ensure the accompanying plan/s match your geographical area of works.

**IF YOU SEE, HEAR, SMELL OR OTHERWISE DETECT GAS,
LEAVE THE IMMEDIATE AREA AND THEN CALL 13 13 52**

Our records indicate that ATCO gas infrastructure **IS PRESENT** in the vicinity of and/or surrounding area of the above enquiry. This response relates only to ATCO assets. Your Duty of Care requires that personnel **Must** at all times comply with, and have on site, this information sheet and the accompanying plan(s). All plans are subject to this information sheet. You should refer to the ATCO Self-service Portal ([Link Here](#)) or if unsure, contact ATCO on **1300 926 755** during business hours.

All information provided is to be used as a guide only (see Disclaimer item 5). It does not absolve you or third parties from your Duty of Care obligations, including to take additional precautions where work has the potential to impact on gas assets, public safety or the environment, or from your duties at law (including Reg 3.21 of the Occupational Safety and Health Regulations 1996).

WARNINGS

- No works of any type within 15 metres of any **CRITICAL GAS ASSET** infrastructure without prior approval from ATCO
- NO HOT WORK** within 15 metres of any gas infrastructure except in compliance with applicable laws & *Australian Standard 1674*. **Do Not** let heat sources or hot works impact on any gas infrastructure and take into consideration that the ground or adjacent structures may also be capable of transmitting heat so as to circumvent protection afforded by a heat shield or barrier
- DANGER** - Gas can cause asphyxiation and is flammable. Keep all ignition sources well away (e.g., flames, matches/ lighters, sparks, electrical devices, vehicles or engines, mobile phones, cameras)
- Gas pipes **Must Not** be unsupported or left without adequate cover or protection without prior approval from ATCO
- Damage to the pipe coating or pipe itself can be very dangerous if not given immediate attention. Report any damage to ATCO immediately on **13 13 52**. **Do Not** attempt to repair any damaged gas infrastructure
- No alteration or removal of live or abandoned gas infrastructure without prior written approval from ATCO
- Any abandoned or proposed gas infrastructure indicated on the gas plans **Must** be treated as live
- Never assume the location or depth of any gas infrastructure. Pipes may not follow straight lines or maintain a constant depth. Always check carefully (e.g., by careful hand digging of potholes)
- Unauthorised repairs or tampering with gas infrastructure may result in prosecution under the *Energy Operators (Powers) Act 1979*. ATCO Gas Australia reserves all rights to recover compensation for loss or damage to its gas infrastructure or other property including for indirect or consequential losses.

Document No: AGA-O&M-WI03-FM01

Revision No: 13

Issue Date: 22/04/2024


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Attachment 12.1.4 Engineering Servicing Report

PLANS:

Plans provided are current for **30 days only** from date of request. You must use current plans at all times.

Plans do not show all gas service lines (which connect gas mains to individual meter positions). See condition **3.c)** below.

If plan shows **additional detail** symbols (*) or () in the area of proposed works it is **your duty** to obtain that further detail from the number below.

Plans (including the location of pipes, services, infrastructure and boundaries) are **approximate only**. You **Must** use safe and proper procedures – including **potholing** (see condition **4** below).

Plans are not a guide as to gas availability for connection purposes.

To call ATCO: Weekdays from 7.30am to 3.30pm, call – 1300 926 755 After hours, weekends and emergencies, call – 13 13 52

CONDITIONS FOR WORKS IN THE VICINITY OF ATCO ASSETS

1. Compliance with Warnings

You **Must** comply with the Warnings contained in this information sheet and the accompanying plan(s).

2. Compliance with 'Working around Gas Infrastructure' Document ([Link Here](#)) applicable laws and duty of care

All work (including but not limited to using Excavator's Augers, Directional, drilling machines, 'Ditch Witch' type trenching machine, Loader, Dozer, Skid Steer (Bob Cat)) **Must** comply with all applicable requirements in the 'Working around Gas Infrastructure' Document and with all applicable laws and Australian Standards. All due care must be exercised to locate any gas infrastructure in the vicinity and when conducting any works near them.

3. All Gas Infrastructure

All work that may have any impact upon any gas infrastructure (see **3.a)**, **b)** and **c)** below for examples) should be carefully planned with notification to ATCO well in advance of commencement. Contact ATCO on **1300 926 755** or visit Atco's online self-service portal ([Link Here](#)). Amongst other things, this includes excavation of or near gas pipelines, boring/drilling, crossings of pipelines (including by other underground infrastructure e.g. drains, power cables, etc.), road works and structural installations. In addition:

a) Critical Asset

No works of any type are permitted within 15 meters of these pipelines without prior approval from ATCO. For approvals contact ATCO on **1300 926 755** or visit the Atco online Self-service portal ([Link Here](#))

You **Must** ascertain the location of any Critical Asset, in relation to your proposed work by:

- Locating a straight line between two marker danger signs, and
- Assessing the distance from this line to your proposed work area.

ATCO may require stand-by supervision during your works and will advise of attendance requirements.

b) Non Critical Assets

These pipelines are installed in most streets throughout the Perth metro area and several country centers. Main valves, regulator sets, and test points also exist at intervals along these pipelines. Where work may impact upon these pipelines or assets then ATCO **Must** be contacted as per item **3** above.

c) Gas Services and Meters

If a gas meter is installed on a property, an underground gas service pipe will run from the meter position to the gas main in the street. Plans do not show all gas service lines (with the exception of Critical Assets), but their presence must be anticipated. Most gas meter boxes installed since 1996 will include a sticker giving approximate guidelines for the gas service line location. All due care must be exercised to locate any gas services in the vicinity and when conducting any works near them.

4. Compliance with Safe Work Practices

It is your responsibility to have and comply with adequate safe work practices and procedures. Without limiting your obligations:

PLAN The complete & current Before you Dig Australia documentation and plans must always be on site & referred to for the duration of work. Refer to regulation 3.21 of the Occupational Safety and Health Regulations 1996 and the Utility Providers "Code of Practice" for further useful information.

PREPARE Prepare by reviewing the Before you Dig Australia Documentation and contacting ATCO if you need assistance. Look for onsite ATCO asset and infrastructure clues such as pit lids, marker posts and meters. No works of any type are permitted within 15 meters of a **CRITICAL ASSET** without prior approval from ATCO. For approvals contact ATCO on **1300 926 755** or visit the Atco website Self Service portal ([Link Here](#)) and allow suitable

Document No: AGA-O&M-WI03-FM01

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Attachment 12.1.4 Engineering Servicing Report

processing time. Atco recommends engaging a [BYDA Certified Locator](#) which includes undertaking electronic location prior to potholing.

POTHOLE Using current Before you Dig Australia plans, all gas pipes should be located (including any deviation in the direction of a gas pipe) by exposing them by careful digging using a HAND SHOVEL. Where the proposed work is parallel to a gas pipeline, pothole every 10 meters along the entire route. Damage to the pipe coating or to the pipe itself can create a very dangerous situation if not given immediate attention. If damage does occur, it **Must** be reported to ATCO immediately on Ph. **13 13 52**.

PROTECT Supervise and monitor all excavations near gas infrastructure using a dedicated spotter. Where any gas infrastructure is required to be exposed, adequate protection of the gas infrastructure is required to prevent potential damage. Also implement appropriate controls when conducting 'hot work' (in accordance with AS 1674) in the vicinity of the ATCO infrastructure such as; isolation; separation distance; the placement of an effective non-combustible barrier of sufficient size and thermal resistance for the intensity, type and duration of heat exposure; gas monitoring; monitoring the environment surrounding the ATCO infrastructure to ensure it is not being impacted by the work, and other controls as necessary.

PROCEED You should **only proceed** with your excavation work after you have planned, prepared, potholed (unless prohibited) and have protective measures in place. All locations markers/pegs are to be removed on completion of works. If you are unsure, **DO NOT** Proceed. Call ATCO on **1300 926 755**

5. Disclaimer and Further Terms

- a) Nothing in this document, any accompanying plan or the 'Additional Information for Working around Gas Infrastructure' (AGA-O&M-PR24) (together called "**Documents**") purports to exclude or modify any term, condition or warranty to the extent that by law it cannot lawfully be excluded or modified by agreement or notice, including but not limited to those contained in Schedule 2 of the *Competition and Consumer Act* 2010 (Cth) and corresponding provisions of any state legislation.
- b) If any of ATCO, or their respective related entities, officers, employees, agents, contractors or advisers (together called "**Associates**") is liable for a breach of a term, condition or warranty described in paragraph **5.a)** above, its liability is, to the fullest extent permitted by law, limited to any one or more of the

following as it determines in its absolute discretion:

- i) in relation to goods supplied by them, replacing or repairing the goods, supplying an equivalent item, paying the cost of replacing or repairing the goods or paying the cost of acquiring or hiring an equivalent item; and
- ii) in relation to services supplied by them, the re-supply of the services or the payment of the cost of having the services re-supplied.
- c) Subject to paragraphs **5.a)** and **b)**, but otherwise despite any other provision in the Documents, no representation or warranty is made or given (whether expressly or by implication) by any of ATCO or their respective Associates in respect of any information contained or referred to in any of the Documents or in any other communication from ATCO concerning any of the Documents or the subject matter of any of the

Documents ("Information"). In particular, but without limiting the generality of the foregoing limitation, none of ATCO or their respective Associates makes any warranty or representation as to the truth, accuracy, completeness, reliability, currency, timeliness, quality or fitness for any purpose of or the standard of care taken in the preparation of any Document or Information (including, but not limited to, the accuracy of the scale of, or the location of anything or symbol shown on, any plan or diagram).

- d) Subject to paragraphs **5.a)** and **b)**, to the maximum extent permitted by law, none of ATCO or their respective Associates is liable to any person or other body ("**Recipient**") who receives or otherwise obtains access to all or any part or parts of the Documents or Information, in any way (including, but not limited to, liability for negligence, breach of statutory duty or lack of care) in respect of any cost, expense, damages, loss or liability, including, but not limited to:
 - i) any financial or economic loss, cost, expense or damage, including but not limited to loss of production, loss of profit, loss of revenue, loss of use, loss of contract, loss of goodwill or loss of business opportunity;
 - ii) any new or increased costs or expenses, including but not limited to financing or operating costs;
 - iii) any failure to achieve any actual or anticipated saving in respect of any cost or expense;
 - iv) any cost, expense, damage or loss resulting from any liability of the Recipient to any other person or body howsoever and whensoever arising, suffered or incurred by the Recipient in relation to, or in connection with, the disclosure to them of, or use of, or reliance on, all or any

Document No: AGA-O&M-WI03-FM01

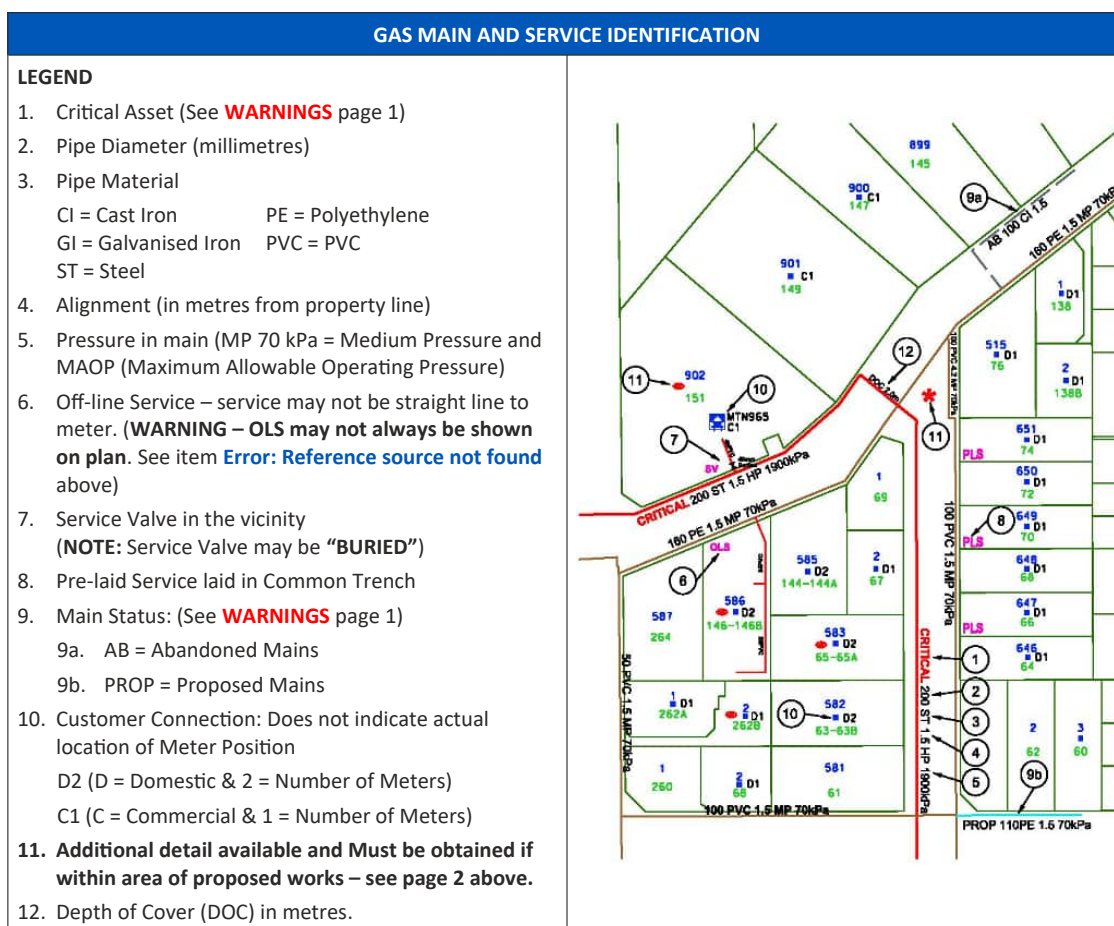
Revision No: 13

Issue Date: 22/04/2024

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part or parts of the Documents or Information.

- e) By using any Document or Information, each Recipient is taken to represent and warrant to ATCO that the Recipient will comply with the conditions and other terms referred to in the Documents or Information, including but not limited to conditions that:
- the Recipient **Must** comply with the conditions in numbered paragraphs 1 to 4 above and this paragraph 5;
 - as between ATCO and each Recipient, ATCO owns the Information and all rights and title in and to the Information are to remain vested in ATCO;
 - no Recipient has any right, title or interest in the Information or, except as expressly provided for in the Documents, any license or right to copy, alter, modify, publish or otherwise use or deal with the Information without prior written approval from ATCO;
 - ATCO makes no representation and gives no warranty as to its right to disclose any Information;
 - the Recipient relies on any Information entirely at its own risk and expense;
 - the Recipient **Must** undertake its own independent due diligence and investigations in relation to the Information;
 - none of ATCO or their respective Associates owes the Recipient any duty of care in respect of the Information; and
 - none of ATCO or their respective Associates is under any obligation to correct, update or revise any Documents or Information.



IF UNSURE, PLEASE CONTACT ATCO ON 1300 926 755

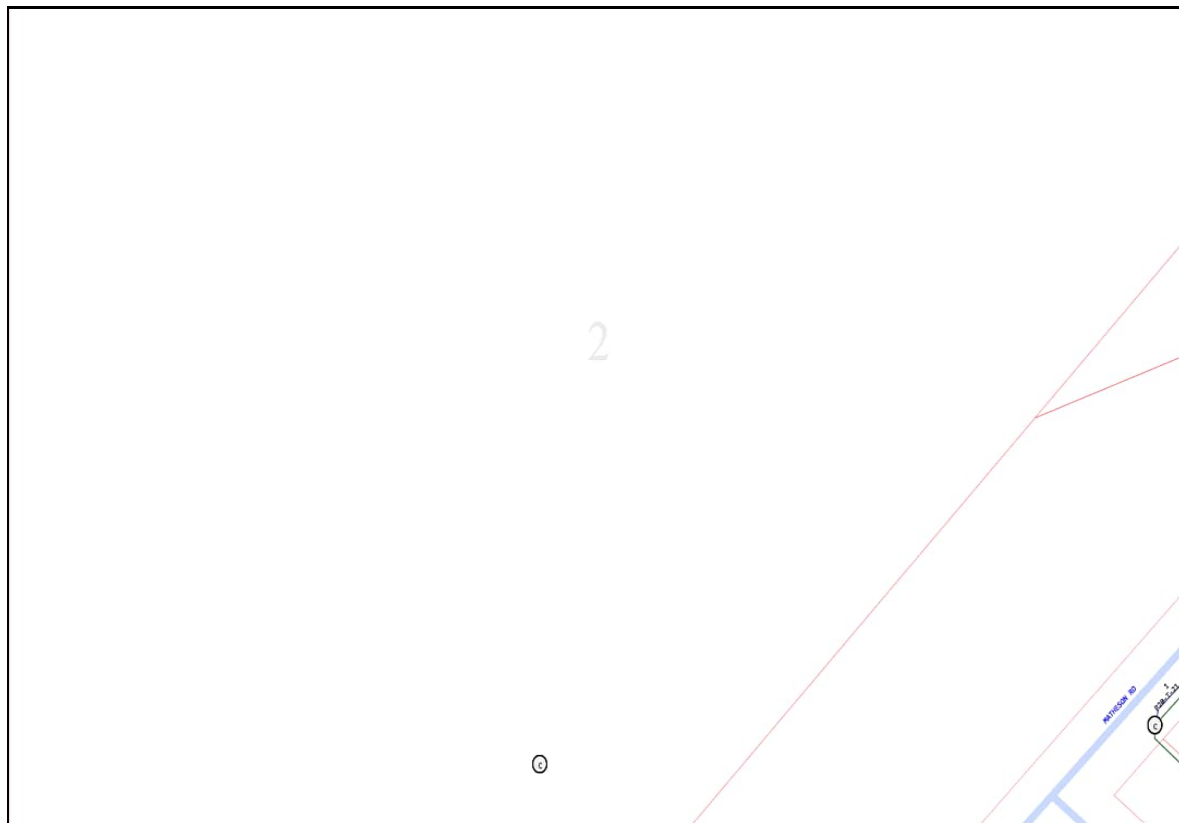
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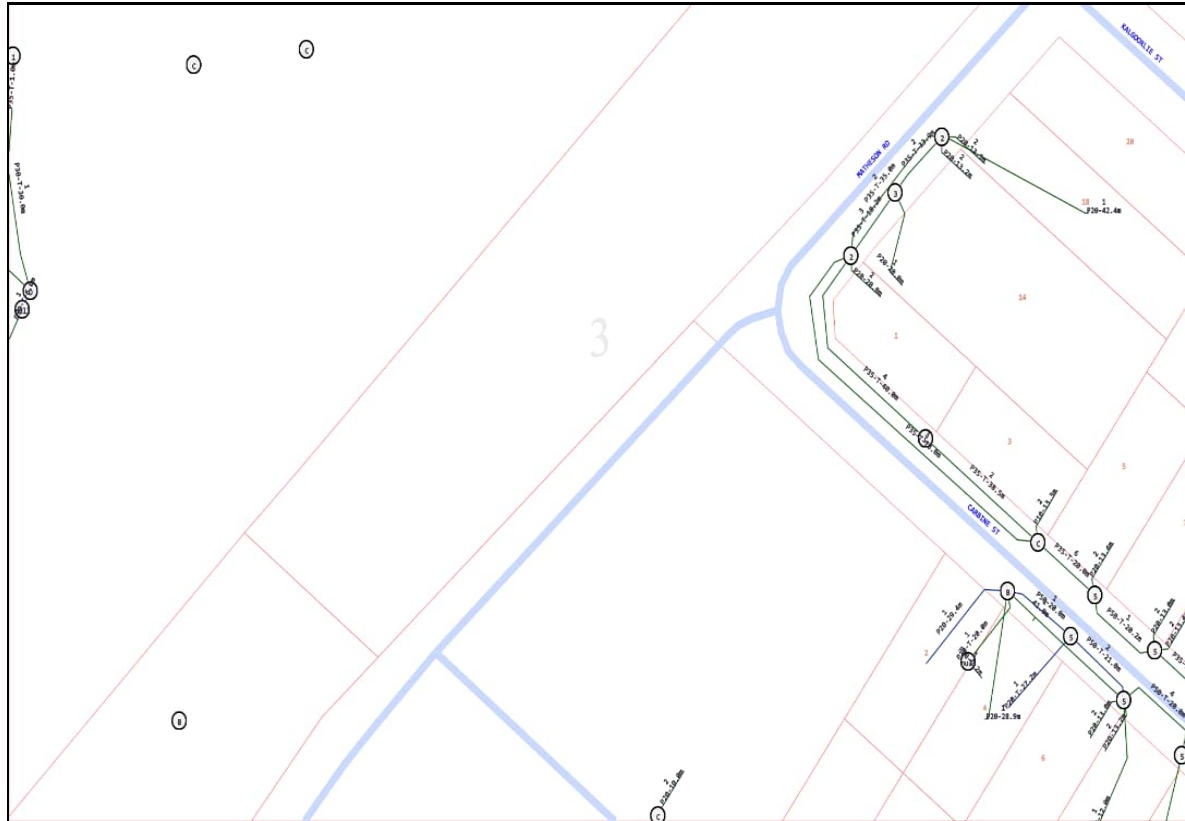
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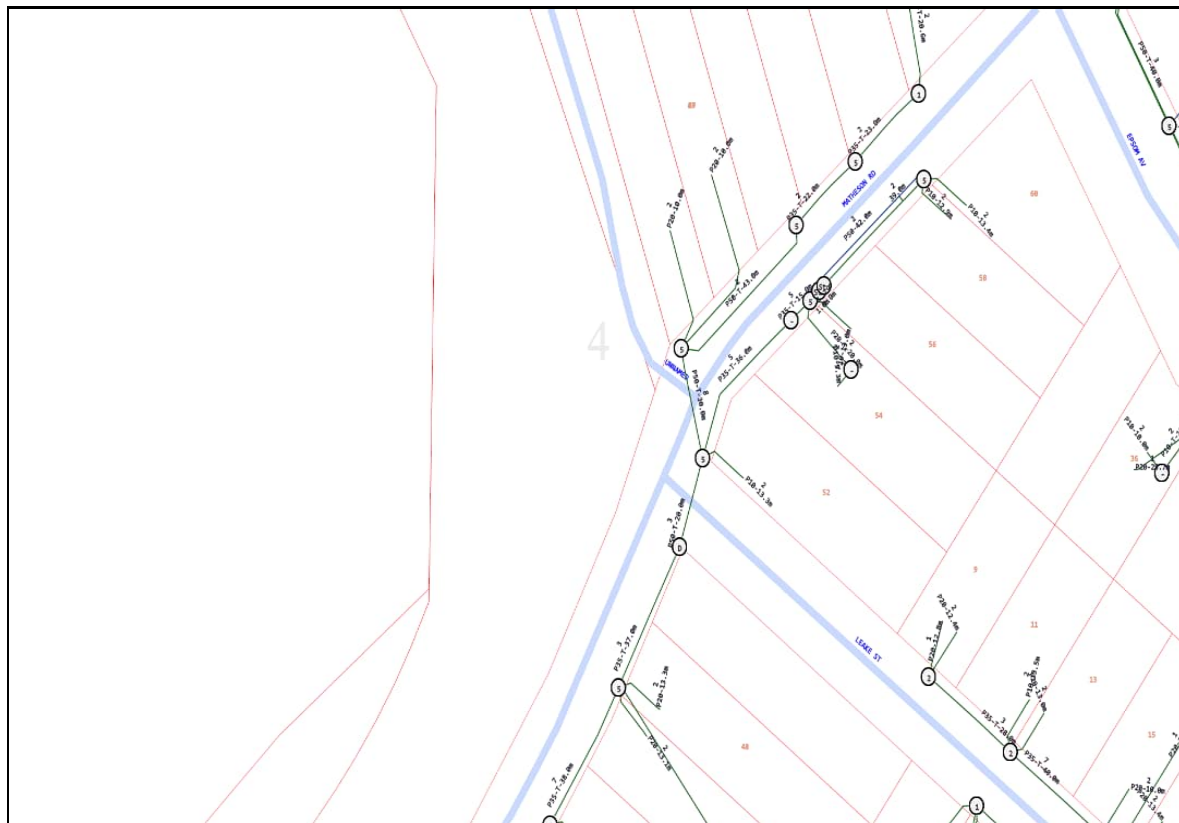
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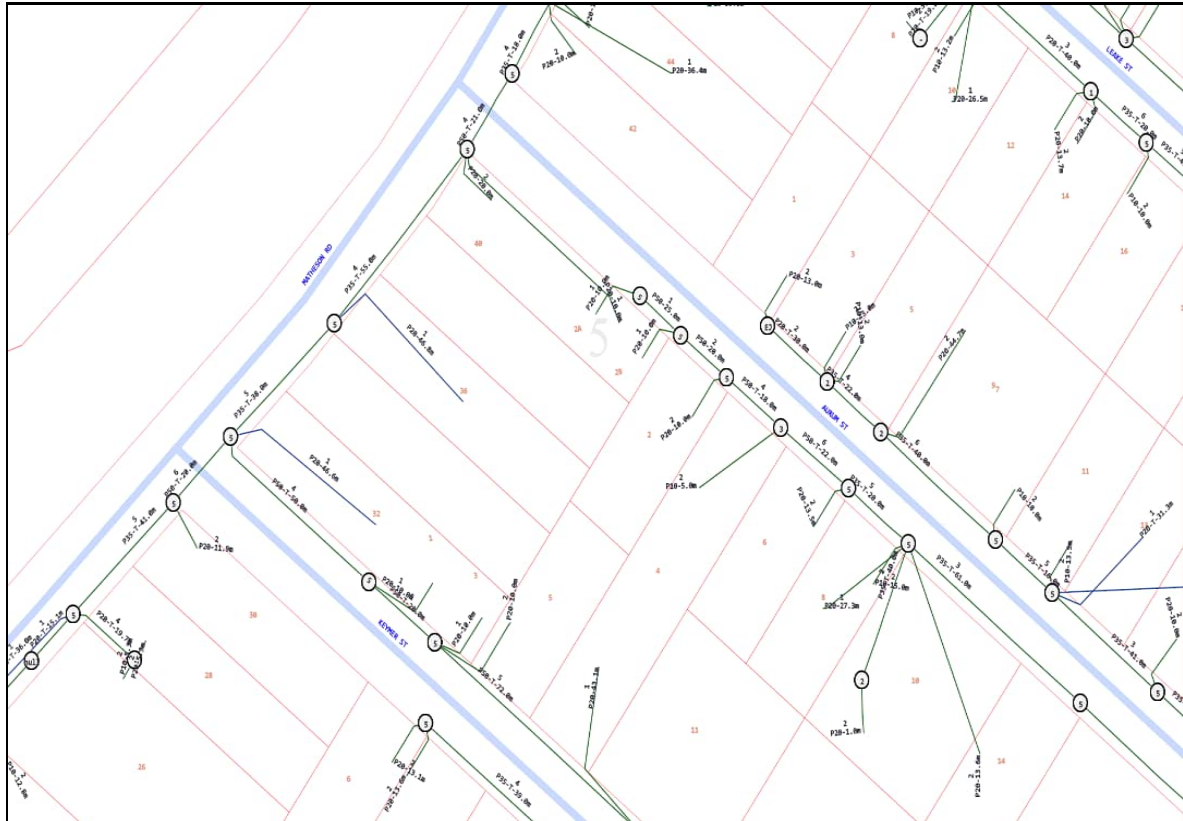
Page 4 of 4

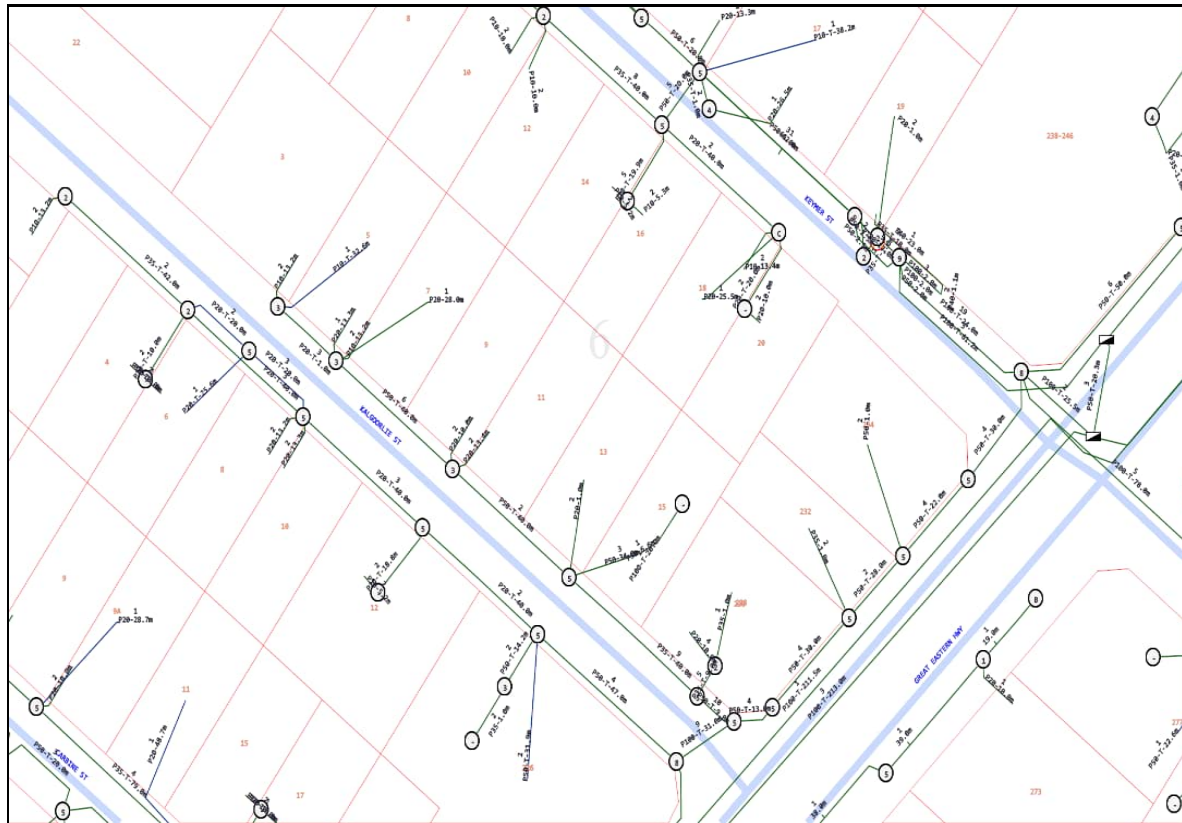
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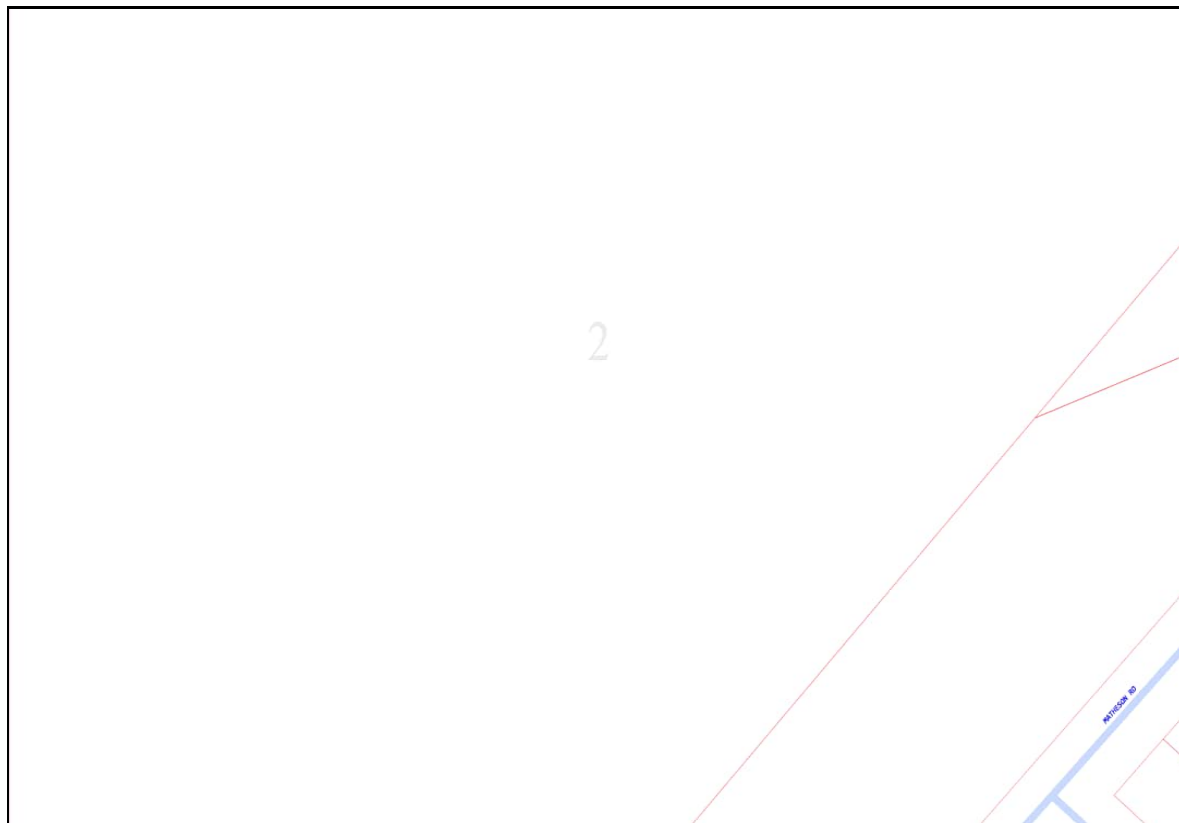


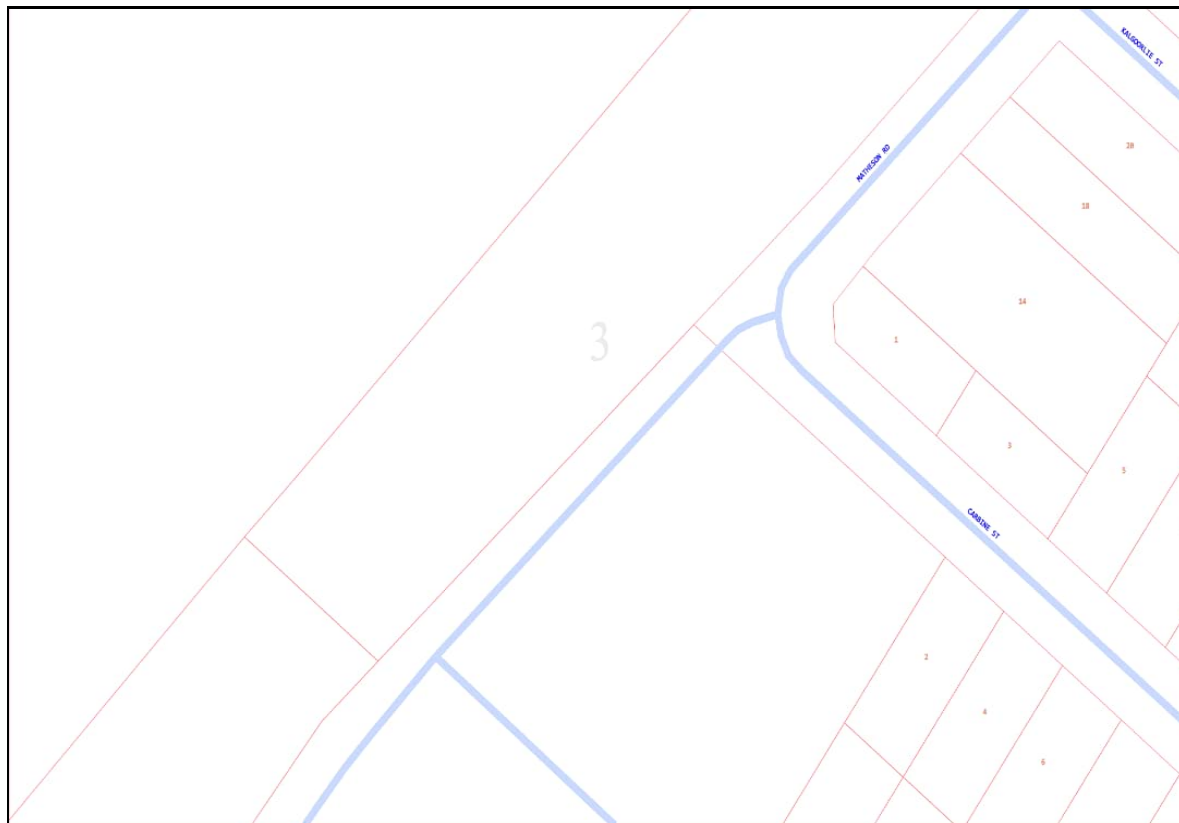


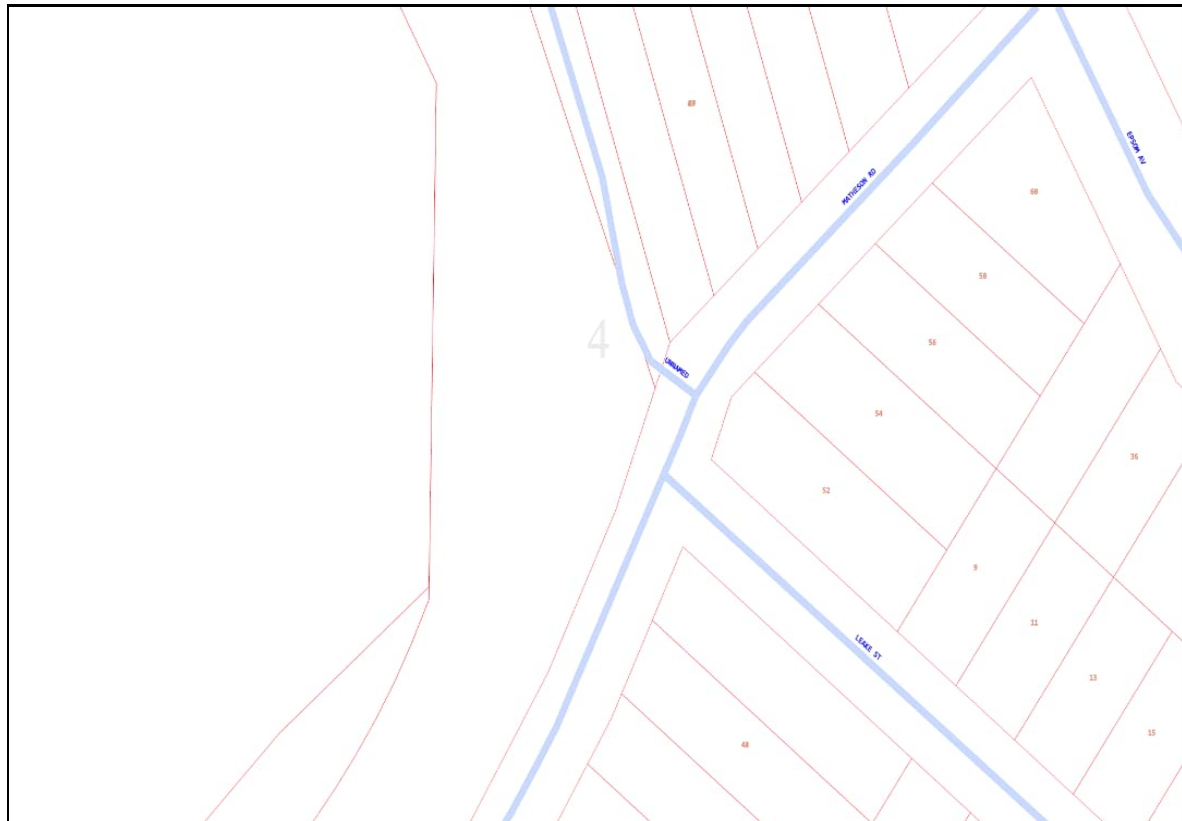
Emergency Contacts

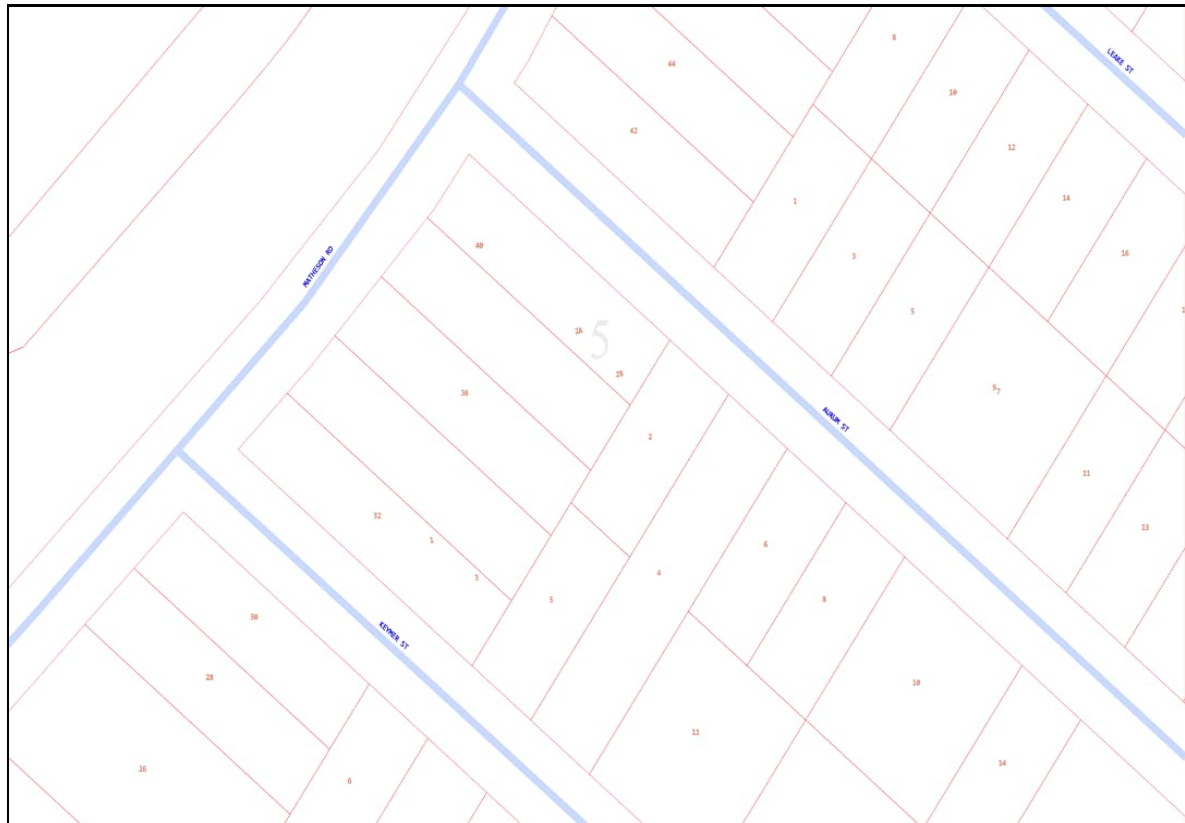
You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

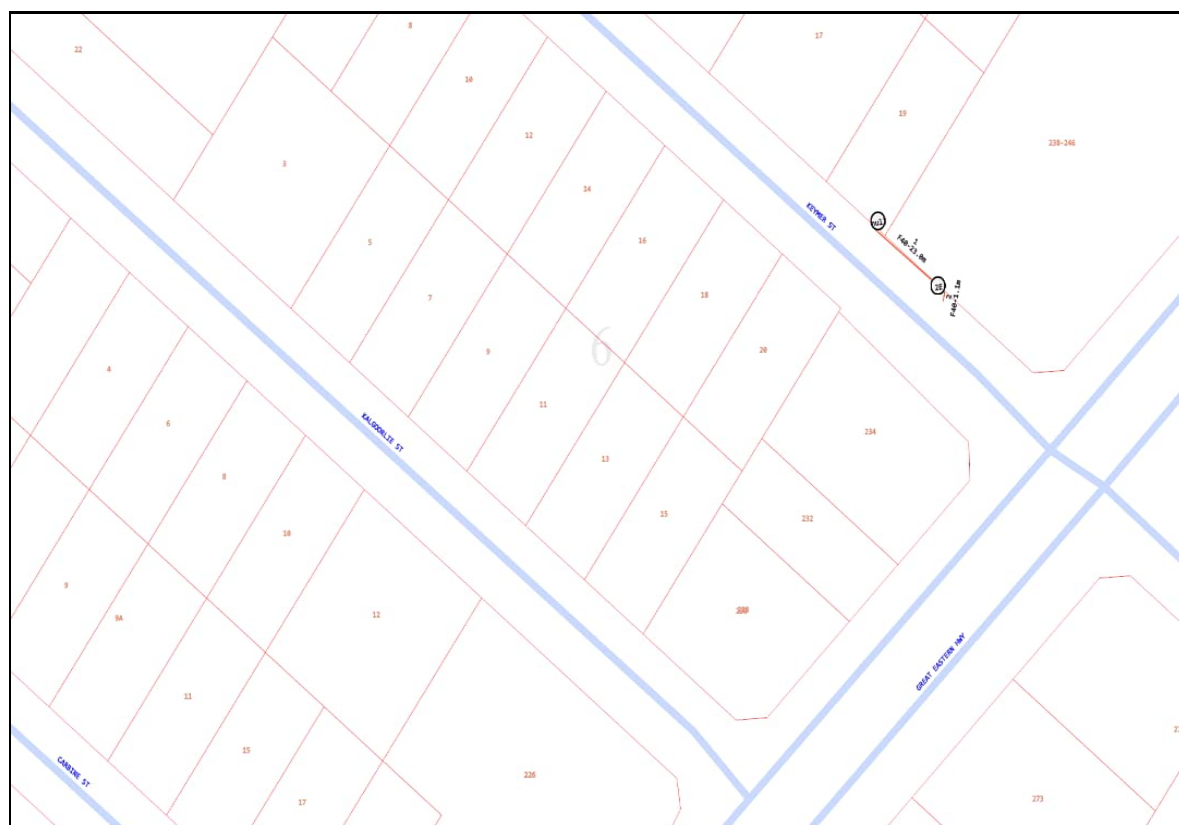
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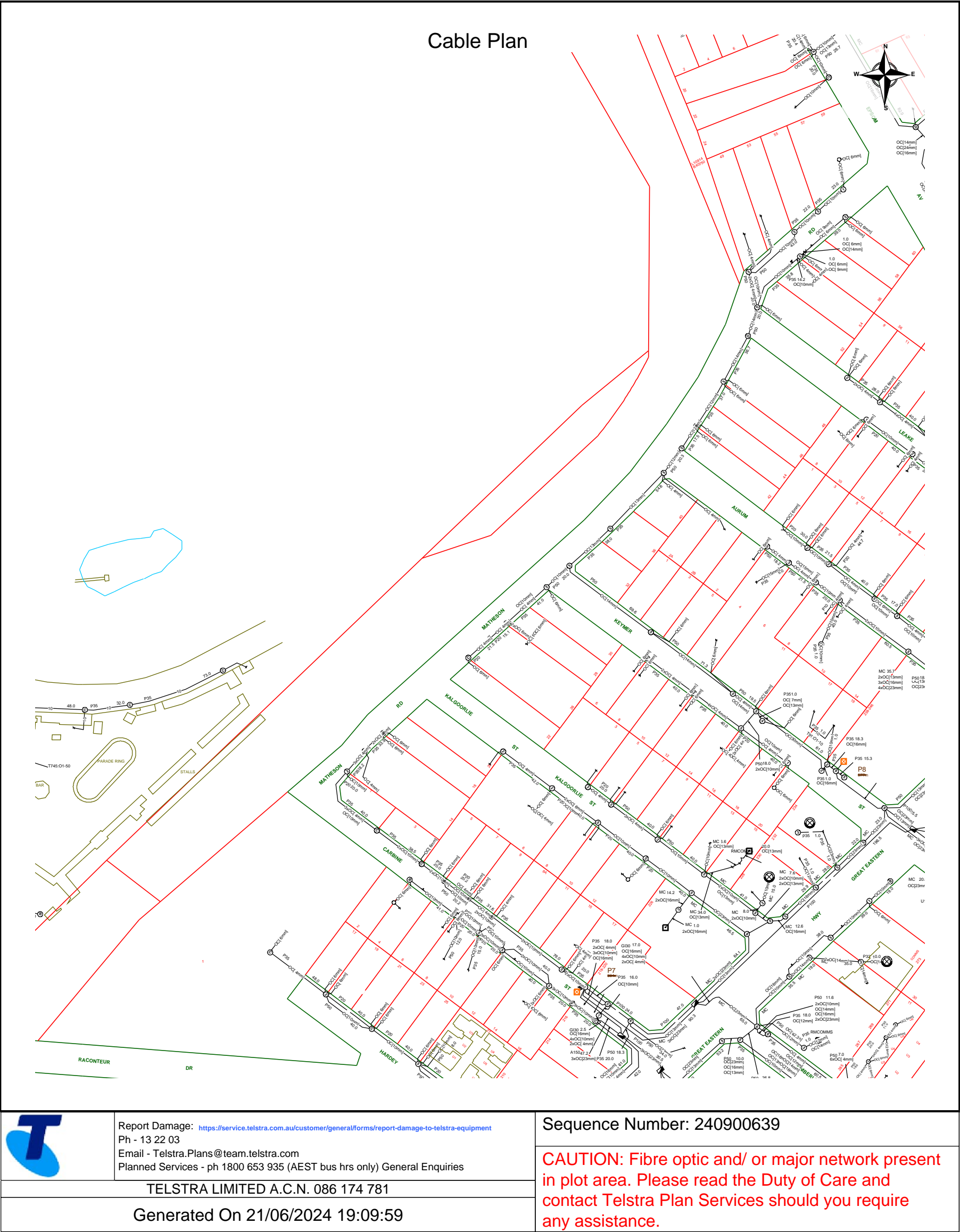


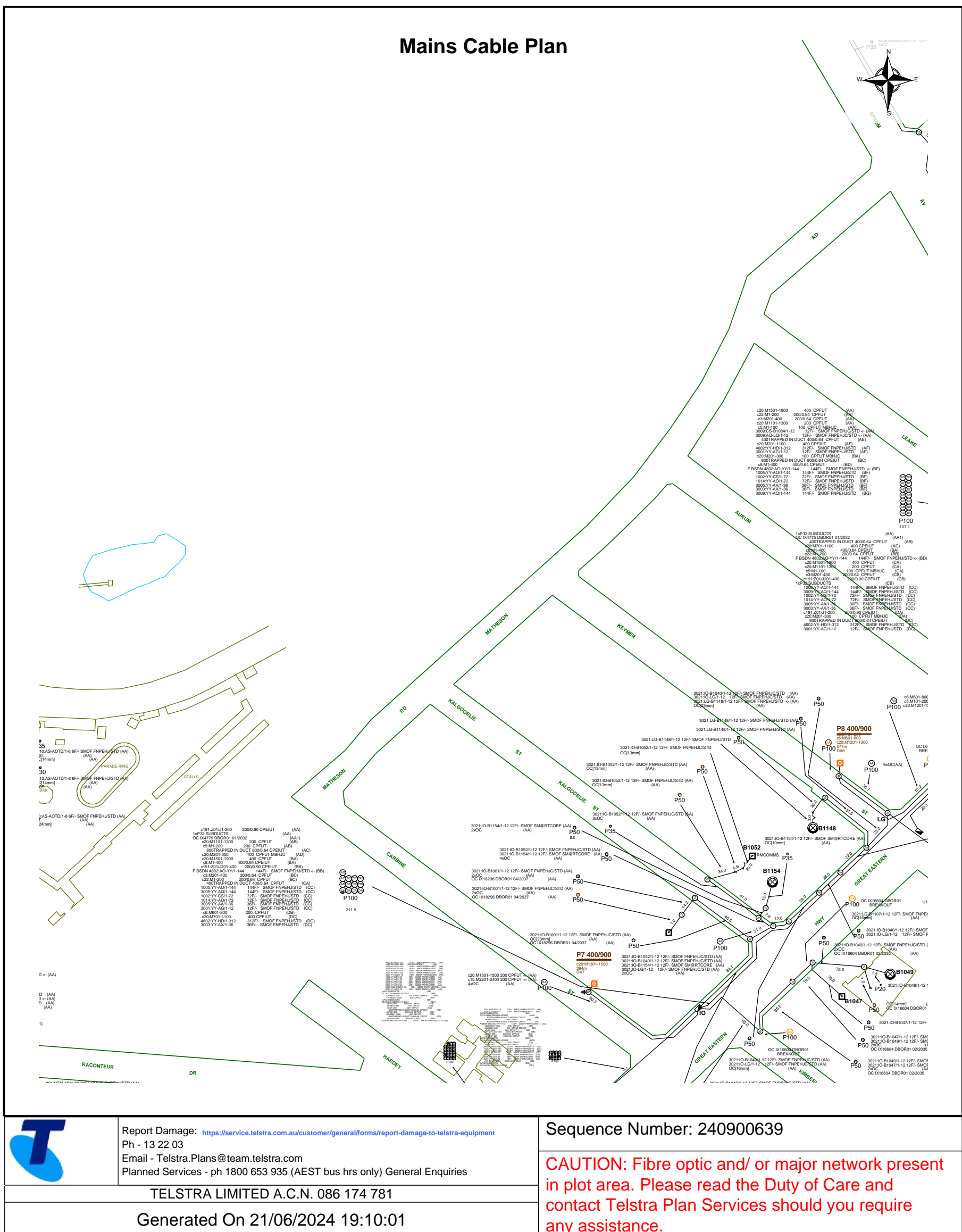




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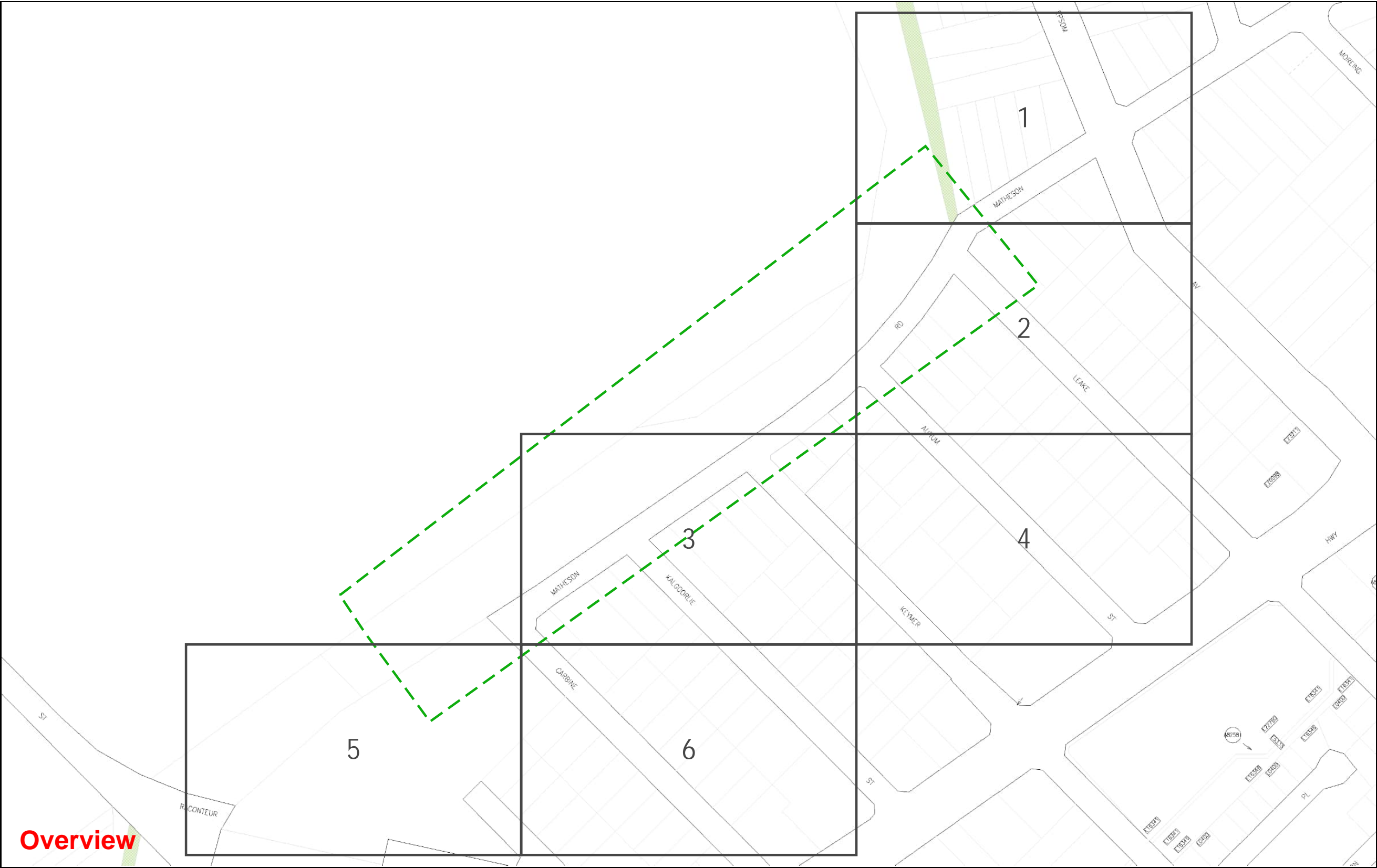




WARNING

Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.

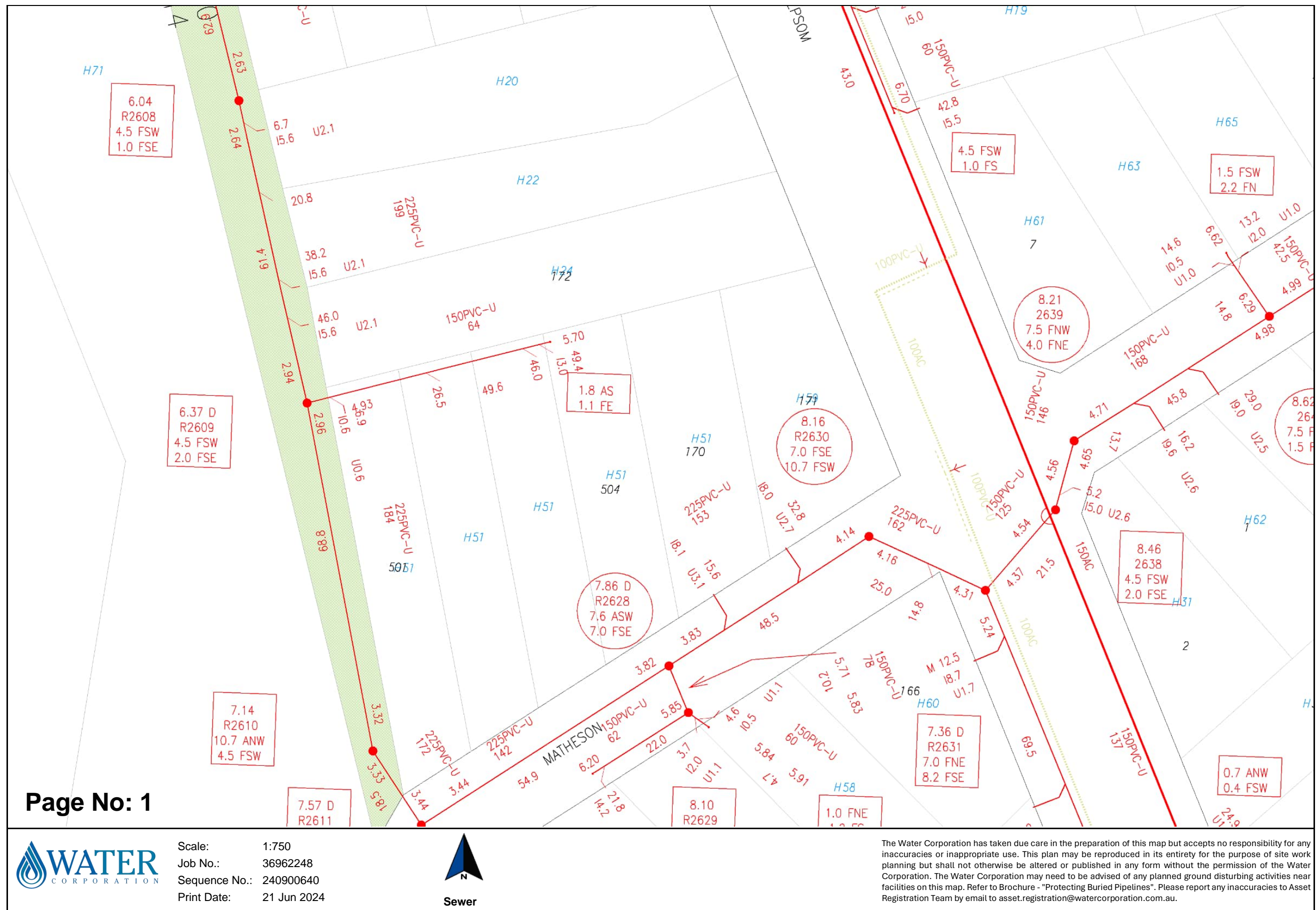


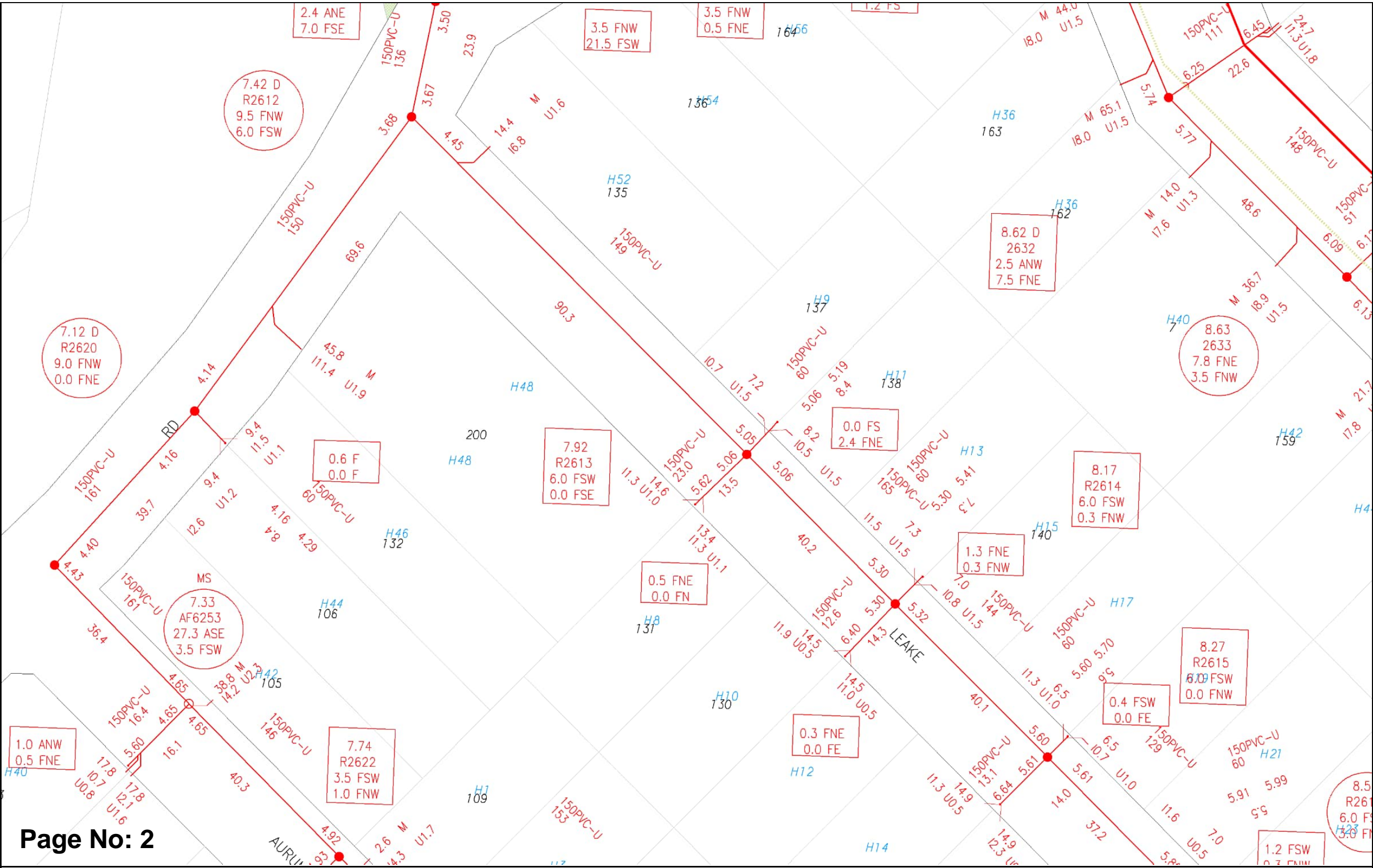
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Job No.: 36962248
Sequence No.: 240900640
Print Date: 21 Jun 2024



Sewer

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Page No: 2

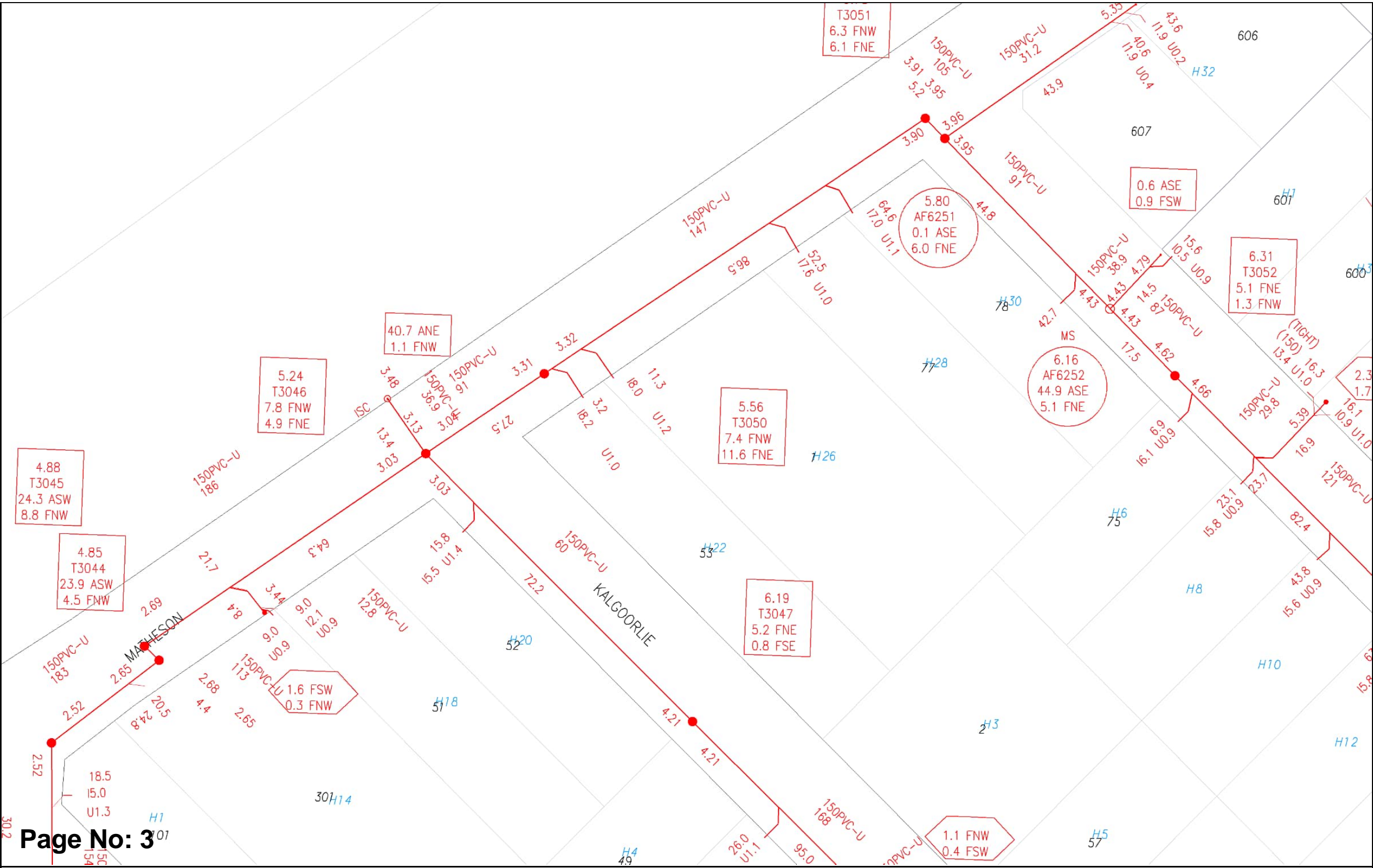


Scale: 1:750
Job No.: 36962248
Sequence No.: 240900640
Print Date: 21 Jun 2024



Sewer

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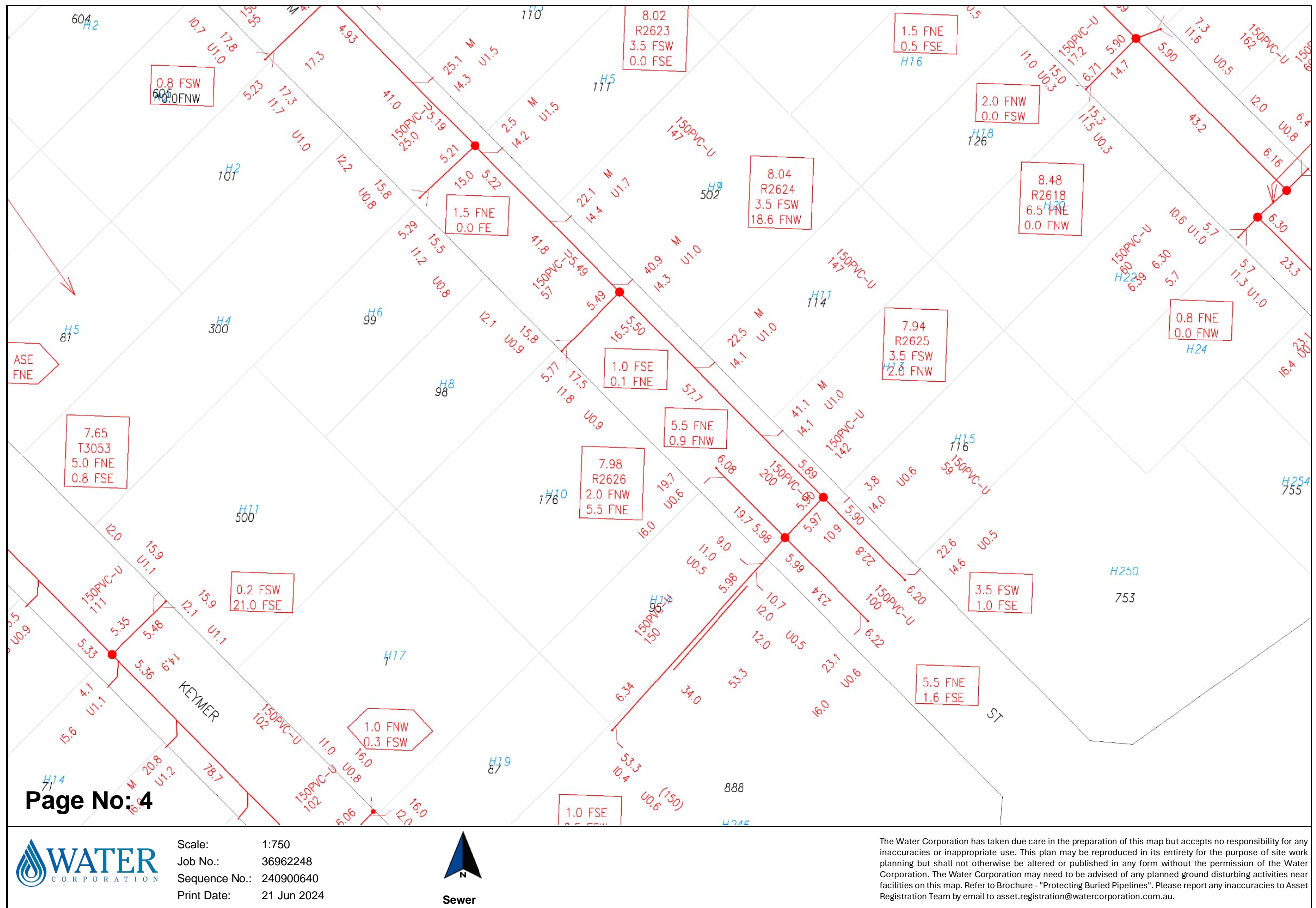


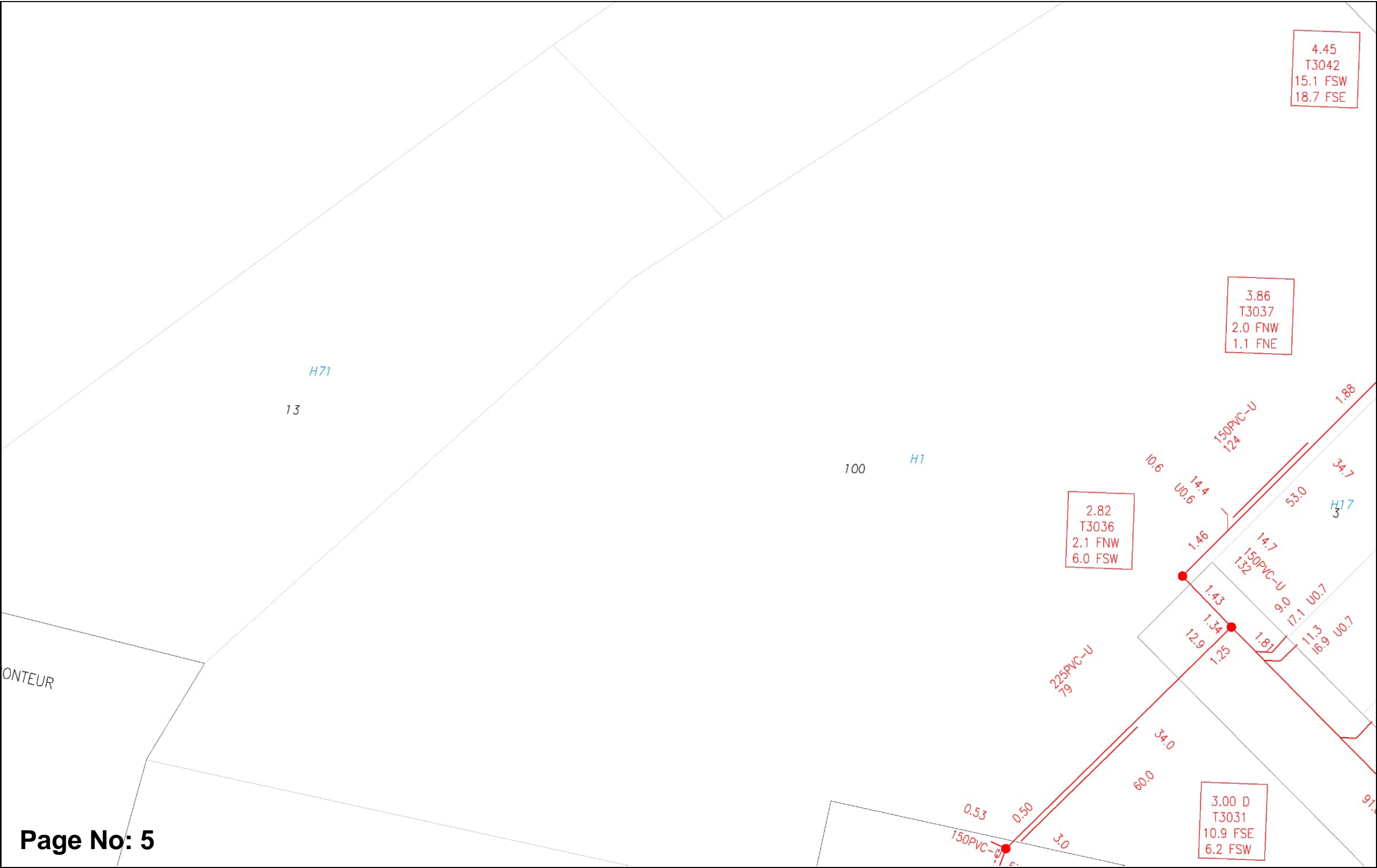
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Print Date: 21 Jun 2024



Sewer

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Page No: 5



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Job No.: 36962248

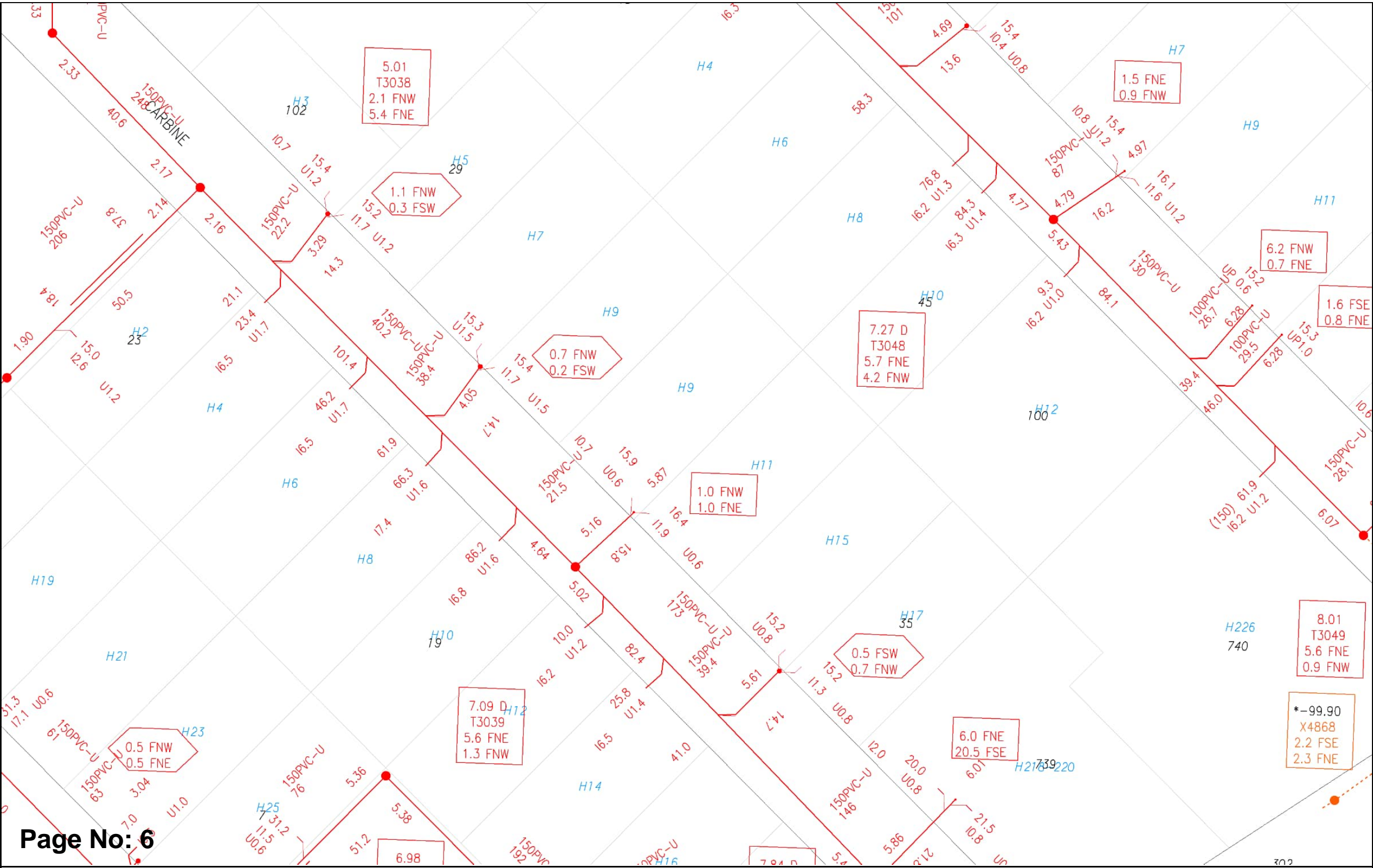
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Print Date: 21 Jun 2024



Sewer

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Page No: 6

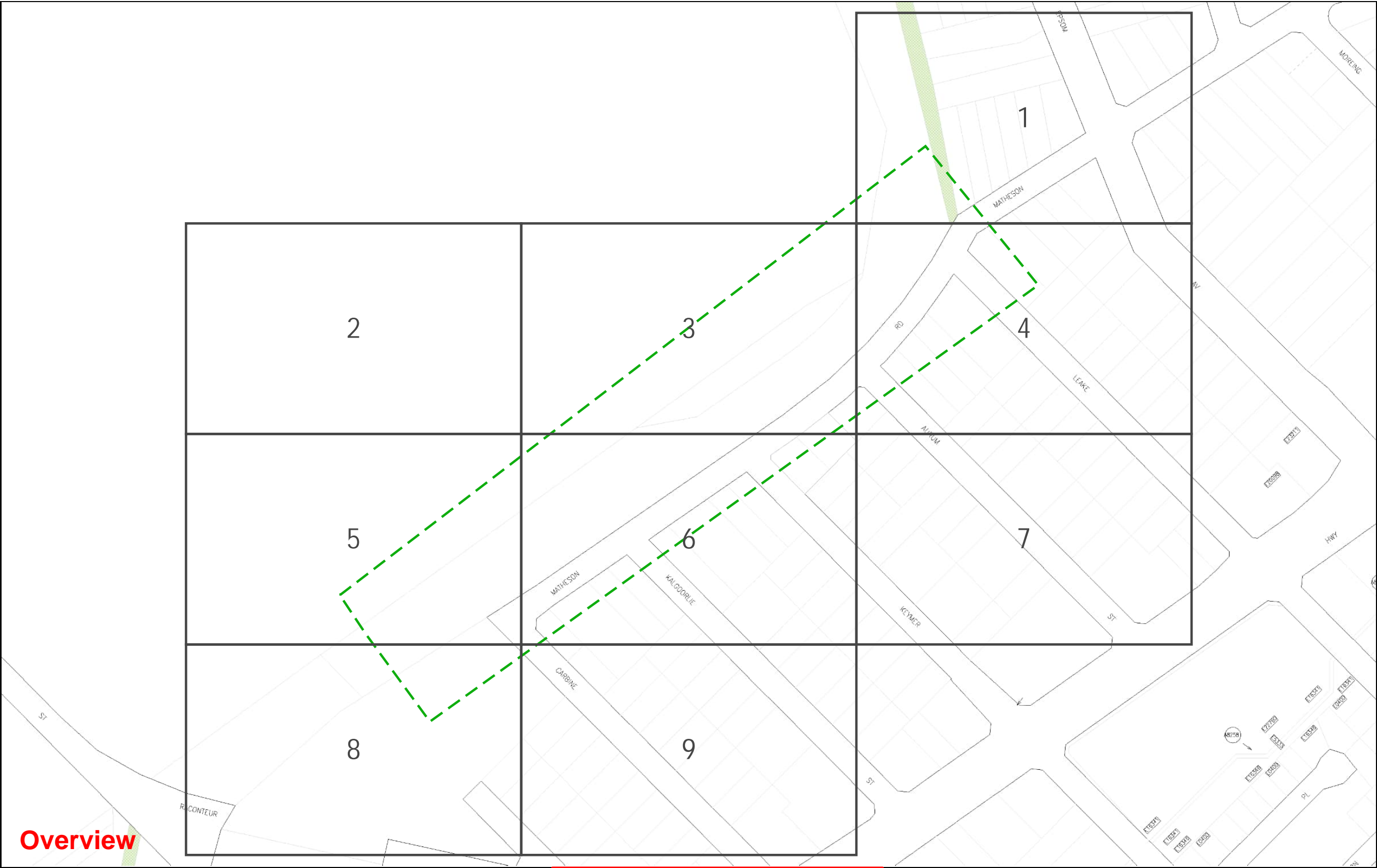


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Job No.: 36962248
Sequence No.: 240900640
Print Date: 21 Jun 2024



Sewer

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Scale: 1:3075

Job No.: 36962248

Sequence No.: 240900640

Print Date: 21 Jun 2024



Water

WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED

Apply for approval to work near our assets at:
[Working near assets \(watercorporation.com.au\)](http://watercorporation.com.au)

Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.

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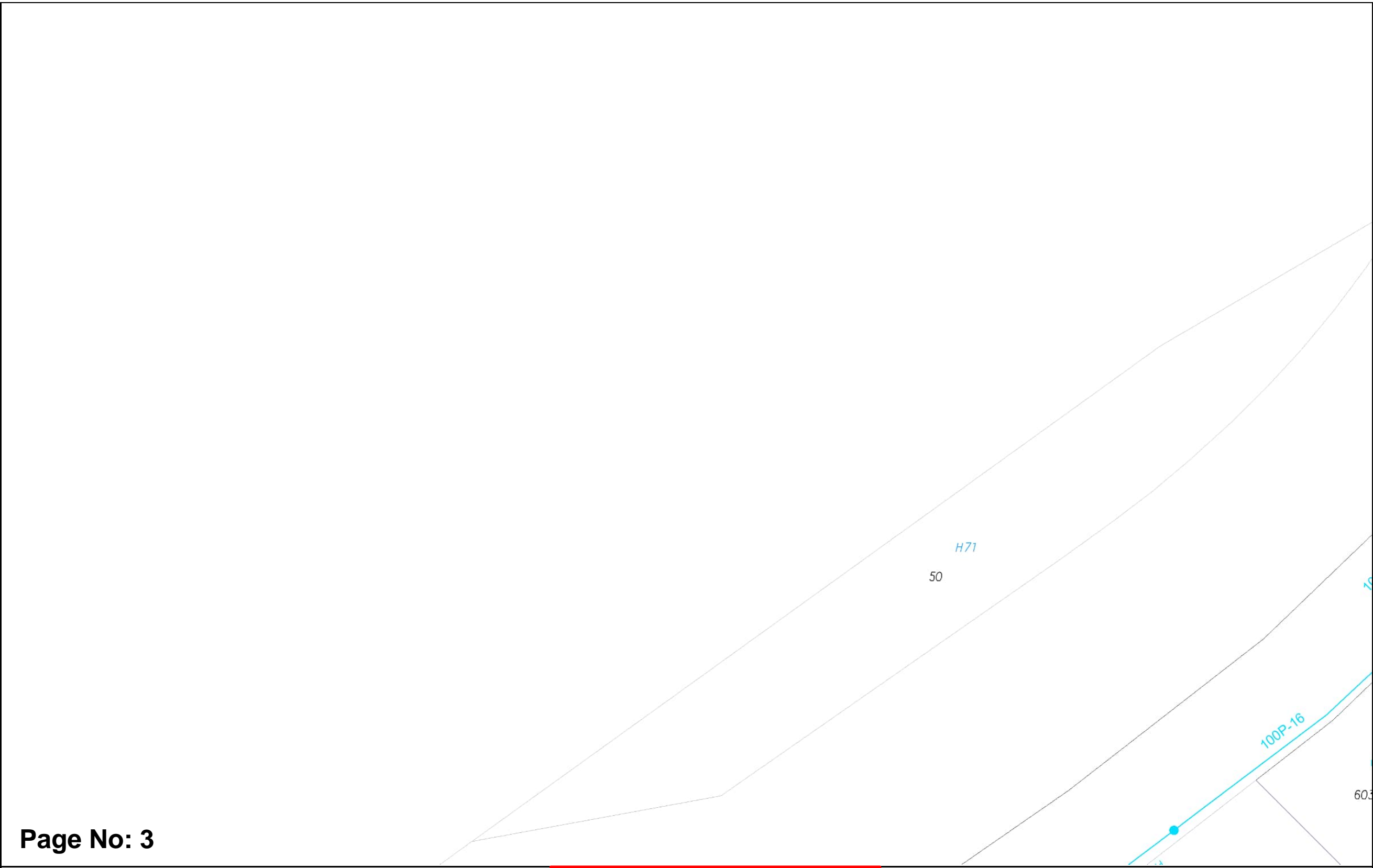
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	Sequence No.:	240900640
	Print Date:	21 Jun 2024
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	Apply for approval to work near our assets at:	
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9002

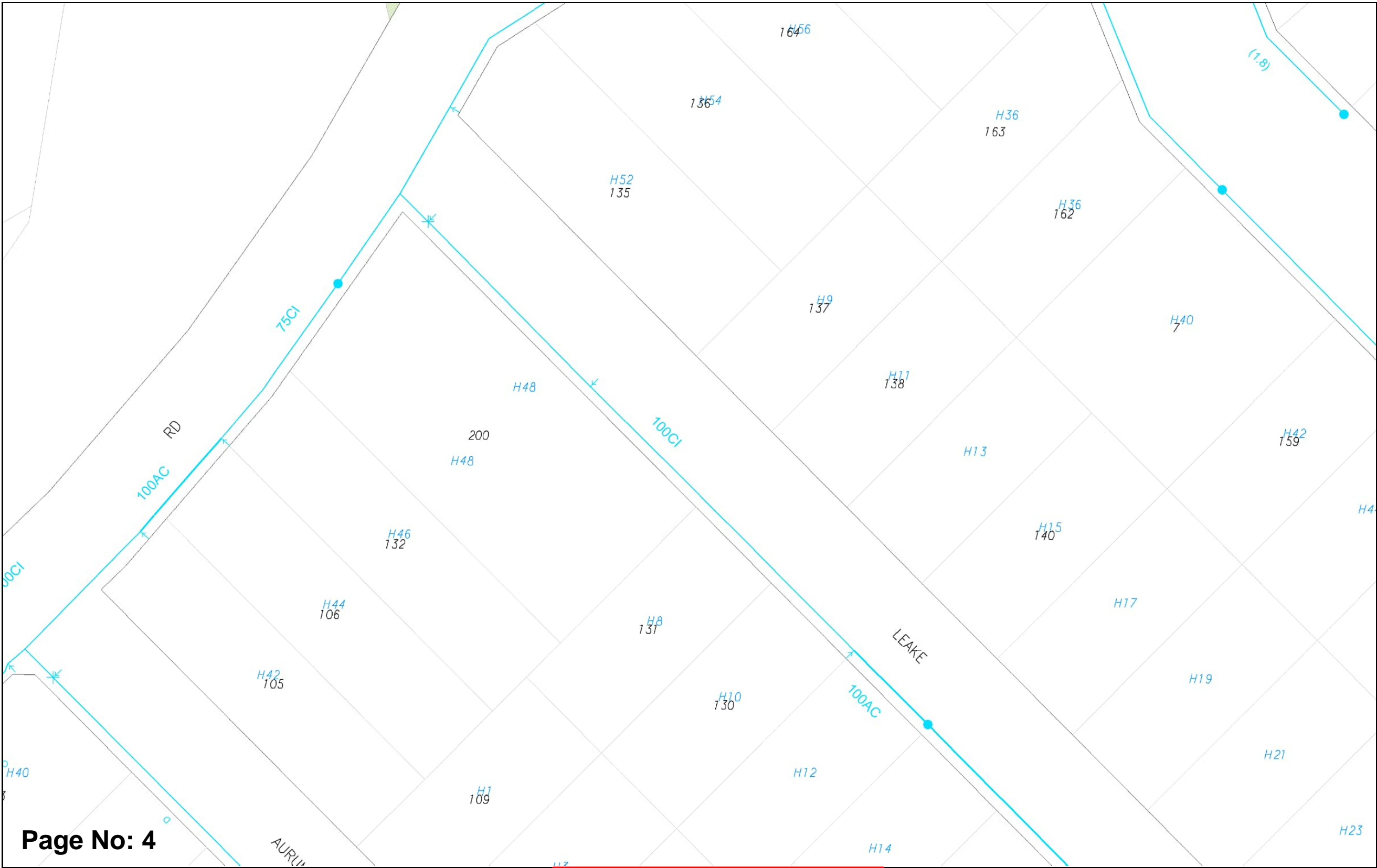
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Page No: 3

	Scale:	1:750		<div><div>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED</div><div>Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)</div><div>Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</div></div>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
	Job No.:	36962248			
	Sequence No.:	240900640			
	Print Date:	21 Jun 2024			



Page No: 4



Scale: 1:750
Job No.: 36962248
Sequence No.: 240900640
Print Date: 21 Jun 2024



Water

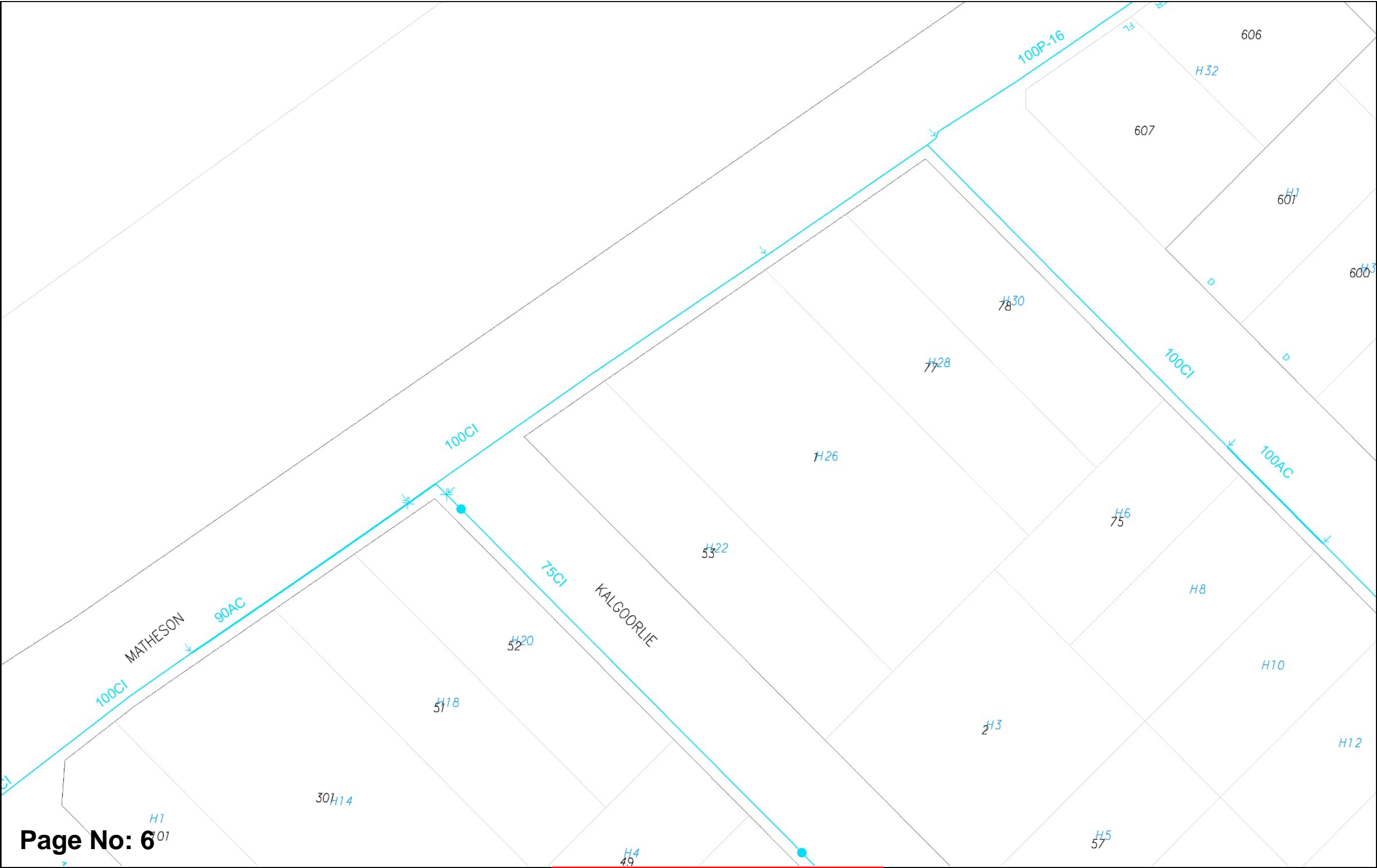
WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED
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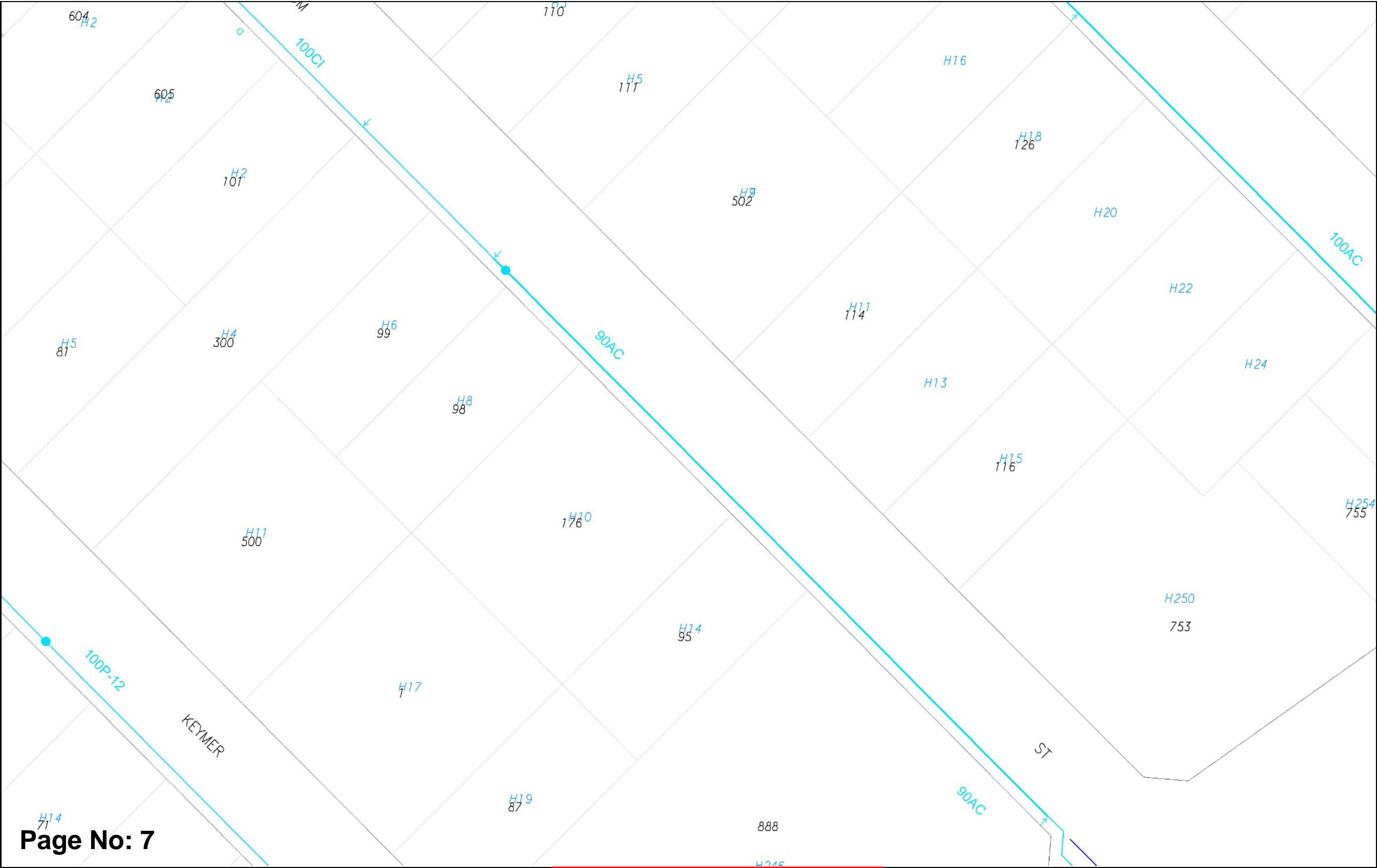
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Page No: 6⁰¹

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	Job No.:	36962248			
	Sequence No.:	240900640			
	Print Date:	21 Jun 2024			



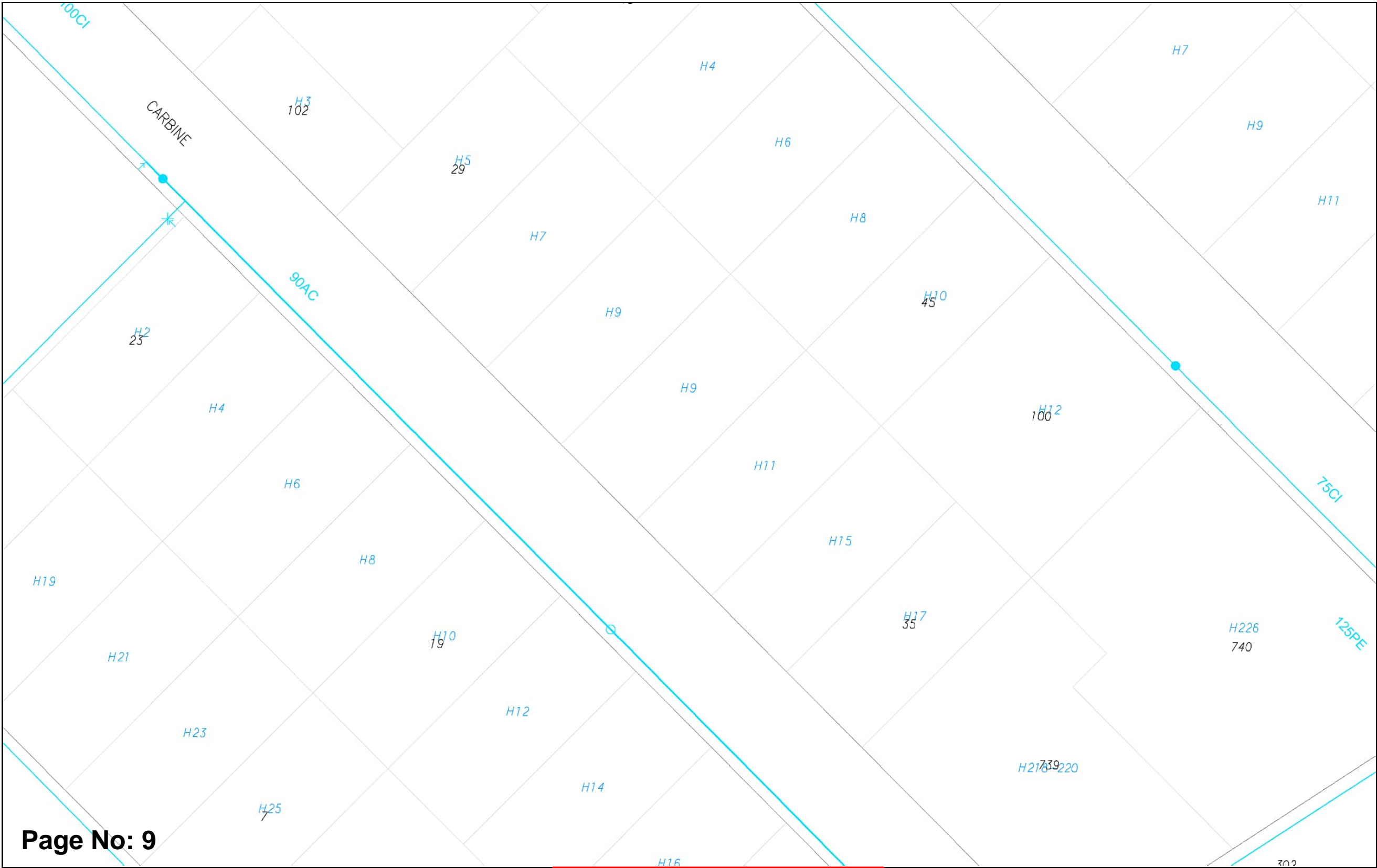
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	Print Date:	21 Jun 2024
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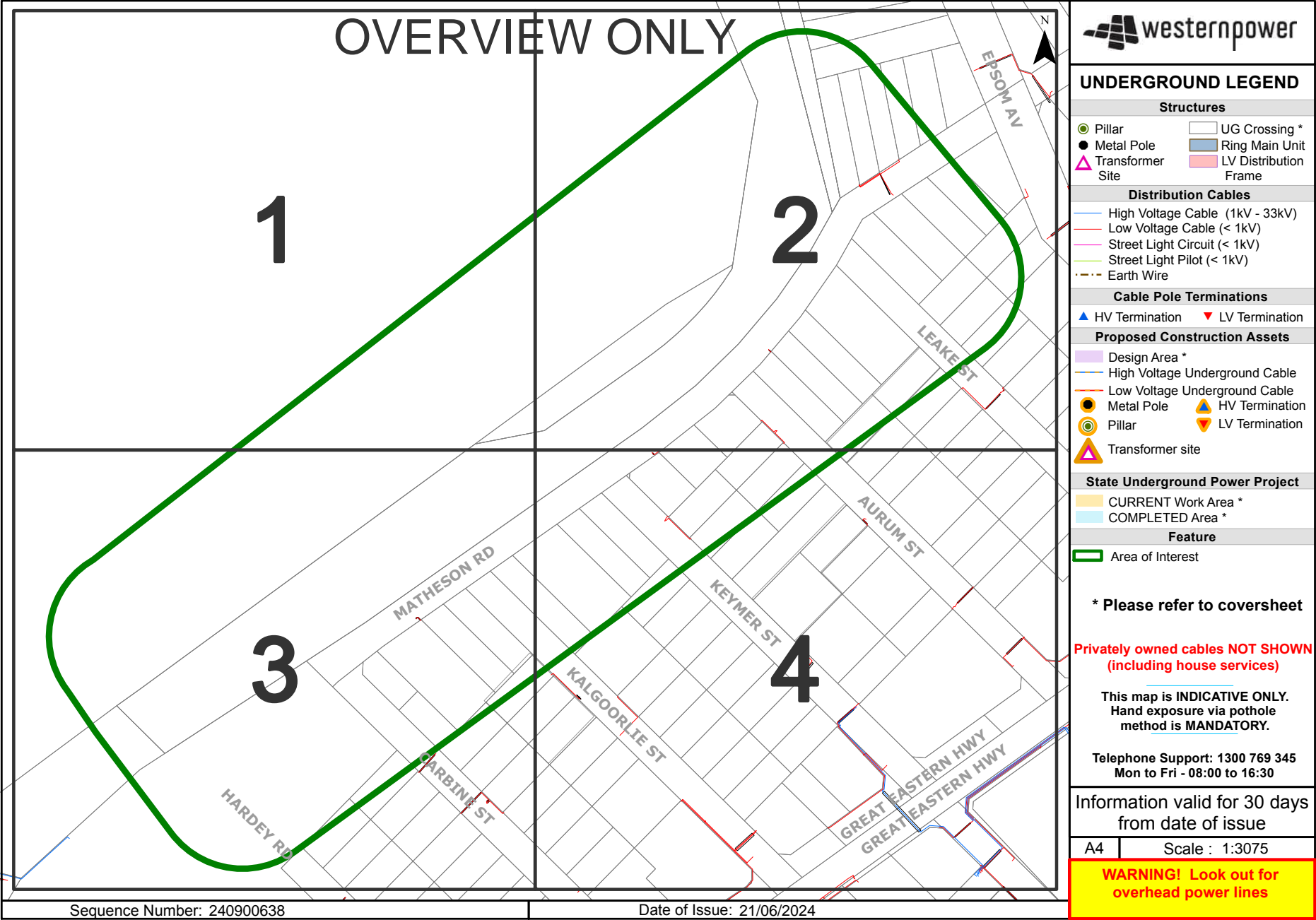
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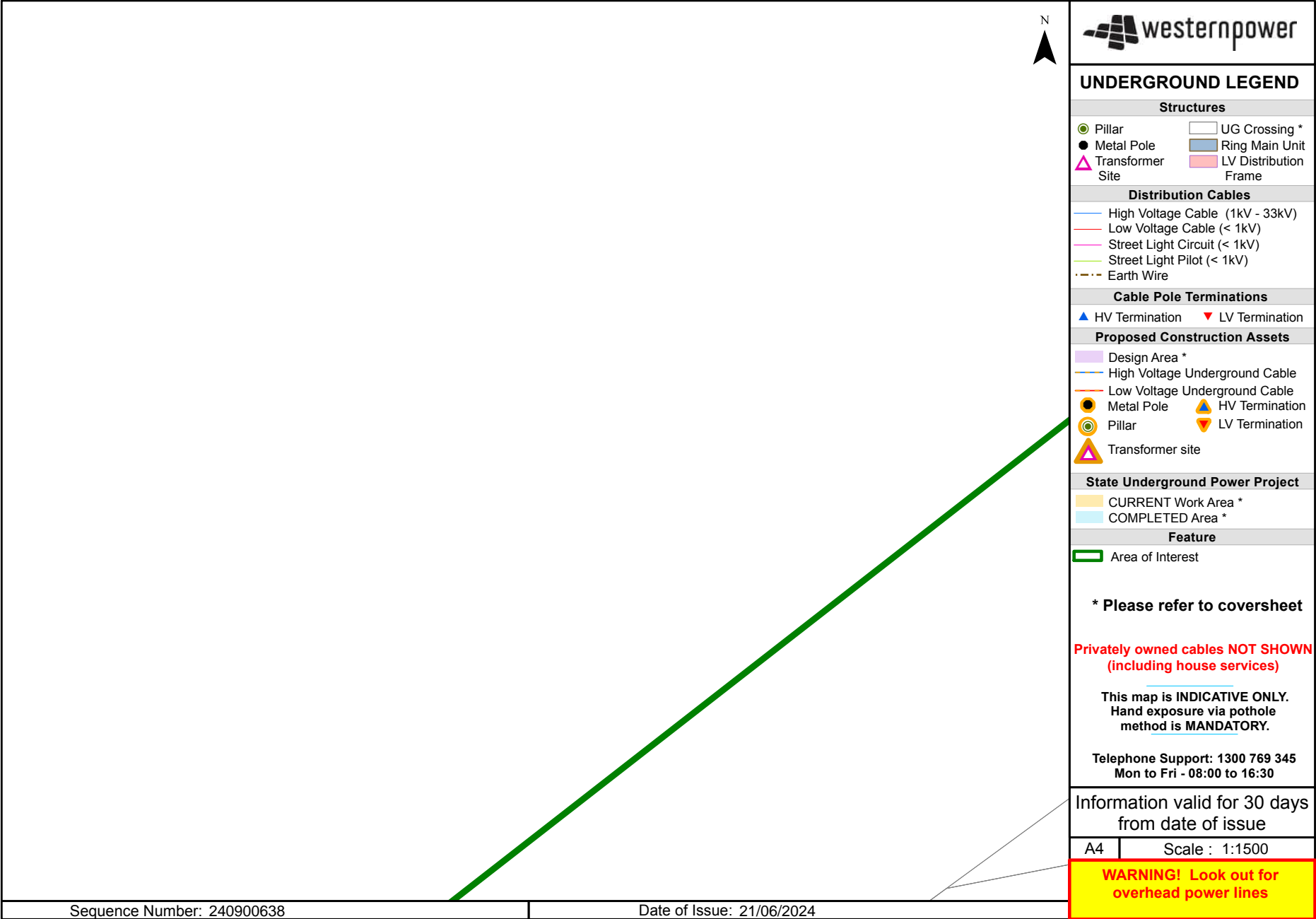
	Scale:	1:750	 Water	WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED Apply for approval to work near our assets at: Working near assets (watercorporation.com.au) Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.	The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au .
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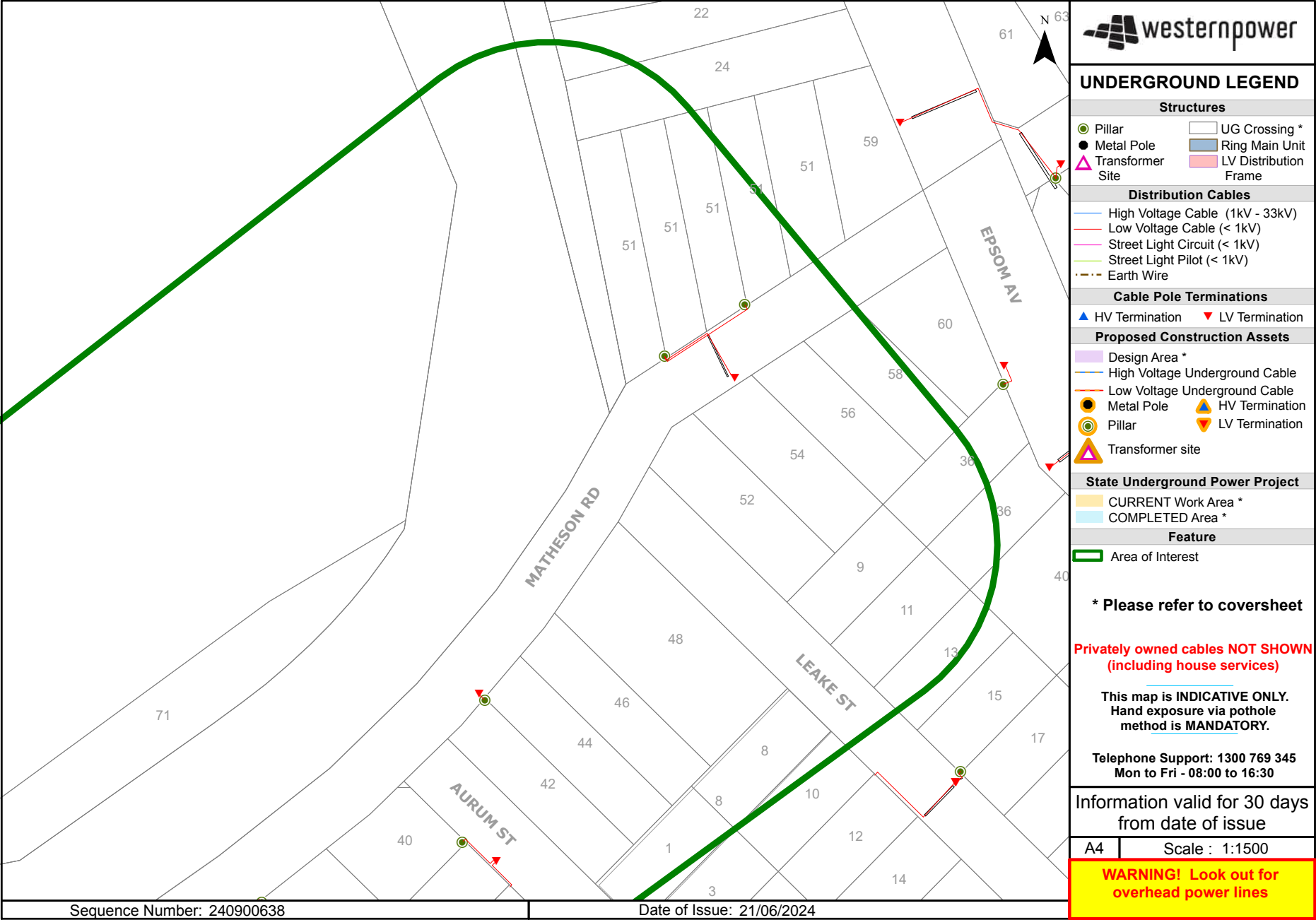


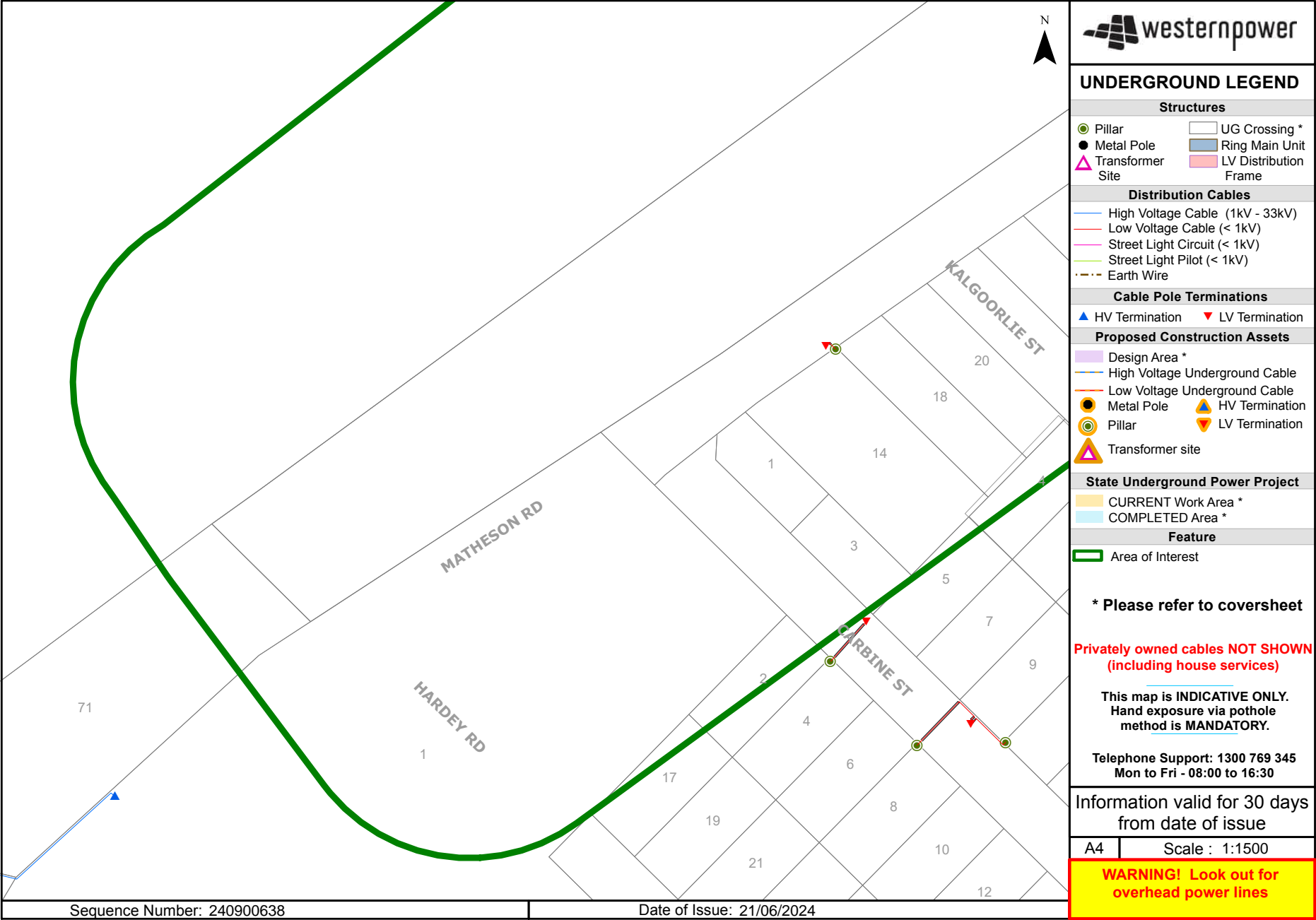
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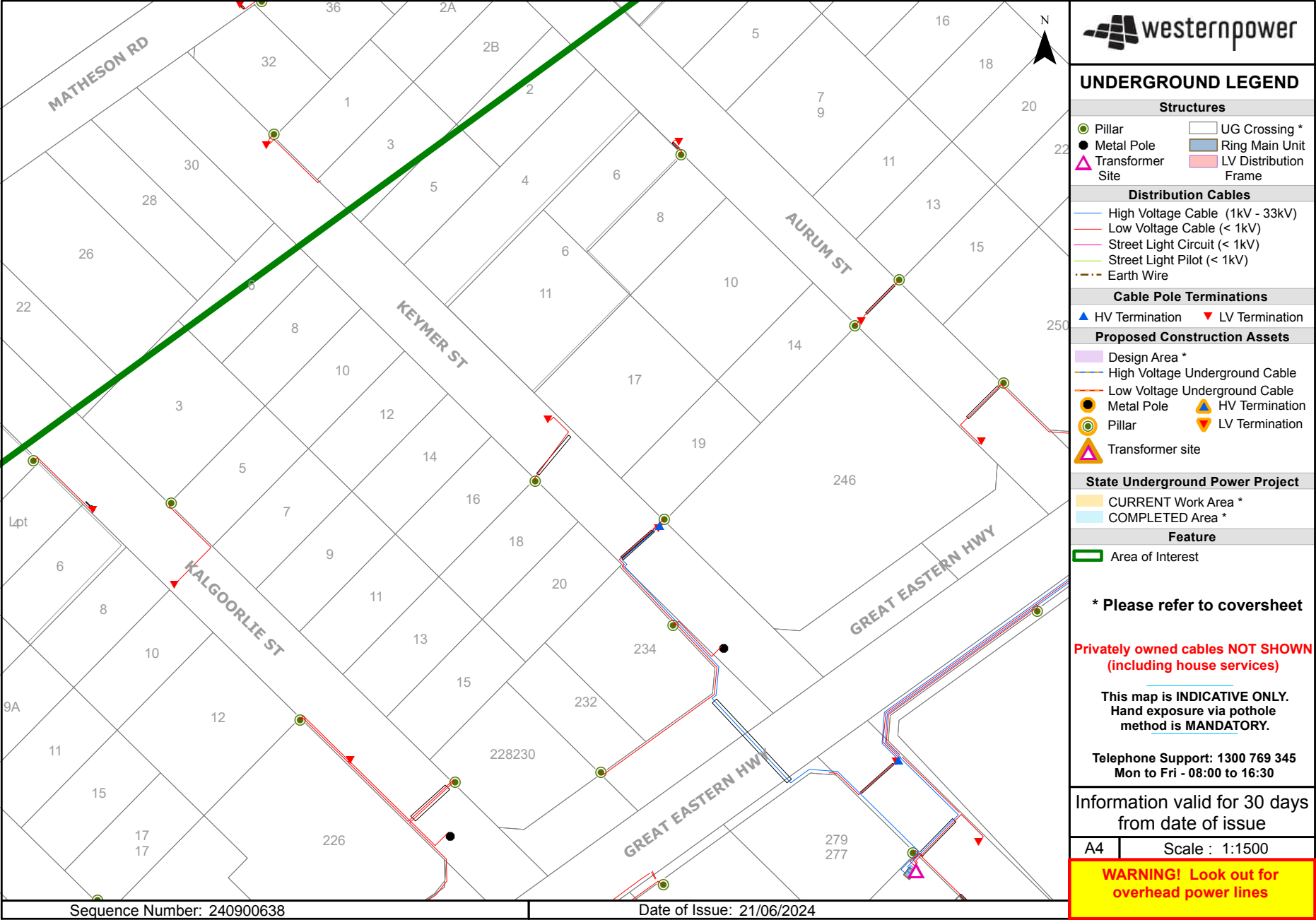
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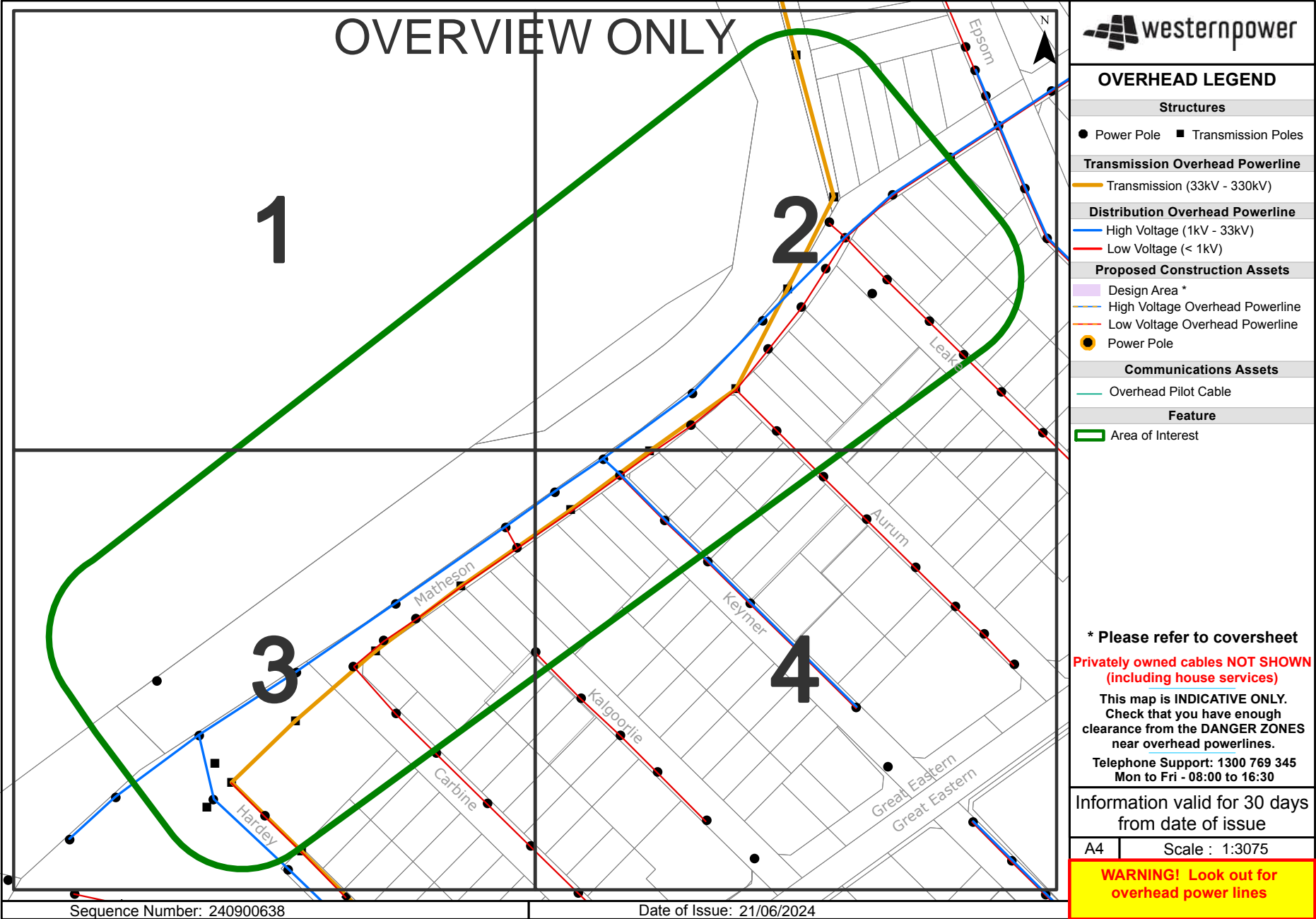


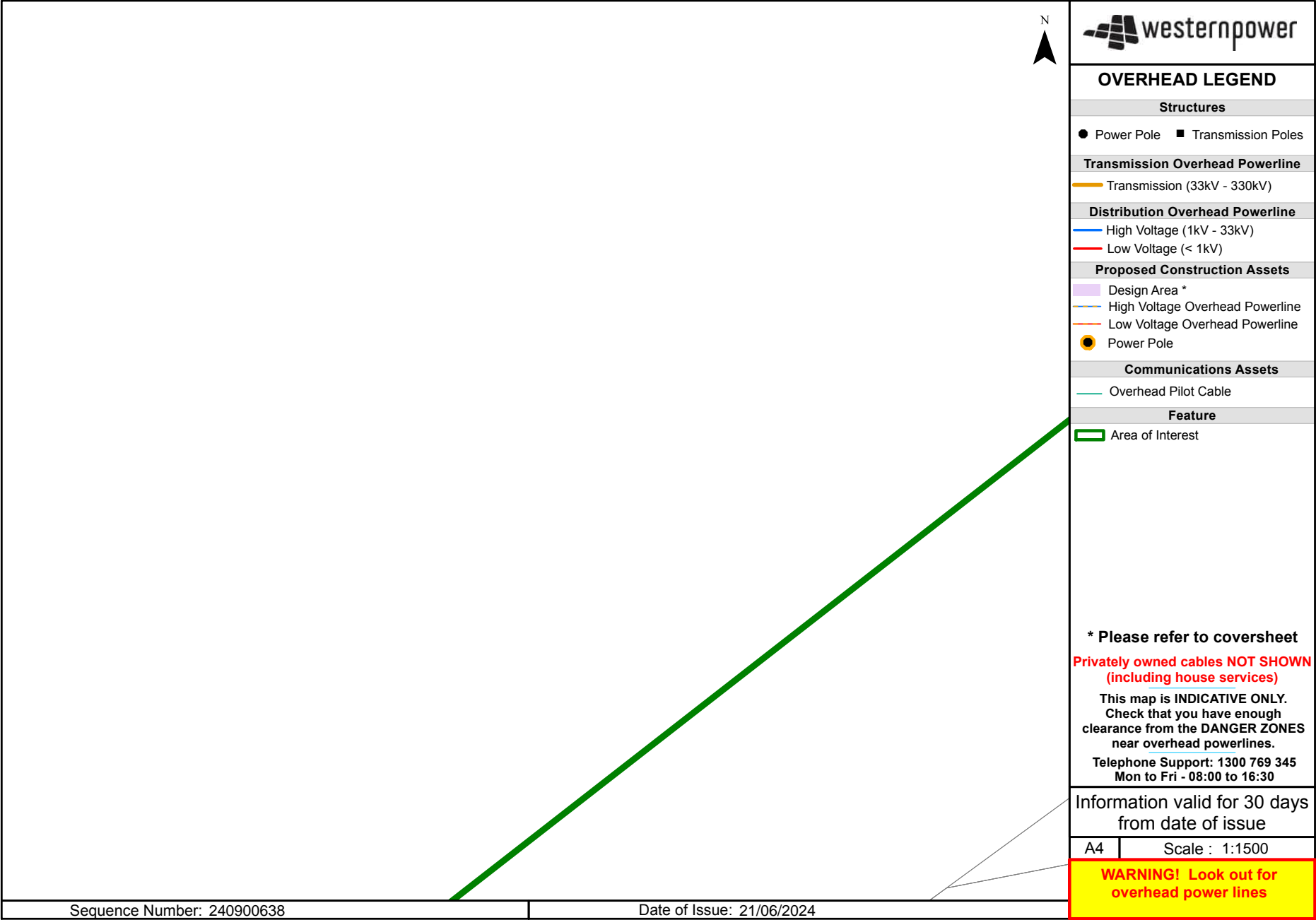


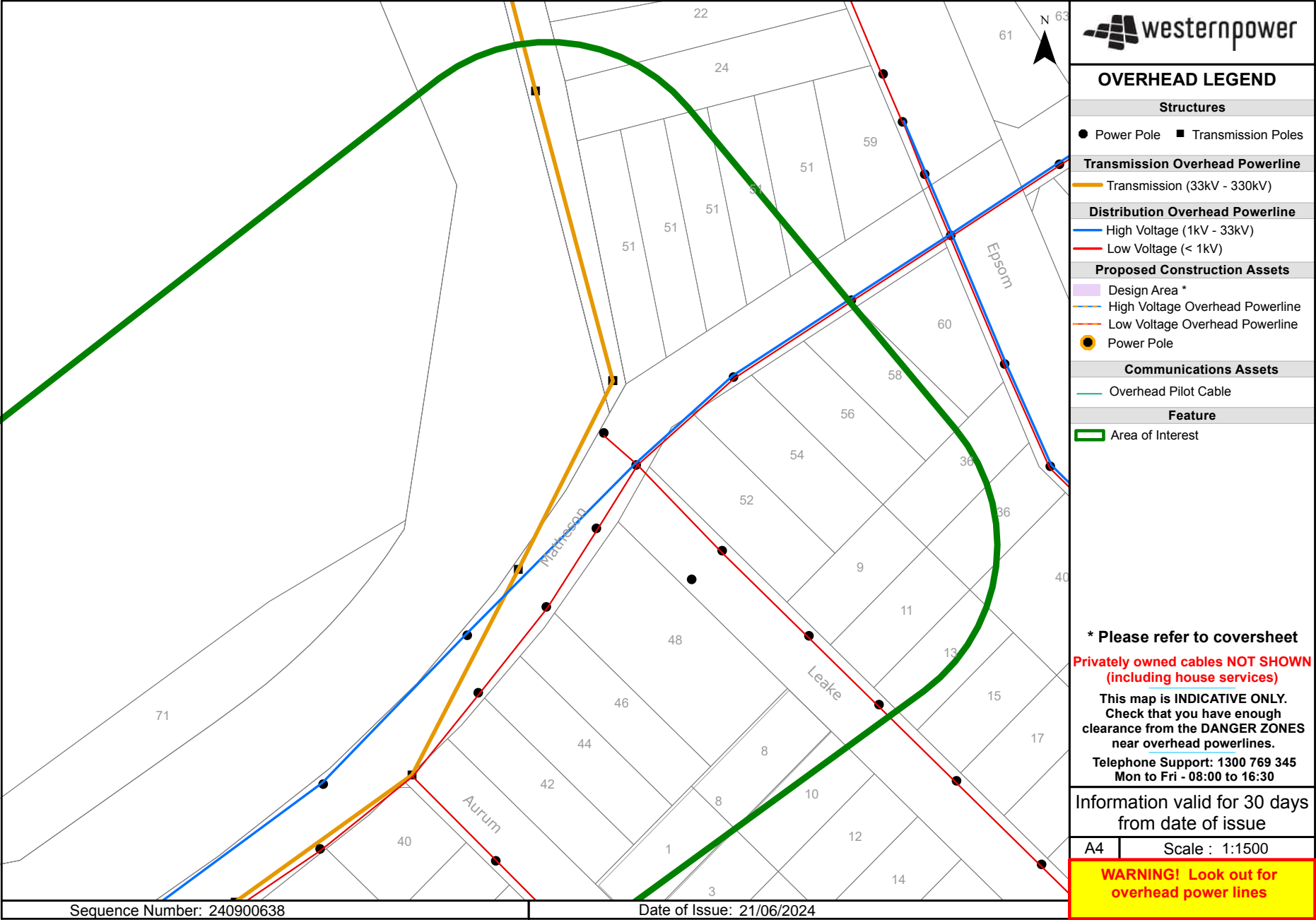


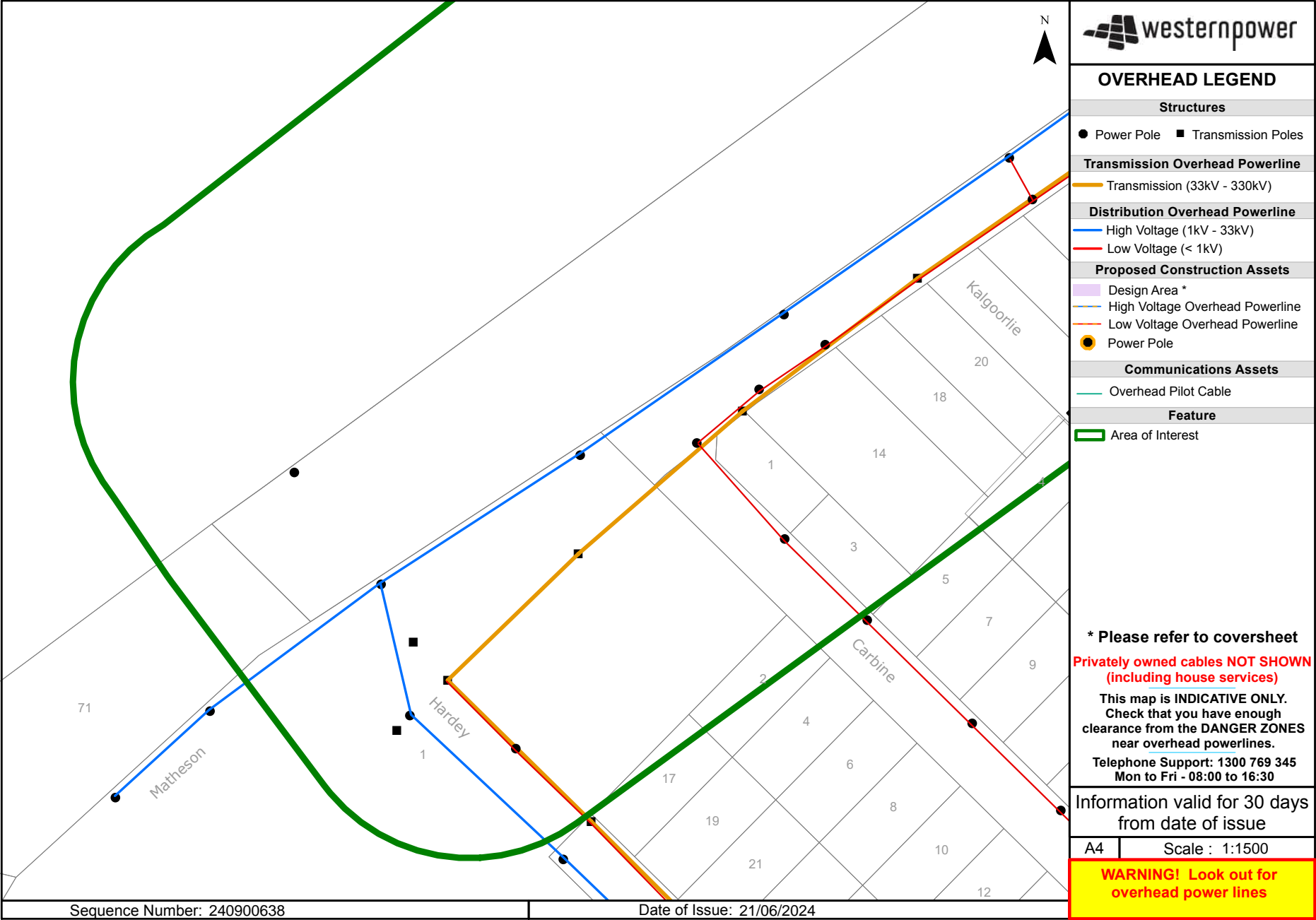


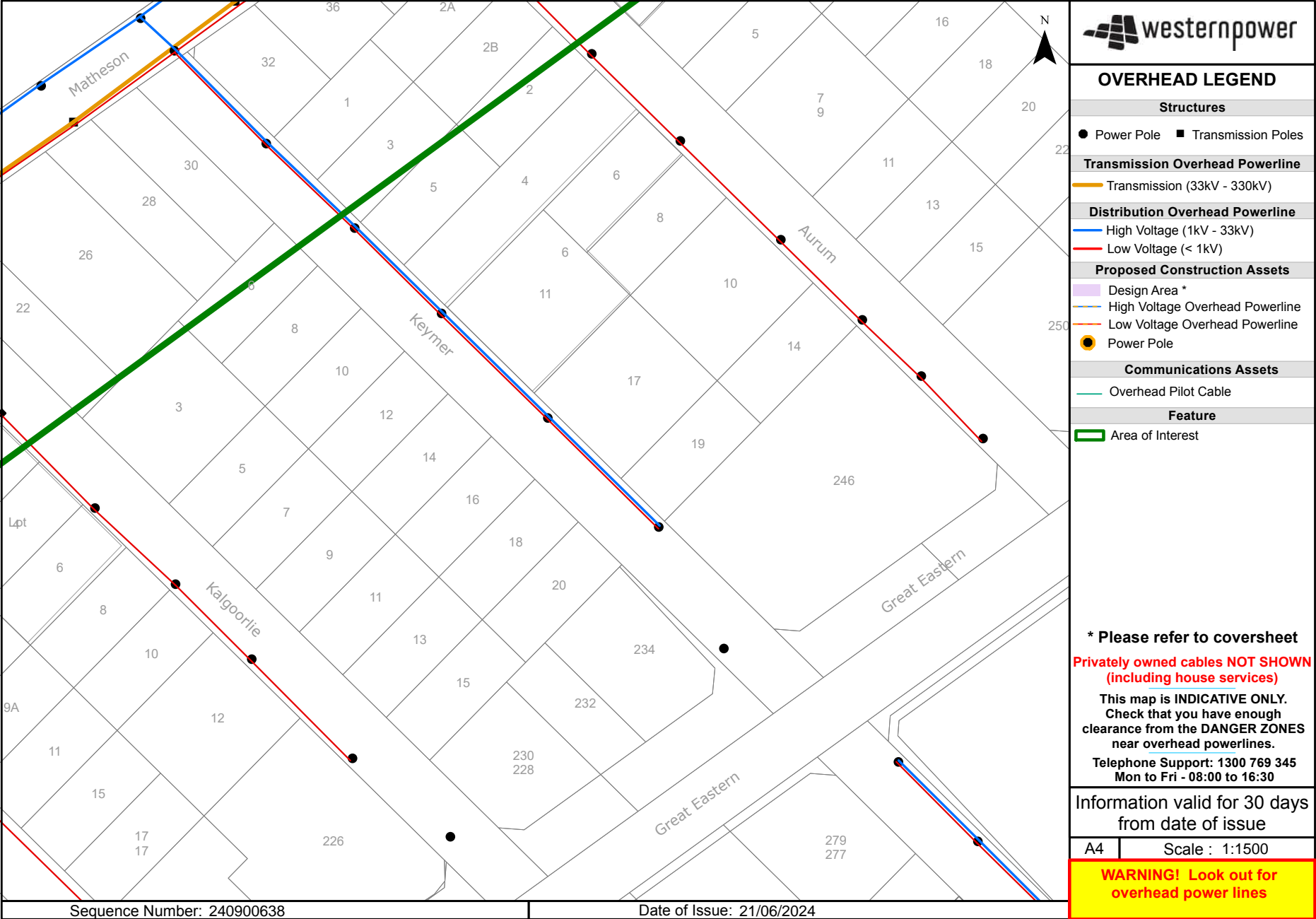












Attachment 12.1.4 Engineering Servicing Report

Job No 36968397



byda.com.au

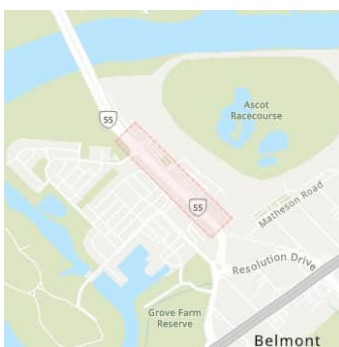
Contact Details

Contact Justin Zielinski Email jzielinski@tabec.com.au	Contact number 0420 304 451	Company - Address 54 Havelock Street West Perth WA 6005	Enquirer ID 3140642
---	---------------------------------------	---	-------------------------------

Job Site and Enquiry Details

WARNING: The map below only displays the location of the proposed job site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

Enquiry date 24/06/2024	Start date 25/06/2024	End date 25/06/2024	On behalf of Private	Job purpose Design	Locations Both Road	Onsite activities Planning & Design
-----------------------------------	---------------------------------	-------------------------------	--------------------------------	------------------------------	-------------------------------	---



Check that the location of the job site is correct. If not, you must submit a new enquiry.

If the scope of works change or plan validity dates expire, you must submit a new enquiry.

Do NOT dig without plans. Safe excavation is your responsibility. If you don't understand the plans or how to proceed safely, please contact the relevant asset owners.

User Reference Precinct B	Address 39 Northerly Avenue Ascot WA 6104	Notes/description -
-------------------------------------	--	-------------------------------

Your Responsibility and Duty of Care

- **Lodging an enquiry does not authorise project commencement.** Before starting work, you must obtain all necessary information from all affected asset owners.
- If you don't receive plans within 2 business days, contact the asset owner & quote their sequence number.
- Always follow the 5Ps of Safe Excavation (page 2), and locate assets before commencing work.
- Ensure you comply with State legislative requirements for Duty of Care and safe digging.
- If you damage an underground asset, you MUST advise the asset owner immediately.
- By using the BYDA service, you agree to the [Privacy Policy](#) and [Term of Use](#).
- For more information on safe digging practices, visit www.byda.com.au

Asset Owner Details

Below is a list of asset owners with underground infrastructure in and around your job site. It is your responsibility to identify the presence of these assets. Plans issued by Members are indicative only unless specified otherwise. Note: not all asset owners are registered with BYDA. You must contact asset owners not listed here directly.

Referral ID (Seq. no)	Authority Name	Phone	Status
240936716	ATCO Gas Australia	1300 926 755	NOTIFIED
240936712	NBN Co (WA)	1800 687 626	NOTIFIED
240936708	Optus (WA)	1800 505 777	NOTIFIED
240936709	Public Transport Authority - Bus Stops	13 62 13	NOTIFIED
240936714	Telstra (WA)	1800 653 935	NOTIFIED
240936711	TPG Telecom (WA)	1800 786 306	NOTIFIED
240936710	Vocus (WA)	1800 262 663	NOTIFIED
240936715	Water Corporation	13 13 95	NOTIFIED
240936713	Western Power	13 10 87	NOTIFIED

END OF UTILITIES LIST

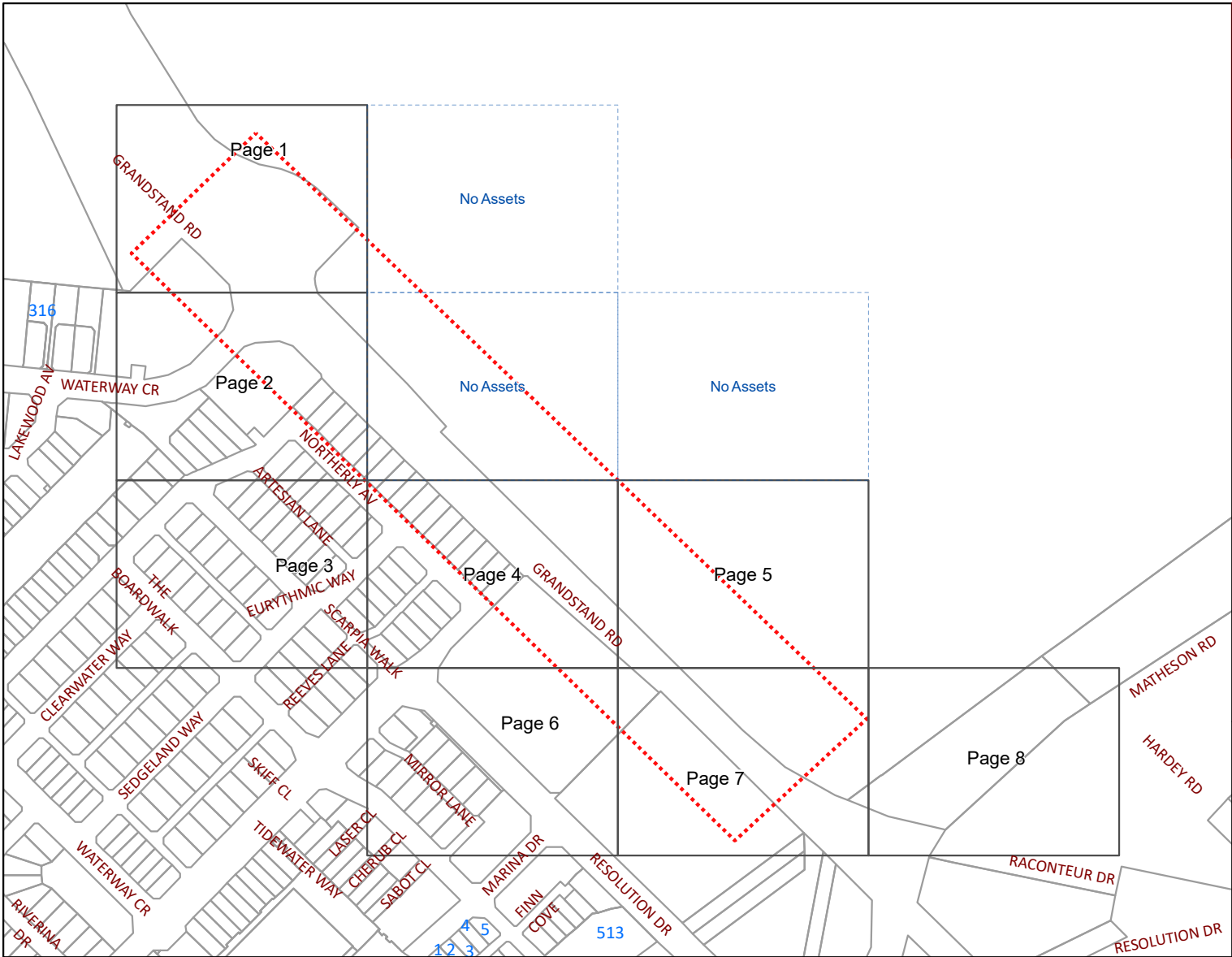
Lodge your FREE enquiry online any time at byda.com.au



Date: 24/06/24 (valid for 30 days)
Index Sheet

Seq # 240936716
Job # 36968397

BYDA Location: 39 Northerly Avenue Ascot 6104
Scale: 1:3,500



**WARNING
CRITICAL ASSET
IN THE VICINITY.**

No works within 15 meters of this asset are permitted without prior approval from ATCO.
Contact ATCO on 1300 926 755

BYDA Enquiry

Detailed map page

No Assets in the Dig Site

Please refer to Symbols Sheet for Further Information

Disclaimer:
Please read all **warnings**, conditions and information on the attached "Underground Asset Details" information sheet. This plan is issued subject to that information and those conditions and **warnings** (including, but not limited to, the "NO HOT WORKS" warning). Plans are current for only **30 days** from date of request, indicative only and not warranted to be accurate. It is your responsibility to carefully locate underground assets and follow safe work practises and procedures (eg pot-holing).
ATCO Gas Australia will seek compensation for damage caused to assets.

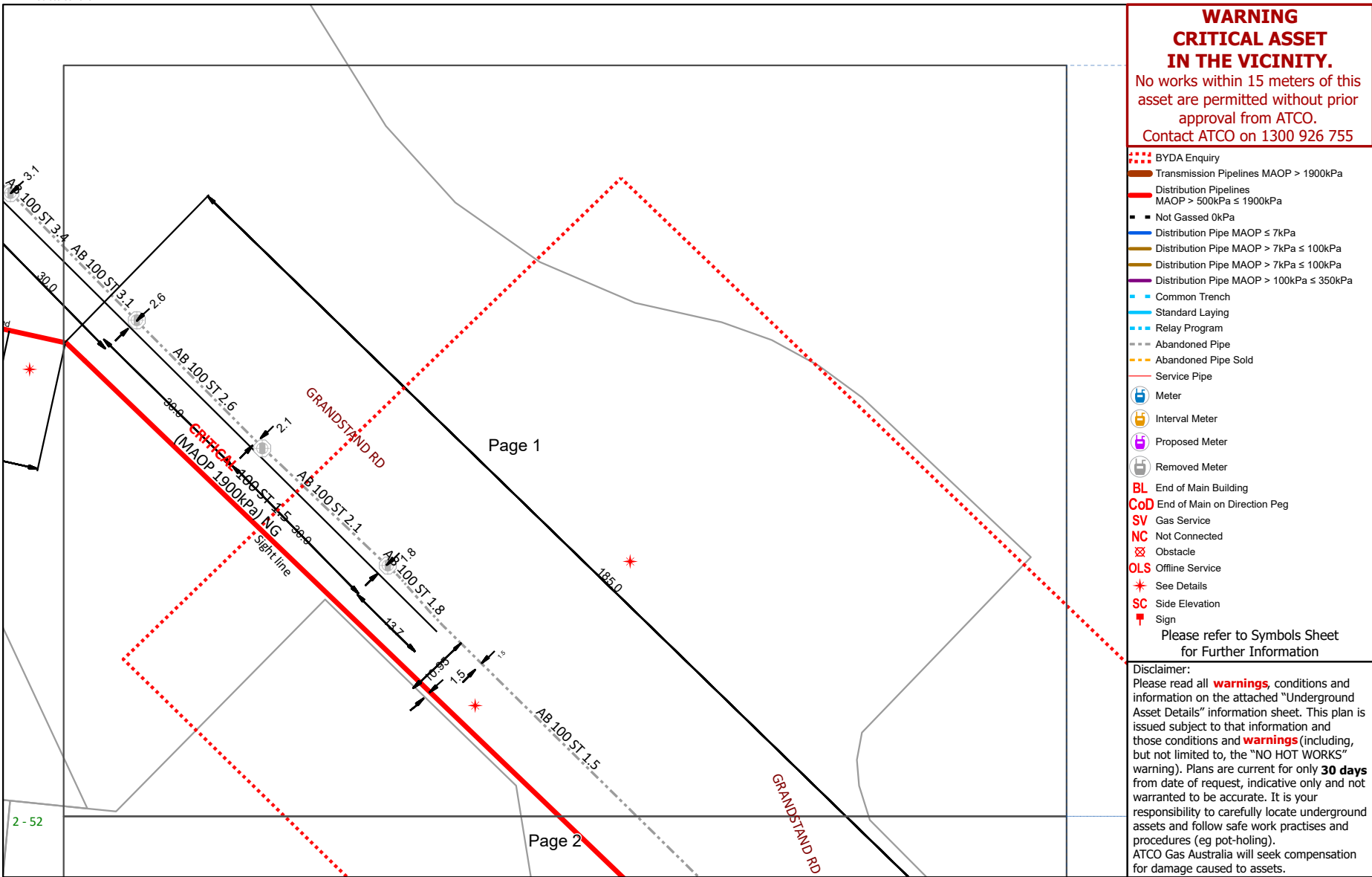
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Date: 24/06/24 (valid for 30 days)

Seq # 240936716
Job # 36968397

BYDA Location: 39 Northerly Avenue Ascot 6104
Scale: 1:800



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Attachment 12.1.4 Engineering Servicing Report



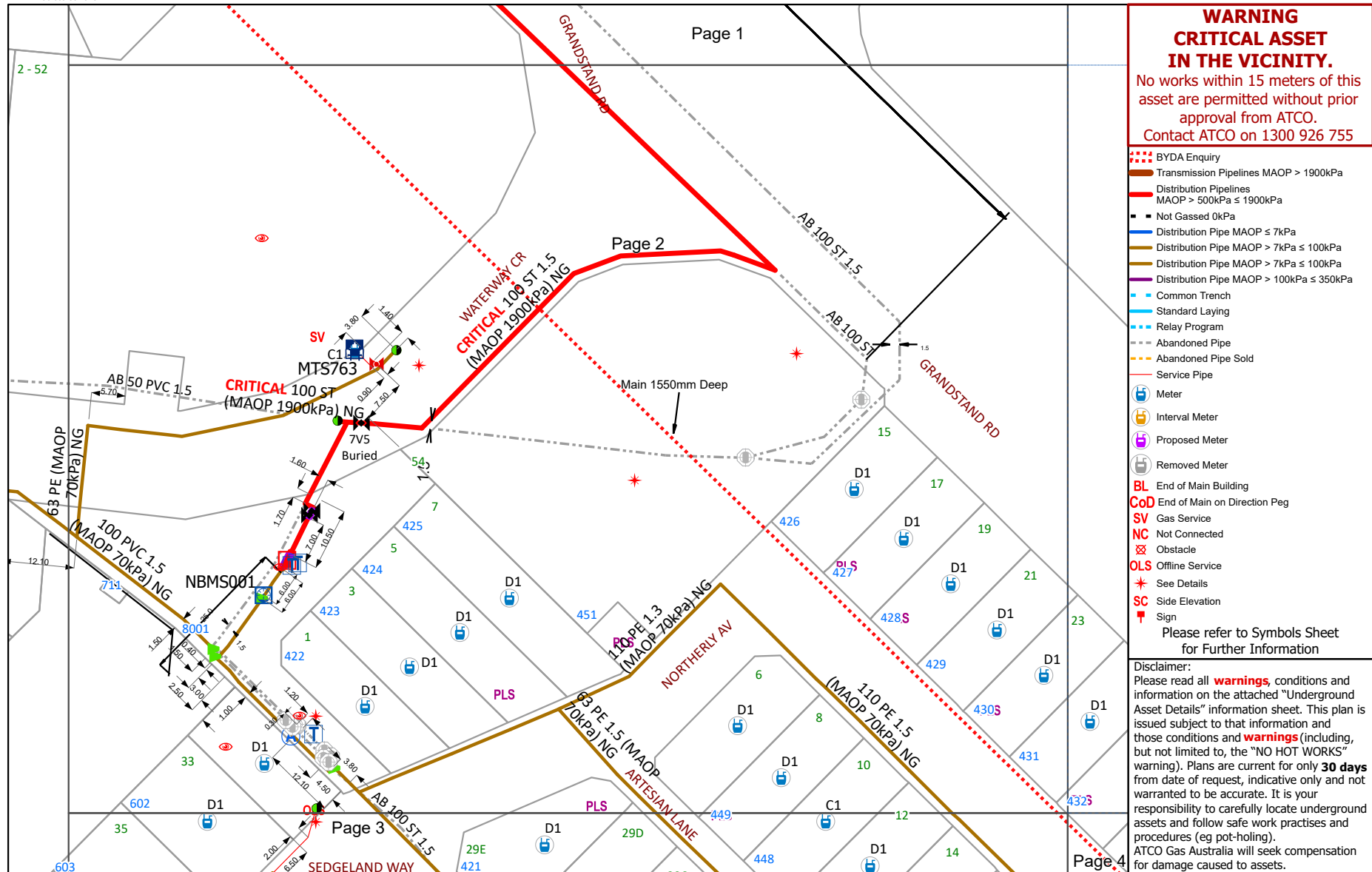
Date: 24/06/24 (valid for 30 days)

Seq # 240936716

Job # 36968397

BYDA Location: 39 Northerly Avenue Ascot 6104

Scale: 1:800



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Attachment 12.1.4 Engineering Servicing Report



Date: 24/06/24 (valid for 30 days)

Seq # 240936716

Job # 36968397

BYDA Location: 39 Northerly Avenue Ascot 6104

Scale: 1:800



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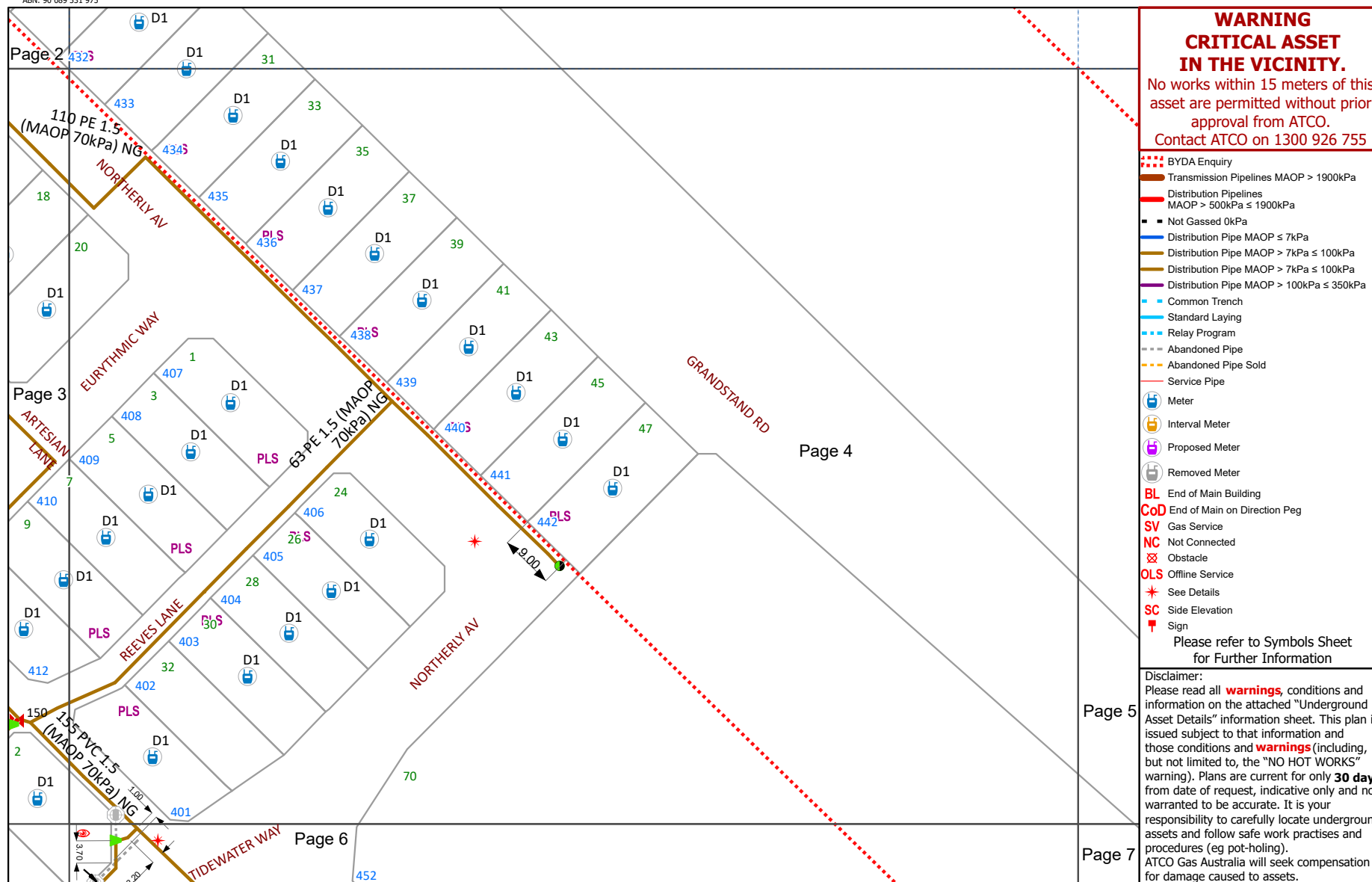
ATCO

Job # 36968397

Scale: 1:800



©ATCO Gas Australia Pty LTD
ABN: 90 089 531 975



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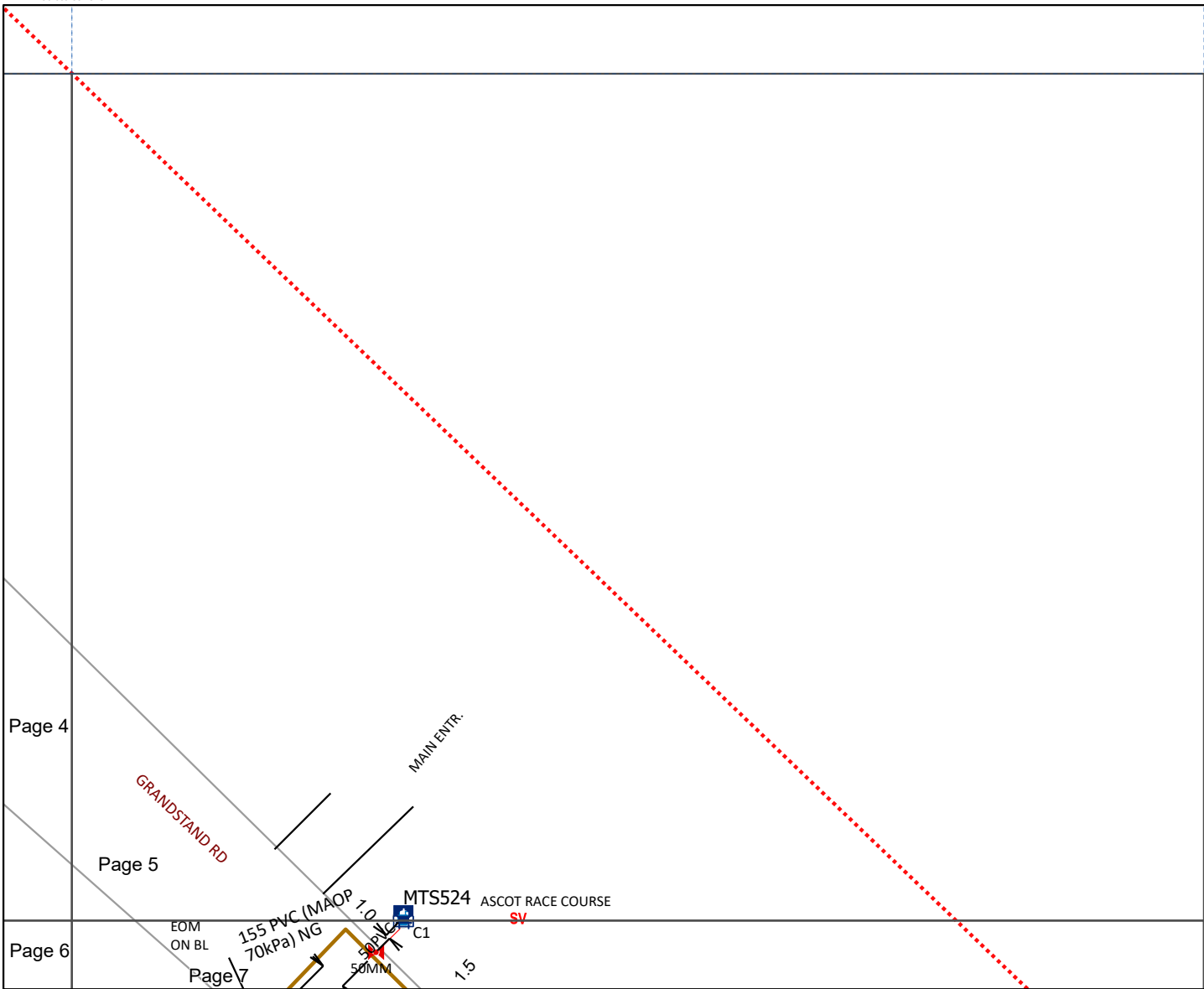
Date: 24/06/24 (valid for 30 days)

Seq # 240936716

Job # 36968397

BYDA Location: 39 Northerly Avenue Ascot 6104

Scale: 1:800



WARNING
CRITICAL ASSET
IN THE VICINITY.
No works within 15 meters of this asset are permitted without prior approval from ATCO.
Contact ATCO on 1300 926 755

BYDA Enquiry

Transmission Pipelines MAOP > 1900kPa

Distribution Pipelines MAOP > 500kPa ≤ 1900kPa

Not Gassed 0kPa

Distribution Pipe MAOP ≤ 7kPa

Distribution Pipe MAOP > 7kPa ≤ 100kPa

Distribution Pipe MAOP > 7kPa ≤ 100kPa

Distribution Pipe MAOP > 100kPa ≤ 350kPa

Common Trench

Standard Laying

Relay Program

Abandoned Pipe

Abandoned Pipe Sold

Service Pipe

Meter

Interval Meter

Proposed Meter

Removed Meter

BL End of Main Building

CoD End of Main on Direction Peg

SV Gas Service

NC Not Connected

Obstacle

OLS Offline Service

See Details

SC Side Elevation

Sign

Please refer to Symbols Sheet for Further Information

Disclaimer:
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ATCO Gas Australia will seek compensation for damage caused to assets.

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Attachment 12.1.4 Engineering Servicing Report



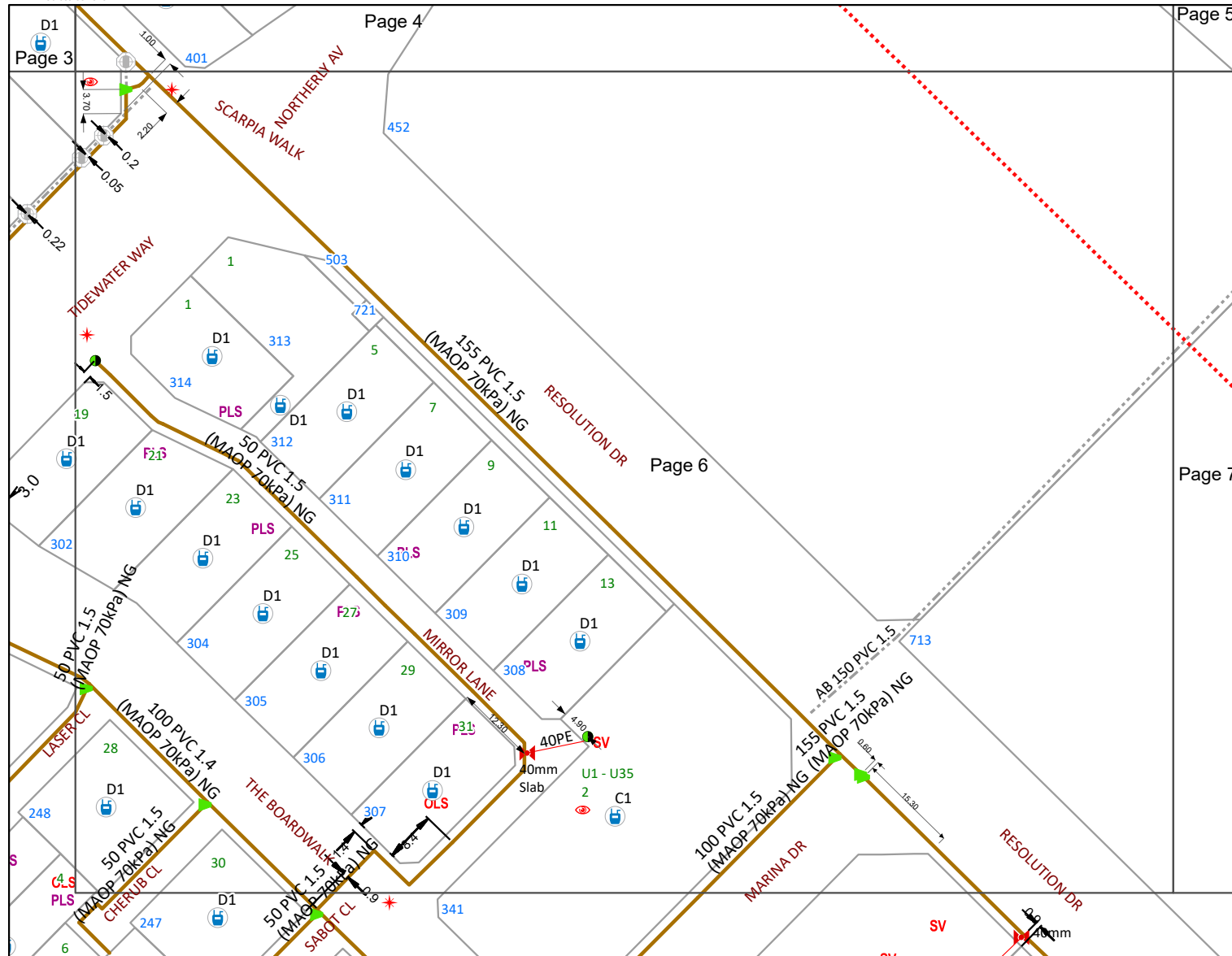
Date: 24/06/24 (valid for 30 days)

Seq # 240936716

Job # 36968397

BYDA Location: 39 Northerly Avenue Ascot 6104

Scale: 1:800



WARNING
CRITICAL ASSET
IN THE VICINITY.

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Contact ATCO on 1300 926 755

- BYDA Enquiry
- Transmission Pipelines MAOP > 1900kPa
- Distribution Pipelines MAOP > 500kPa ≤ 1900kPa
- Not Gassed 0kPa
- Distribution Pipe MAOP ≤ 7kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 100kPa ≤ 350kPa
- Common Trench
- Standard Laying
- Relay Program
- Abandoned Pipe
- Abandoned Pipe Sold
- Service Pipe
- Meter
- Interval Meter
- Proposed Meter
- Removed Meter
- BL End of Main Building
- CoD End of Main on Direction Peg
- SV Gas Service
- NC Not Connected
- Obstacle
- OLS Offline Service
- See Details
- SC Side Elevation
- Sign

Please refer to Symbols Sheet for Further Information

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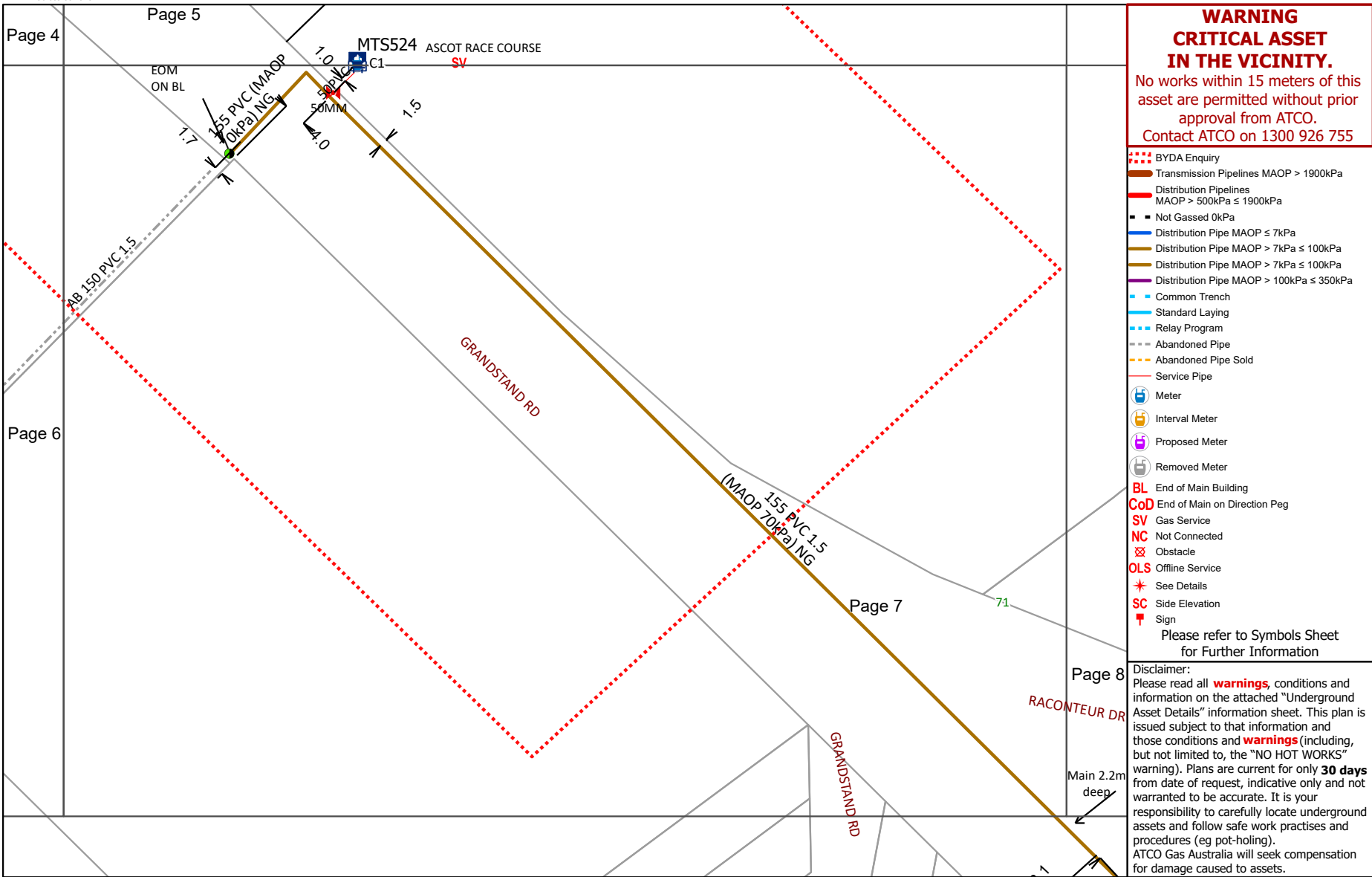
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Seq # 240936716
Job # 36968397

BYDA Location: 39 Northerly Avenue Ascot 6104
Scale: 1:800



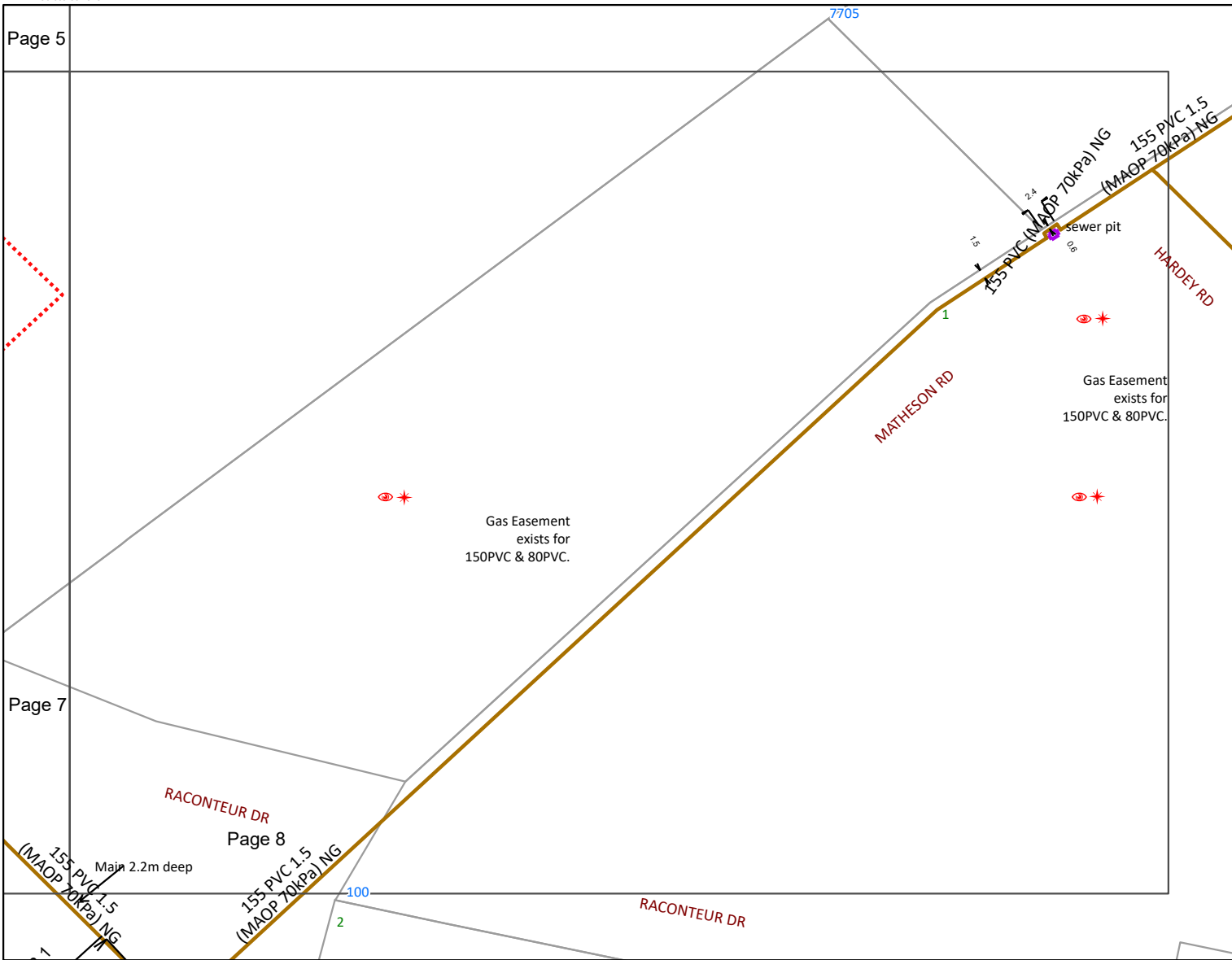
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BYDA Location: 39 Northerly Avenue Ascot 6104
Scale: 1:800



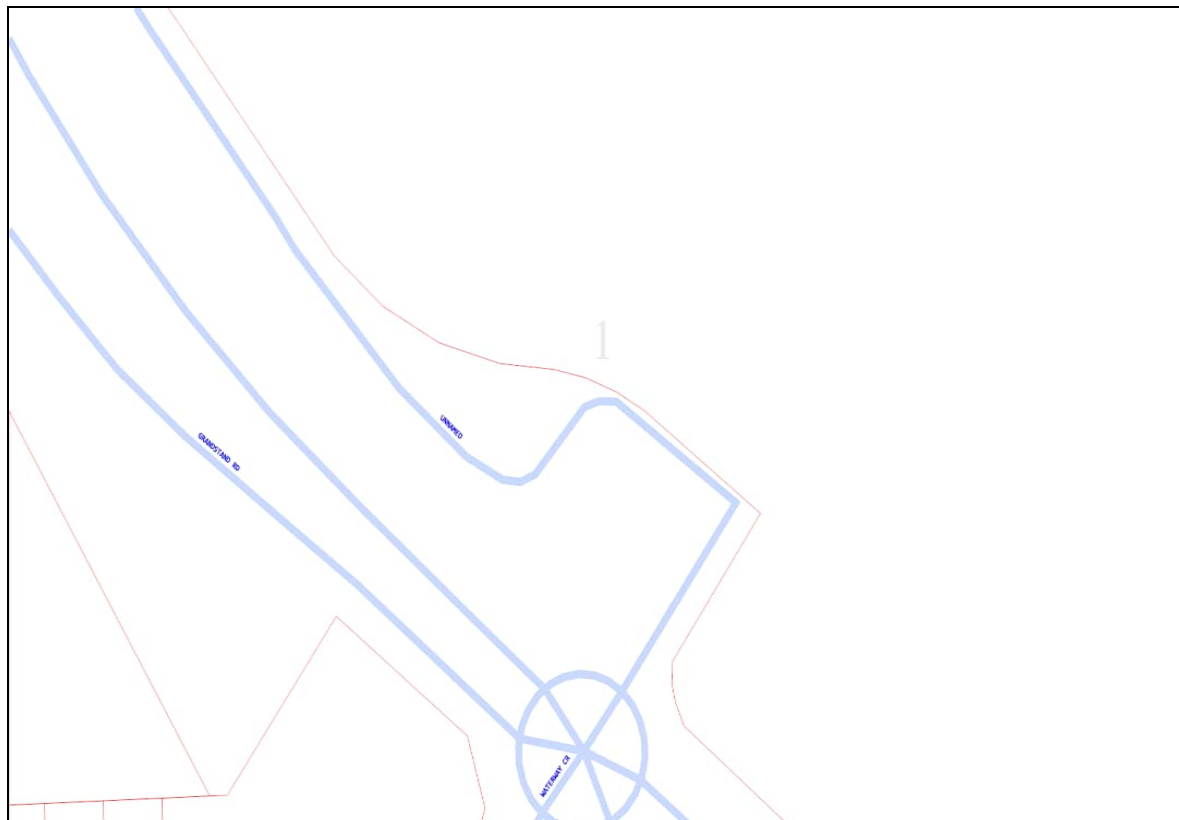
WARNING
CRITICAL ASSET
IN THE VICINITY.
No works within 15 meters of this asset are permitted without prior approval from ATCO.
Contact ATCO on 1300 926 755

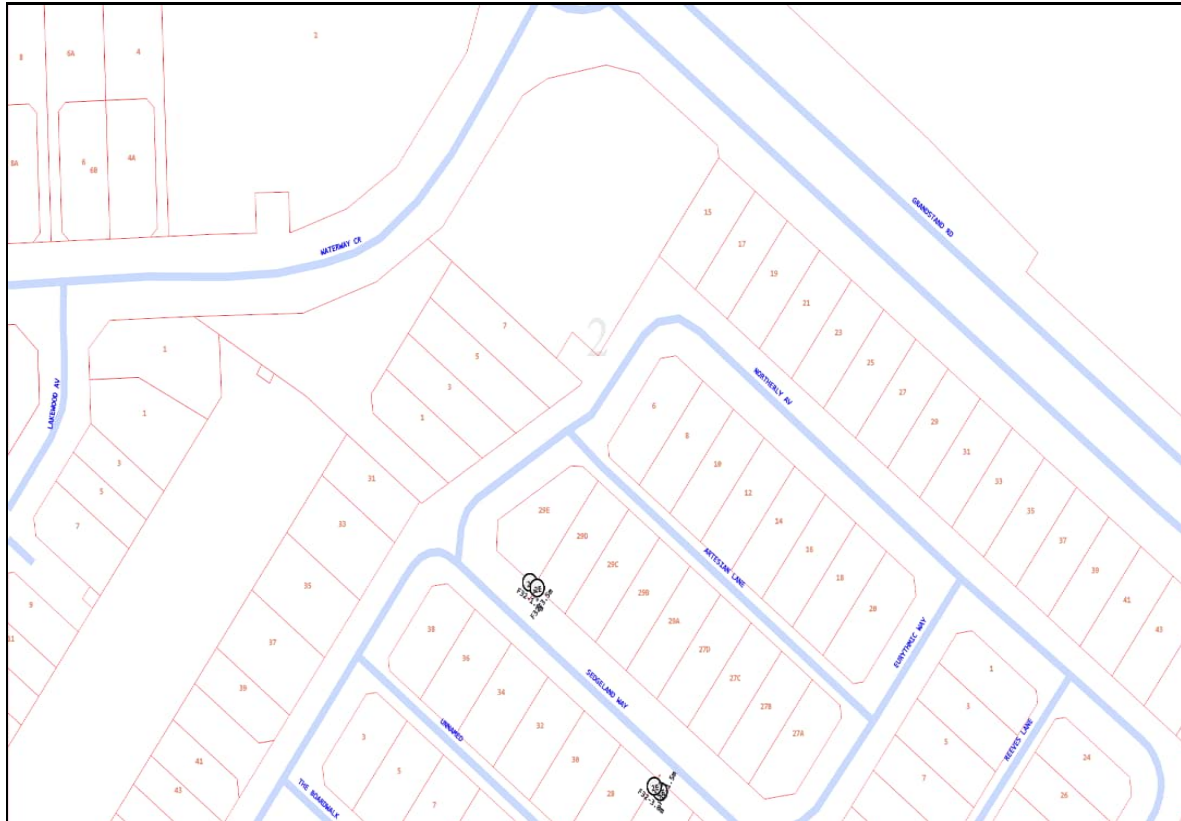
- BYDA Enquiry
- Transmission Pipelines MAOP > 1900kPa
- Distribution Pipelines MAOP > 500kPa ≤ 1900kPa
- Not Gassed 0kPa
- Distribution Pipe MAOP ≤ 7kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 7kPa ≤ 100kPa
- Distribution Pipe MAOP > 100kPa ≤ 350kPa
- Common Trench
- Standard Laying
- Relay Program
- Abandoned Pipe
- Abandoned Pipe Sold
- Service Pipe
- Meter
- Interval Meter
- Proposed Meter
- Removed Meter
- BL End of Main Building
- CoD End of Main on Direction Peg
- SV Gas Service
- NC Not Connected
- Obstacle
- OLS Offline Service
- See Details
- SC Side Elevation
- Sign

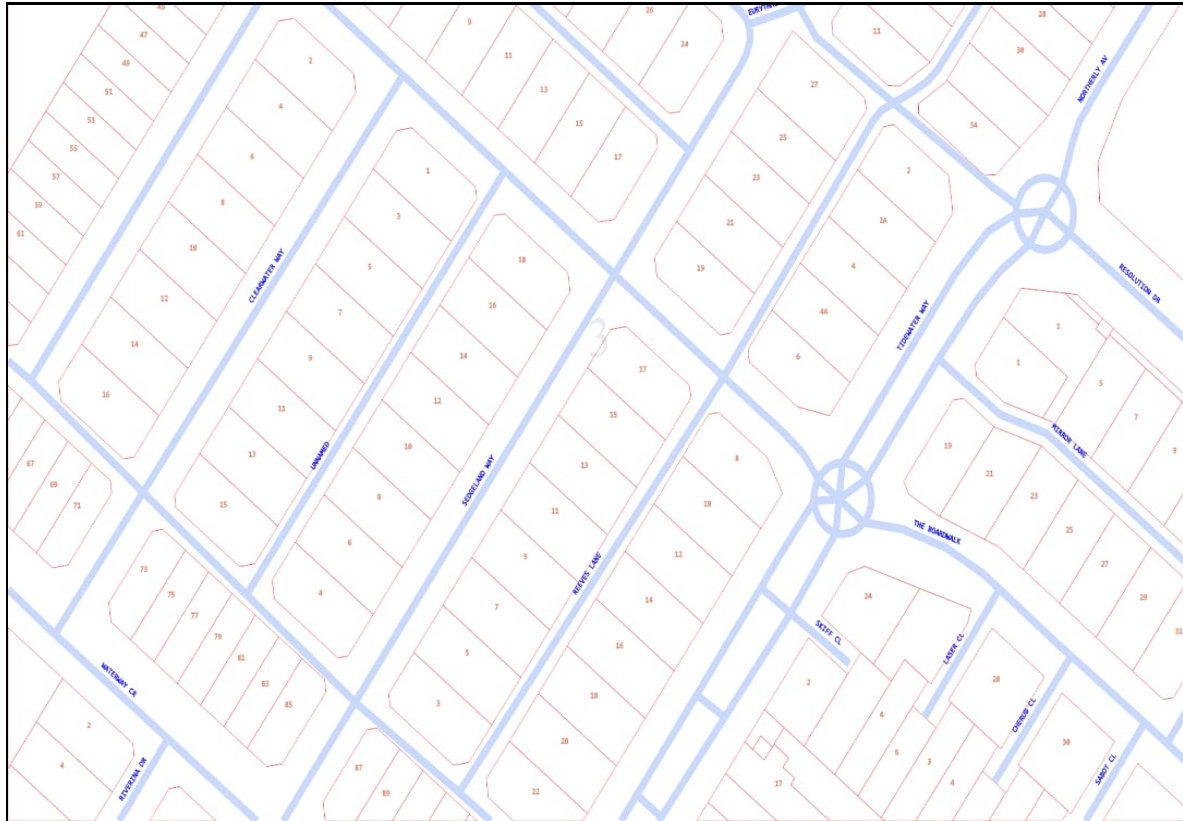
Please refer to Symbols Sheet for Further Information

Disclaimer:
Please read all **warnings**, conditions and information on the attached "Underground Asset Details" information sheet. This plan is issued subject to that information and those conditions and **warnings** (including, but not limited to, the "NO HOT WORKS" warning). Plans are current for only **30 days** from date of request, indicative only and not warranted to be accurate. It is your responsibility to carefully locate underground assets and follow safe work practises and procedures (eg pot-holing). ATCO Gas Australia will seek compensation for damage caused to assets.

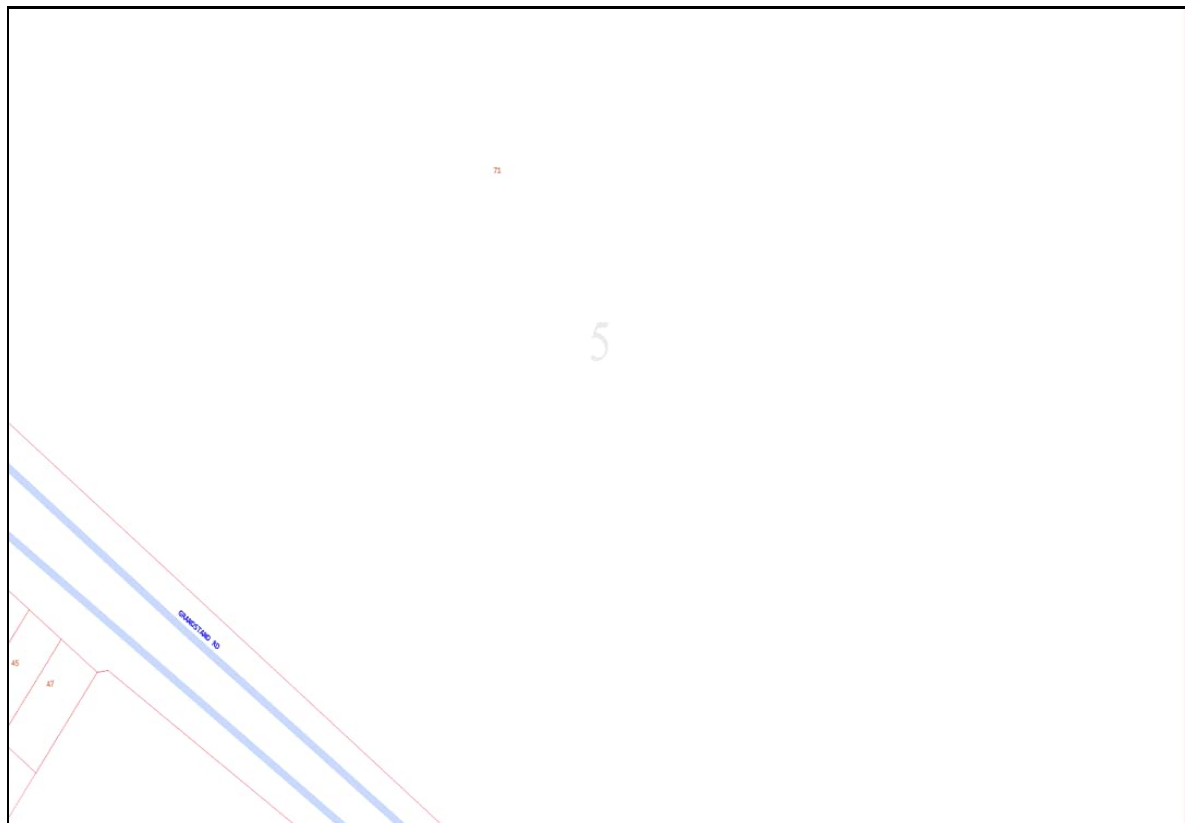
© Western Australian Land Information Authority trading as Landgate. Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate

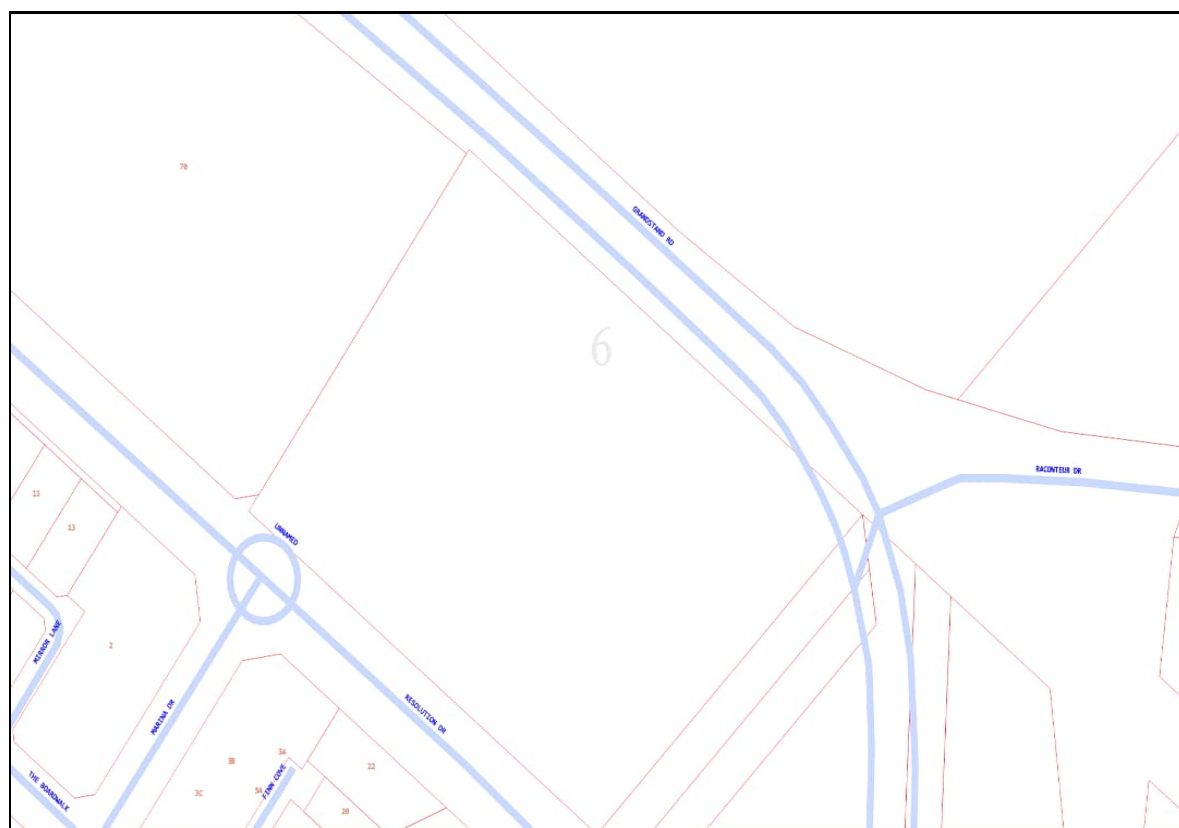






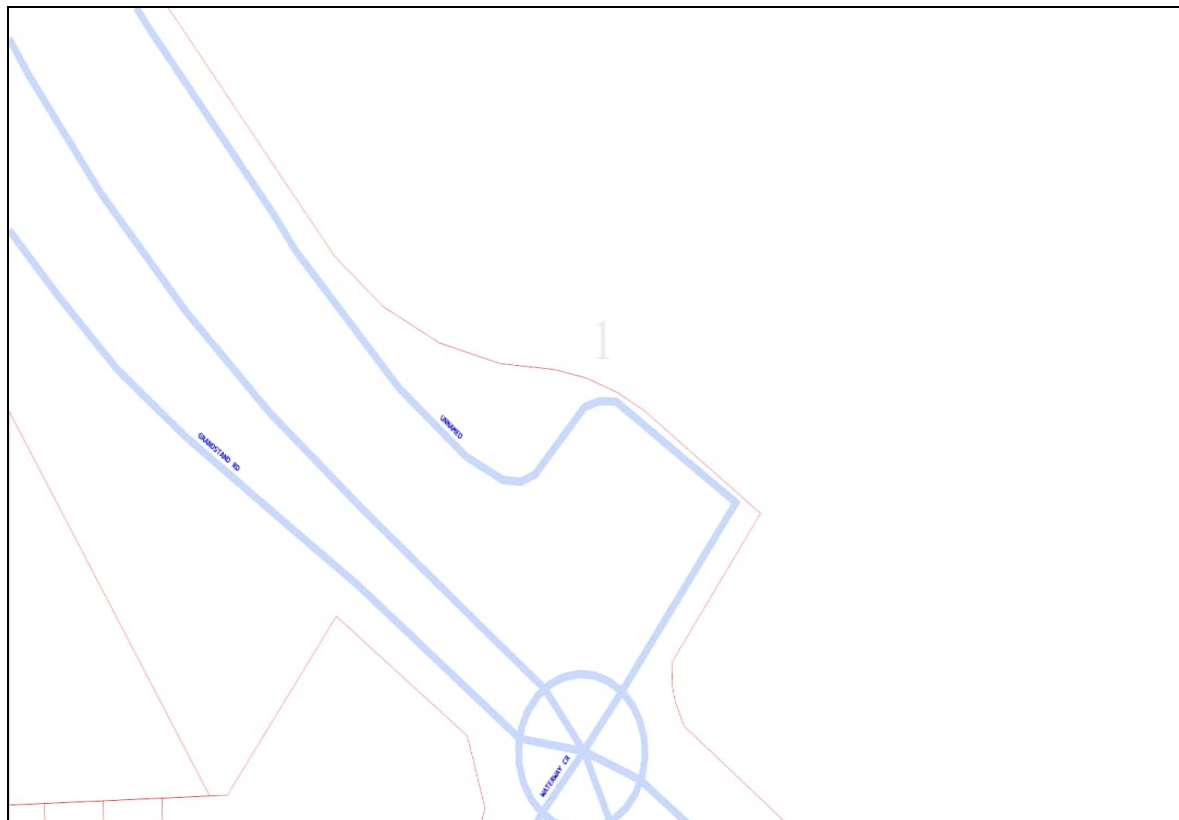
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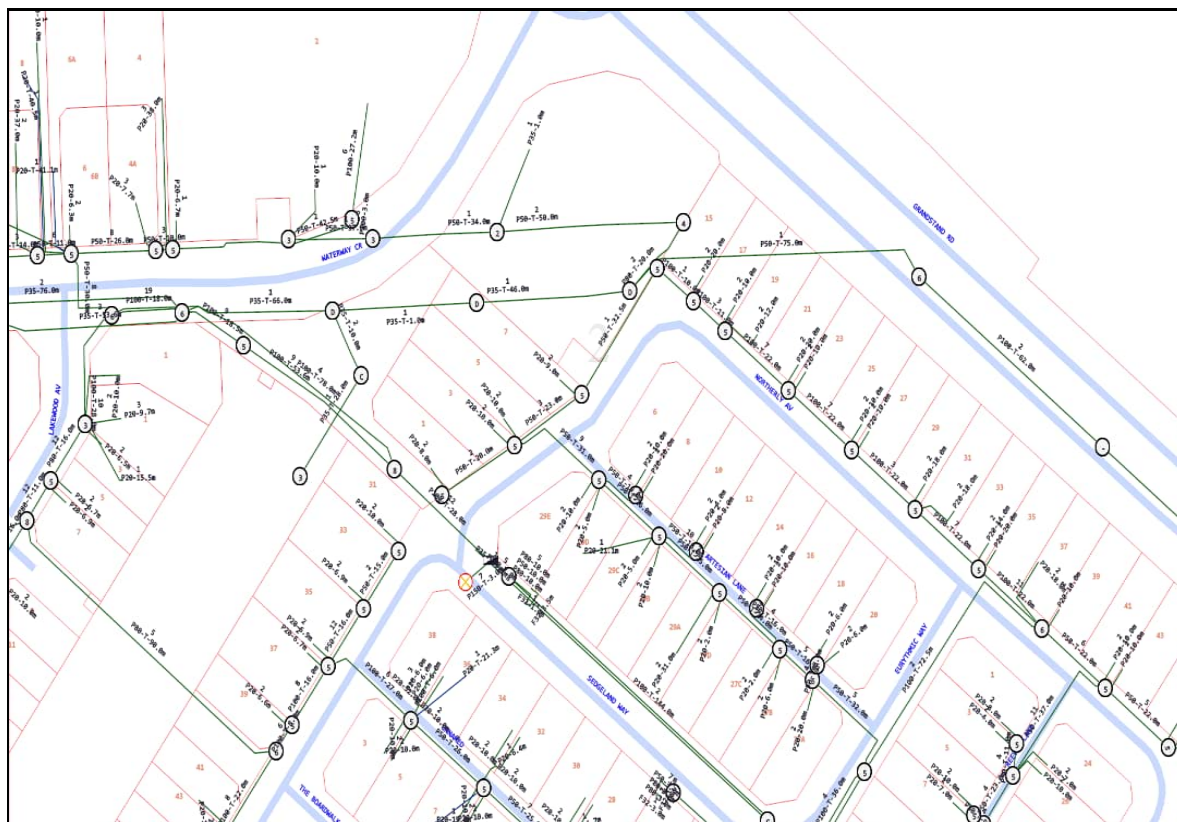


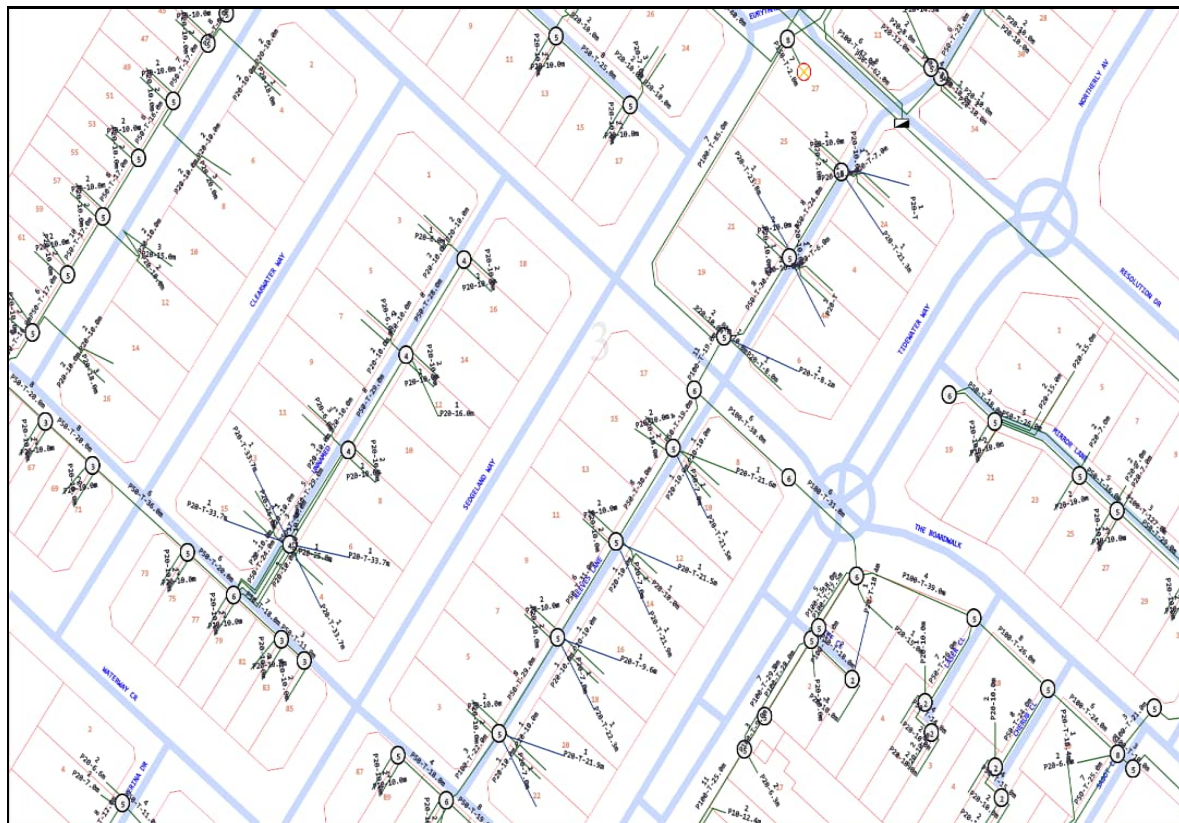


Emergency Contacts

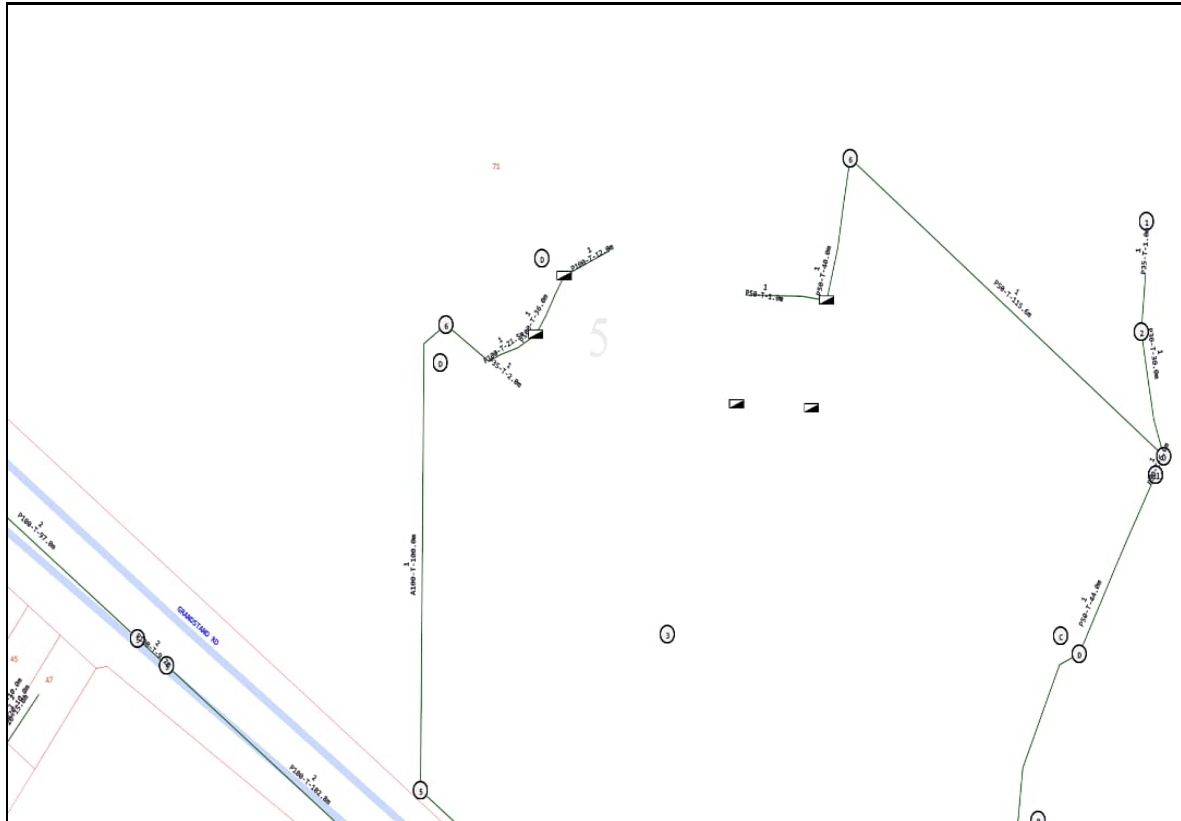
You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

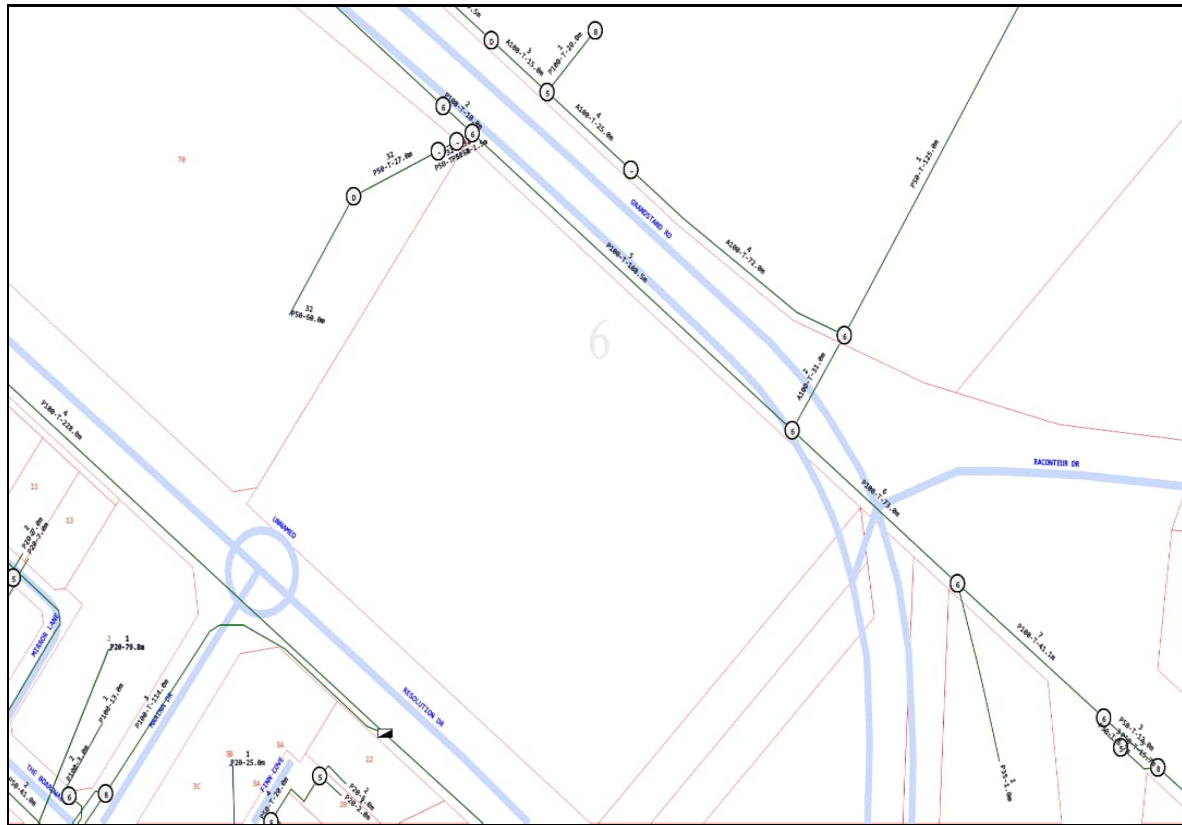






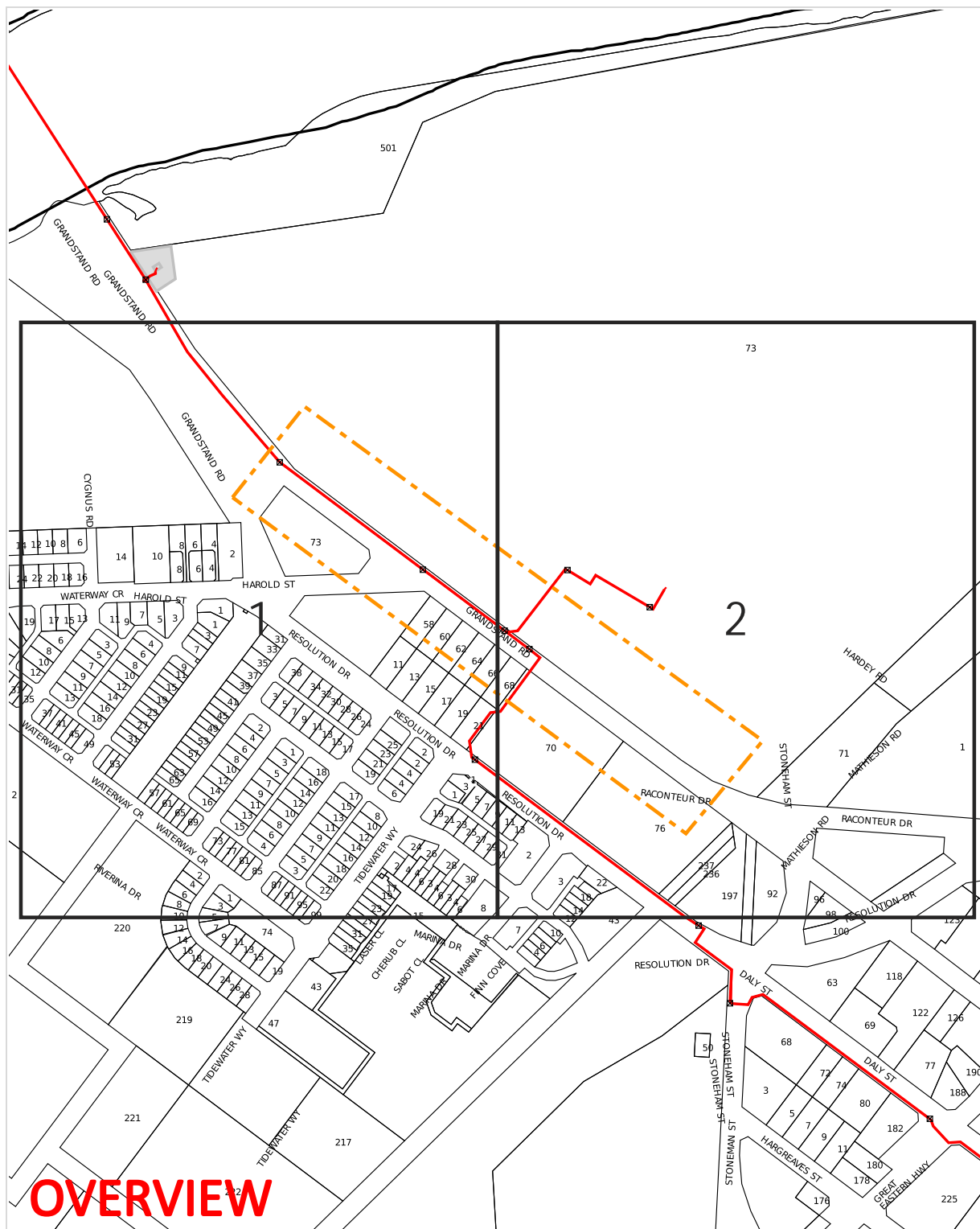
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Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.



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Sequence Number: 240936708

Date Generated: 24 Jun 2024



For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208



Plans generated 24 Jun 2024 by Pelicancorp TicketAccess Software | www.pelicancorp.com



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Sequence Number: 240936708

Date Generated: 24 Jun 2024

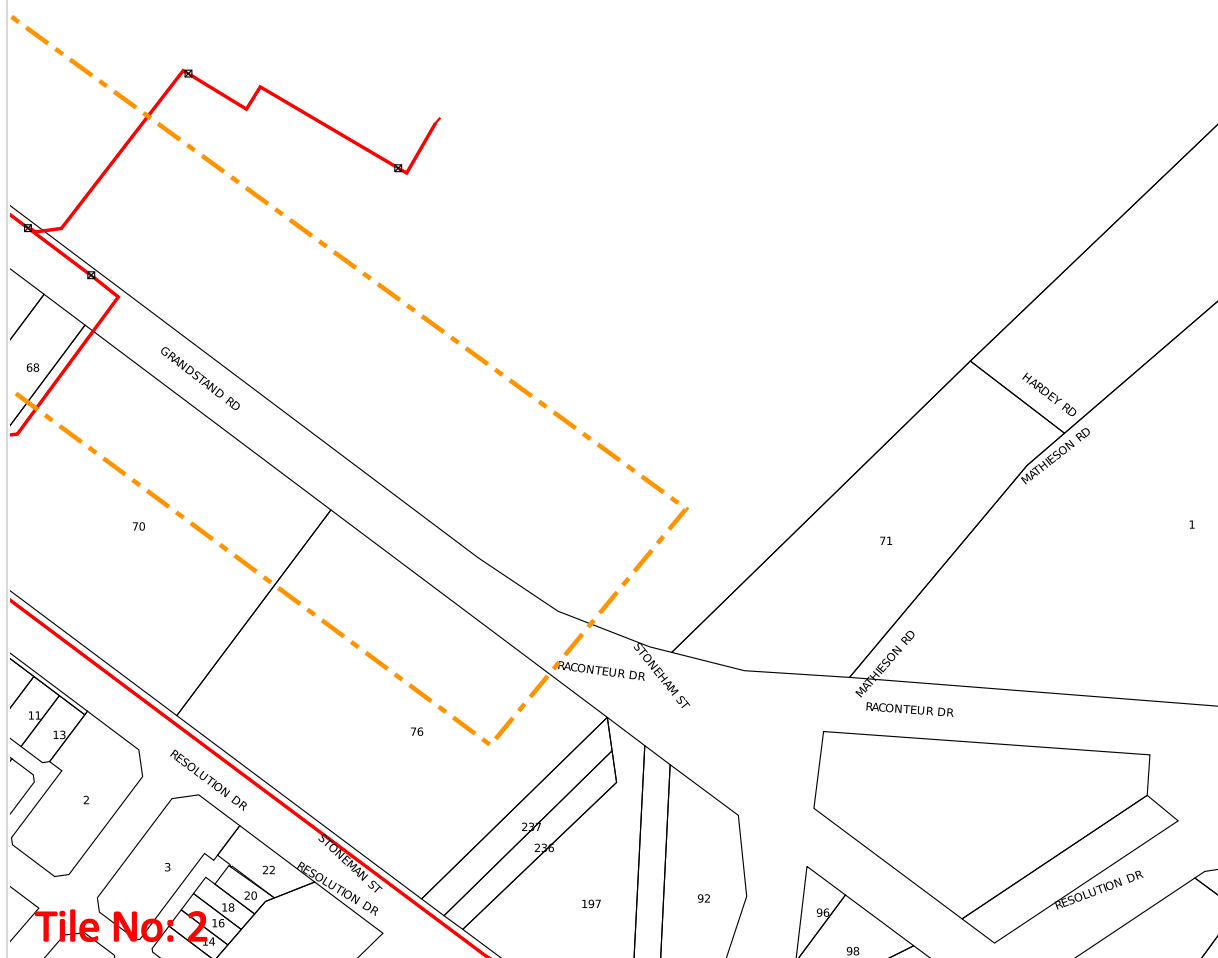


For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208



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73



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Plans generated 24 Jun 2024 by Pelicancorp TicketAccess Software | www.pelicancorp.com

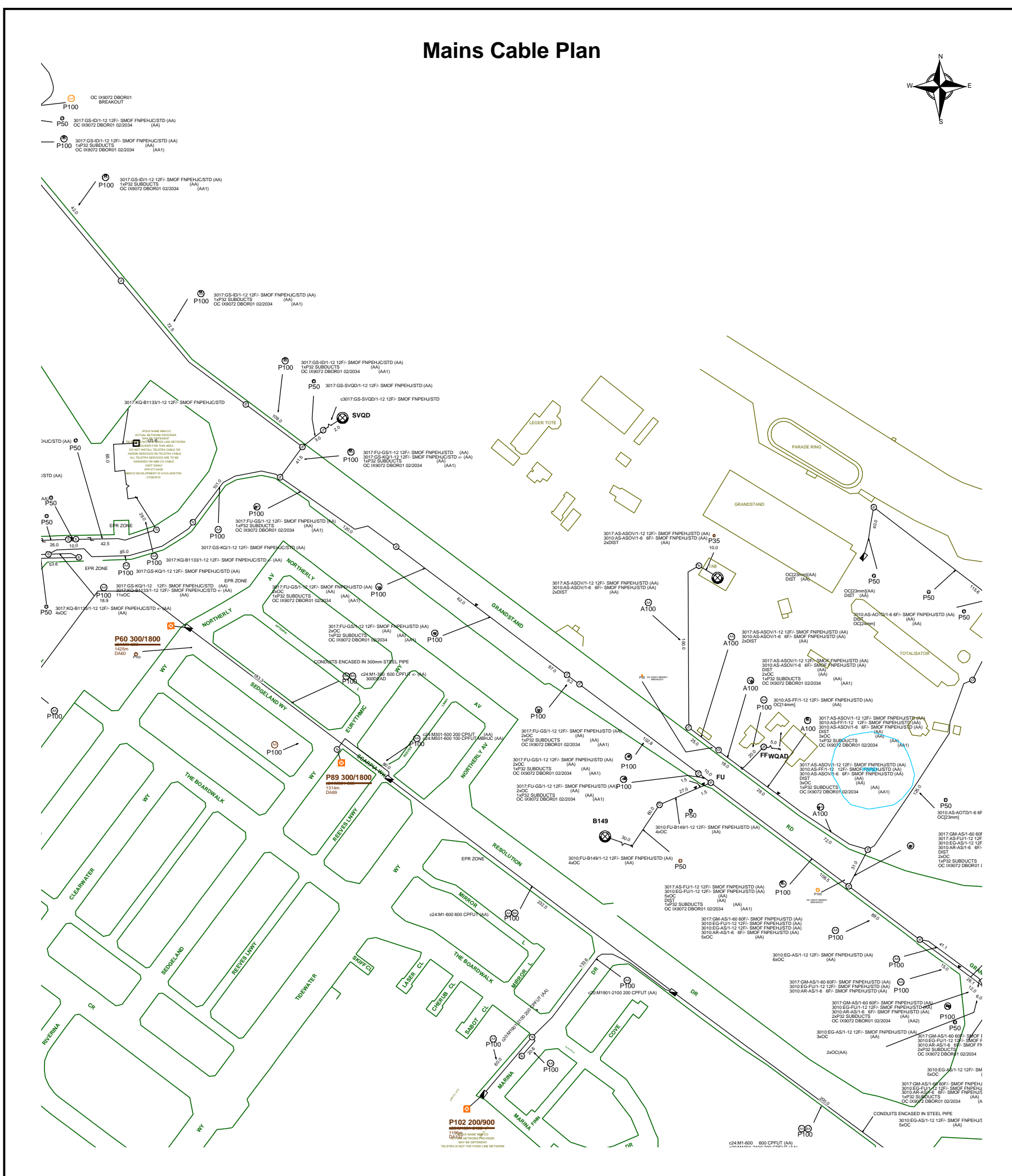



The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING

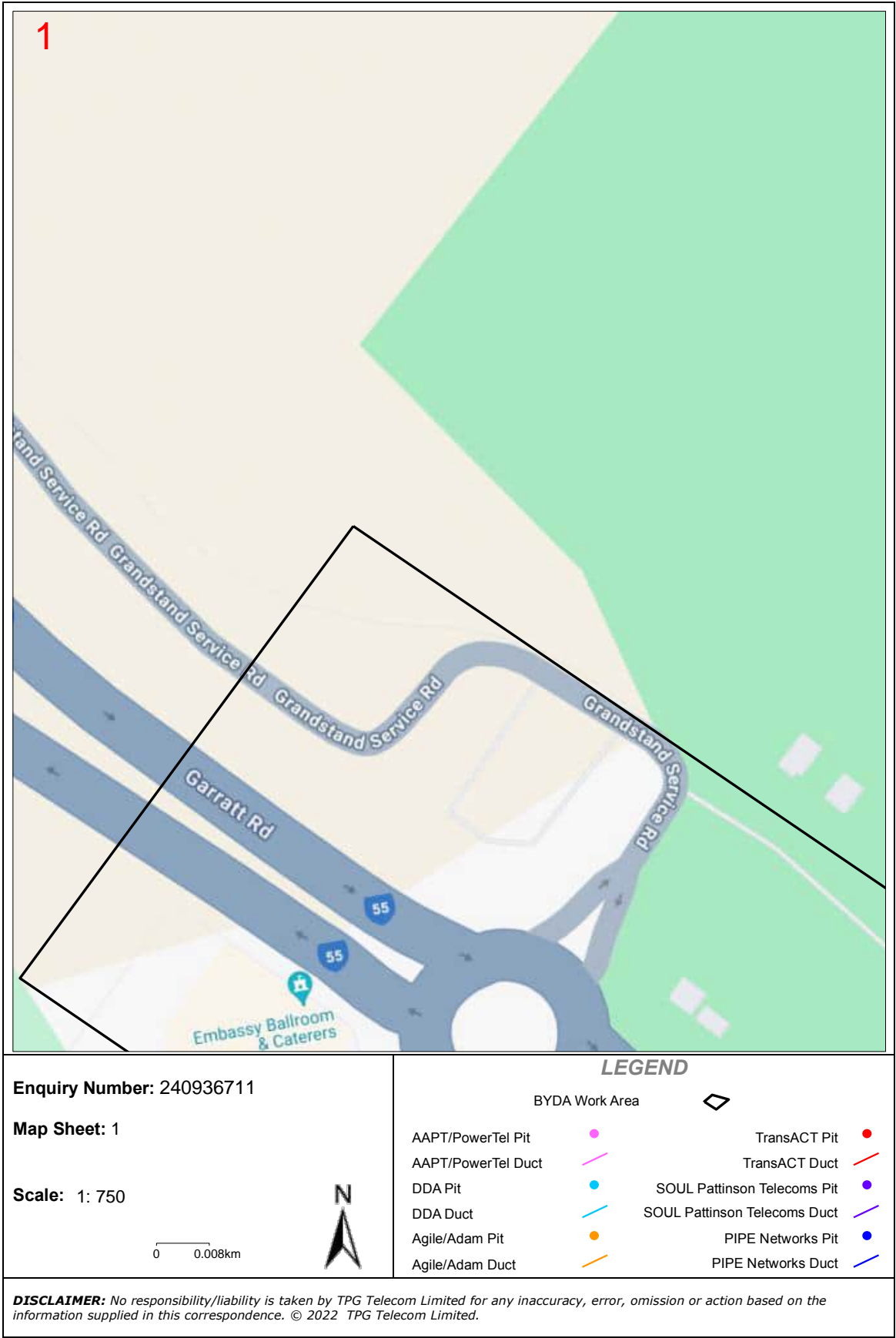
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.



	Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment Ph - 13 22 03 Email - Telstra.Plans@team.telstra.com Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries	Sequence Number: 240936714
	TELSTRA LIMITED A.C.N. 086 174 781 Generated On 24/06/2024 09:36:39	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

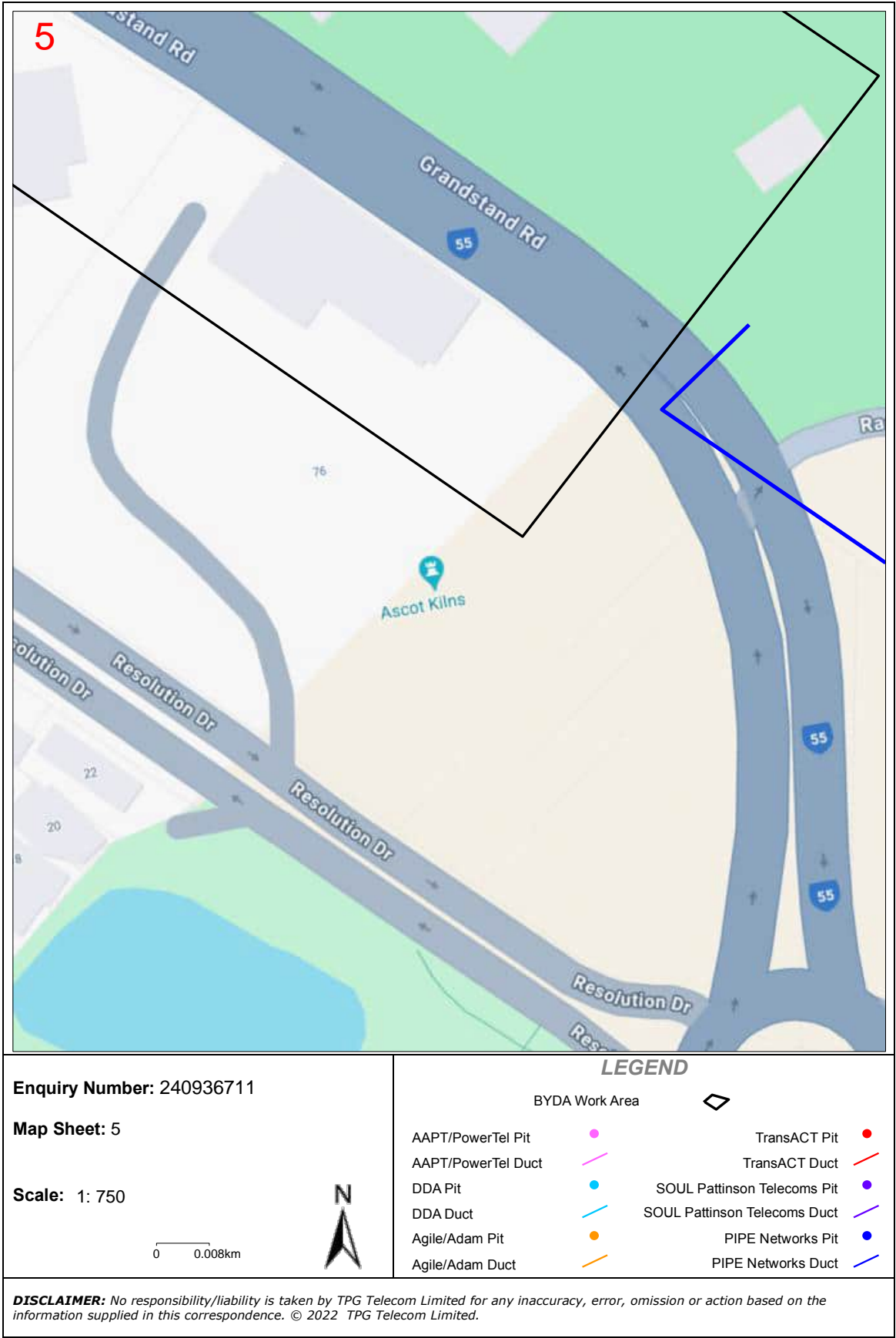
<p>WARNING</p> <p>Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information.</p> <p>As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D.</p> <p>Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it.</p> <p>Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy.</p> <p>Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work.</p> <p>A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.</p> <p>See the Steps- Telstra Duty of Care that was provided in the email response.</p>

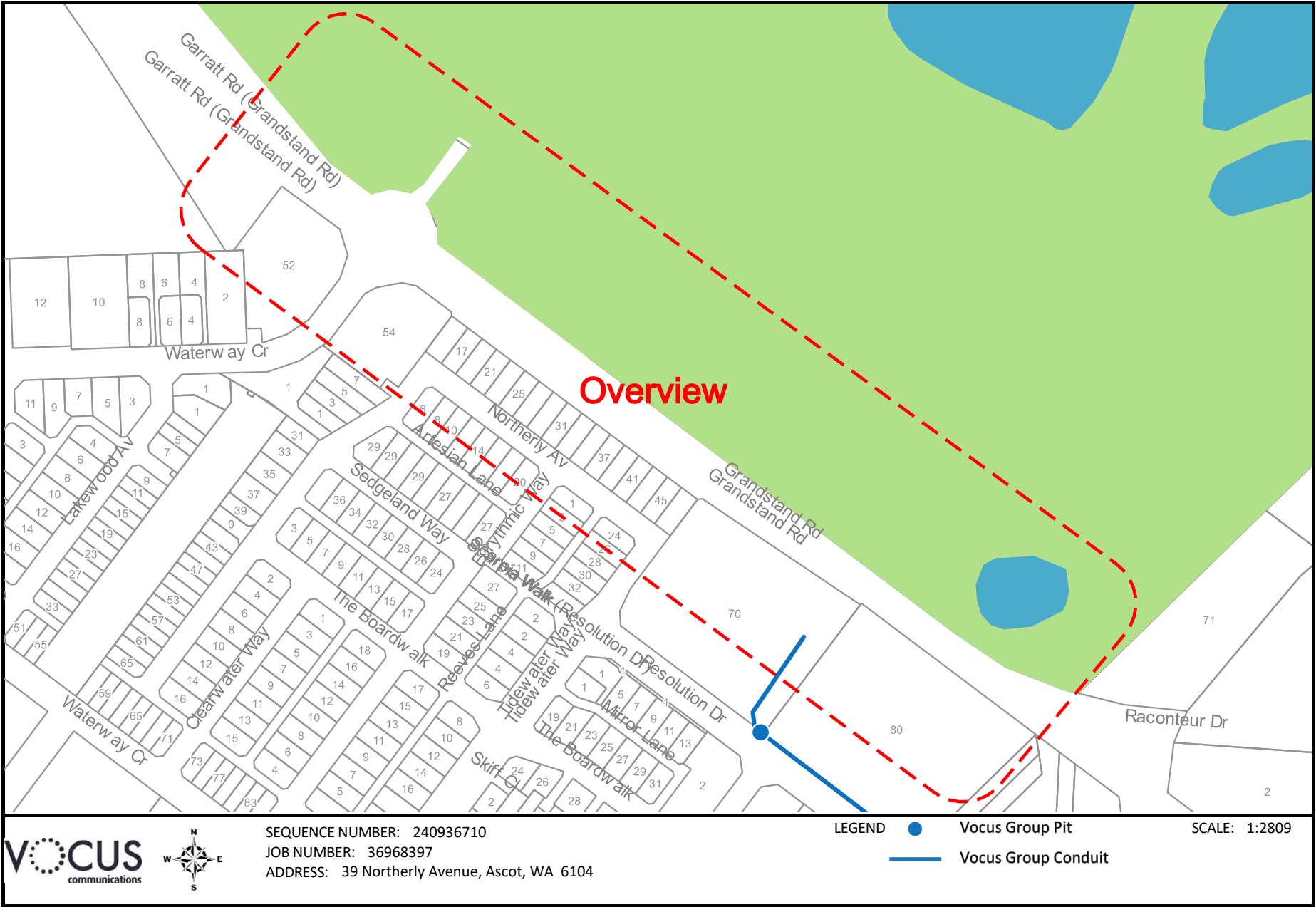










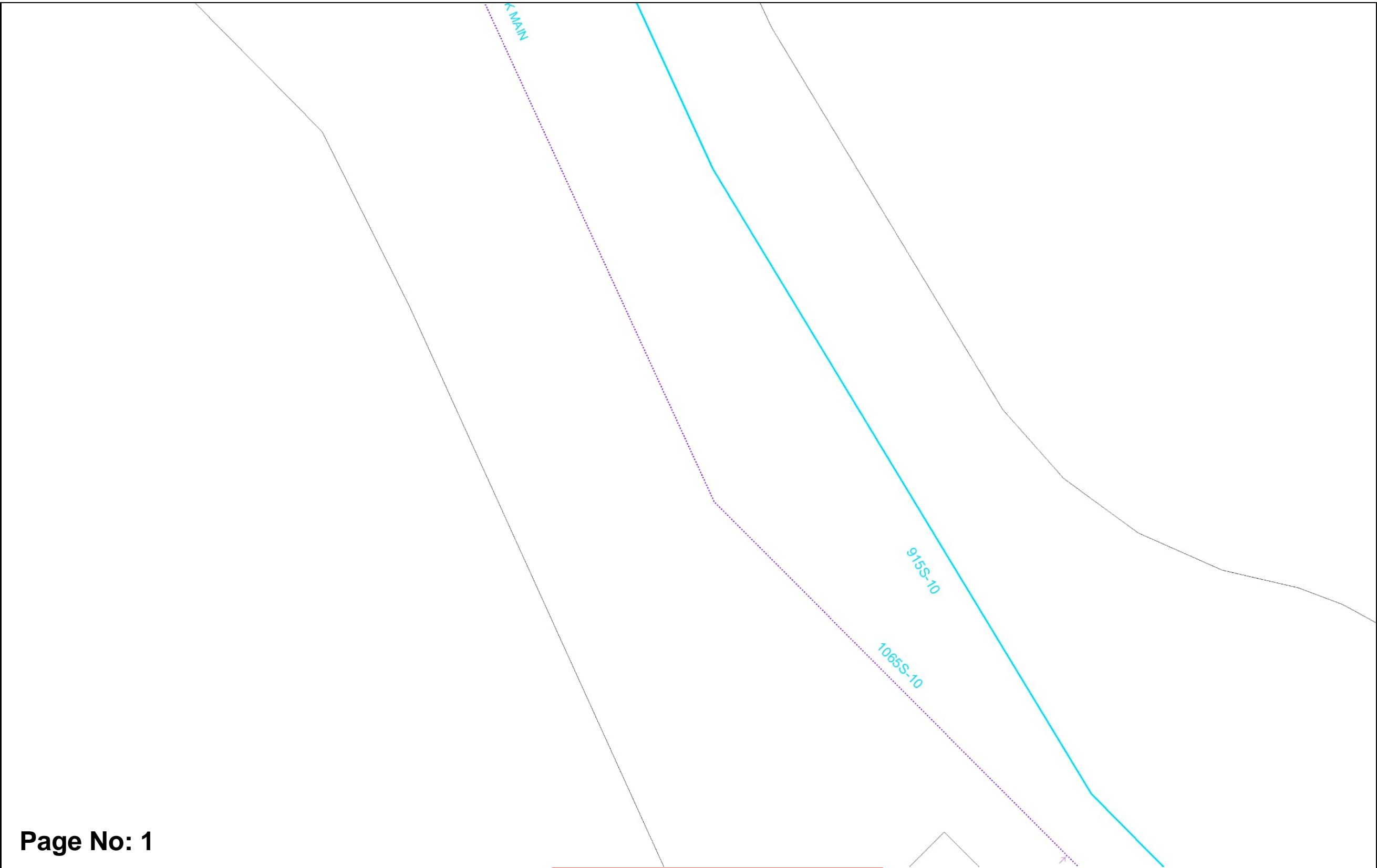


The Vocus Group includes related bodies corporate of Vocus Communications Limited ACN 084 115 499.



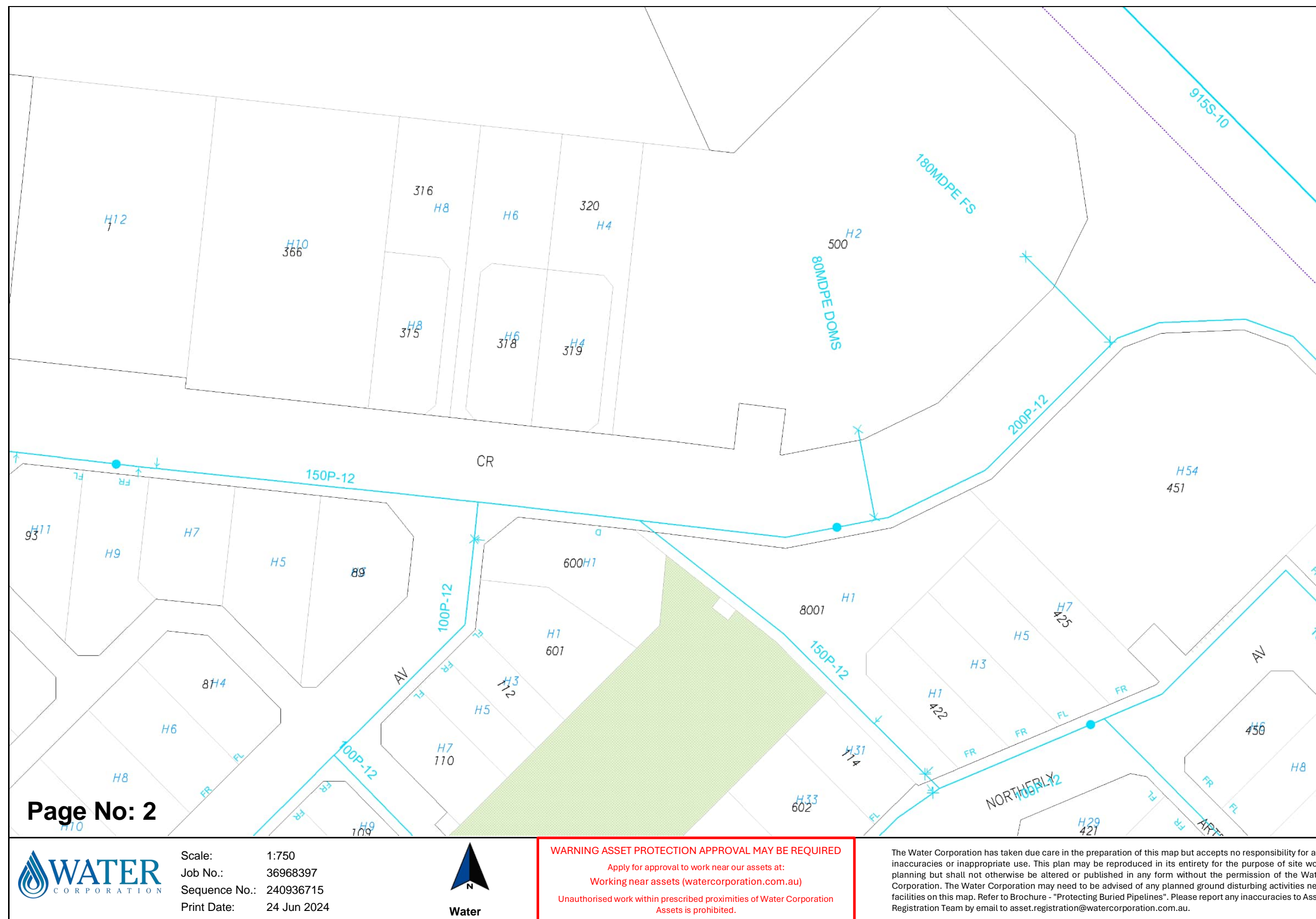
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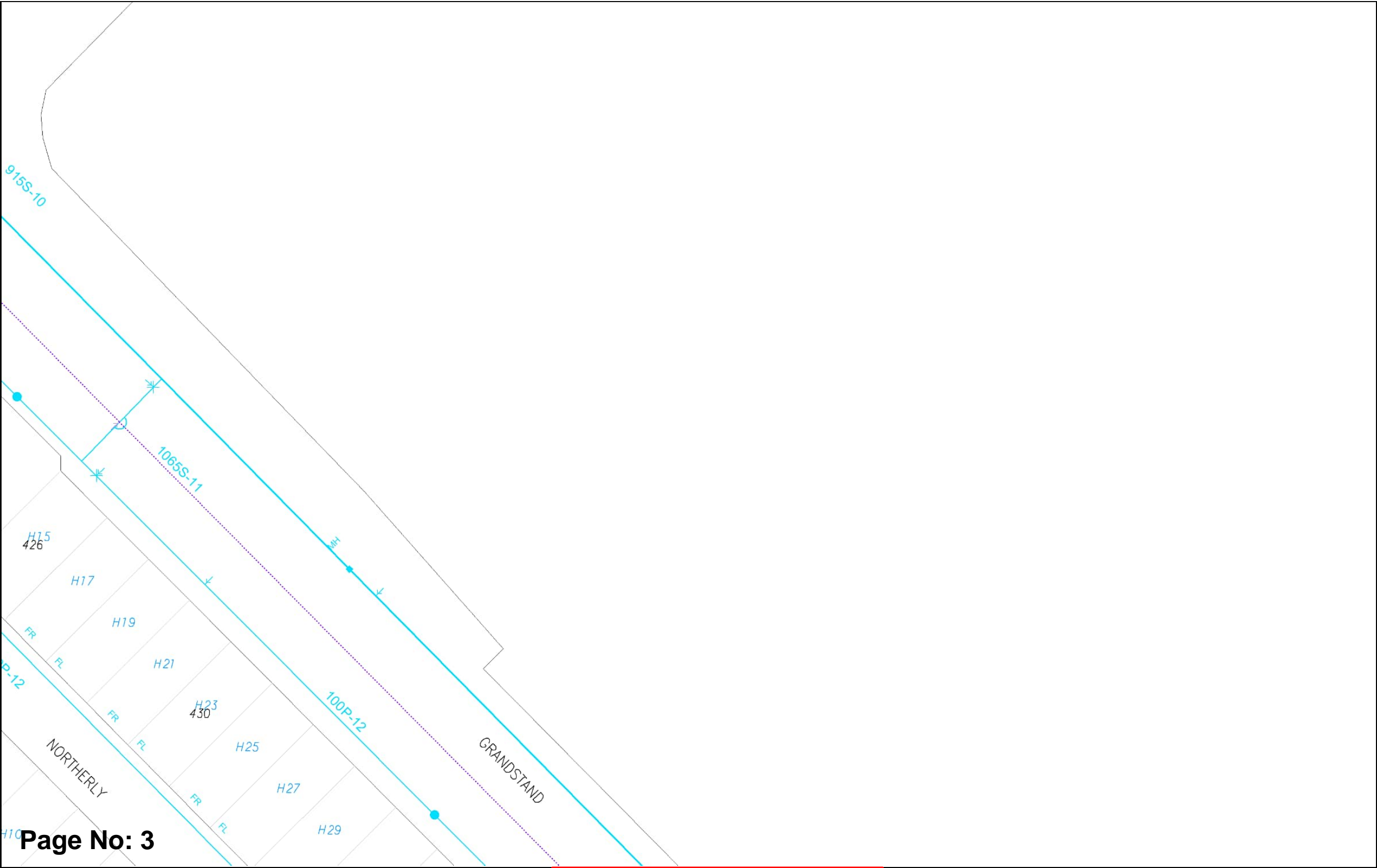
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	Job No.:	36968397			
	Sequence No.:	240936715			
	Print Date:	24 Jun 2024			



Page No: 1

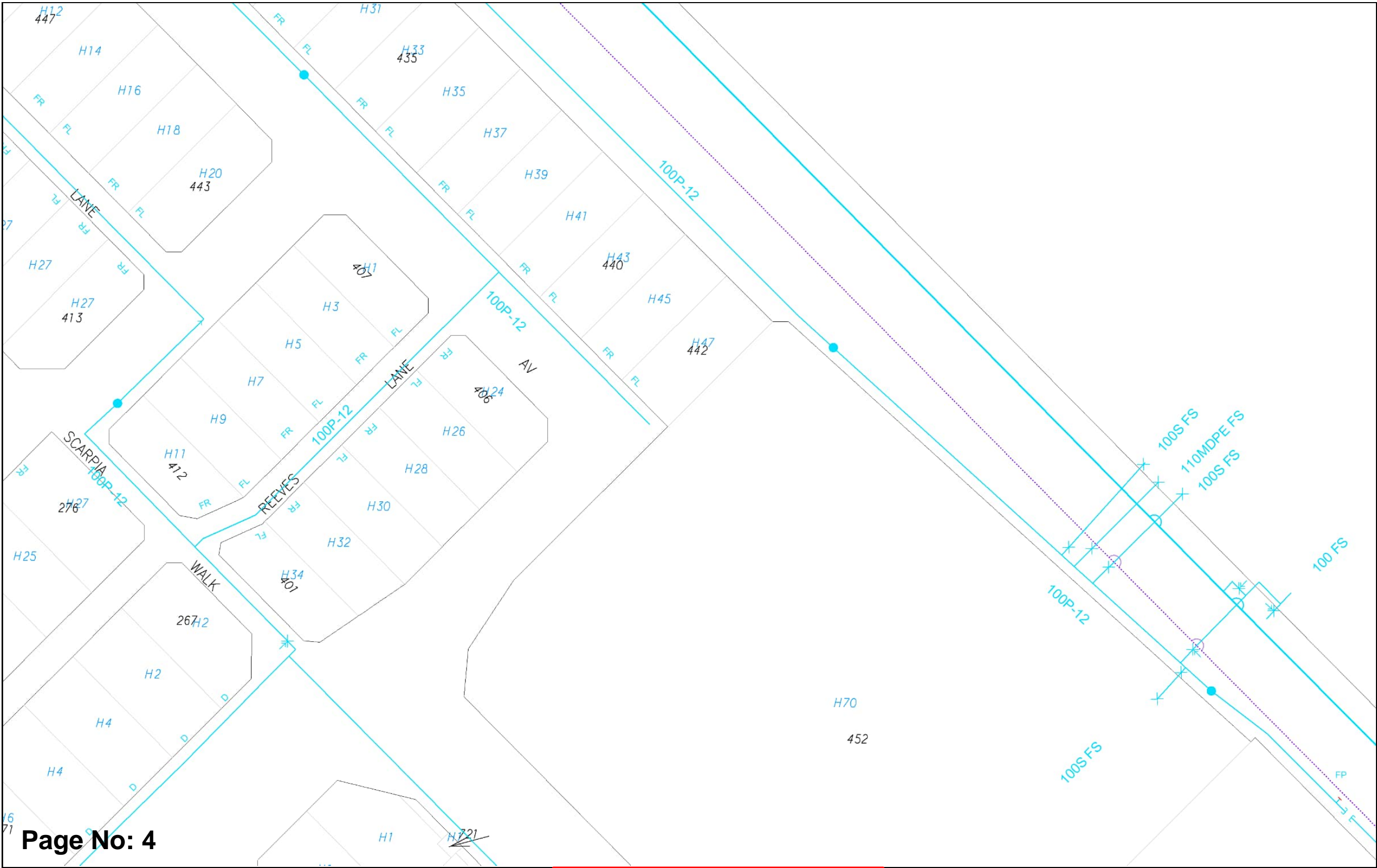
	Scale:	1:750	 Water	<div><div>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED</div><div>Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)</div><div>Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</div></div>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
	Job No.:	36968397			
	Sequence No.:	240936715			
	Print Date:	24 Jun 2024			





Page No: 3

	<p>Scale: 1:750 Job No.: 36968397 Sequence No.: 240936715 Print Date: 24 Jun 2024</p>		<p>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED</p> <p>Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)</p> <p>Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</p>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
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Page No: 4

	<p>Scale: 1:750 Job No.: 36968397 Sequence No.: 240936715 Print Date: 24 Jun 2024</p>	 <p>Water</p>	<p>WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED</p> <p>Apply for approval to work near our assets at: Working near assets (watercorporation.com.au)</p> <p>Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.</p>	<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>
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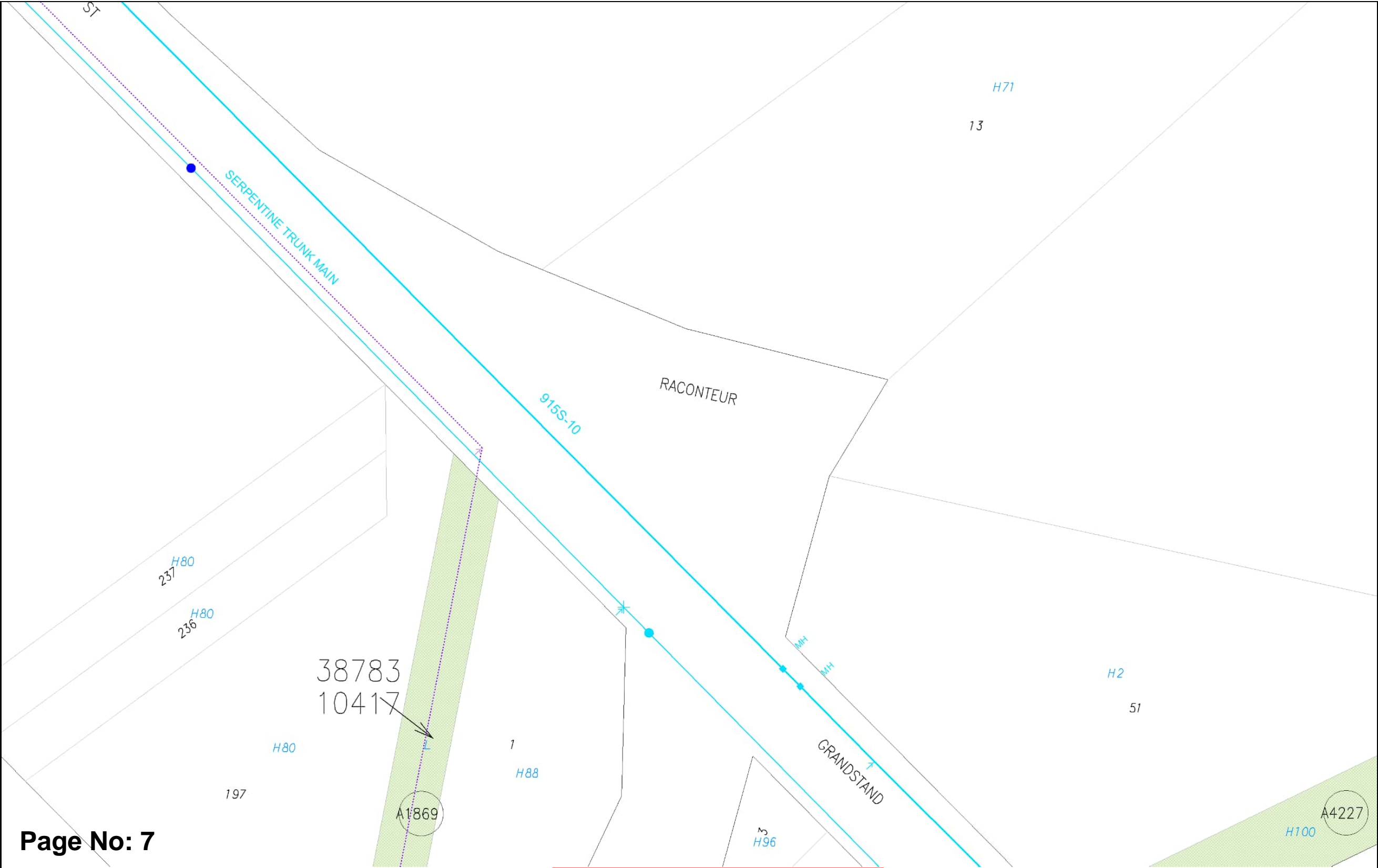
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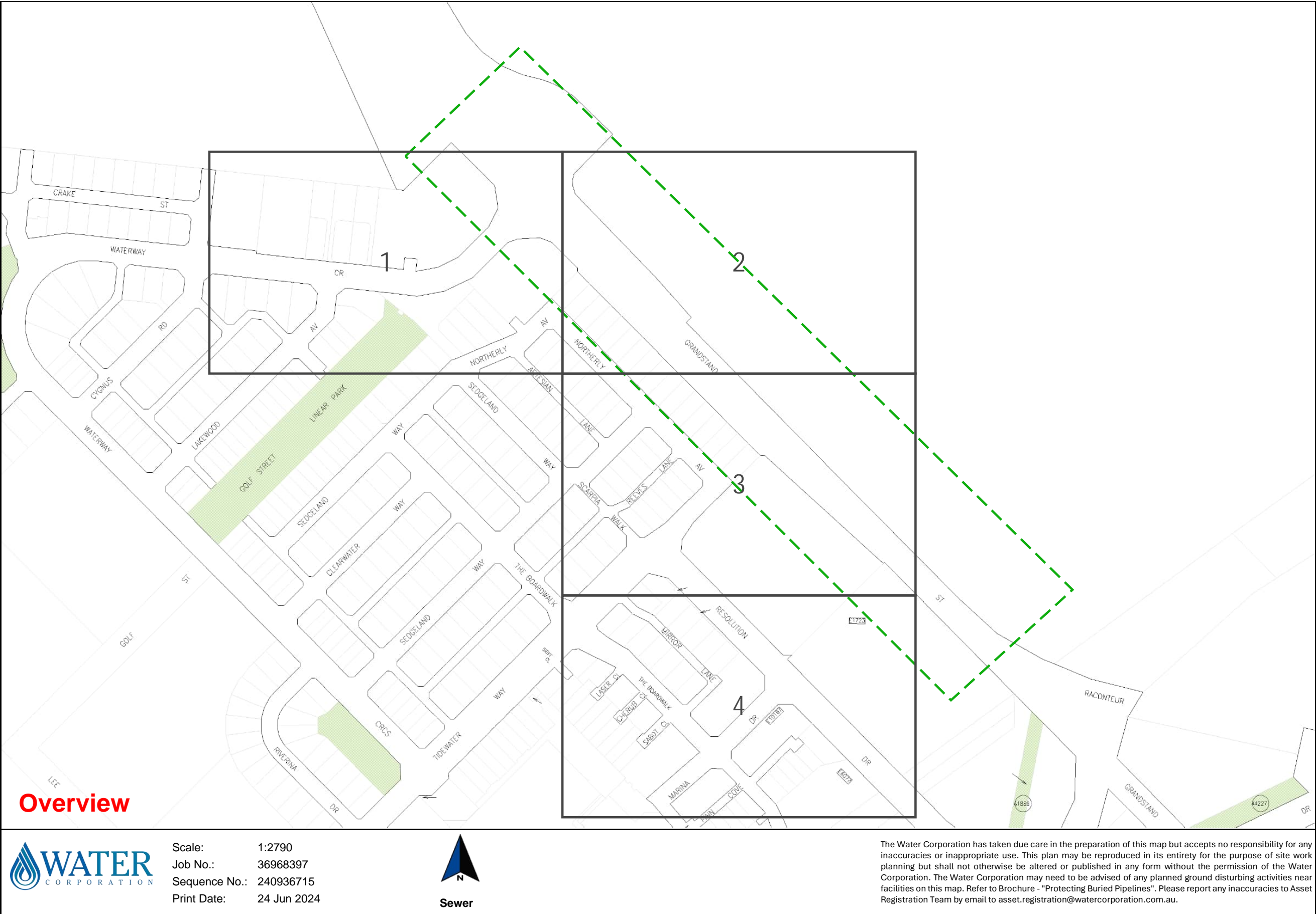
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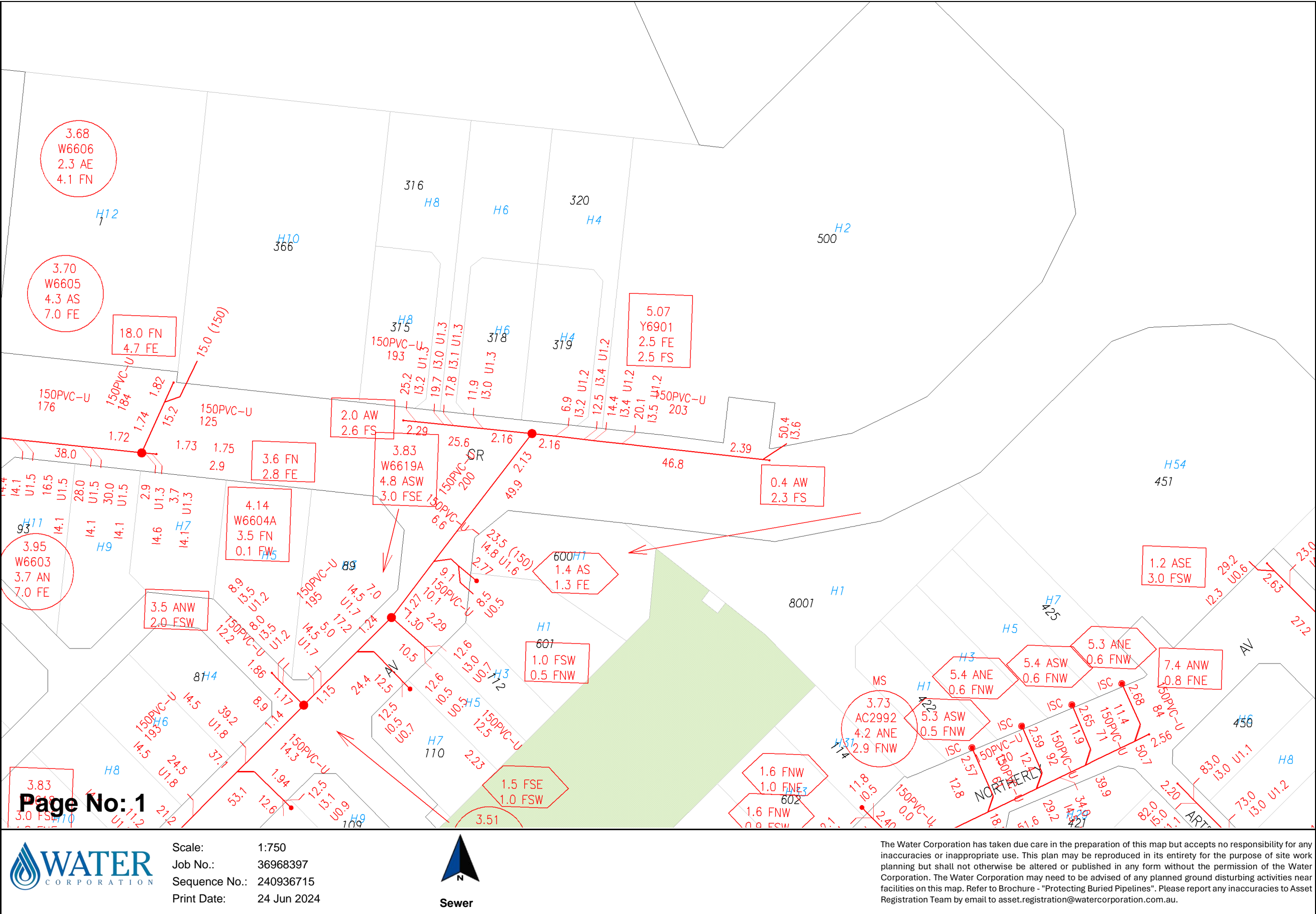
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	Job No.:	36968397
	Sequence No.:	240936715
	Print Date:	24 Jun 2024
 Water		
WARNING ASSET PROTECTION APPROVAL MAY BE REQUIRED Apply for approval to work near our assets at: Working near assets (watercorporation.com.au) Unauthorised work within prescribed proximities of Water Corporation Assets is prohibited.		
<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>		



Page No: 7

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	Sequence No.:	240936715
	Print Date:	24 Jun 2024
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<p>The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.</p>		









Scale: 1:750

Job No.: 36968397

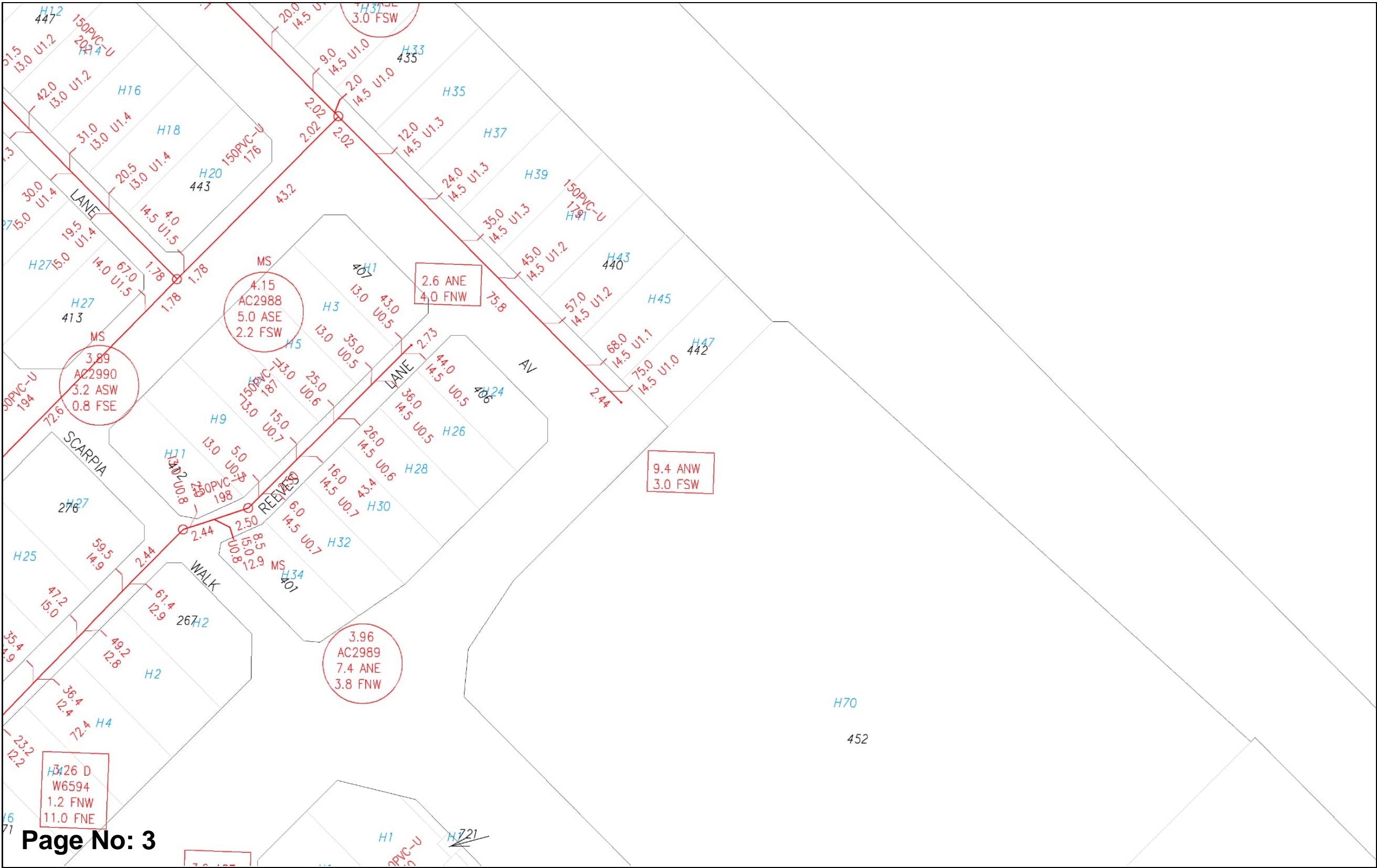
Sequence No.: 240936715

Print Date: 24 Jun 2024



Sewer

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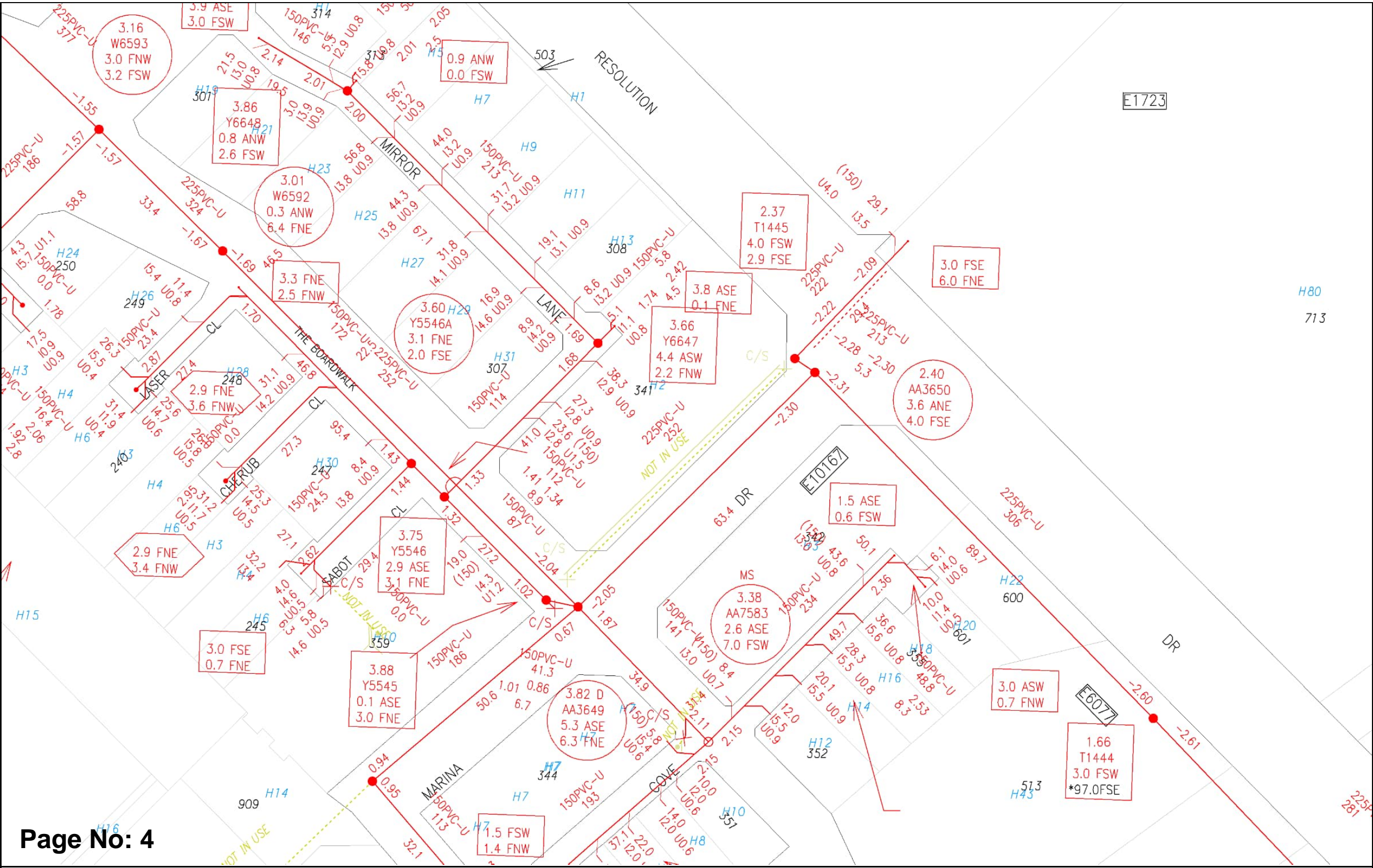


Scale: 1:750
Job No.: 36968397
Sequence No.: 240936715
Print Date: 24 Jun 2024



Sewer

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Page No: 4

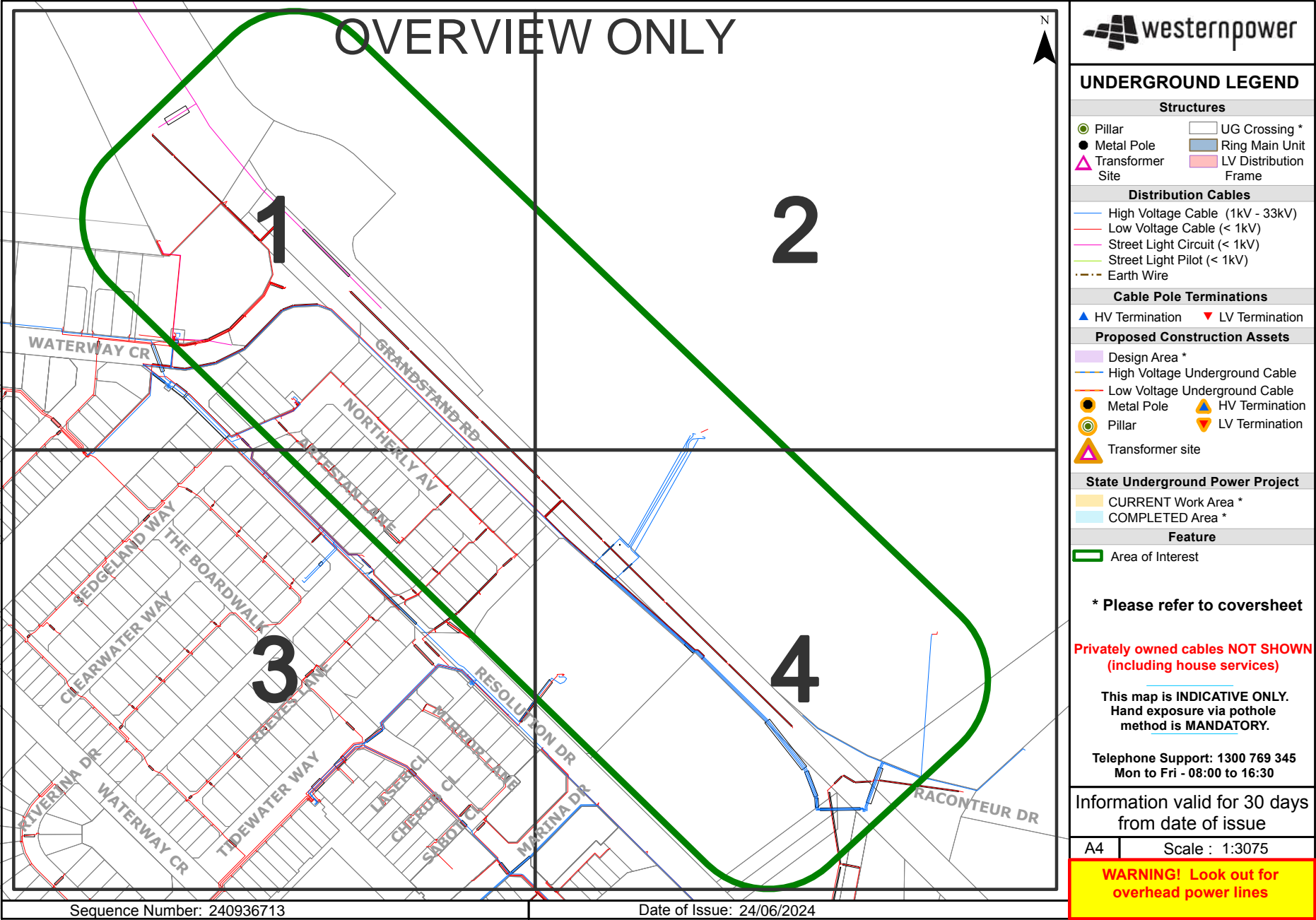


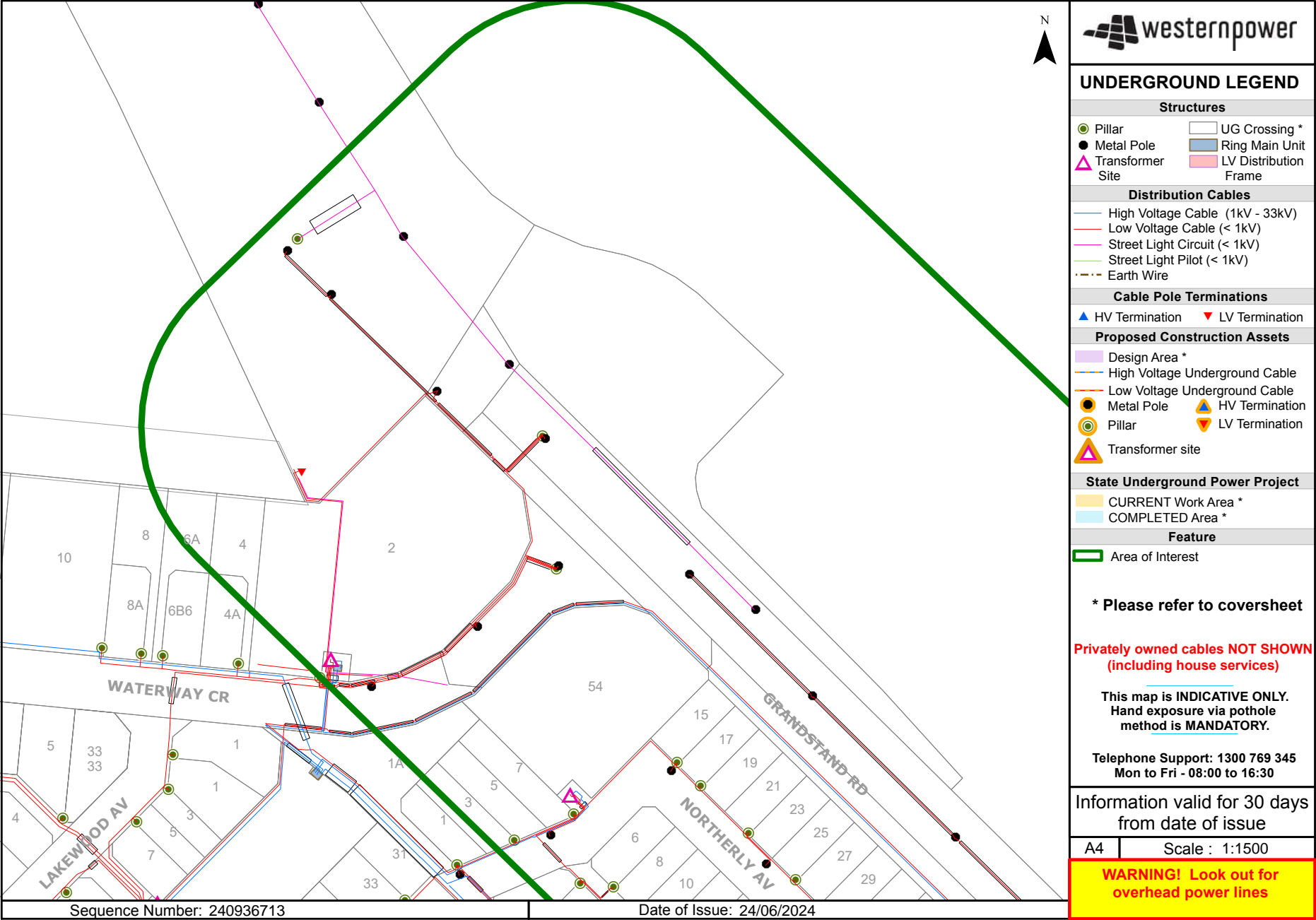
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Print Date: 24 Jun 2024

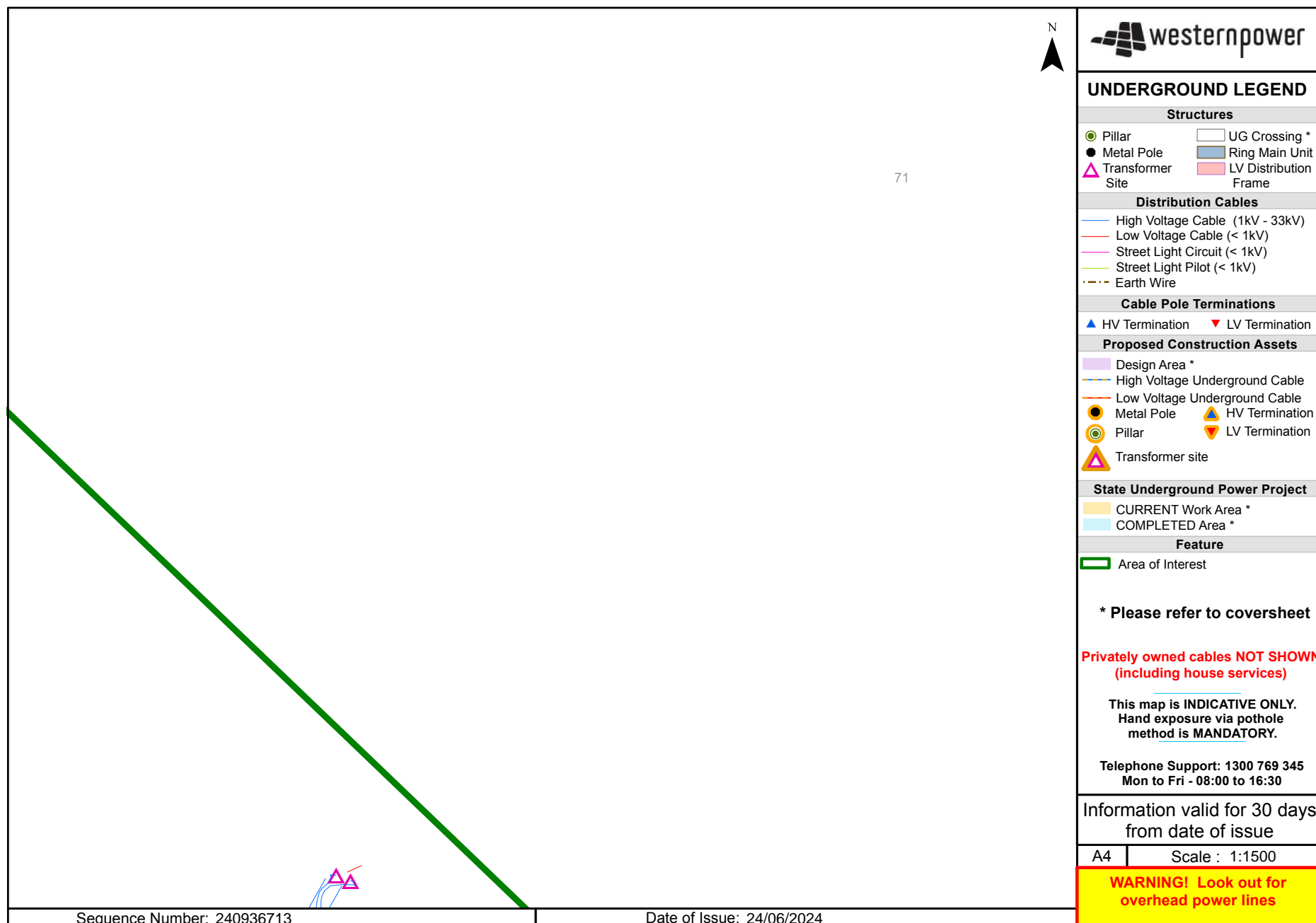


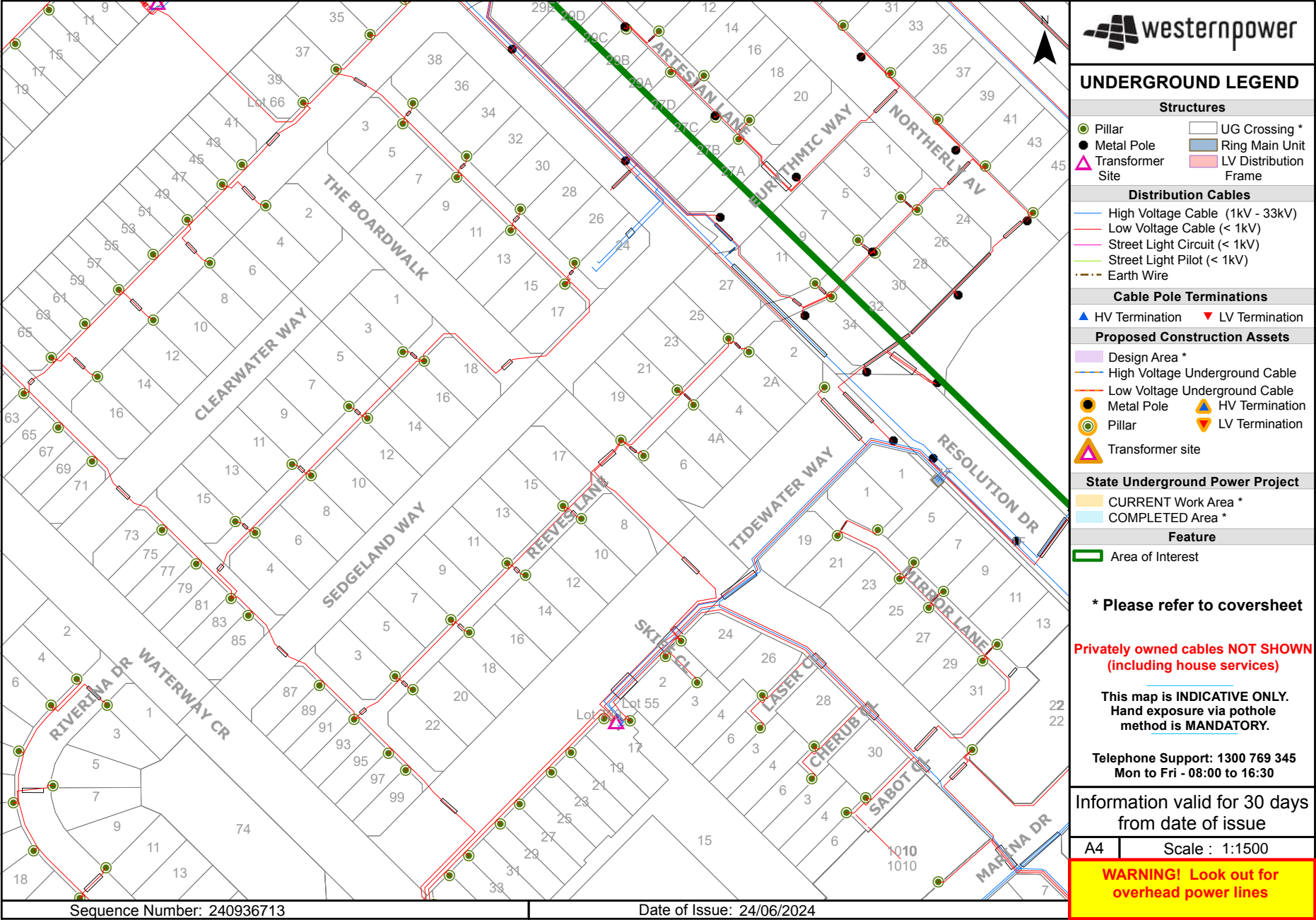
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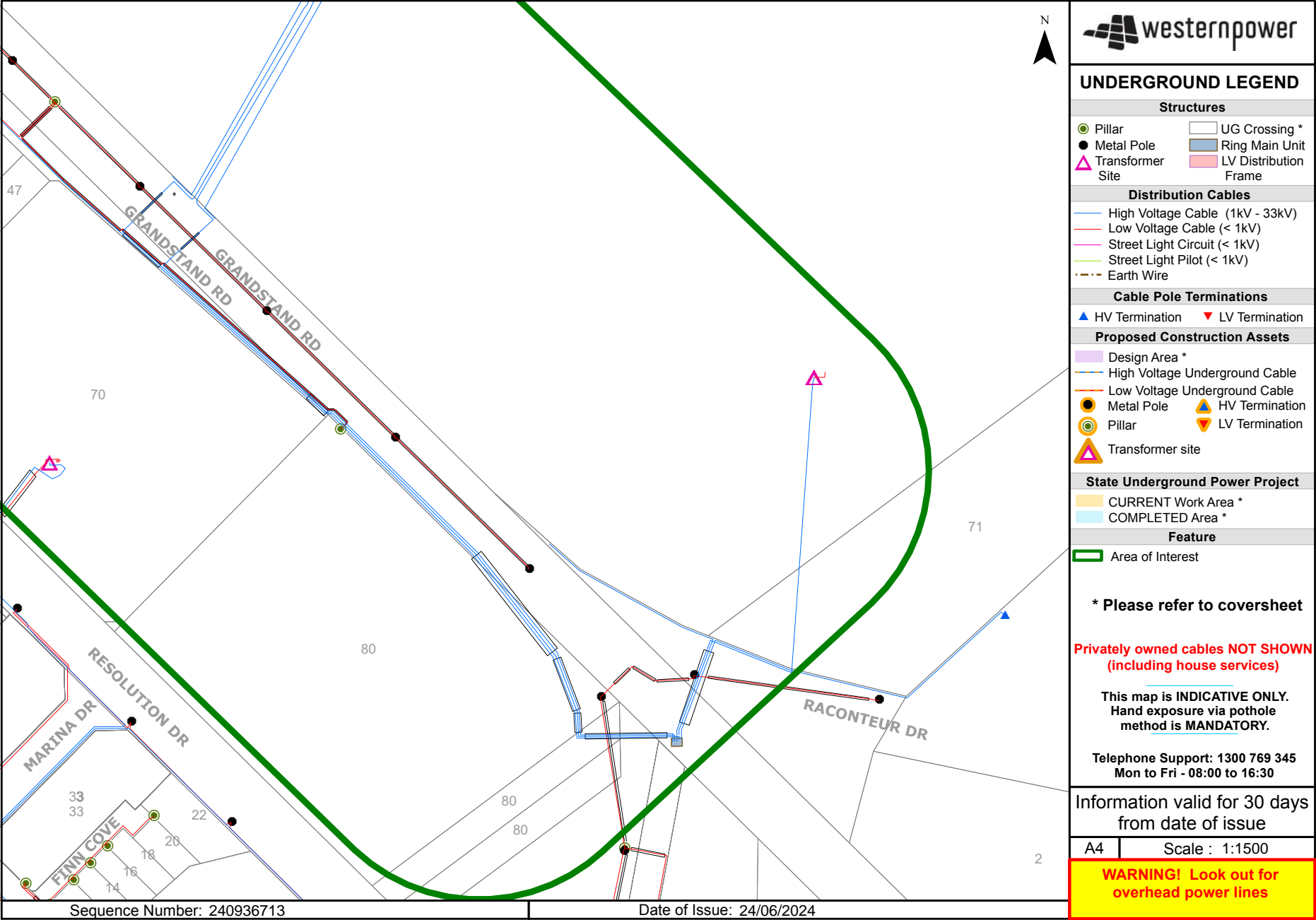
The Water Corporation has taken due care in the preparation of this map but accepts no responsibility for any inaccuracies or inappropriate use. This plan may be reproduced in its entirety for the purpose of site work planning but shall not otherwise be altered or published in any form without the permission of the Water Corporation. The Water Corporation may need to be advised of any planned ground disturbing activities near facilities on this map. Refer to Brochure - "Protecting Buried Pipelines". Please report any inaccuracies to Asset Registration Team by email to asset.registration@watercorporation.com.au.

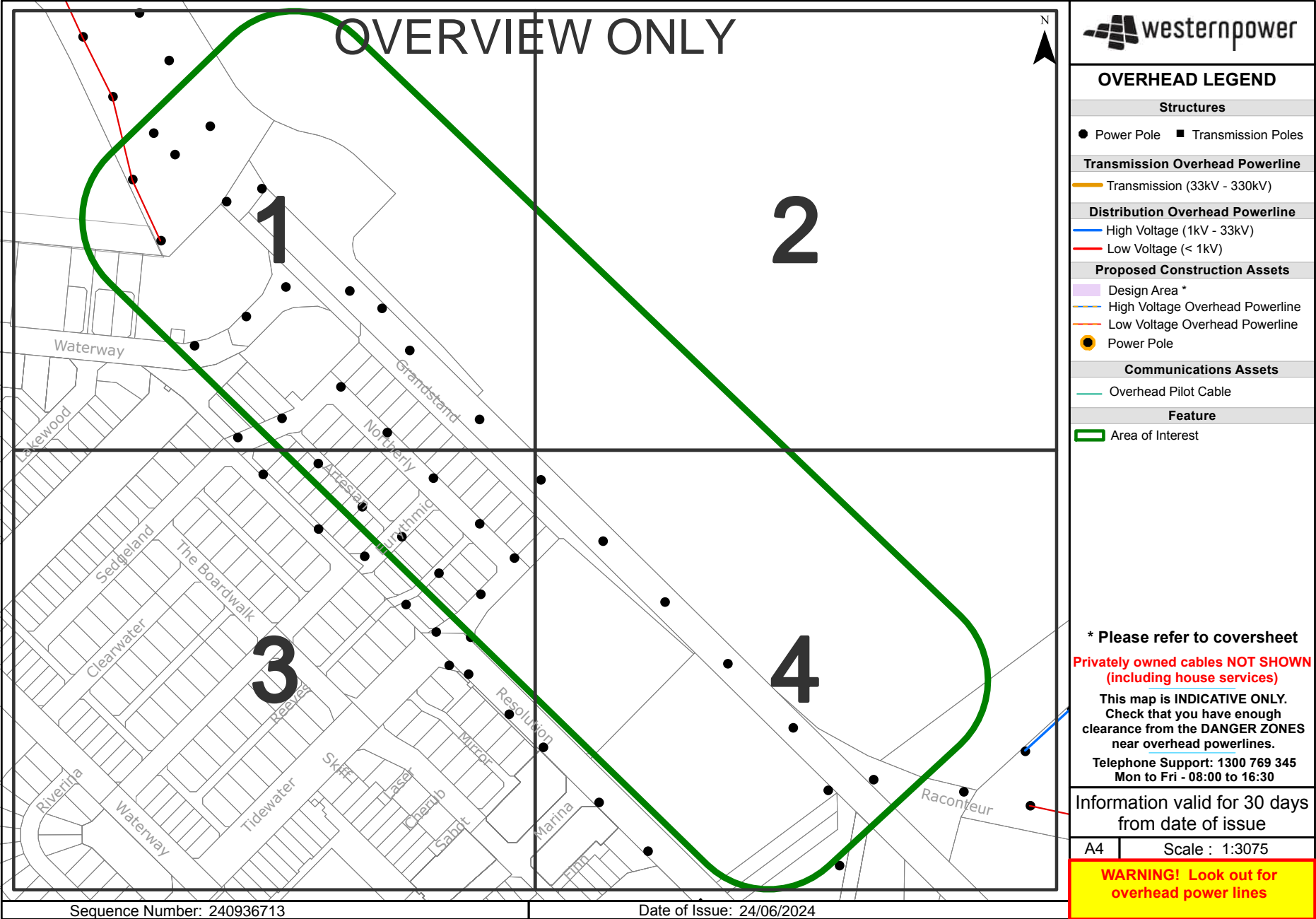


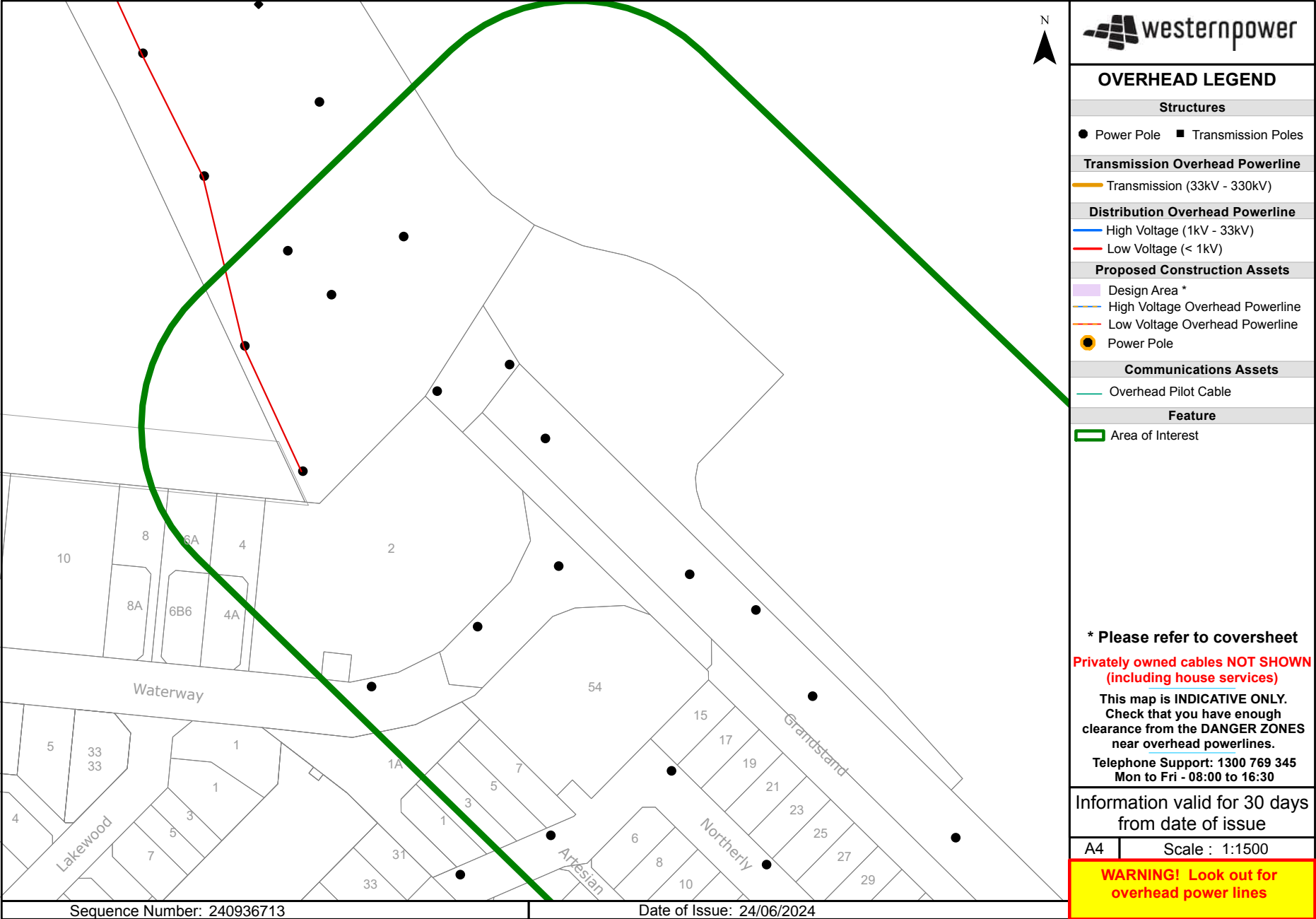


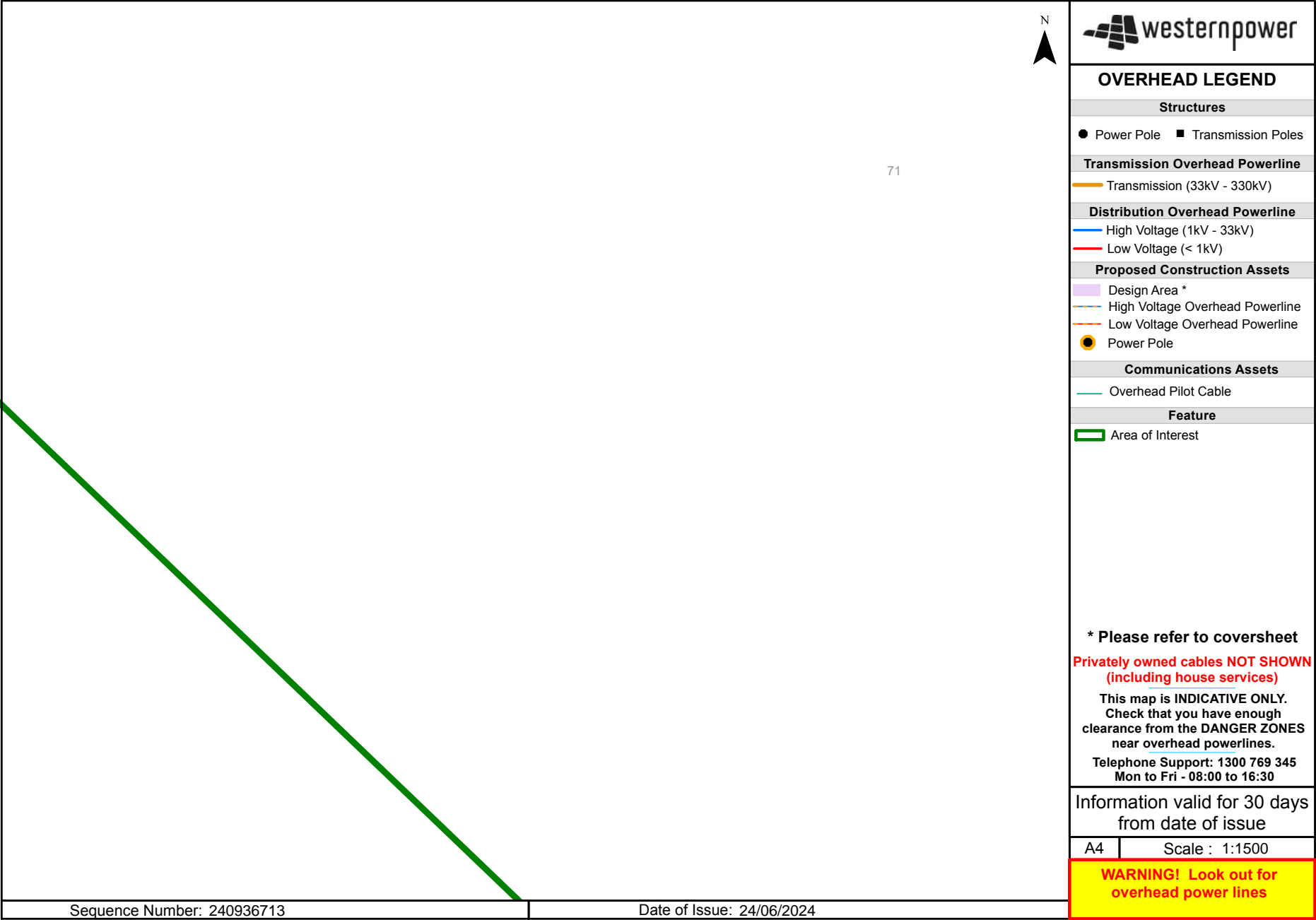








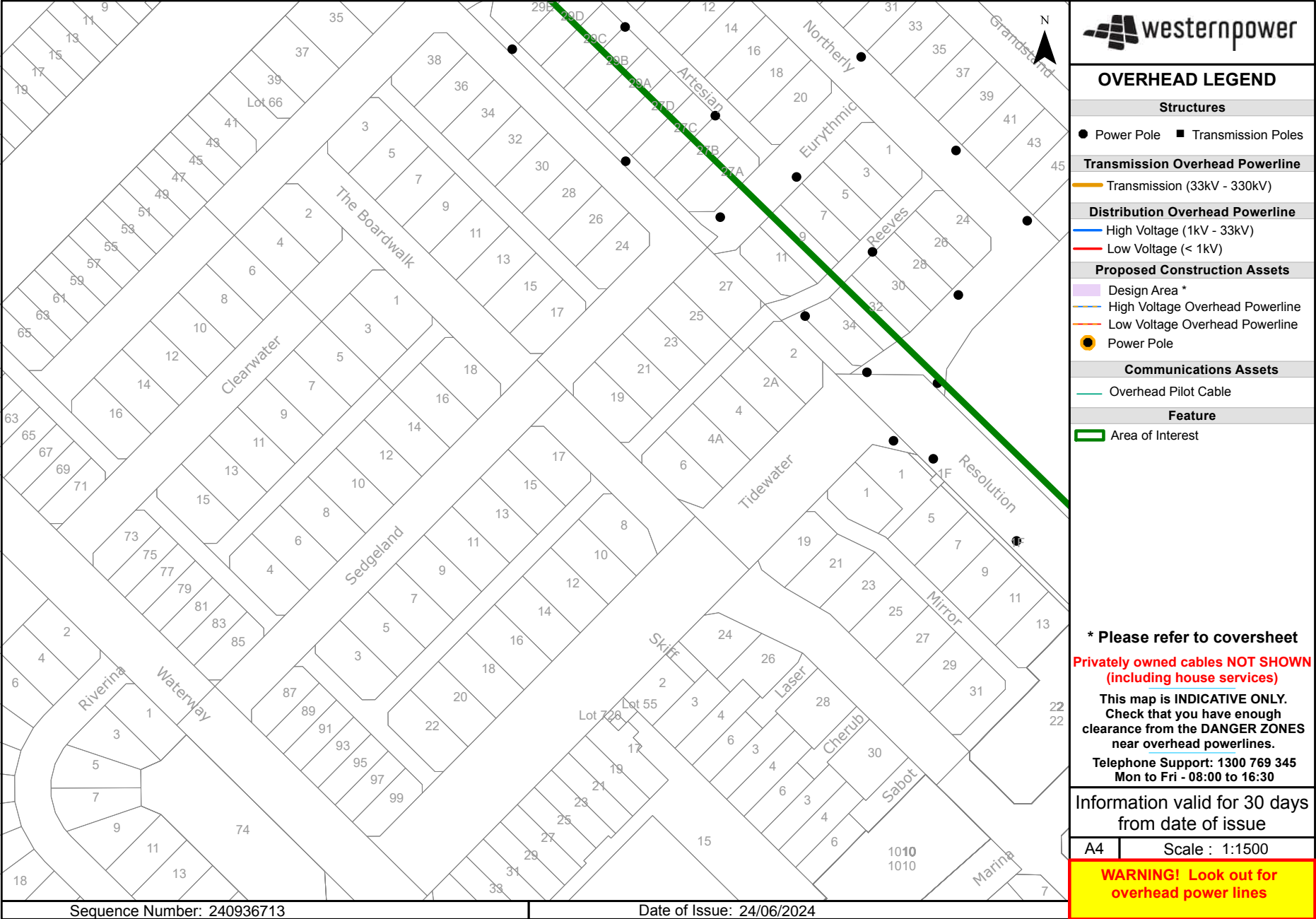


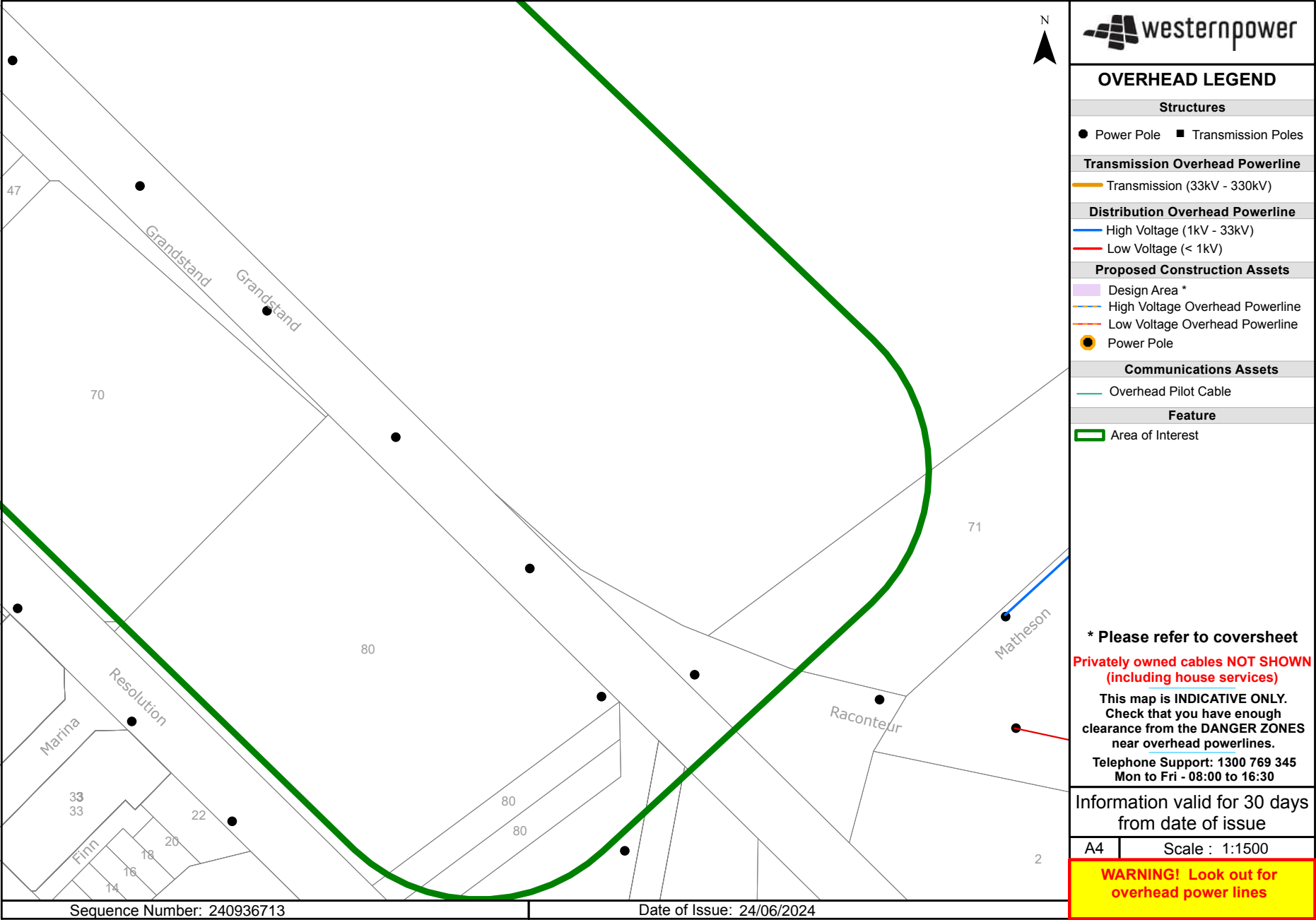


71

Sequence Number: 240936713

Date of Issue: 24/06/2024





Attachment 12.1.4 Engineering Servicing Report

Job No 36962214



byda.com.au

Contact Details

Contact	Contact number	Company	Enquirer ID
Justin Zielinski	0420 304 451	-	3140642
Email		Address	
jzielinski@tabec.com.au		54 Havelock Street West Perth WA 6005	

Job Site and Enquiry Details

WARNING: The map below only displays the location of the proposed job site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

Enquiry date	Start date	End date	On behalf of	Job purpose	Locations	Onsite activities
21/06/2024	24/06/2024	24/06/2024	Private	Design	Both Road	Subdivision



Check that the location of the job site is correct. If not, you must submit a new enquiry.

If the scope of works change or plan validity dates expire, you must submit a new enquiry.

Do NOT dig without plans. Safe excavation is your responsibility. If you don't understand the plans or how to proceed safely, please contact the relevant asset owners.

User Reference	Address	Notes/description
Precinct A	75 Grandstand Road Ascot WA 6104	-

Your Responsibility and Duty of Care

- **Lodging an enquiry does not authorise project commencement.** Before starting work, you must obtain all necessary information from all affected asset owners.
- If you don't receive plans within 2 business days, contact the asset owner & quote their sequence number.
- Always follow the 5Ps of Safe Excavation (page 2), and locate assets before commencing work.
- Ensure you comply with State legislative requirements for Duty of Care and safe digging.
- If you damage an underground asset, you MUST advise the asset owner immediately.
- By using the BYDA service, you agree to the [Privacy Policy](#) and [Term of Use](#).
- For more information on safe digging practices, visit www.byda.com.au

Asset Owner Details

Below is a list of asset owners with underground infrastructure in and around your job site. It is your responsibility to identify the presence of these assets. Plans issued by Members are indicative only unless specified otherwise. Note: not all asset owners are registered with BYDA. You must contact asset owners not listed here directly.

Referral ID (Seq. no)	Authority Name	Phone	Status
240900419	ATCO Gas Australia	1300 926 755	NOTIFIED
240900415	NBN Co (WA)	1800 687 626	NOTIFIED
240900413	Optus (WA)	1800 505 777	NOTIFIED
240900417	Telstra (WA)	1800 653 935	NOTIFIED
240900414	TPG Telecom (WA)	1800 786 306	NOTIFIED
240900418	Water Corporation	13 13 95	NOTIFIED
240900416	Western Power	13 10 87	NOTIFIED

END OF UTILITIES LIST

Lodge your FREE enquiry online any time at byda.com.au

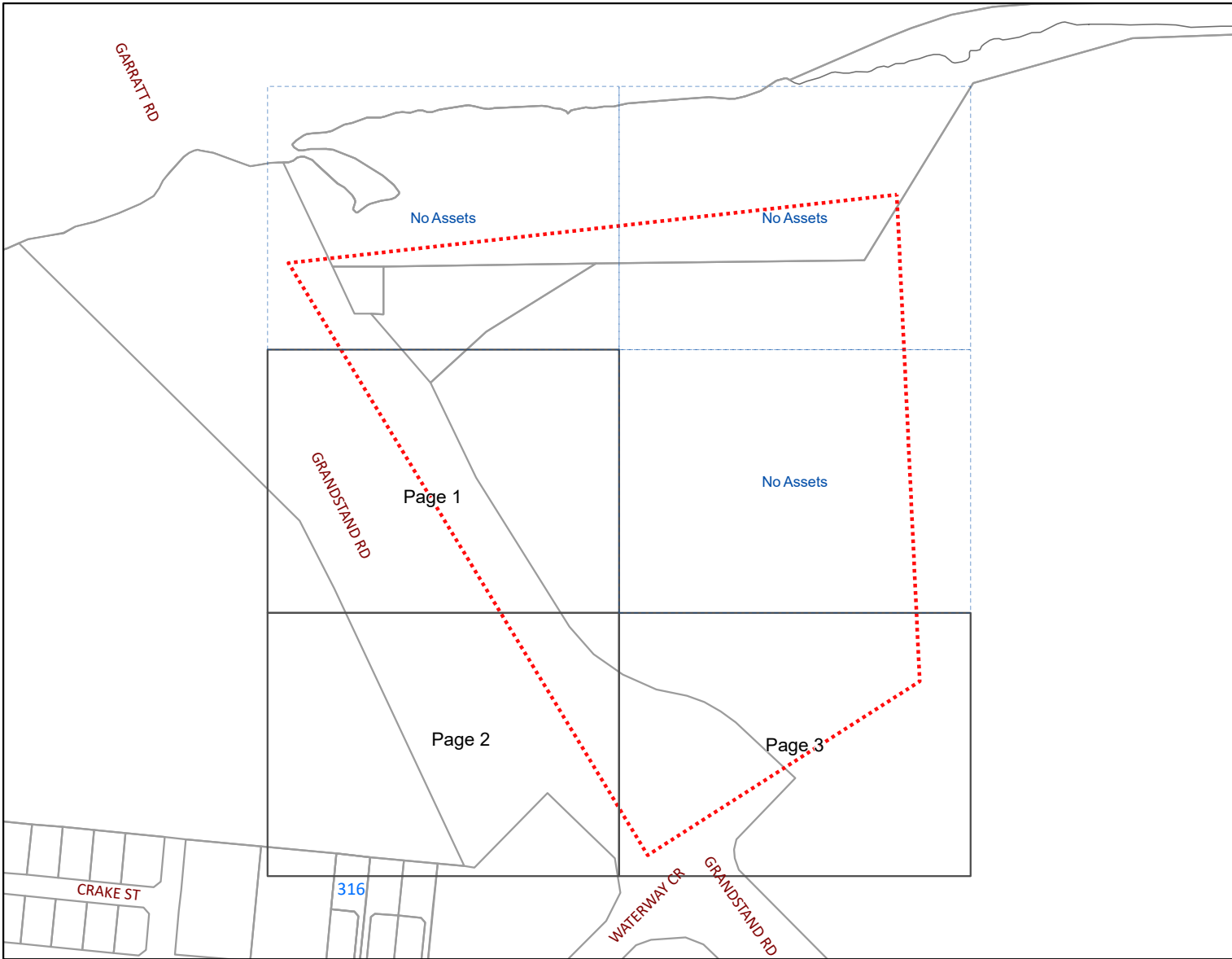
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)
Index Sheet

Seq # 240900419
Job # 36962214

BYDA Location: 75 Grandstand Road Ascot 6104
Scale: 1:2,500



**WARNING
CRITICAL ASSET
IN THE VICINITY.**

No works within 15 meters of this asset are permitted without prior approval from ATCO.
Contact ATCO on 1300 926 755

BYDA Enquiry

Detailed map page

No Assets in the Dig Site

Please refer to Symbols Sheet for Further Information

Disclaimer:
Please read all **warnings**, conditions and information on the attached "Underground Asset Details" information sheet. This plan is issued subject to that information and those conditions and **warnings** (including, but not limited to, the "NO HOT WORKS" warning). Plans are current for only **30 days** from date of request, indicative only and not warranted to be accurate. It is your responsibility to carefully locate underground assets and follow safe work practises and procedures (eg pot-holing).
ATCO Gas Australia will seek compensation for damage caused to assets.

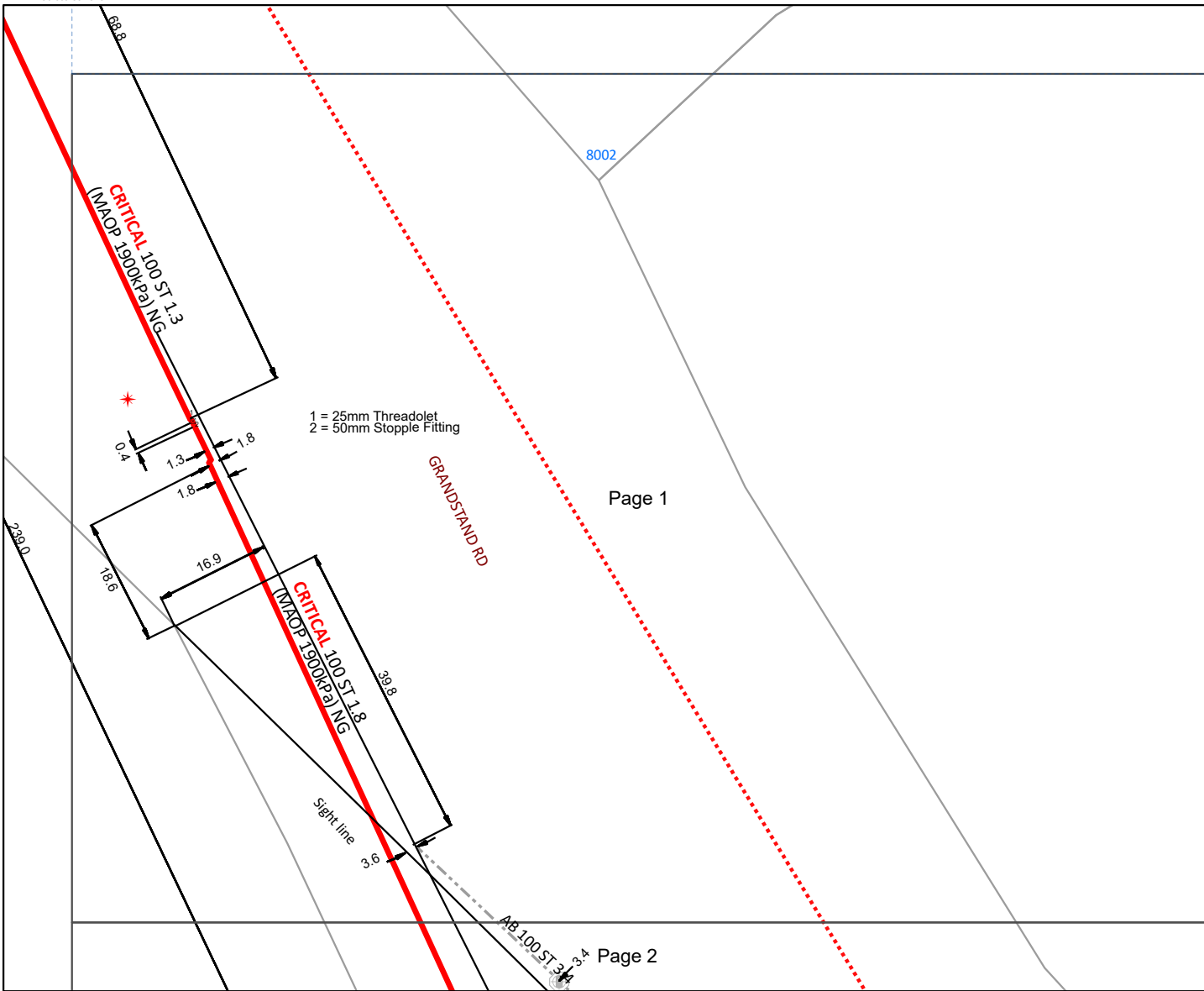
© Western Australian Land Information Authority trading as Landgate. Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate



Date: 21/06/24 (valid for 30 days)

Seq # 240900419
Job # 36962214

BYDA Location: 75 Grandstand Road Ascot 6104
Scale: 1:800



WARNING
CRITICAL ASSET
IN THE VICINITY.
No works within 15 meters of this asset are permitted without prior approval from ATCO.
Contact ATCO on 1300 926 755

BYDA Enquiry

Transmission Pipelines MAOP > 1900kPa

Distribution Pipelines MAOP > 500kPa ≤ 1900kPa

Not Gassed 0kPa

Distribution Pipe MAOP ≤ 7kPa

Distribution Pipe MAOP > 7kPa ≤ 100kPa

Distribution Pipe MAOP > 7kPa ≤ 100kPa

Distribution Pipe MAOP > 100kPa ≤ 350kPa

Common Trench

Standard Laying

Relay Program

Abandoned Pipe

Abandoned Pipe Soid

Service Pipe

Meter

Interval Meter

Proposed Meter

Removed Meter

BL End of Main Building

CoD End of Main on Direction Peg

SV Gas Service

NC Not Connected

Obstacle

Offline Service

See Details

Side Elevation

Sign

Please refer to Symbols Sheet for Further Information

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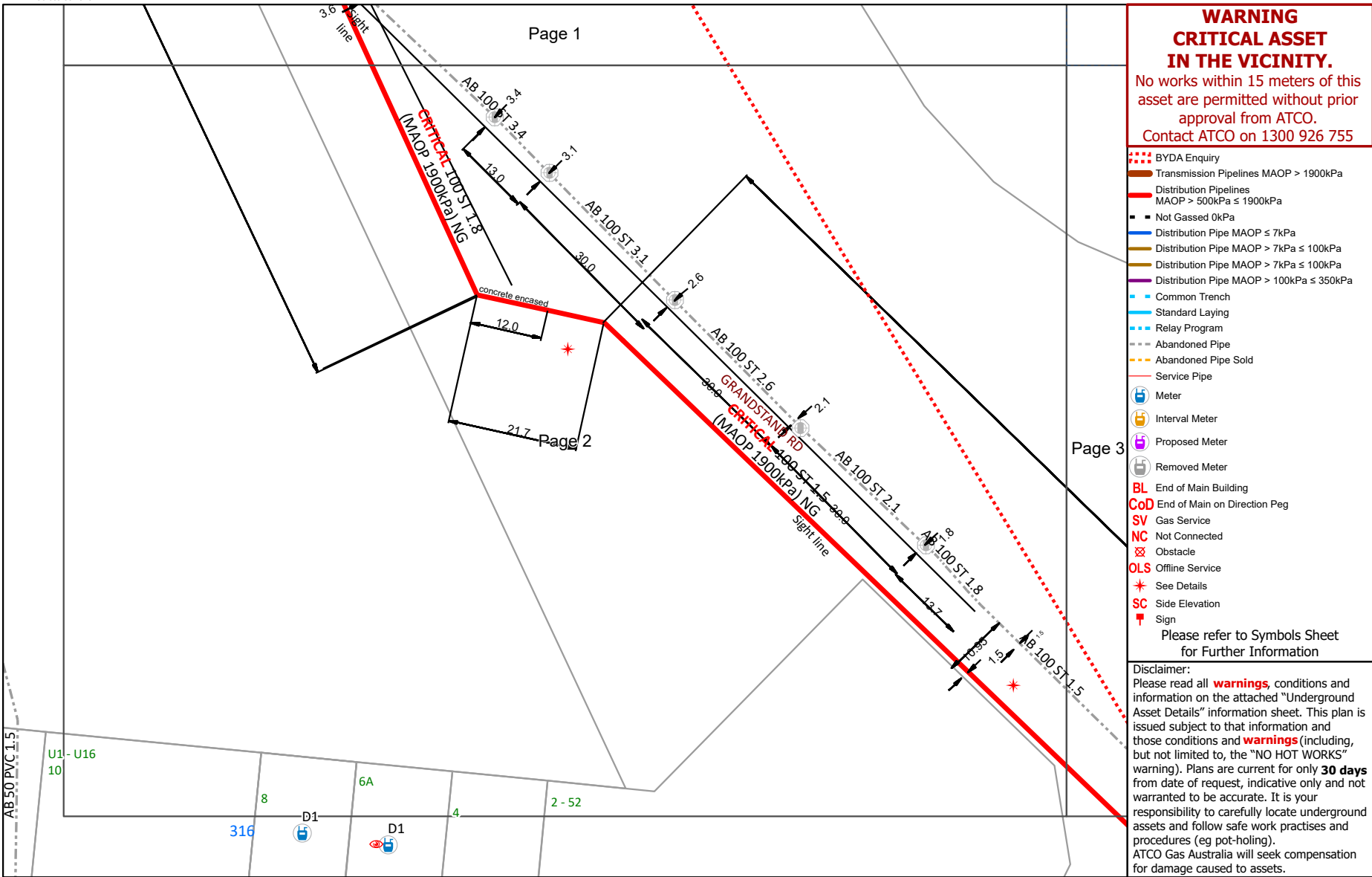
Attachment 12.1.4 Engineering Servicing Report



Date: 21/06/24 (valid for 30 days)

Seq # 240900419
Job # 36962214

BYDA Location: 75 Grandstand Road Ascot 6104
Scale: 1:800



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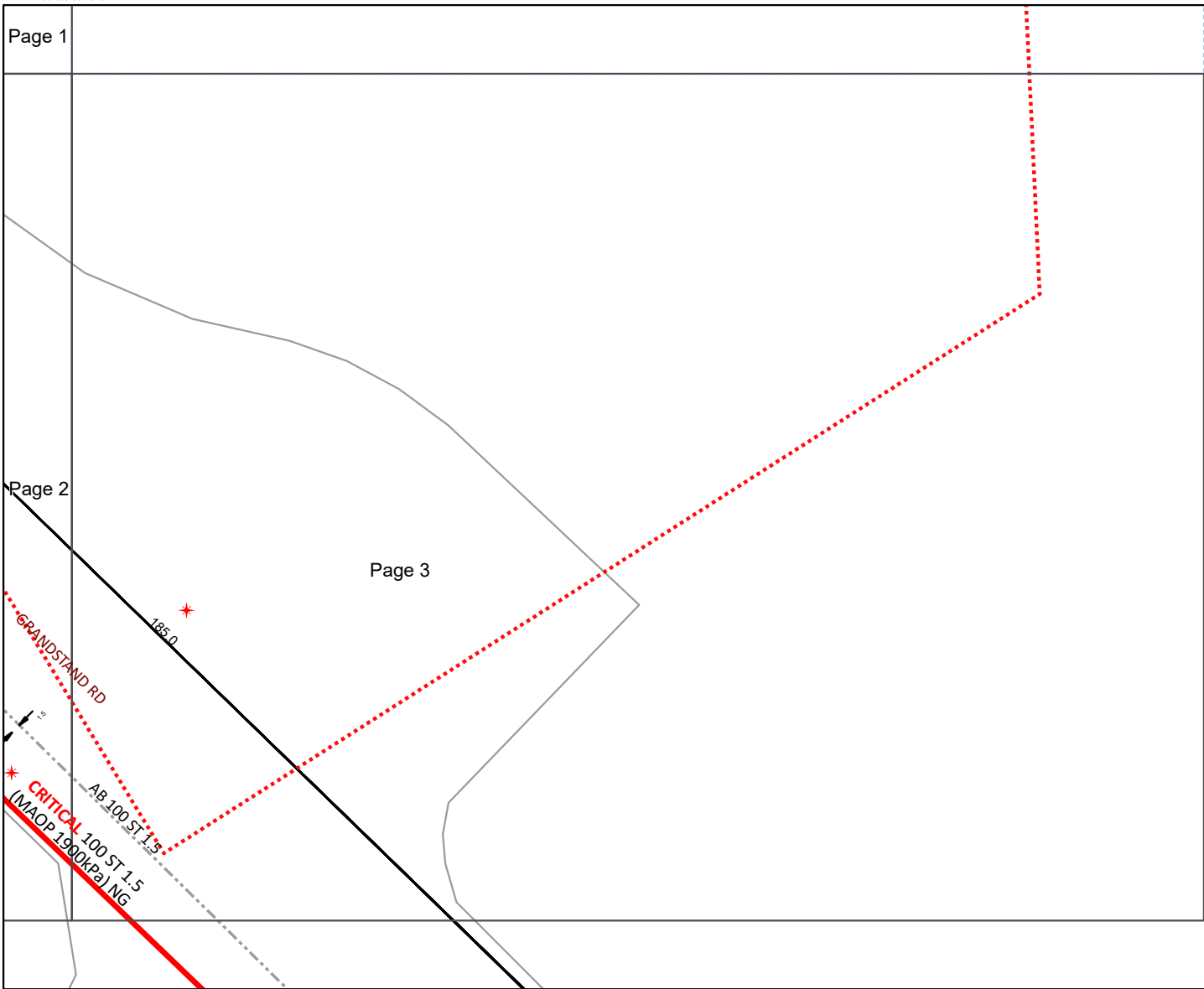
Date: 21/06/24 (valid for 30 days)

Seq # 240900419

Job # 36962214

BYDA Location: 75 Grandstand Road Ascot 6104

Scale: 1:800



WARNING
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IN THE VICINITY.
No works within 15 meters of this asset are permitted without prior approval from ATCO.
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BYDA Enquiry

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Distribution Pipelines MAOP > 500kPa ≤ 1900kPa

Not Gassed 0kPa

Distribution Pipe MAOP ≤ 7kPa

Distribution Pipe MAOP > 7kPa ≤ 100kPa

Distribution Pipe MAOP > 7kPa ≤ 100kPa

Distribution Pipe MAOP > 100kPa ≤ 350kPa

Common Trench

Standard Laying

Relay Program

Abandoned Pipe

Abandoned Pipe Sold

Service Pipe

Meter

Interval Meter

Proposed Meter

Removed Meter

BL End of Main Building

CoD End of Main on Direction Peg

SV Gas Service

NC Not Connected

Obstacle

OLS Offline Service

See Details

SC Side Elevation








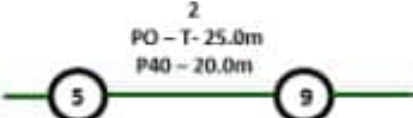
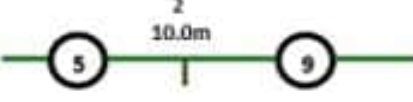





Sign

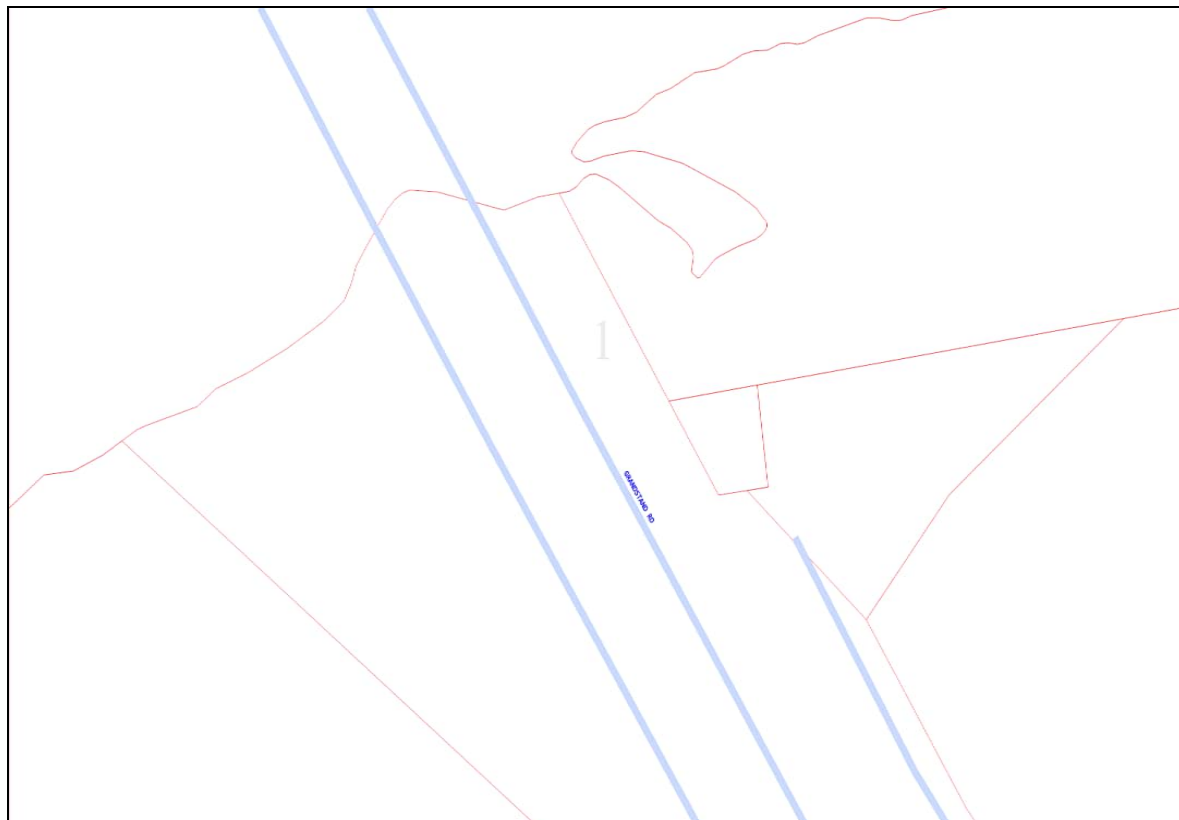
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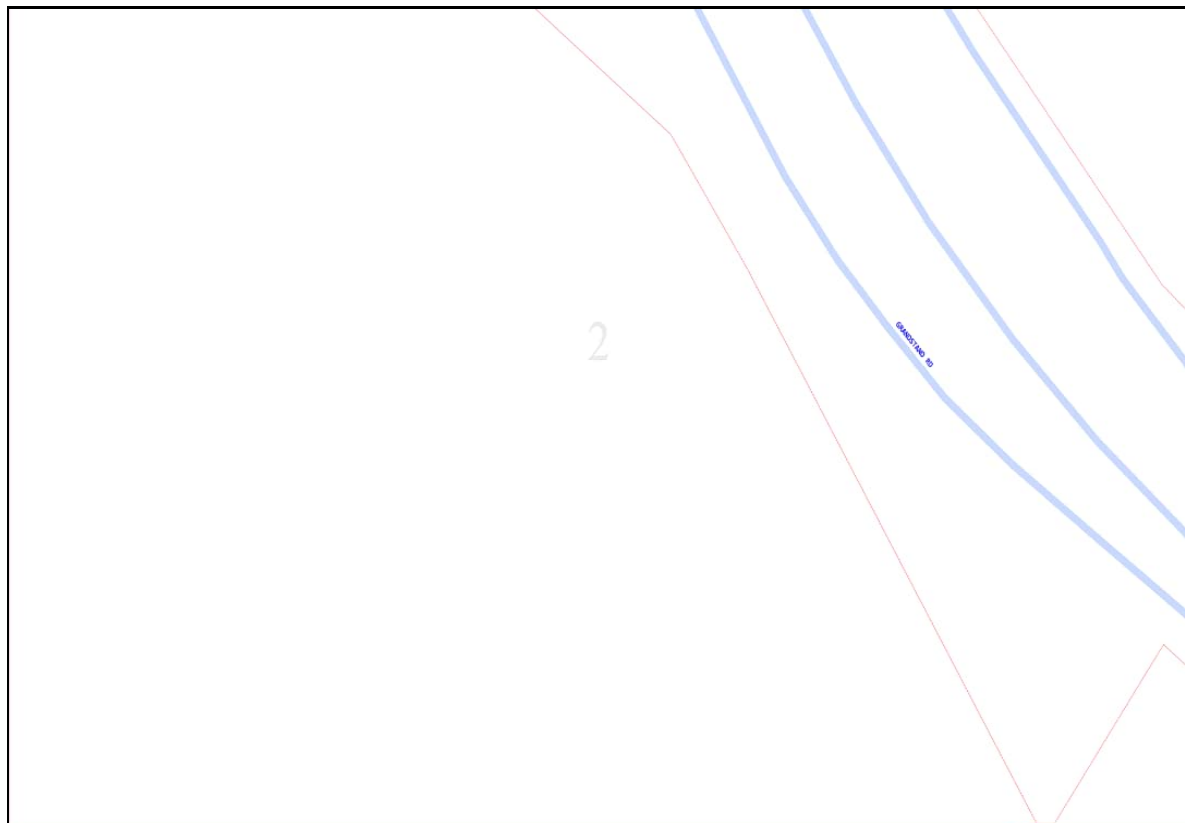
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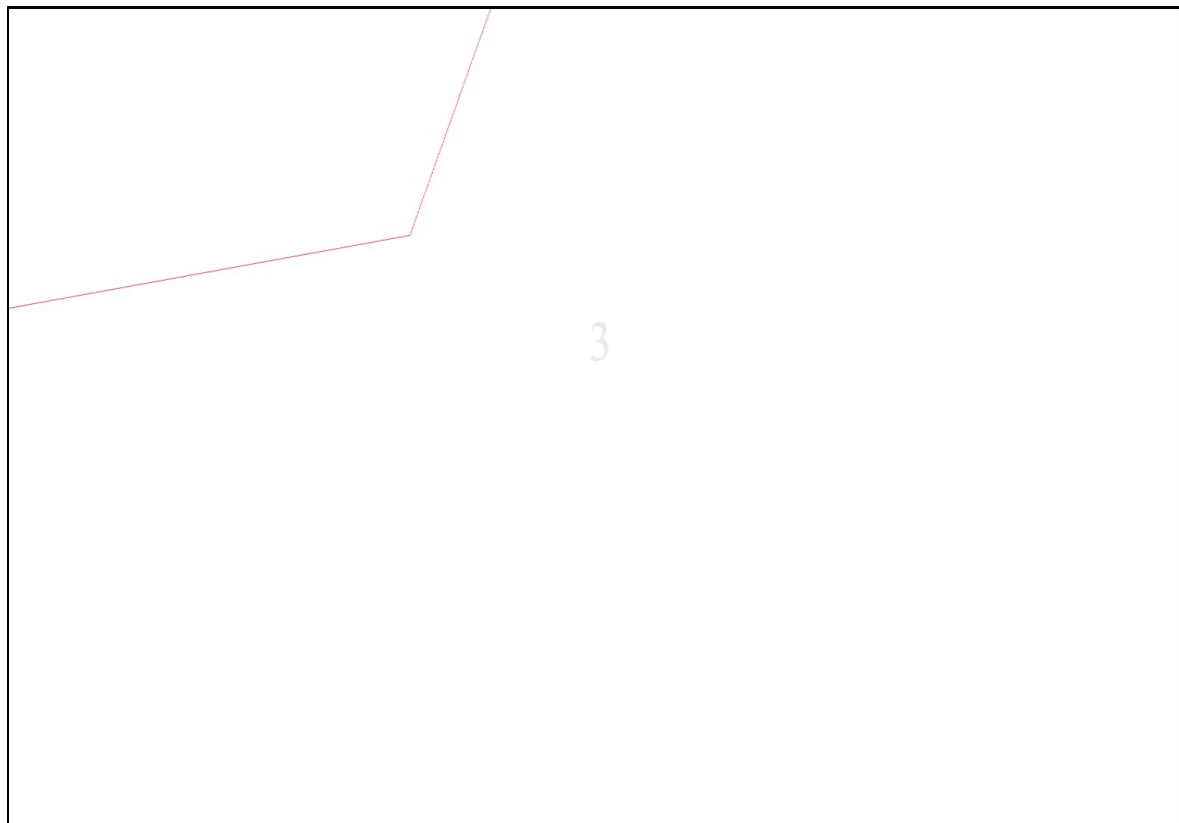
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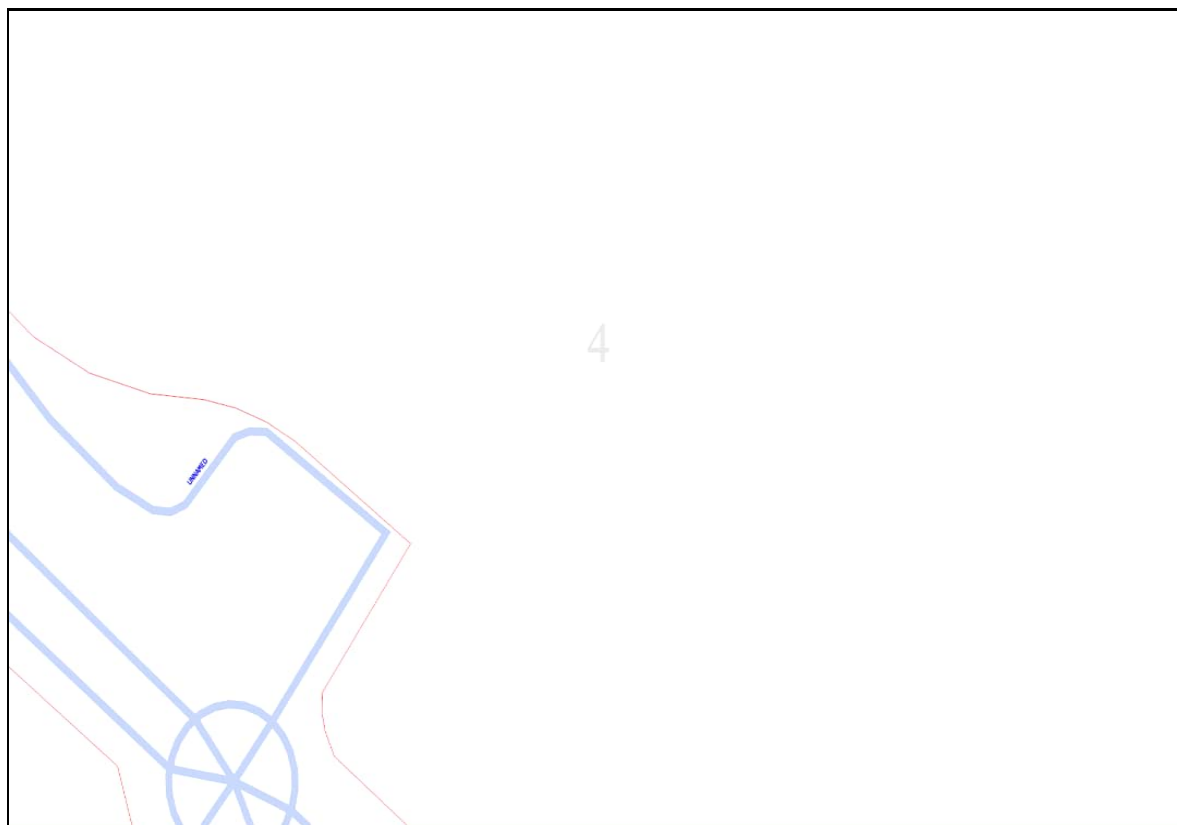
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	<div data-bbox="1070 465 1370 577">  </div> <div data-bbox="687 528 874 566"> LEGEND </div>
	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	Road and the street name "Broadway ST"
Scale	<div data-bbox="671 1753 1182 1854">  </div>



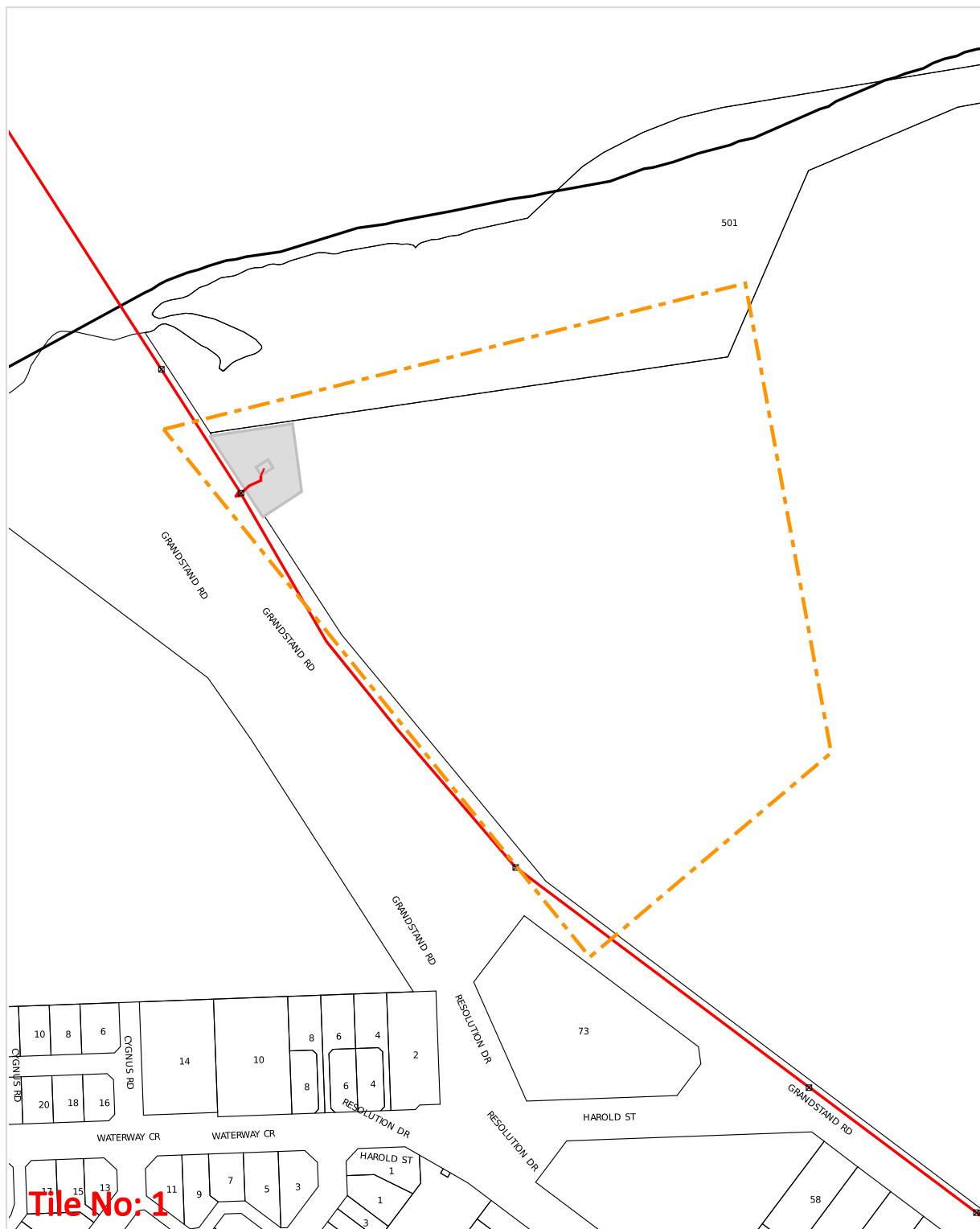






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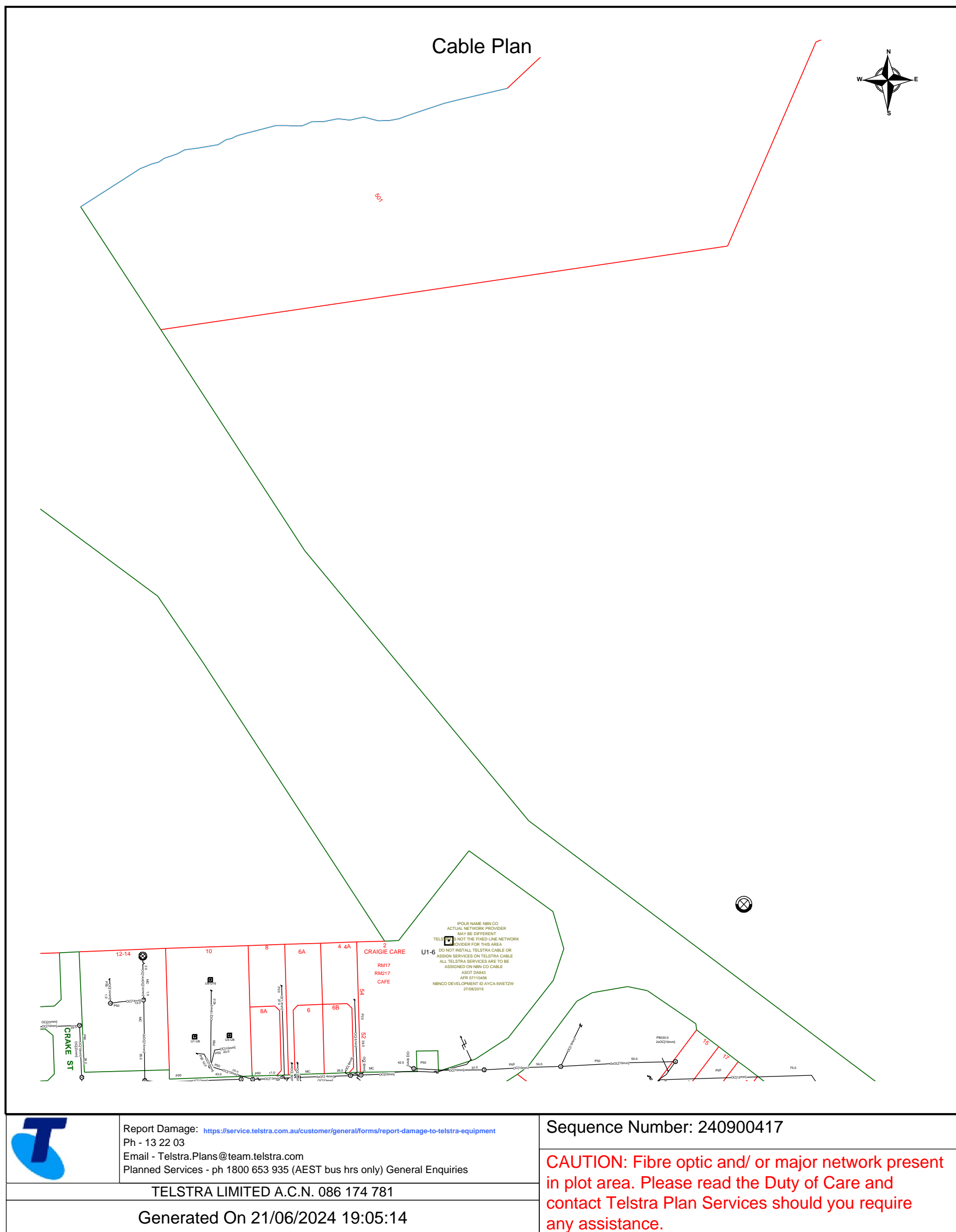
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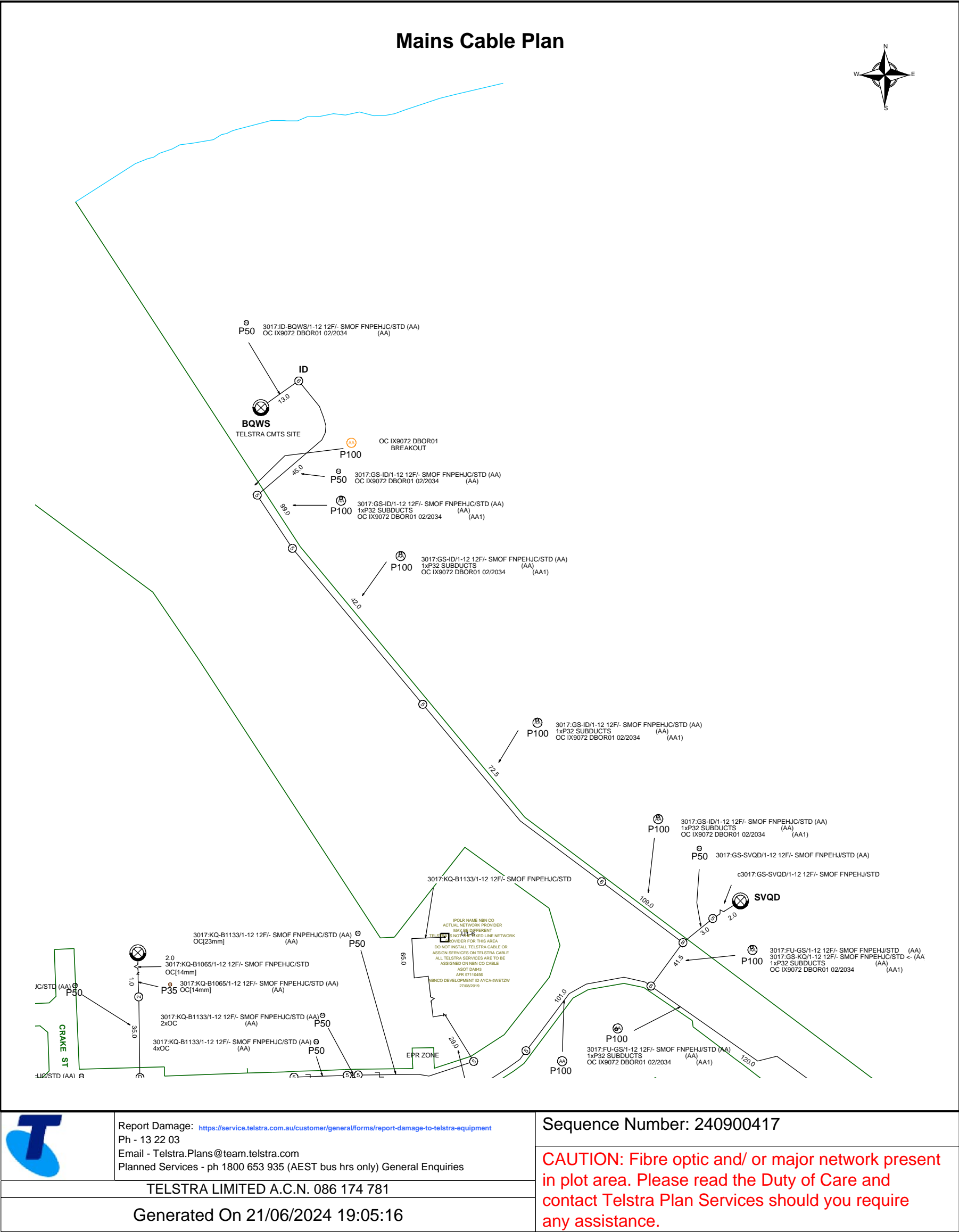


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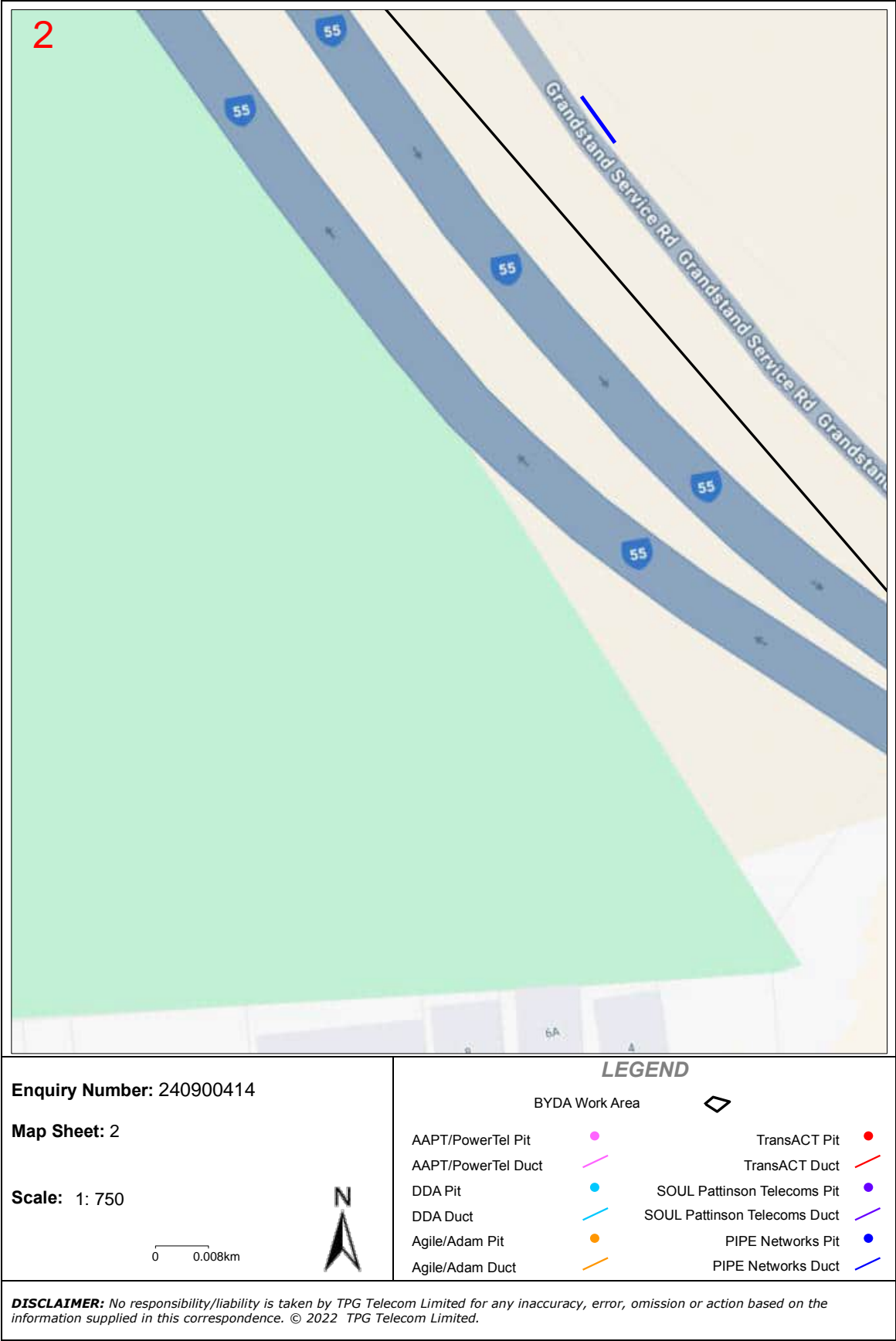
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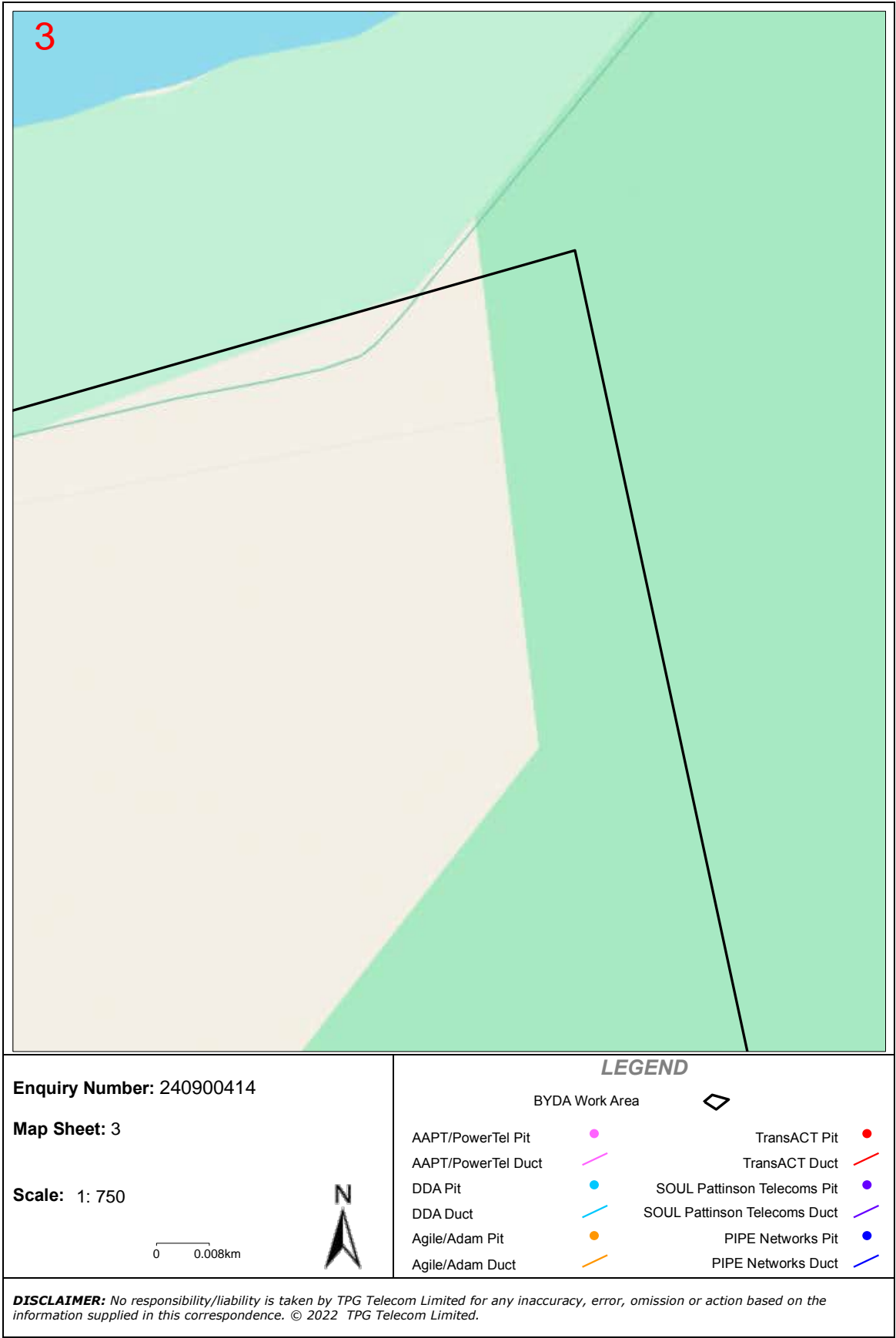
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.





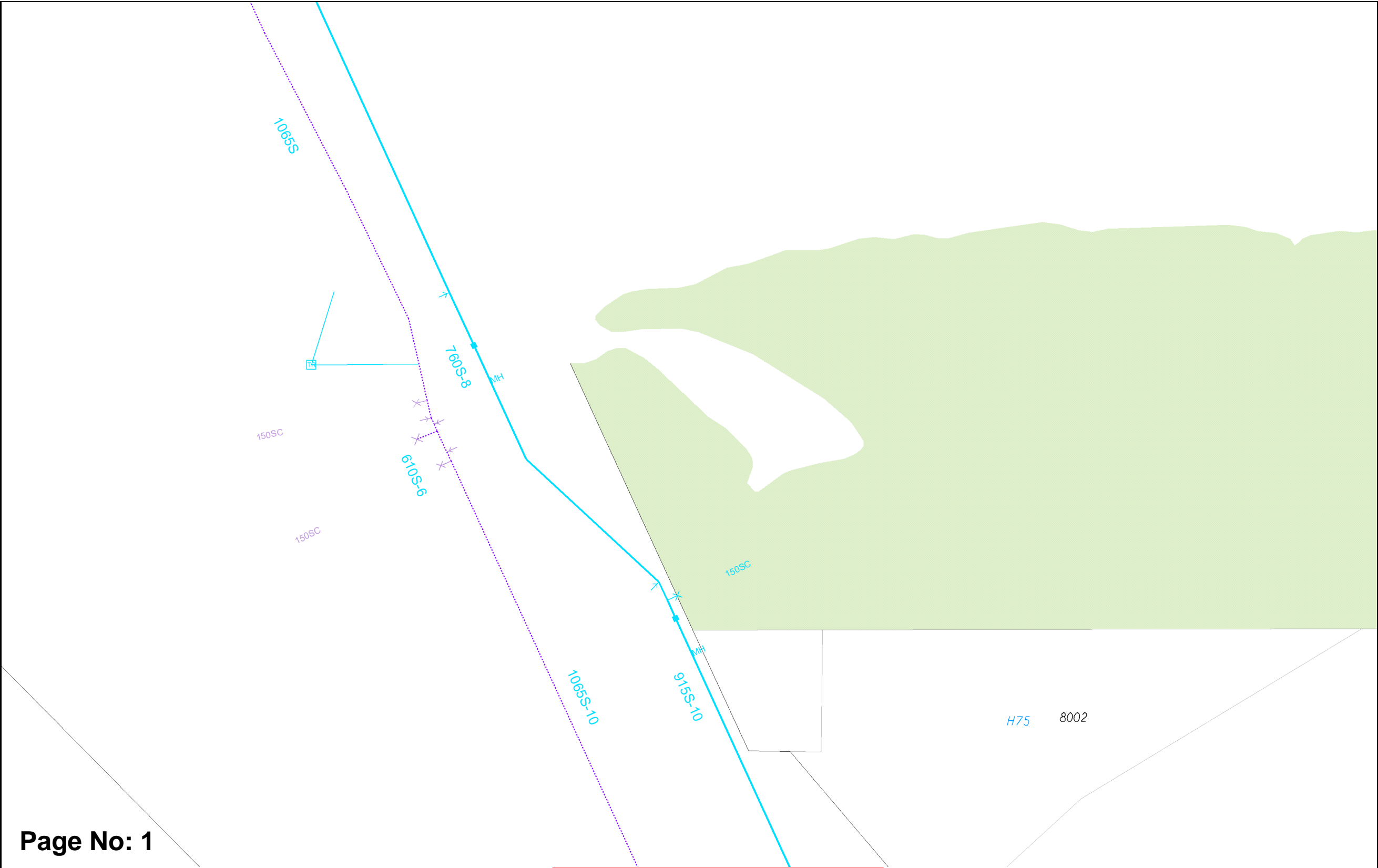






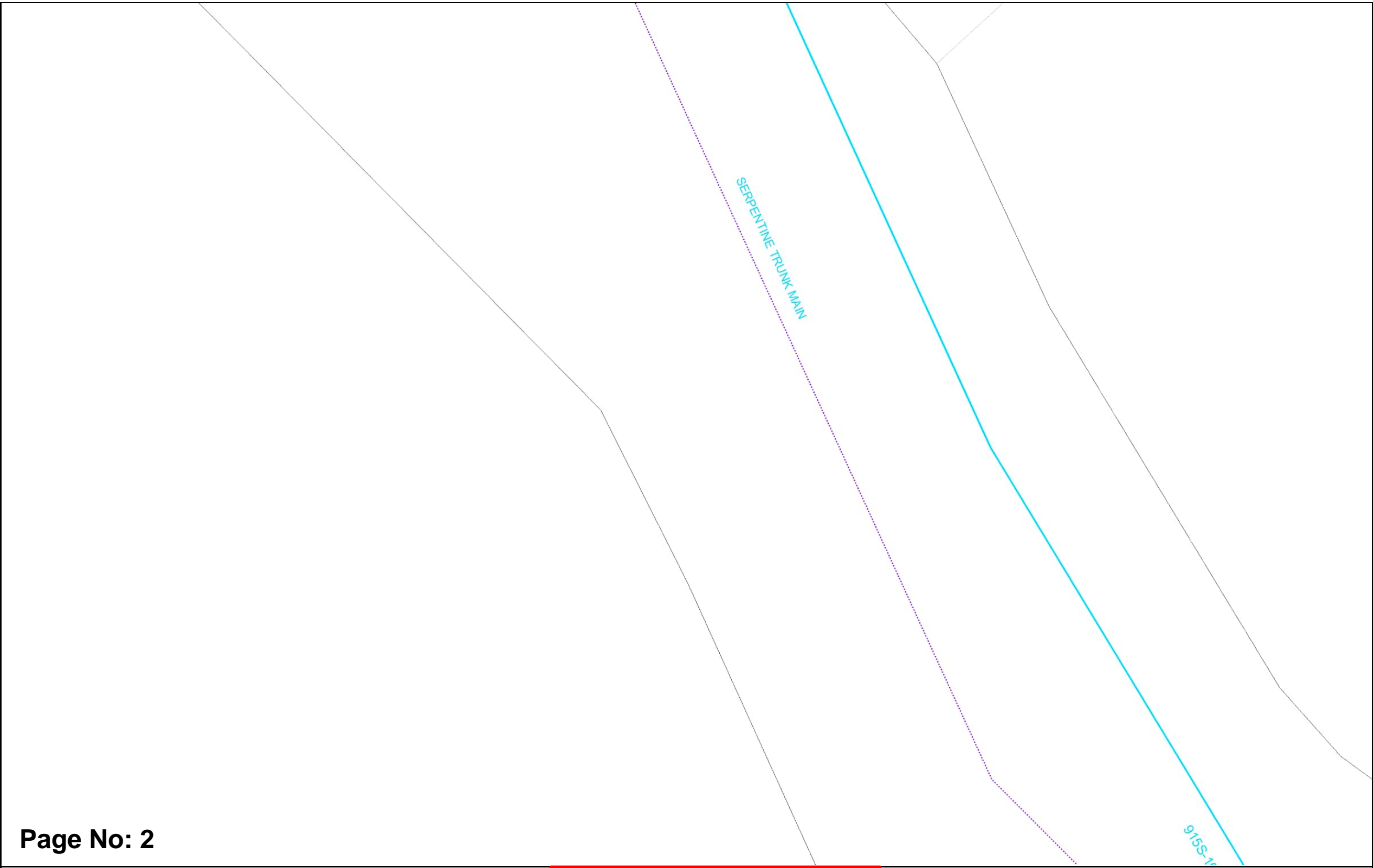


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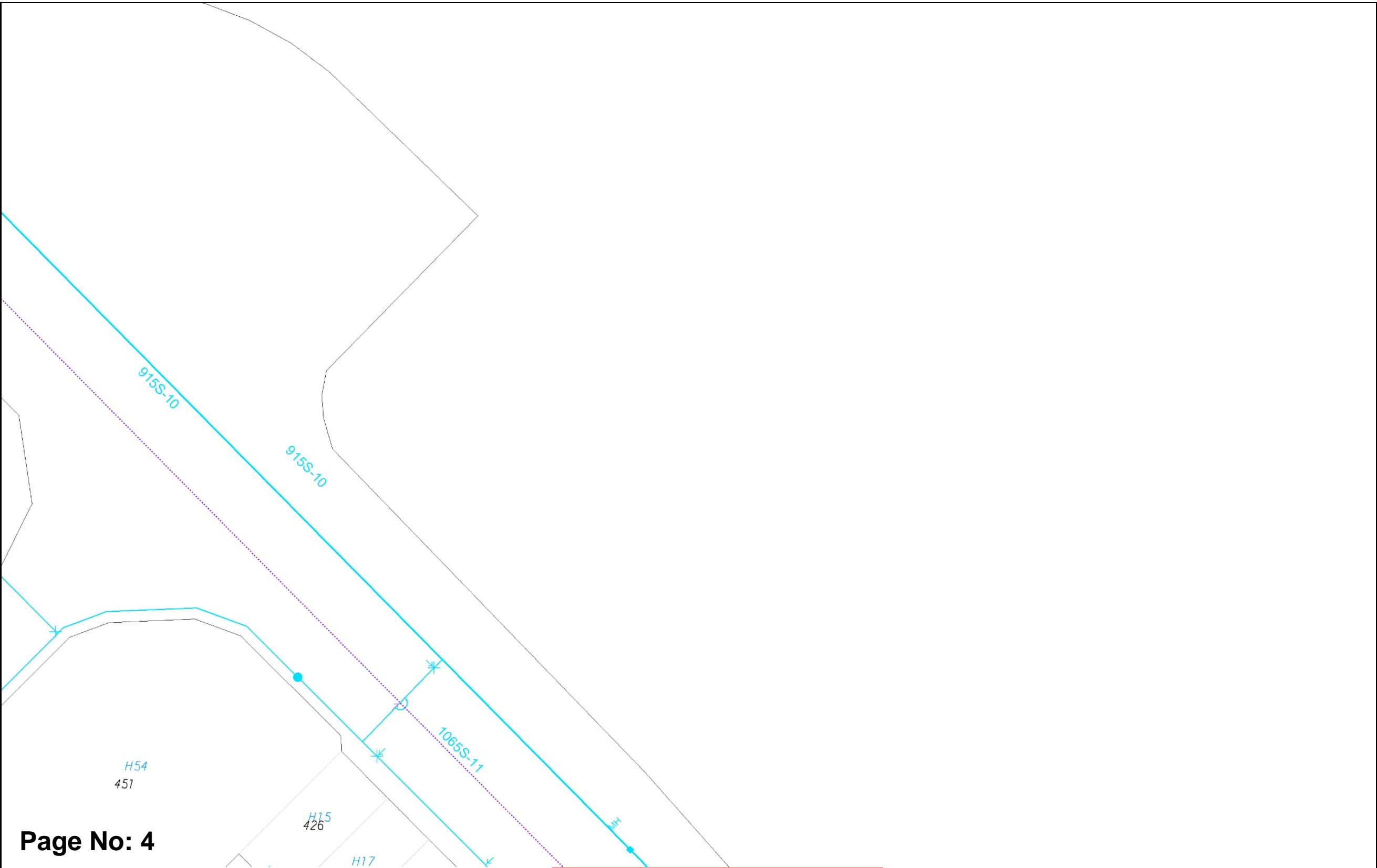
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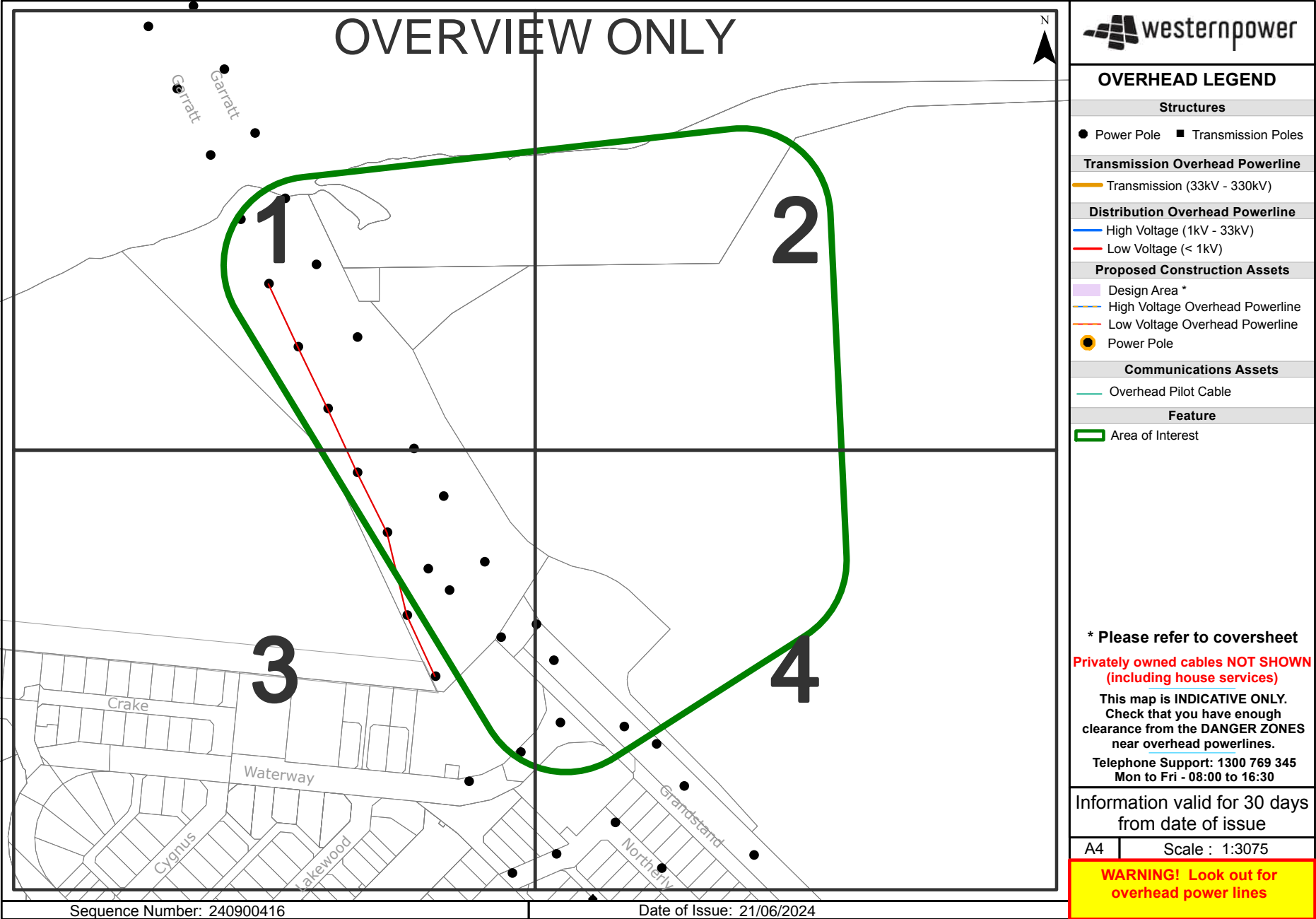
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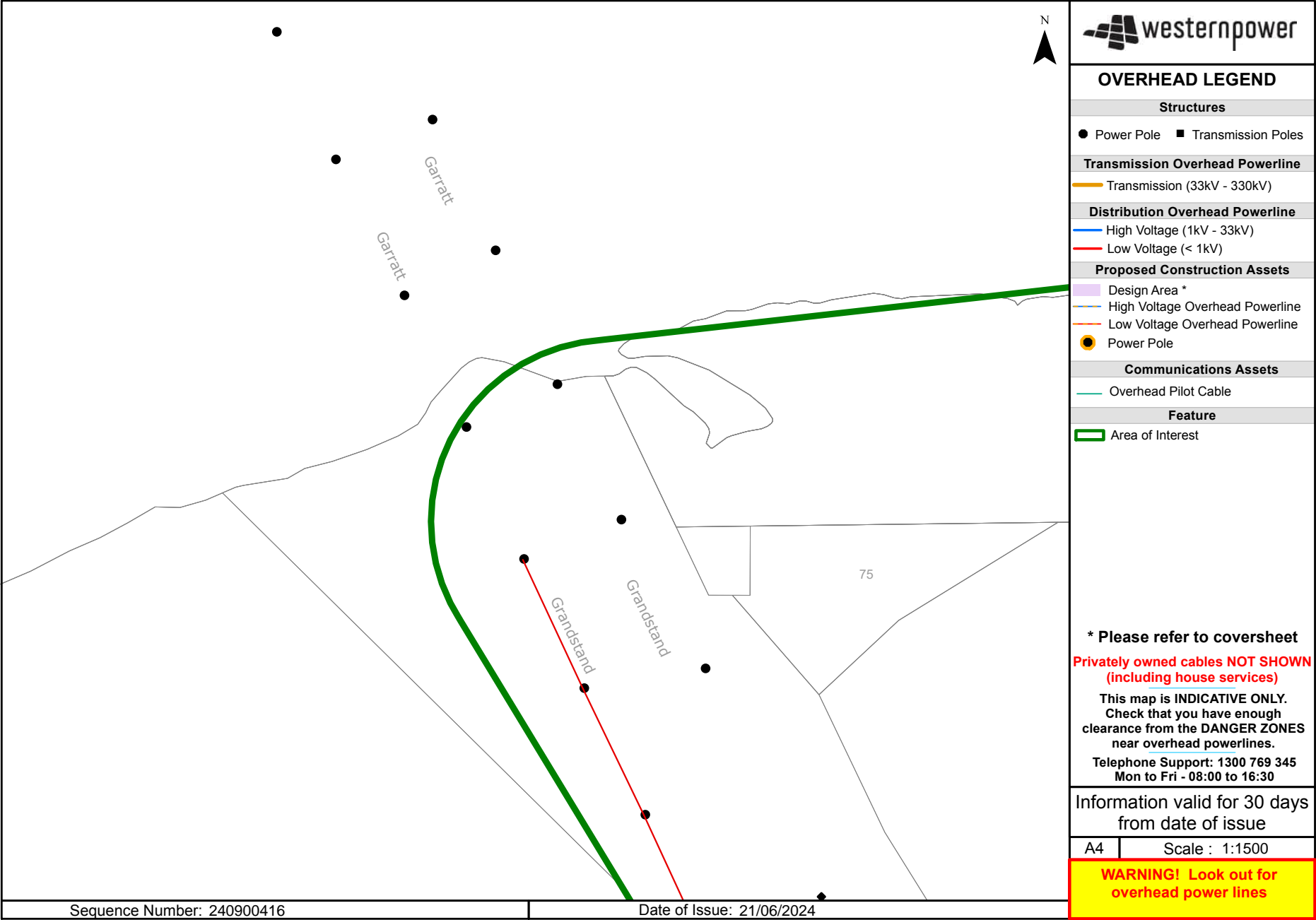


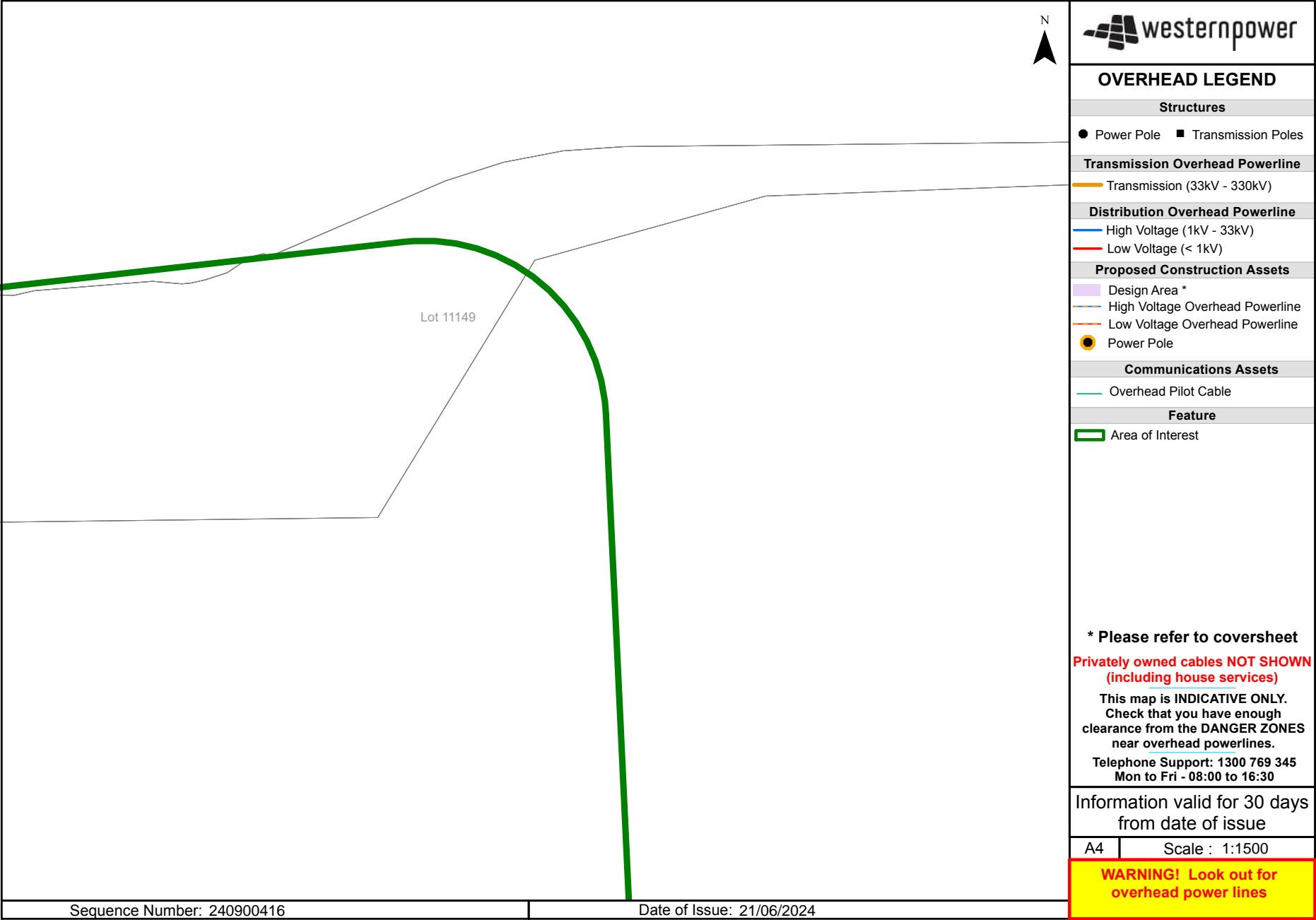


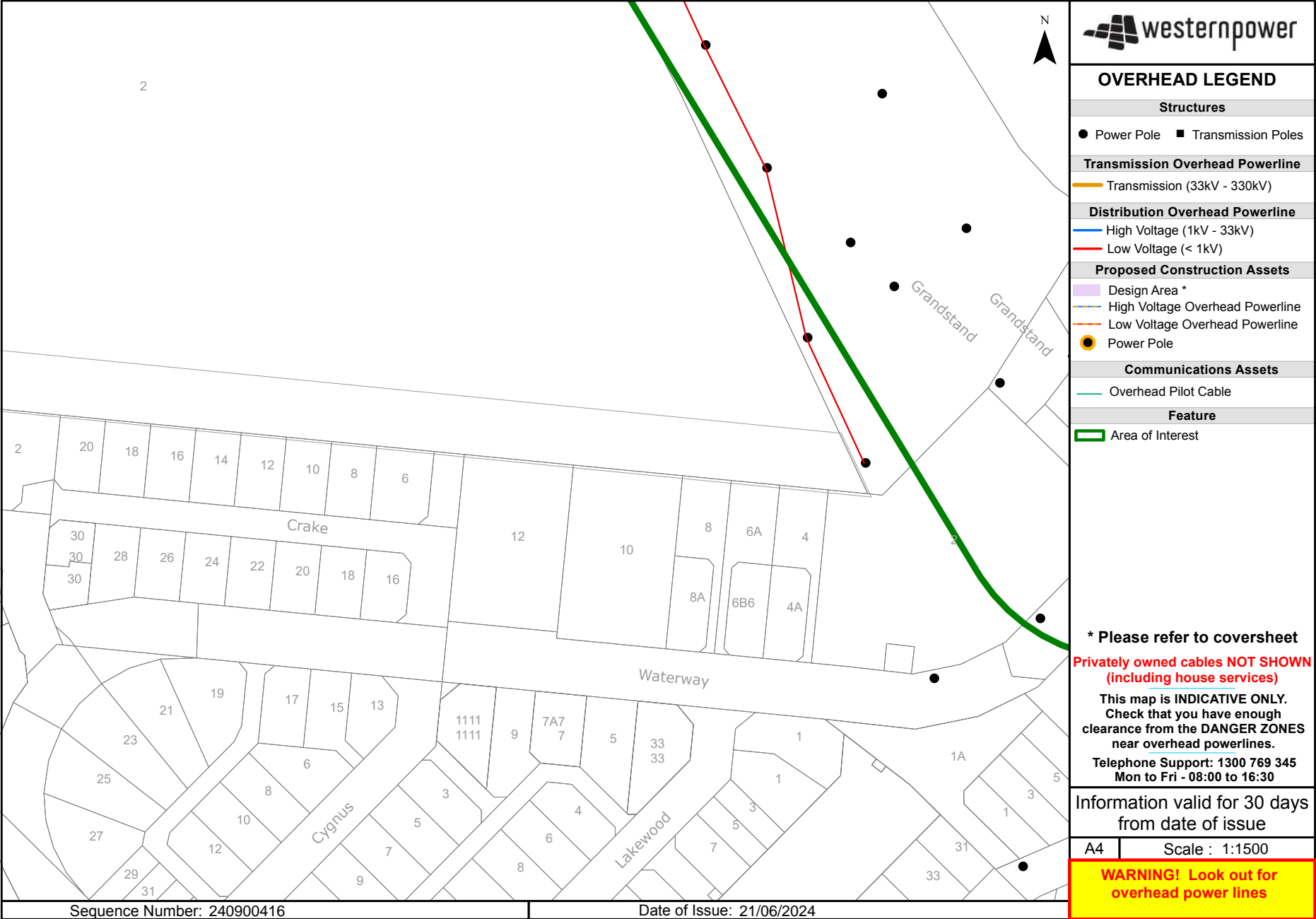
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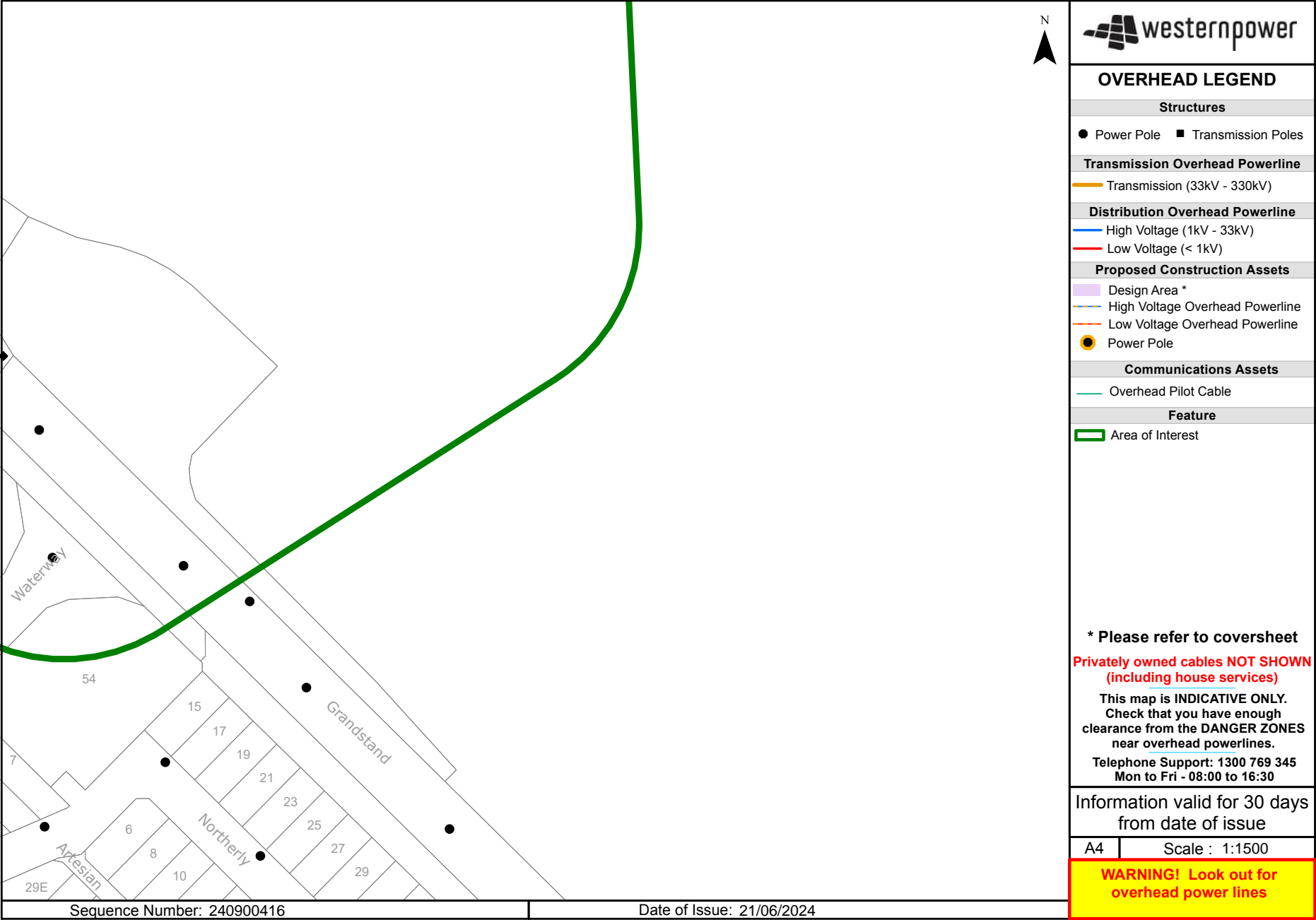
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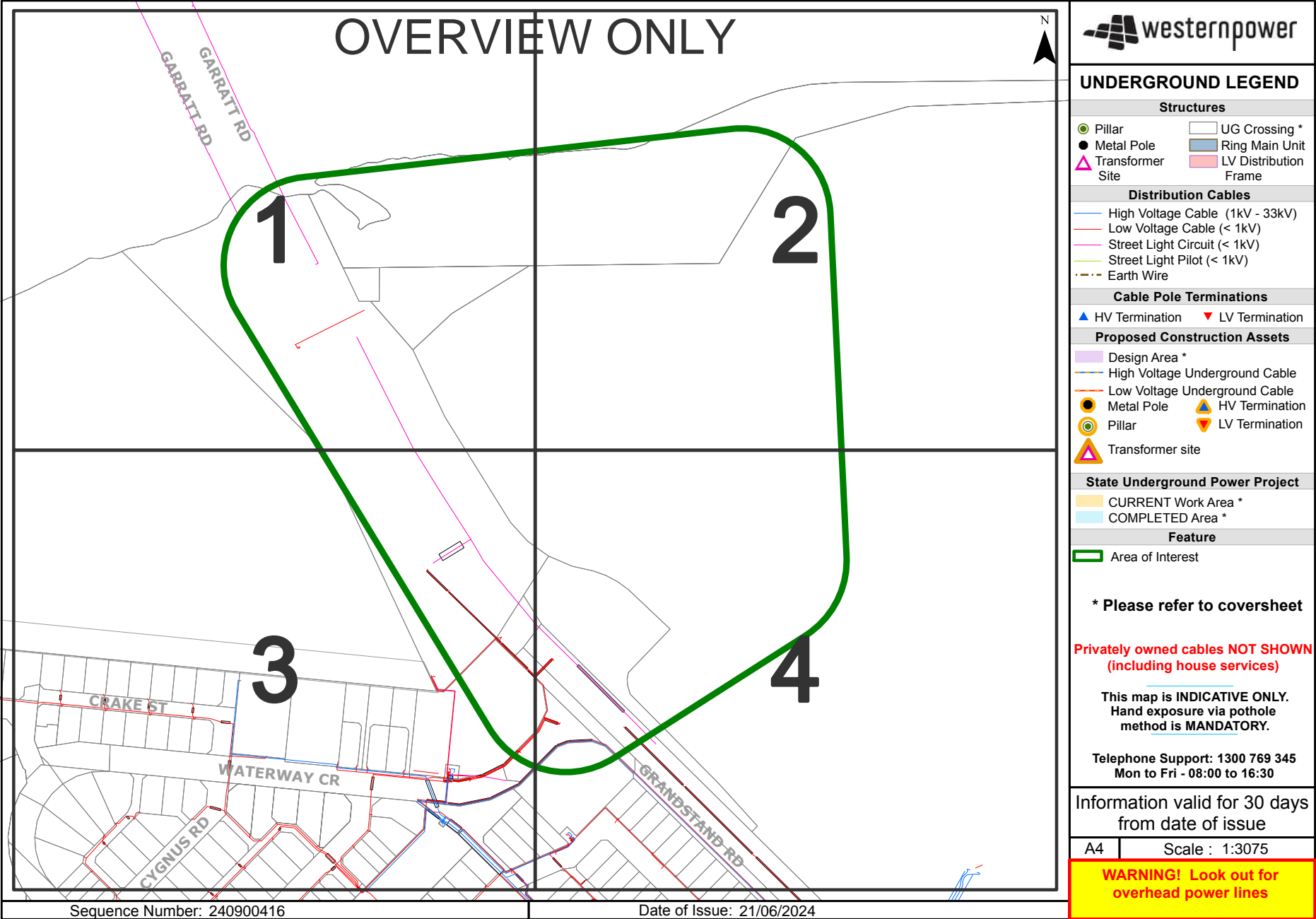


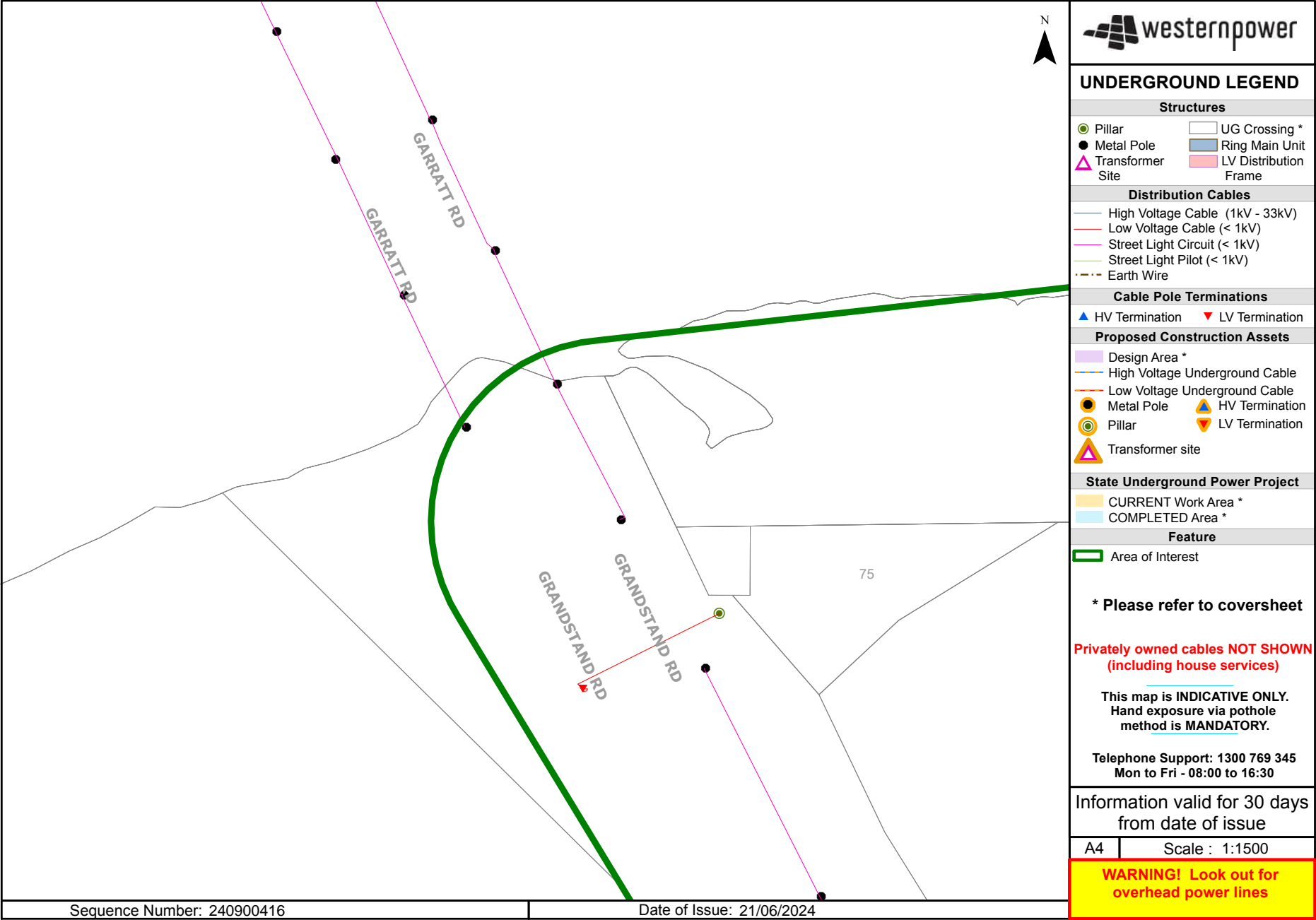


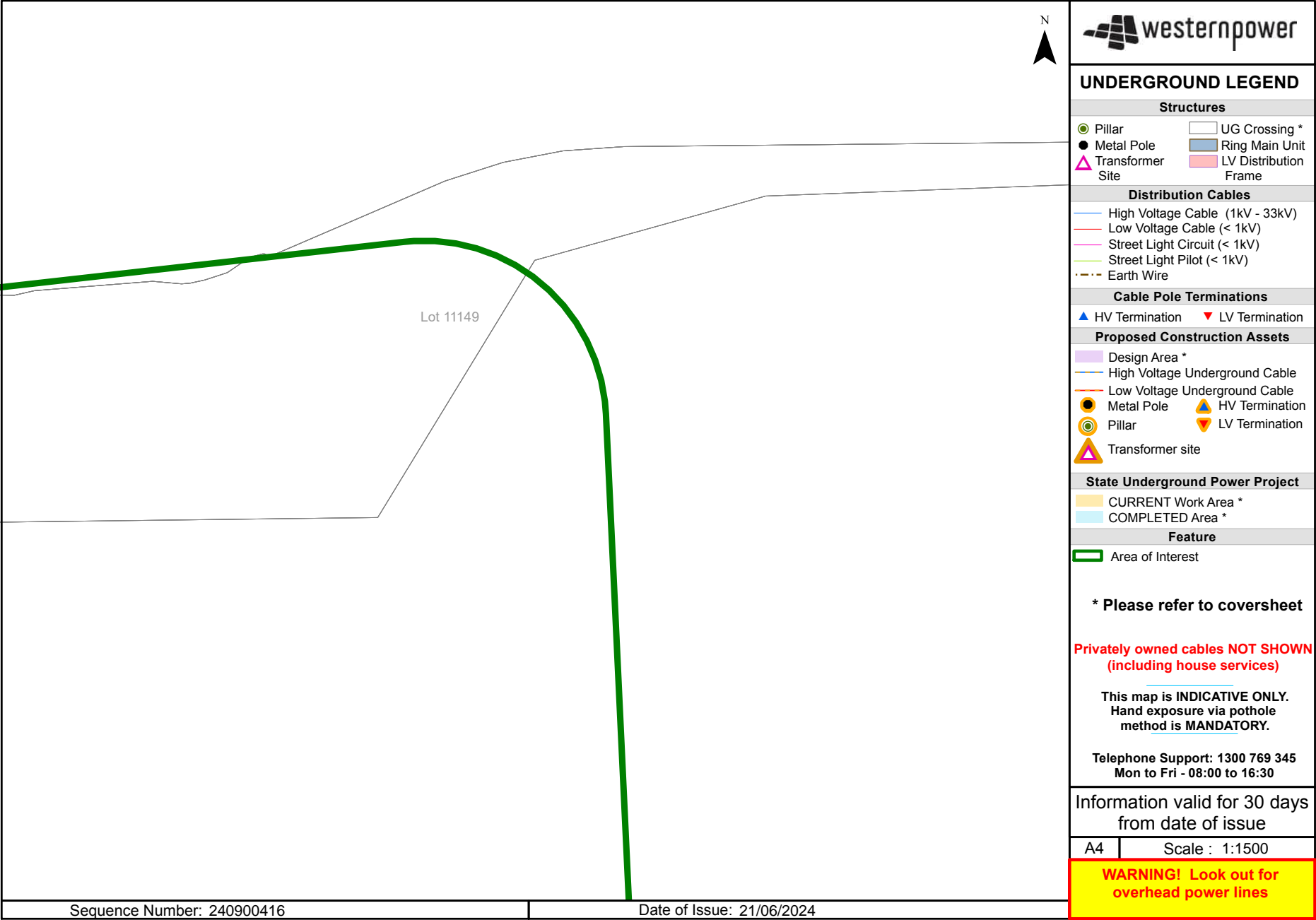


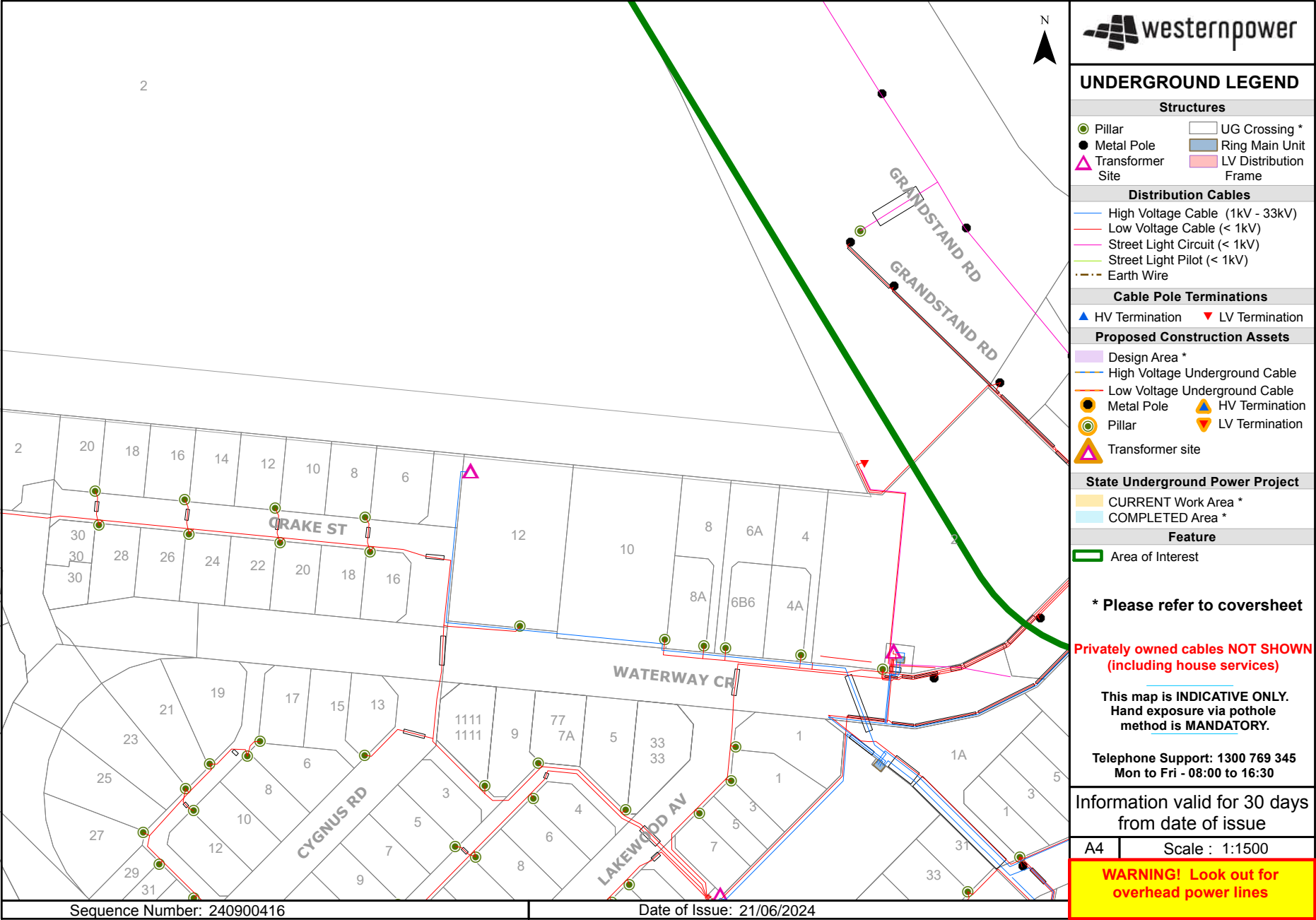


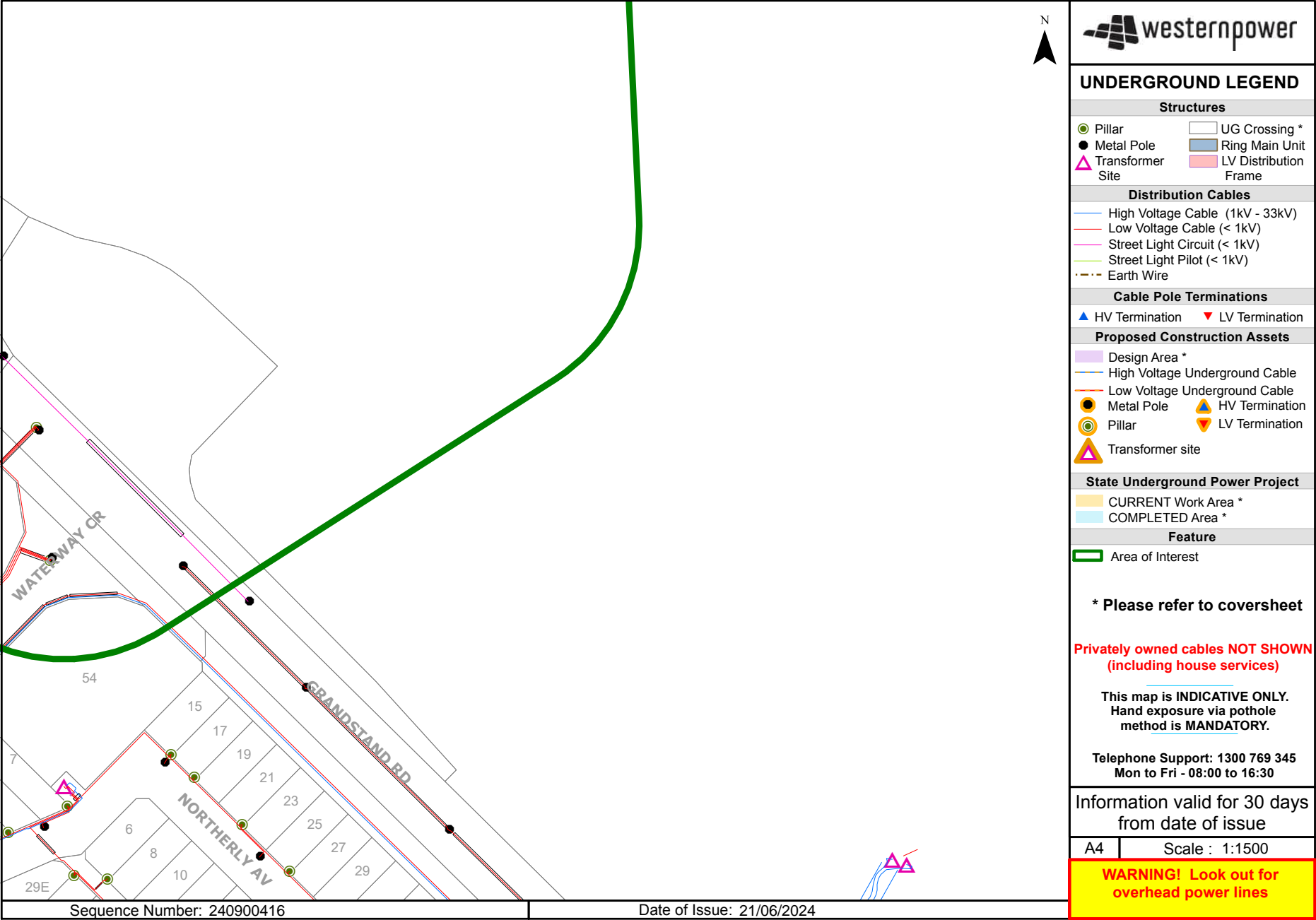


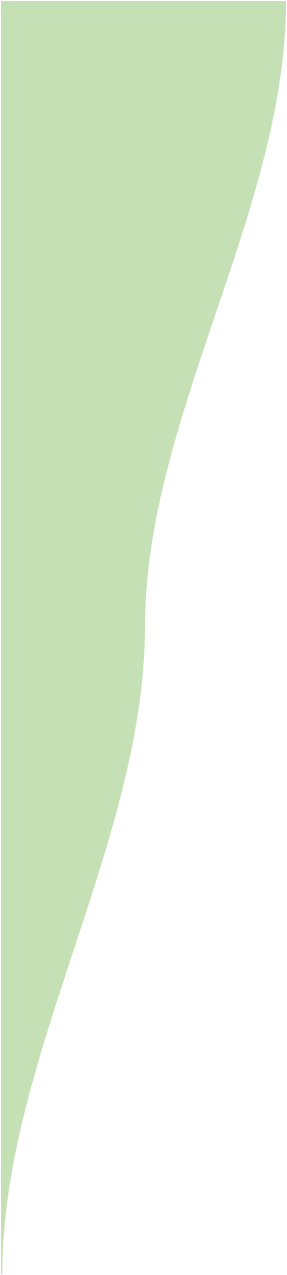












Perth Racing
Ascot Racecourse Local Structure Plan and Scheme Amendment
Transport Impact Assessment

May 2024
Project Code: 07575



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WA 6000
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Introduction

Version Control and Approval

Version	Date	Main Contributor	Issued by	Approved by
A - DRAFT	04 April 2024	Lucy Briggs / Rodney Ding	TM	TM
B - FINAL	08 May 2024	Rodney Ding	TM	TM

Prepared for:

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Introduction

I Introduction

I.1 Background

On behalf of Perth Racing (Applicant), Davison Advisory Services commissioned PJA Australia Pty Ltd to prepare this Transport Impact Assessment (TIA) for the proposed Local Structure Plan and the Scheme Amendment for the Applicant’s landholding, encompassing Ascot Racecourse and surrounding land in the City of Belmont, Western Australia.

This assessment has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 2 – Planning Schemes, Structure Plans & Activity Centre Plans (2016)*. This is the most appropriate level of TIA for a proposed Local Structure Plan and Scheme Amendment submission.

I.2 Summary of TIA

In accordance with WAPC Guidelines for Transport Impact Assessments, this report sets out the details of the proposed Local Structure Plan (LSP) and Scheme Amendment in the context of the movement network, assesses the site in terms of connectivity by active and public transport, parking and vehicular access. The TIA also reviews the future traffic generation of the LSP and any potential impacts that may need to be mitigated.

Under the WAPC Guidelines for TIAs, a LSP and/or Scheme Amendment requires a ‘broad brush’ assessment of the impacts of the development, given structure planning is for a larger area. This report sets recommendations for more detailed traffic analysis at later stages of the planning process, subject to the LSP and Scheme Amendment being ultimately supported.

This TIA also refers to the developing City of Belmont’s Golden Gateway LSP (GGLSP) which currently encompasses part of the land under the ownership of the Applicant, which has been a catalyst to complete this LSP and Scheme Amendment to guide development in this area in a considered way. In pre-submission discussions with the City of Belmont’s strategic planners, the support in principle for the Applicant to undertake a LSP has been provided and it is understood that through a later iteration of the concurrent Golden Gateway LSP, the City of Belmont will look to remove the Applicant’s landholdings from the GGLSP.

I.3 Regional and Local Policy Context

1.3.1 Metropolitan Region Scheme (MRS)

The Site area is currently zoned for the most part as ‘Private Recreation’ for the area in use as Ascot Racecourse, with the surrounding land within the site boundary zoned as ‘Urban’. Some land surrounding the site boundary to the north and west is also zoned as ‘Parks and Recreation-Restricted Public Access’ and the Great Eastern Highway is zoned as a ‘Primary Regional Road’. **Figure 1-1** illustrates the site area’s MRS zoning in map 16.

Figure 1-1: MRS Zone Maps 16



Source: Metropolitan Region Scheme

1.3.2 City of Belmont Local Planning Scheme No.15

Under the provisions of the *City of Belmont Local Planning Scheme No.15* (LPS No.15) the site area is for the most part zoned as ‘Place of Public Assembly’ comprising the area in use as Ascot Racecourse, in the southern extent of the site a small parcel is zoned as ‘Mixed Use’. The area surrounding the site boundary largely comprises of ‘Mixed Use’, ‘Mixed Business’ and ‘Residential and Stables’ zoning, the latter of which is bespoke to the Ascot Racecourse area and is intended “to provide for compatible and environmentally responsible use of land in proximity” to the Racecourse and Swan River to the north-west.

Part 4 of LPS No.15 sets out the general development requirements for each key zone, inclusive of the minimum car and bicycle parking requirements for largely non-residential land uses (Table 2 and Table 3), residential parking requirements are set out separately. These parking requirements will be considered as the LSP and Scheme Amendment progresses.

Figure 1-2 illustrates the LSP area zoning in the context of the site area.

Figure 1-2: City of Belmont’s Local Planning Scheme 15



Source: Local Planning Scheme 15, Local Zoning, City of Belmont

1.3.3 City of Belmont’s Redcliffe Station Precinct Activity Centre Plan & DA6

The Redcliffe Station Precinct Activity Centre Plan (RSPACP) is an extension of the Development Area 6 (DA6) Vision Plan and Implementation Strategy adopted by the City of Belmont in 2014. As set out on Council’s website:

“Development Area 6 (DA6) is DA6 is a redevelopment area bound by Great Eastern Highway, Coolgardie Avenue, Redcliffe Road, Fauntleroy Avenue and Tonkin Highway, as well as Perth Airport’s Airport West Precinct. This area can be easily distinguished into two main areas:

- Perth Airport’s Airport West Precinct
- A portion of the Redcliffe neighbourhood between Perth Airport and Great Eastern Highway.

Perth Airport Pty Ltd is responsible for planning work for its Airport West Precinct through the preparation and review of the Perth Airport Masterplan.

For the remainder of the DA6 Precinct in Redcliffe, in December 2022, the WAPC wrote to advise landowners about the initiation of Improvement Plan 45 – Redcliffe Station Precinct. The Improvement Plan itself does not change the development potential of land at this point in time. Initiating the Improvement Plan is the first step of the planning pathway to establish the appropriate development potential and planning standards for future development in the precinct. The Improvement Plan sets out the broad objectives for the redevelopment of the area, after which an Improvement Scheme is prepared. The Improvement Scheme will set out the specific standards for future development.

The DPLH has been tasked to prepare the Improvement Scheme and has advised that the City will continue to play an important role in the development and delivery of this planning framework for the precinct. The Department is currently making arrangements to progress an Improvement Scheme for the Development Area 6 Precinct, which will take several months to prepare. Once drafted, there will be a minimum 90-day consultation period. The Department will subsequently review submissions and assess if any modifications to the Improvement Scheme are necessary, prior to making a recommendation to the Minister for Planning”.

The City of Belmont’s Vision Plan for DA6 area is shown in Figure 1-3.

Figure 1-3: DA6 Vision Plan



Source: City of Belmont

1.3.4 Recent Movement Network Upgrades in Ascot

The City of Belmont confirmed the following recent movement network upgrades in the vicinity of the subject site over the last approximate three years:

- a) Network changes due to the Tonkin Gap Project: Motorists using Garratt Road bridge to access Great Eastern Highway and Guildford Road rather than the previous Tonkin Highway route increased and the City observed increased rat running over Stanton Road bridge, Abernethy Road (entire route), Hardey Road and Kooyong Road.



Introduction

- b) Redcliffe Train station opened 9 October 2022. This enabled bus network changes including new routes and frequency every 10 minutes. New super-buses will be established from the train station to the Perth CBD via Great Eastern Highway.
- c) A 24/7 Woolworths opened near DFO late 2023.
- d) Marina Drive residential development is complete and operational.
- e) Belmont is slowing in rate of redeveloping the blocks of land from single site dwellings to multi-dwellings.
- f) The Springs development area near Rowe Avenue & Riversdale Road, Rivervale: Increase in residential development from The Springs development. City is planning to restrict one car bay per unit, allowing all other on-street bays to be for visitors and people visiting the commercial shops and local businesses. The City has installed 'P' signs which have encouraged Fly-in/Fly-out (FIFO) workers and ALL DAY motorists heading to the Perth CBD. The City has commenced a parking strategy to review the parking. No paid parking will be involved.

Among the aforementioned projects, the Tonkin Gap project and the Marina Drive residential development are expected to directly impact the Ascot LSP area. Specifically, the Marina Drive development serves as an access point to/from Resolution Drive, via the western arm of the existing roundabout. Meanwhile, the Tonkin Gap project's construction diversions were routed via Garratt Road and subsequently Grandstand Road. However, with the recent completion of new traffic counts in 2024 as part of this Ascot LSP, both aforementioned projects (now complete) have been incorporated into the updated traffic counts, providing a basis for assessing the network's suitability and functionality.



Existing Situation

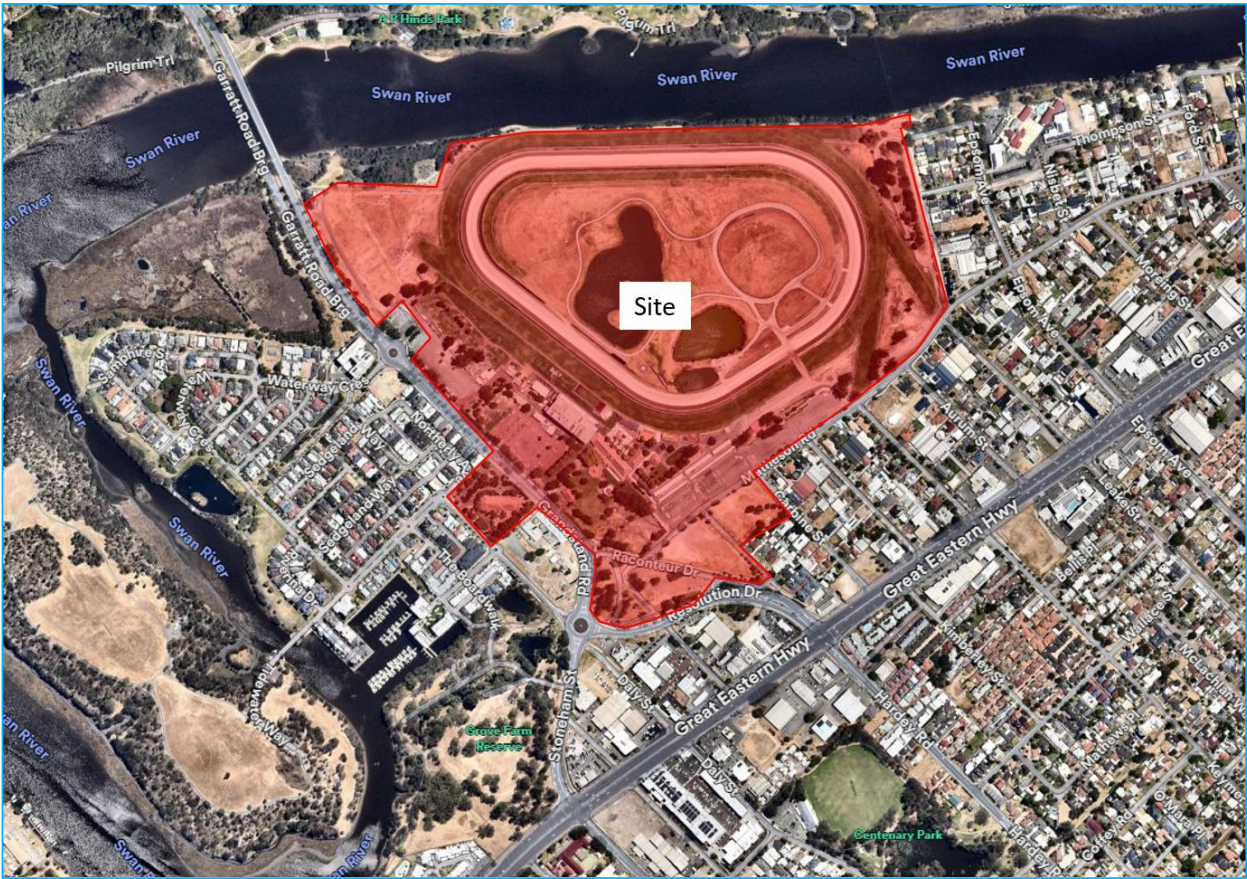
2 Existing Situation

2.1 Existing Site Context and Land Uses

The Site is located in the Ascot suburb of Perth, immediately south of the Swan River, bound to the south-west by Grandstand Road (State Road 55) and south-east/east by Resolution Drive and largely residential land uses, with some stables.

As the site is already well established as Ascot Racecourse, vehicular access can already be achieved from several points along Grandstand Road and Matheson Road, via Raconteur Drive (from Grandstand Road) and further minor accesses via the residential streets to the south-east of the site such as Hardey Road (north), Carbine Street, Leake Street and Ascot Place. The location of the Site is illustrated in **Figure 2-1**.

Figure 2-1: Site Location



Source Mapping: NearMap 2024

2.2 Existing Road Network

The Site is located north-east of Grandstand Road and north-west of Matheson Road and Resolution Drive. Each carriageway abutting the site boundary is within the care and control of the City of Belmont, though the extent of Matheson Road and Raconteur Drive that sits within the site boundary is under the ownership of the Applicant.

Figure 2-2 shows the layout and classification of the roads surrounding the site, including the primary road network. Grandstand Road is classified under the Main Roads WA Road Hierarchy as a Distributor A, though it is worth noting that further north, the Garratt Road Bridge is classified as a Primary Distributor. This will be due to the management of the bridge sitting with Main Roads rather than the Local Government. Grandstand Road is a dual carriageway road, each side typically measuring 7.0m to 7.8m wide. No on-road cycle lane facilities are provided. A single continuous shared use path along the north-eastern side of Grandstand Road exists, with intermittent (not all continuous) provision on the south-western side. For large portions, the footpaths are separated from the carriageway by a landscaped kerbed area or colour-contrasted paving to provide separation from the road for a more pleasant walking/riding experience.

Raconteur Drive diverts east from Grandstand Road, as a one-way single-lane carriageway providing access to Matheson Road and an existing car park for Ascot Racecourse (horse float car park). Again, there are no on-road cycle lane facilities but a pedestrian footpath exists on the northern side of the carriageway connecting to Grandstand Road and another pedestrian path exists along Matheson Road (southern side) from east of Carbine Street all the way to Moreing Street. There is also a horse path along the northern side of Matheson Road that extends from the racecourse in an easterly direction. Beyond the site boundary, Matheson Road is classified as an Access Road under the Mains Road WA Road Hierarchy and no pedestrian or cycle infrastructure is noted on this route.

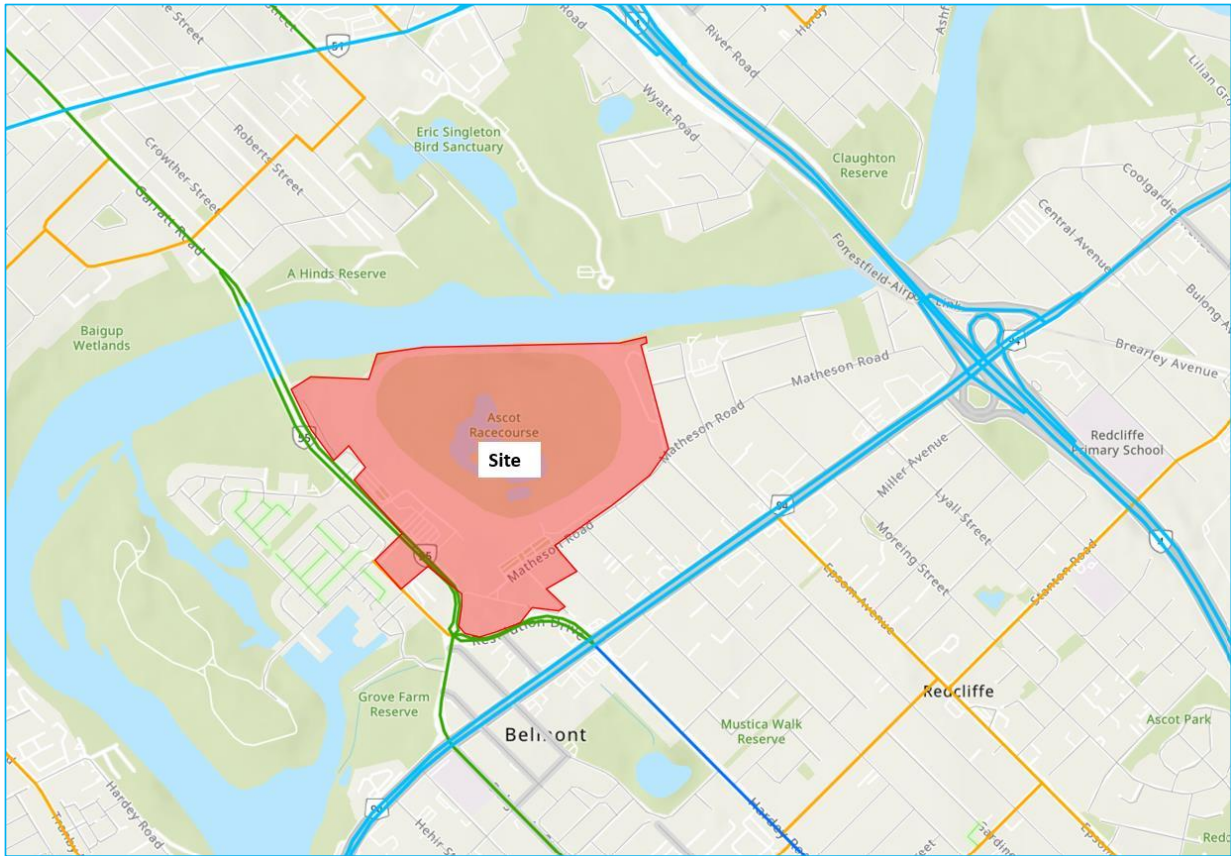
South of the site boundary, Resolution Drive continues west as a Distributor A route, from the Grandstand Road / Stoneham Street / Resolution Drive roundabout intersection. Resolution Drive is a single carriageway with shoulders of approx. 1.8m, each side of the approx. 3.5m carriageway. East of the roundabout, Resolution Drive meets the Great Eastern Highway (National Route 1 / National Highway 94) and Hardey Road via a signal-controlled intersection.

Stoneham Street continues ahead from Grandstand Road as a dual carriageway on approach to a signal-controlled intersection with the Great Eastern Highway and Belgravia Street. Great Eastern Highway is classified as a Primary Distributor while Belgravia Street continues from Stoneham Street as a Distributor A.

Figure 2-3 over page sets out the speed limits for the road network surrounding the site. Grandstand Road, Resolution Road, Stoneham Street and the Great Eastern Highway are all subject to a 60km/hr speed limit. The remaining access roads surrounding the site are subject to a 40km/h speed limit, including Matheson Road.



Figure 2-2: Road Hierarchy



Source: MRWA Road Information Mapping System

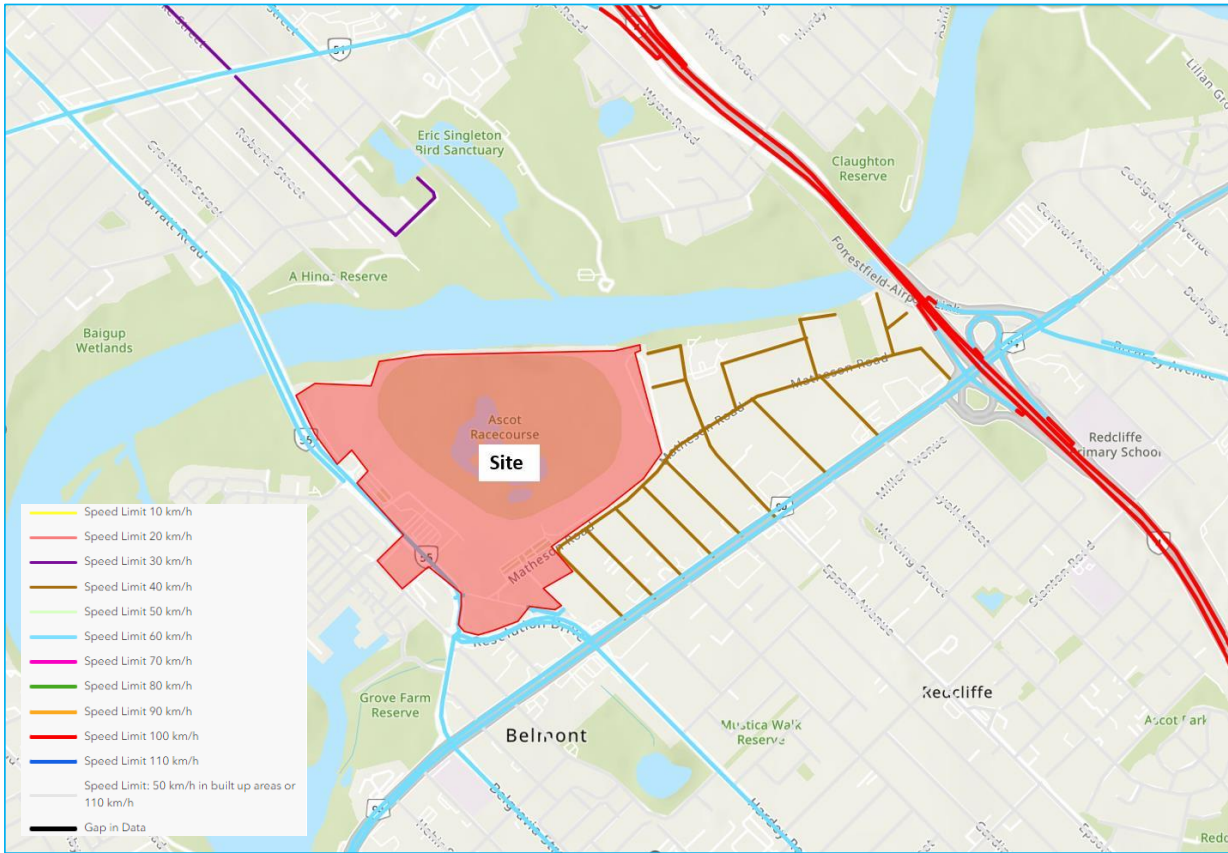
Road classifications are defined in the Main Roads Functional Hierarchy as follows:

- **Primary Distributors (light blue):** Form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State roads. They are managed by Main Roads.
- **Regional Distributors (red):** Roads that are not Primary Distributors but link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- **District Distributor A (green):** These carry traffic between industrial, commercial, and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
- **District Distributor B (dark blue):** Perform a similar function to “District Distributor A” but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with traffic demand in excess of that originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only

carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local Government.

- **Access Roads (grey):** Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local Government.

Figure 2-3: Speed Classifications



Source: MRWA Road Information Mapping System

2.3 Existing RAV Network

The road network around the site does not currently form part of the Restricted Access Vehicle (RAV) Network.

2.4 Existing Key Intersections

The key intersections within the study area are as follows, with further detail and layouts shown below:

- Resolution Drive / Stoneham Street / Grandstand Road Roundabout
- Raconteur Drive / Grandstand Road Intersection
- Resolution Drive / Great Eastern Highway / Hardey Road Signalised Intersection
- Stoneham Street / Great Eastern Highway / Belgravia Street Signalised Intersection
- Garratt Road / Guildford Road Signalised Intersection.



All of the above intersections are modelled for traffic performance in this TIA with the exception of the Guildford Road intersection which is some 1.7km away from the LSP area.

South of Site:

Resolution Drive / Stoneham Street / Grandstand Road: The 4-way roundabout is located approx. 700m south of the site and connects Grandstand Road (providing several site accesses) with the Great Eastern Highway further south. Figure 2-4 shows the existing geometry of the intersection, Grandstand Road and Stoneham Street both have two-lane approaches to the roundabout while both approaches from Resolution Drive have a single lane approach.

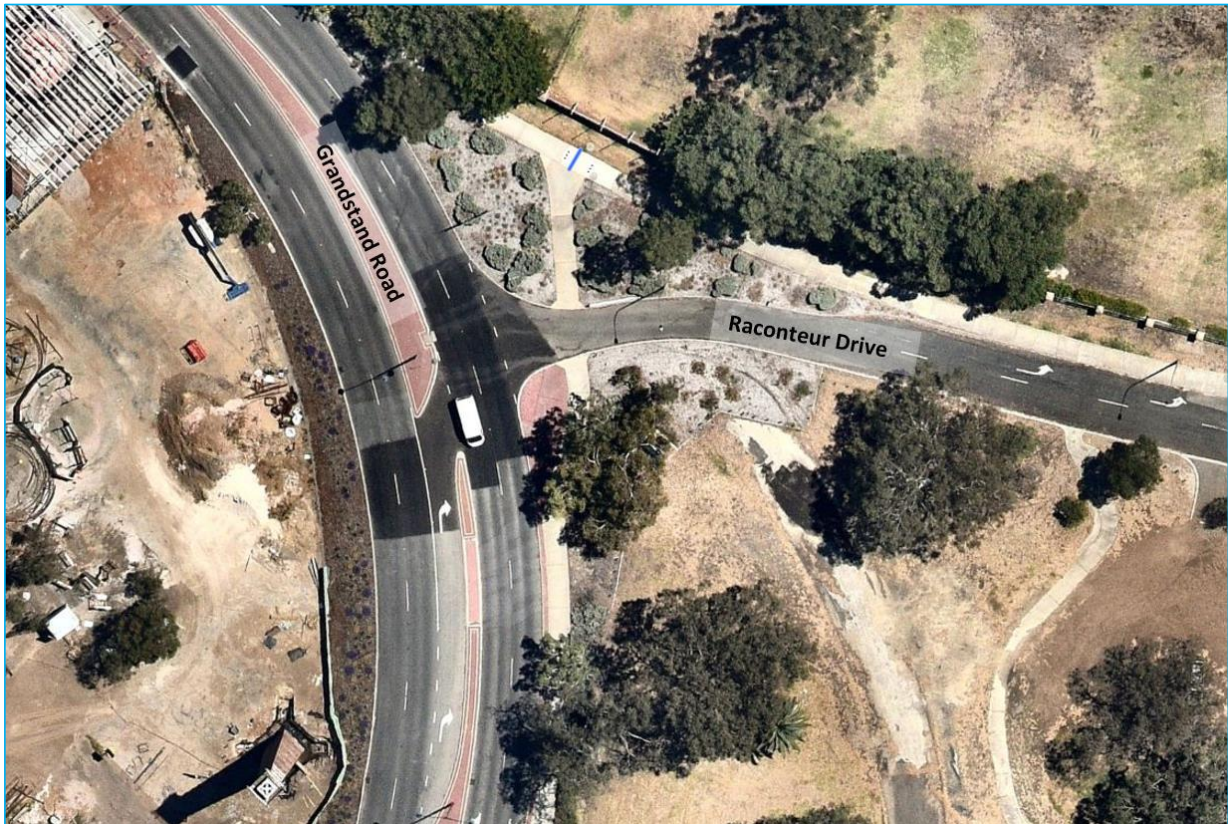
Figure 2-4: Resolution Drive / Stoneham Street / Grandstand Road – 4-way roundabout



Source Mapping: NearMap 2024

Raconteur Drive / Grandstand Road: The 3-way priority-controlled intersection is located approx. 500m south of the site and provides access to Raconteur Drive connecting to Matheson Road for one of the Ascot Racecourse car parks. As Raconteur Drive is one-way in this section, the intersection allows only left-in and right-in turning movements from each side of Grandstand Road (unless otherwise permitted under race day traffic management controls). **Figure 2-5** shows the existing geometry of the intersection.

Figure 2-5: Raconteur Drive / Grandstand Road – 3-way priority-controlled intersection (left-in / right in only)



Source Mapping: NearMap 2024

Resolution Drive / Great Eastern Highway / Hardey Road: The 4-way signalised intersection is located approx. 1km south of the site and provides access to existing residential areas to the south-east of Ascot Racecourse. **Figure 2-4** shows the existing geometry of the intersection. This includes three through lanes in each direction on the Great Eastern Highway, an intersection bus queue jump lane, a left-turn lane and a right-turn/U-turn lane.



Figure 2-6: Resolution Drive / Great Eastern Highway / Hardey Road – 4-way signalised intersection



Source Mapping: NearMap 2024

Stoneham Street / Great Eastern Highway / Belgravia Street Signalised Intersection: The 4-way signalised intersection is located approx. 1km south of the site and provides access to existing residential areas to the south-east of Ascot Racecourse. **Figure 2-7** shows the existing geometry of the intersection. This includes three through lanes in each direction on the Great Eastern Highway, as well as bus queue jump lane for buses, a left-turn lane and a right-turn/U-turn lane.

Figure 2-7: Stoneham Street / Great Eastern Highway / Belgravia Street – 4-way signalised intersection



Source Mapping: NearMap 2024

North-West of the Site:

Garratt Road / Guildford Road Signalised Intersection: This 4-way signalised intersection is located approximately 1.7km north-west of the site and provides access to existing residential areas to the north-west of Ascot Racecourse. **Figure 2-8** shows the existing geometry of the intersection.



Figure 2-8: Garratt Road / Guildford Road – 4-way signalised intersection



Source – NearMap 2024

2.5 Existing Traffic Volumes

PJA contacted the City of Belmont, who kindly provided their latest traffic count data for the intersection of Resolution Drive/Grandstand Road/Stoneham Street from surveys undertaken in 2017 as part of the GGLSP studies presently being undertaken by the City. In addition to this, recent traffic counts were commissioned by PJA as part of the Ascot Racecourse project in February 2024.

Complementing the existing SCATS traffic counts at the signalised intersections, traffic counts were undertaken at the intersection of Resolution Drive/Raconteur Drive priority-controlled intersection and Grandstand Road/Waterway Crescent roundabout.

Midblock traffic counts were sourced from the Main Roads TrafficMap, and these indicate that there are the following daily traffic flows on the key roads near the Ascot Racecourse:

- Grandstand Road 16,670 vehicles per day (vpd) – 2018 counts
- Resolution Drive 7,860 vpd – 2021 counts
- Stoneham Street 14,270 vpd – 2018 counts.

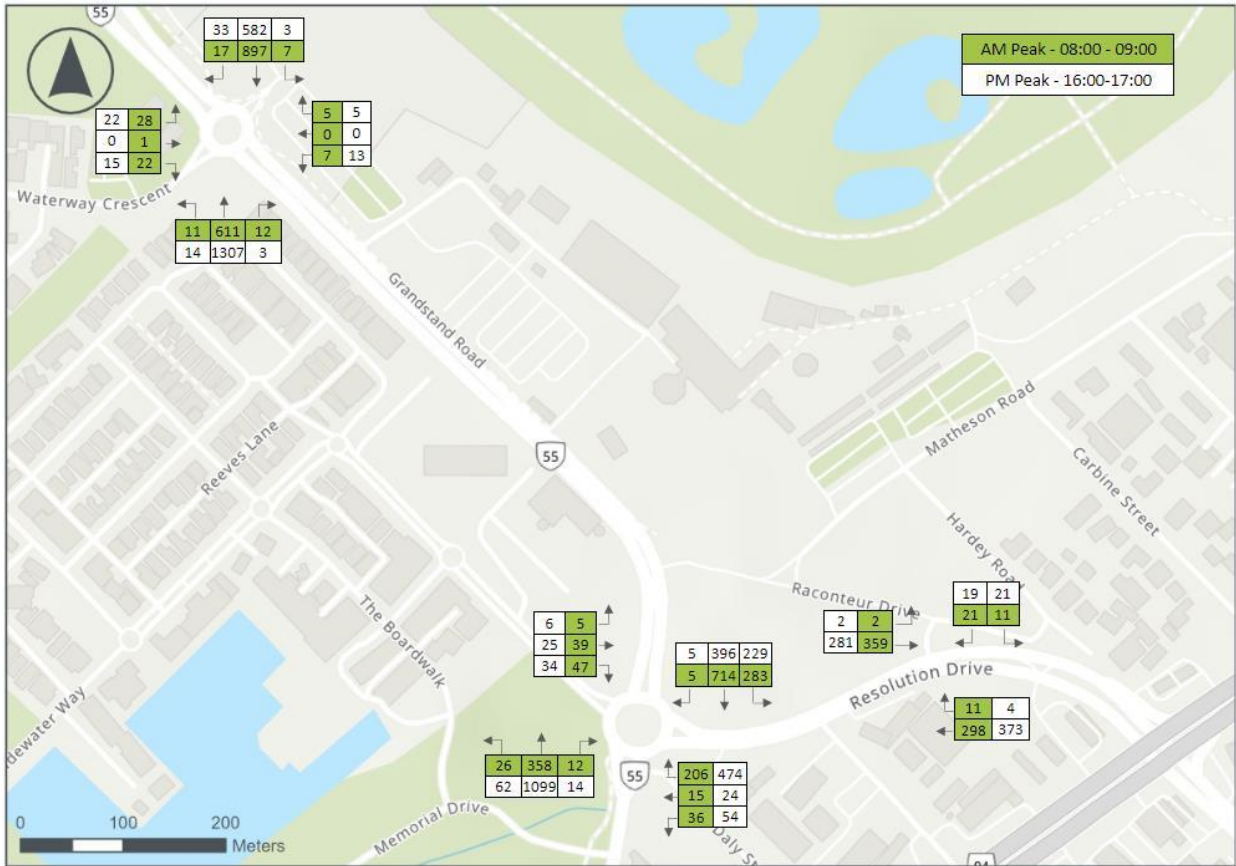
¹ Extended period over approximately 20 years (2002 – 2021).

Review of these midblock traffic flows over an extended period¹ up to the present day, indicates that traffic flows in the Ascot area have been increasing by approximately 0.75% per annum. Advice from the City, informed from the development of the traffic model for the Golden Gateway LSP, has indicated a 0.5% growth rate.

Thus, for the derivation of equivalent 2024 traffic flows for the intersection of Resolution Drive/Grandstand Road/Stoneham Street, the traffic flows to and from the main legs of the intersection has been increased by 0.5% per annum from 2017 to 2024. This was discussed with the City as being appropriate for use for the Ascot LSP.

These actual and/or derived counted 2024 traffic flows are shown below in Figure 2-9.

Figure 2-9: Peak Hour 2024 Traffic Flows



Credits: Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, Foursquare, METI/NASA,

2.6 Existing Pedestrian / Cycle Networks

Existing pedestrian / cycle networks are illustrated in Figure 2-10. The first part of the below figure shows the proximity of the Perth-Midland Principal Shared Path (PSP) to the site, as it links through Meltham and Bayswater north of the site. The Perth-Midland PSP is a high-quality urban dual-use pathway which runs parallel to the Midland railway line. To access the PSP from the site, shared used paths are available on the northern side of the Garratt Road Bridge to/from the site which



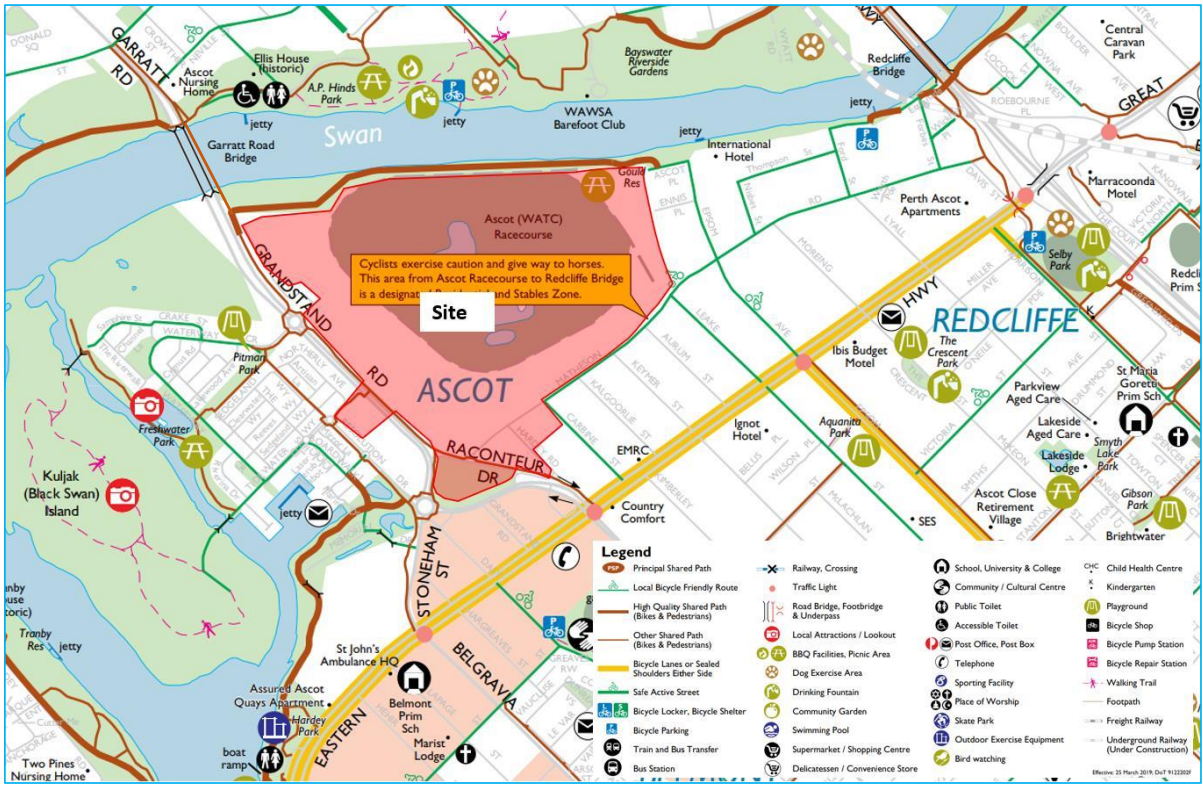
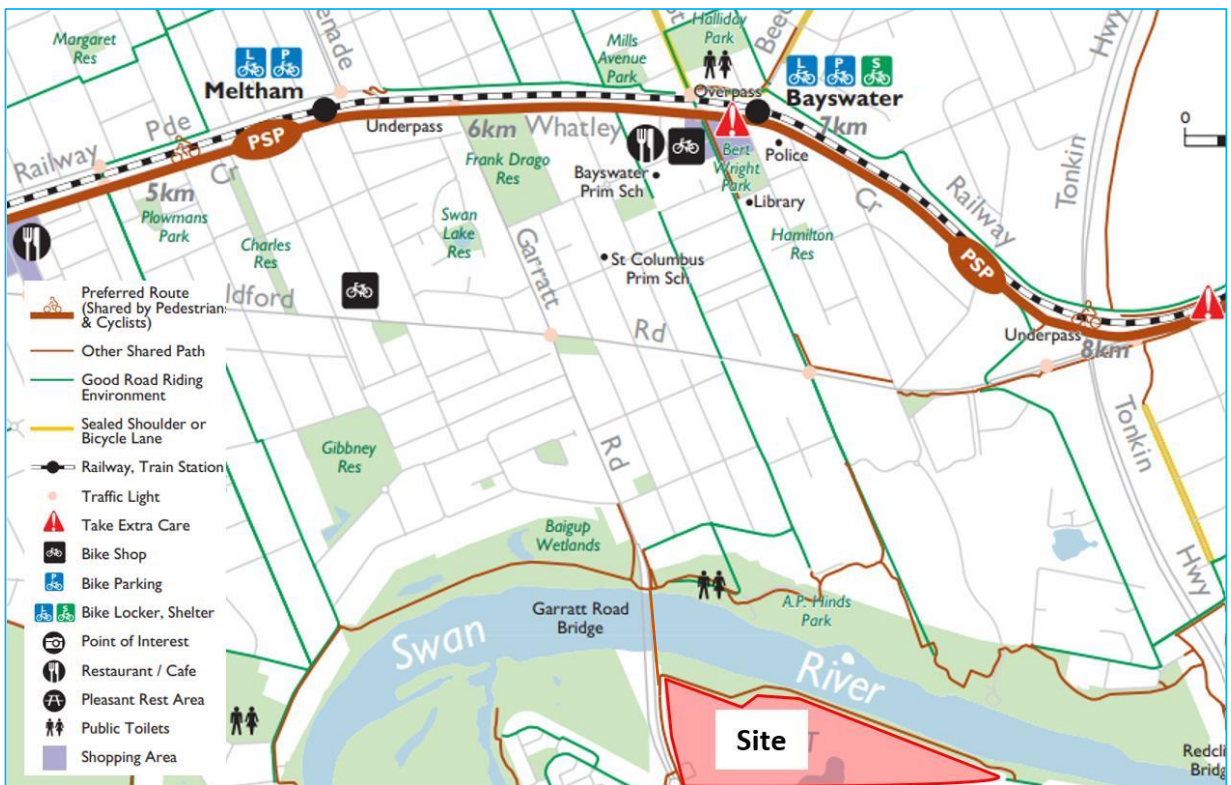
Existing Situation

also runs parallel to the Swan River. From here, Leake Street and King William Street are two roads with good road riding environments in order to reach the PSP.

The second part of the figure below shows the existing cycle infrastructure available to the south, west and east of the site. One of the modal integration items to note is for cyclists to exercise caution and to give way to horses in the area between the racecourse and adjacent Redcliffe Bridge as a designated 'Residential and Stables' zone.

Immediately north of the site, a high-quality shared path for cyclists and pedestrians is available between the shared paths along Grandstand Road and Ascot Place. A number of local roads surrounding the site are highlighted as local cycle friendly routes including Matheson Road and Epsom Avenue. Additionally, the Great Eastern Highway is highlighted as providing cycle lanes or sealed shoulders on either side of the carriageway, though these are largely provided as on-road cycle lanes with no physical separation and are combined with, or are immediately adjacent to, bus lanes with vehicles travelling above the Safe System speeds of 30km/h for vulnerable road users.

Figure 2-10: Existing Pedestrian / Cycle Networks



Source: WA Department of Transport (2024)

2.7 Existing Public Transport

The main bus stops accessible from the site are on Grandstand Road immediately adjacent to one of the key pedestrian access points to the racecourse. Based on a desktop review, the infrastructure provided at these stops is limited as a shelter with seating is only available on the south-western side while a raised kerb to assist with reduced mobility access is only available for a short distance on the north-eastern side of Grandstand Road. It would be recommended that the City of Belmont undertake a review of these bus stops (irrespective of this development), particularly as they serve a significant destination.

These stops are served by the bus 998/999 which provided clockwise and anti-clockwise routes of the Perth CircleRoute (shown in purple in Figure 2-11), respectively. This circular route has limited stops and a good frequency of every 15 minutes, Monday-Saturday and every 30 minutes on Sundays, which encompasses many of Perth's suburbs encircling central Perth and locally providing connectivity to Bayswater Rail Station. Ascot Racecourse is serviced by the clockwise service at 06:03 on weekdays and a last service at 22:13. A shortened service is available on weekends and public holidays. These timings are reflected similarly in the anticlockwise service.

Additional frequent bus services are accessible from the site along the Great Eastern Highway as shown in Figure 2-11 including services towards Redcliffe Station, central Perth and Perth Airport.



Figure 2-11: Public Transport Services



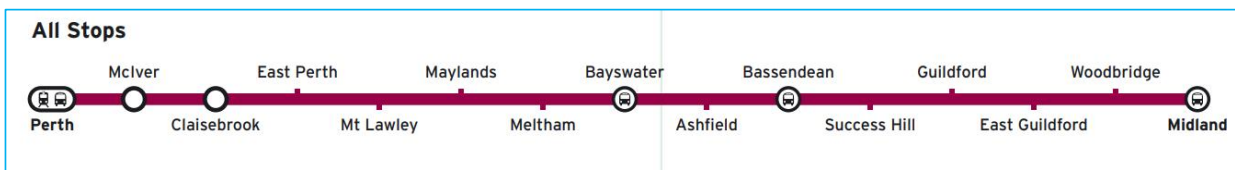
Source: WA Department of Transport (2024)

Rail Services

Bayswater Train Station is accessible via bus service 999 and provides access to both the Midland Railway Line and the Airport Line.

During the week, the Midland railway line carries passenger rail services between Perth city, and stations in between as shown in Figure 2-12, at intervals of approximately 10 to 15 minutes between 05:00am and 21:00pm. The frequency reduces past 9pm to every 30 minutes until 12:30am.

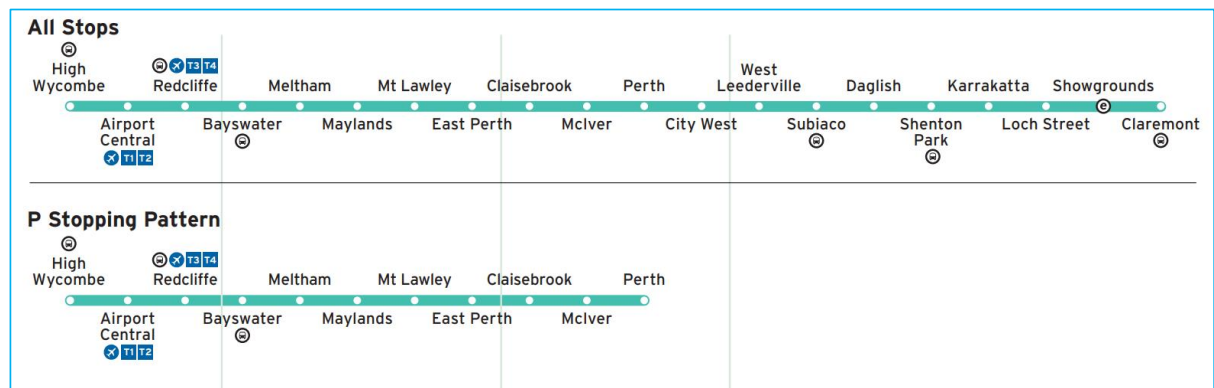
Figure 2-12: Stopping Pattern on the Midland Rail Line



Source: Transperth

The Airport Line operates from Claremont to High Wycombe via Perth Station, with some services throughout the day just terminating at Perth Station. Both variations of the route are shown in Figure 2-13. The service provides a fast connection to Perth Airport, operating every 12 minutes during the peak period, every 15 minutes during the day and every 30 minutes at night.

Figure 2-13: Stopping Pattern on the Airport Rail Line



Source: Transperth

Overall, the existing public transport service within the vicinity of the Site is good with moderate-to-high frequency of services operating during the network peak periods.

2.8 Crash Assessment

A search of the Main Roads WA Reporting Centre for crash data was undertaken. This search covered all recorded traffic accidents for the most recently available five-year reporting period between 1 January 2019 and 31 December 2023 for the study area shown in Figure 2-14 and Figure 2-15 which includes the following intersections:

- Resolution Drive / Stoneham Street / Grandstand Road Roundabout
- Raconteur Drive / Grandstand Road Intersection
- Resolution Drive / Great Eastern Highway / Hardey Road Signalised Intersection
- Stoneham Street / Great Eastern Highway / Belgravia Street Signalised Intersection

Both figures highlight how the majority of recorded crashes within the study area are ‘Property Damage Only’ and mostly occur on the midblock carriageway itself rather than the intersections noted above. The majority of these incidents occur on the Great Eastern Highway, which is typical as a ‘Primary Distributor’ with higher volumes (crash exposure).

The recorded crash types for the 200 crashes recorded in the study area are shown in Table 2-1 below. The ‘Hospital’ and ‘Medical’ crashes recorded are typically rear-end, non-collision and right-angle types of crash.

Table 2-1: Crash Data for Study Area

Type of Crash	Fatal	Hospital	Medical	Major PDO*	Minor PDO*	Total
Rear End	-	4	19	62	40	125
Sideswipe	-	-	-	8	11	19
Hit Object	-	-	-	2	3	5
Head On	-	-	-	-	-	-
Non-Collision	-	1	-	1	1	3
Right Angle	-	-	1	12	10	23
Other	-	1	-	5	6	12
Total	0	6	20	90	71	187

*Property Damage Only



Figure 2-14: Summary of All Crashes in Latest 5-Year Period

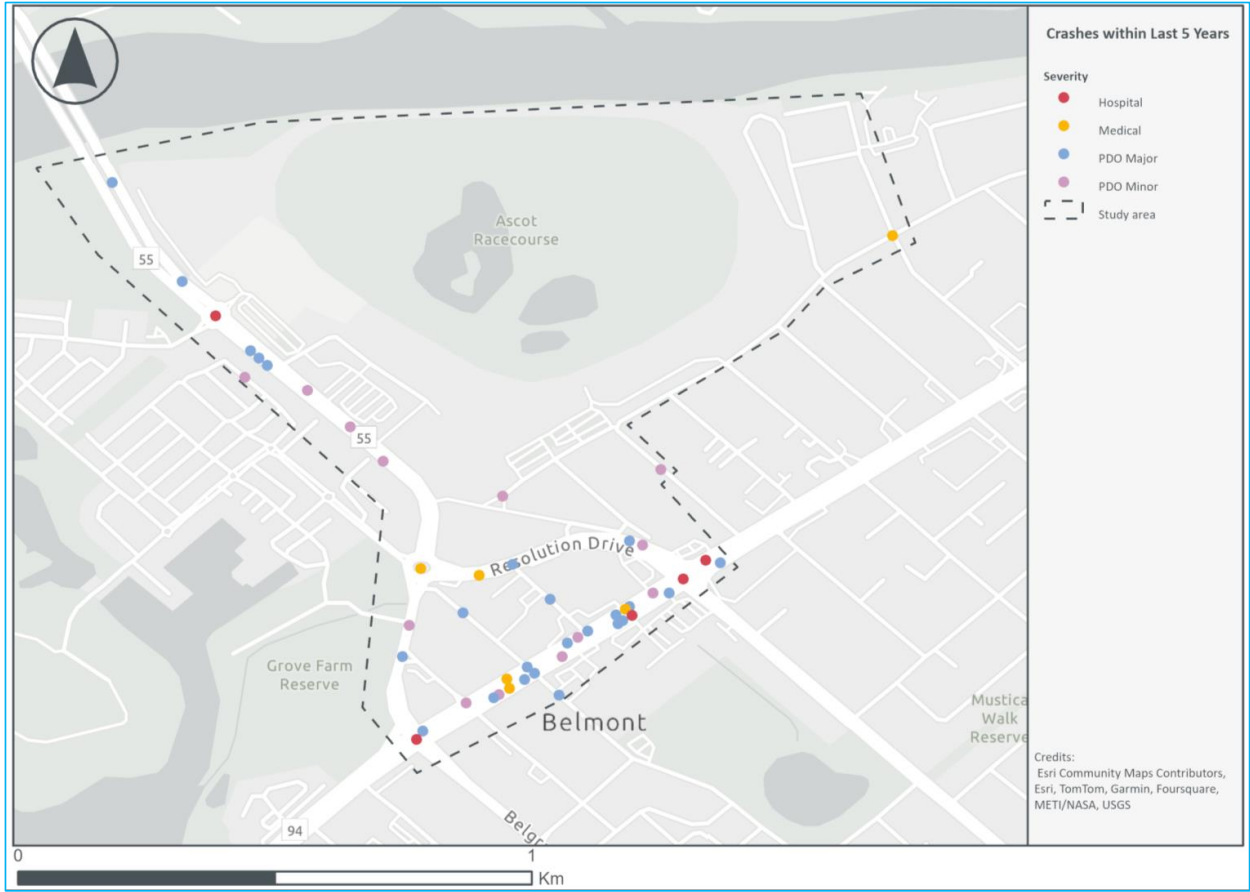
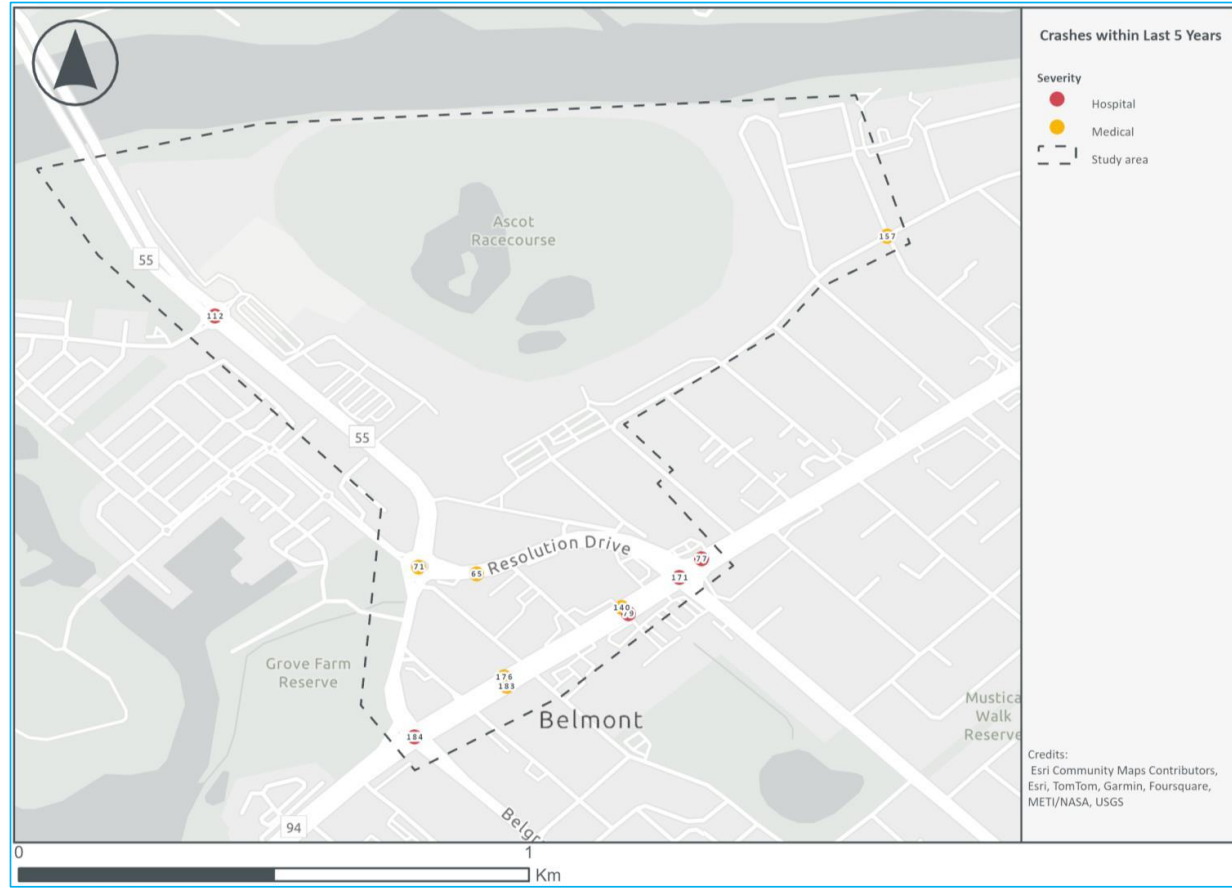


Figure 2-15: Hospital and Medical Severity Crashes in the Latest 5-Year Period





3 Proposed Local Structure Plan and Scheme Amendment

3.1 Proposed Zoning

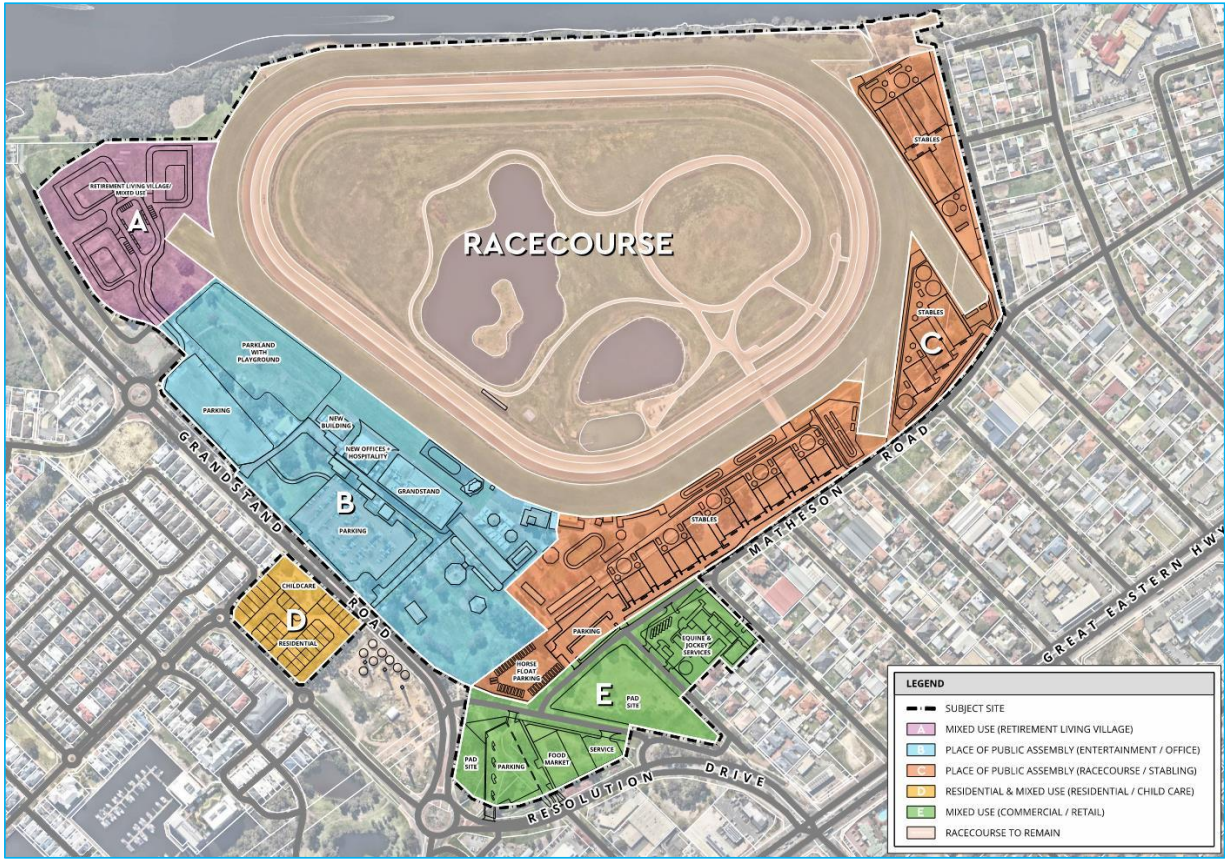
In Section 1 of this TIA, the site area was identified as largely dedicated to uses relating to Ascot Racecourse, such as ‘Private Recreation’ (MRS) or ‘Place of Public Assembly’ (LPS No.15), with some areas within the site boundary zoned as ‘Urban’ or ‘Mixed Use’.

The Ascot LSP and Scheme Amendment proposes rezoning areas within the site boundary into five specific precincts, as summarised in Table 3-1, set out in Figure 3-1 (Appendix B).

Table 3-1: Proposed Land Use Yield

Precinct	Proposed Zoning	Proposed Uses	Proposed Built Form/Yield
A	Mixed Use	Retirement Living Village	<ul style="list-style-type: none">330-390 retirement apartments (across 3 buildings of up to 15 storeys, each with 110-130 apartments).Maximum 300m² café.
B	Place Of Public Assembly (No Change to Existing Zone)	Entertainment / Racecourse Administration Office <ul style="list-style-type: none">(New building with replace the footprint of an existing building and existing building rebuilt adjacent to new building.)	<ul style="list-style-type: none">New building - Office on Ground Floor, approx. 61 people across 680m² NLA (Net Lettable Area).New Building - Hospitality venue on Upper Floor - Total building footprint of 1,020m²Parkland with a playground.
C	Place Of Public Assembly (No Change to Existing Zone)	Racecourse / Stabling	<ul style="list-style-type: none">3 On-course stabling complexes.Approx. 400 stables.Parking area inc. Horse float parking.
D	Residential & Mixed Use (R60)	Residential / Child Care	<ul style="list-style-type: none">Child care centre fronting Grandstand Rd, across approx. 2,100m² for 70-90 children.Residential development with a yield of approx. 41 lots.
E	Mixed Use (with additional use of ‘shop’)	Commercial / Retail	<ul style="list-style-type: none">Site 1: 3,400m² retail floorspace and 2,500m² commercial floorspaceSite 2: 5,200-7,100m² commercial floorspace.Site 3: Equine Centre - 'Jockey Health' inc. 'consulting room' type uses.

Figure 3-1: Proposed Masterplan Concept



Source: Rowe Group Design, 2024



3.2 Vehicular Driveway Access Arrangements

While individual lot driveway access arrangements and car parking typically fall outside the scope of a general Structure Plan-level transport assessment outlined in the WAPC Guidelines, the Ascot LSP Applicant is proactively presenting several solutions upfront to enhance future lot access arrangements and network performance. These suggestions and recommendations are intended for discussion purposes only and are subject to further refinement in subsequent stages of development planning.

As highlighted in Section 2, the existing racecourse is served by a number of vehicular access points from Grandstand Road and Matheson Road.

It is acknowledged that in the draft GGLSP, a new roundabout intersection was previously proposed to replace the existing Grandstand Road / Raconteur Drive intersection, introducing an opportunity for a high capacity and controlled access to the racecourse via a new 4th arm of the roundabout. This arm would have also provided direct access for horse floats looking to travel northbound on Grandstand Road. However, it is understood that this new roundabout option was mooted based on stakeholder feedback during the City’s draft GGLSP advertising period and subsequently the current intersection format will be retained.

Notwithstanding the above, for the Ascot LSP, this Grandstand Road and Resolution Drive intersection presents a major opportunity to modify the permissible movements at the restricted access point, to improve the overall access strategy for the LSP. This is further explored.

For the proposed Precinct B (Entertainment / Racecourse Administration Office) car park, vehicular access from the members carpark onto Grandstand Road, is expected to be retained as left-in/left-out (LILO). There are existing roundabouts at either end of the racecourse at Waterway Crescent and Resolution Drive that provide the same function as right turns at the crossover points. The traffic concern with allowing any right turns at the Precinct B crossovers is the added delay for patrons queuing and waiting to access the parking areas or when leaving after the races. If the LSP was to pursue direct right turn options at the Precinct B crossovers, it is recommended that the impacts would need to be assessed in finer detail, on a number of different peak weekend race days. Only the AM and PM effects of the wider development coinciding with the typical AM and PM commuter peaks has been examined for this LSP, as these would represent the highest traffic flow on a regular basis. The median island is wide enough for the northern two crossovers to potentially have two-stage right turn movements, but the southern crossover has a narrower median opposite, and therefore would not appear to have enough width to allow for two-staged median movements.

Any crossover to Precinct D (Child Care and Residential) onto Grandstand Road is recommended in the form of a LILO. A LILO is supported in balancing the needs of access to the child care centre and the amenity of residents on Northerly Avenue and Resolution Drive. There would be some non-local child care centre traffic along Resolution Drive if no LILO on Grandstand Road was permitted. As such, a LILO should be pursued to/from Grandstand Boulevard to Precinct D, which would need to be integrated safely with the operations of the crossover on the opposite side of the road to the racecourse. This can be assessed in detail in later stages, post LSP endorsement as an approval of a Scheme Amendment is not contingent on these details and available wider accessibility.

For the driveway accesses for Precinct E (commercial precinct) east of the roundabout, there is limited frontage available along Resolution Drive between Raconteur Drive and Grandstand Road. As such, full movement crossovers are unlikely to be possible due to road safety and as such likely to be in the form of LILOs.

Given the above restrictions for most access points to LILOs due to geometrical constraints, a relief valve is needed to support northbound traffic (right turning vehicle demands from the east). In this regard, the existing intersection of Grandstand Road and Resolution Drive is proposed to be open permanently to traffic with left and right turns allowed from Grandstand Road into Raconteur Drive and a left turn out from Raconteur Drive onto Grandstand Road (LILO-RI). These are the same movements currently permitted at this intersection on race days to allow racecourse patrons to park and exit. This critical left turn out to, and right turn in from Grandstand Road are both expected to operate satisfactorily with acceptable queues and delays to support the Ascot LSP (refer Section 6). Ultimate development queues are expected to be able to be contained within the current right turn pocket length on Grandstand Road.

3.3 Parking Impacts

Again, while individual lot driveway access arrangements and car parking typically fall outside the scope of a general Structure Plan-level transport assessment outlined in the WAPC Guidelines, the Ascot LSP Applicant is proactively presenting several solutions upfront to enhance future lot access arrangements.

The proposed redevelopment of Precinct E (commercial/retail) will impact the availability for parking that currently occurs on race days. The redevelopment will alter existing race patron parking and also horse-float and jockey parking in Precinct E.

Current parking layout in **Figure 3-2** shows typical parking demand for an opening racing day on 14th October 2023. This shows paved patron parking and members parking within Precinct B (the racecourse entertainment) and patron parking within Precincts C (stabling) and E (commercial/retail). Similarly, the proposed development of Precinct C with the relocation of jockey parking and horse float parking towards the south west extremity of Precinct C will impact the ability of patrons to park within this existing area on race days. A similar impact is expected for Precinct E, where retail development will impact parking currently occurring across this land.

From **Figure 3-2** aerial imagery, there was assessed to be approximately 270 cars parked across the patron parking areas straddling the clouded area across Precincts B, C and E at the south east end of the racecourse.

LEGEND

- SUBJECT SITE
- MIXED USE (RETIREMENT LIVING VILLAGE)
- PLACE OF PUBLIC ASSEMBLY (ENTERTAINMENT / OFFICE)
- PLACE OF PUBLIC ASSEMBLY (RACECOURSE / STABLING)
- RESIDENTIAL & MIXED USE (RESIDENTIAL / CHILD CARE)
- MIXED USE (COMMERCIAL / RETAIL)
- RACECOURSE TO REMAIN

To further manage the relocation of parking within the racecourse it is a recommendation of this TIA to implement a Travel Demand Plan for typical race days to actively discourage patrons from using their private motor vehicle to drive to and from the racecourse. This plan may include both the encouragement in the use of the currently available public transport services near the racecourse, improvement in private services, and the uptake of ride share services.



Routes 998 and 999 (CircleRoutes) stop on Grandstand Road immediately in front of the racecourse and high frequency bus service 940 stops on Great Eastern Highway. The CircleRoutes provide onward connections to Morley Bus Station via the new Bayswater Train Station (soon to be completed with Airport, Ellenbrook and Perth-Midland services and be the busiest station outside of Perth Station). Route 940 runs between Elizabeth Quay bus station (immediately next to Elizabeth Quay train station) and Redcliffe train station.

Implementing Travel Demand strategies to promote rideshare services (also known as Mobility as a Service (MaaS)) presents another option to reduce the reliance on private vehicle usage among Ascot Racecourse patrons. MaaS offers users a range of mobility options through a single platform or service provider, reducing congestion, alleviate parking demand, and promote other sustainable travel choices on race days.

Several strategies could be employed to encourage patrons to use MaaS options effectively and almost immediately:

- partnerships with MaaS providers and local transit agencies can enhance the integration of various transportation modes, ensuring seamless connectivity and ease of use for patrons.
- offering incentives such as discounted fares or priority access to race days for MaaS users (such as dedicated drop-off/pick-up areas) could further encourage patronage.
- By promoting MaaS as a viable alternative to private vehicle usage, the Ascot racecourse development could work towards addressing any perceived parking challenges.

The travel behaviours of patrons of entertainment services (hotels, taverns, restaurants, sporting venues etc) are now skewed towards using ride sharing instead of driving to these land uses. This is due to a combination of many factors but mostly the affordability, availability, attractiveness to latter generations and finally, allowing patrons to enjoy themselves without worry of driving under the influence.

3.4 Proposed Internal Transport Network

The proposed Local Structure Plan sets out the indicative future road network for the Scheme Amendment area, which is shown in **Figure 3-1**. The internal network will be detailed further as the lot submissions for each precinct are lodged for assessment. The City of Belmont places high importance on sustainable transport modes (public transport, walking and cycling) and would be seeking high-quality cycling facilities, footpaths, street trees etc to facilitate and reduce reliance on low-occupancy private car modes.

3.5 Assessment Years and Time Periods

This TIA analyses the existing base year of 2024 and the anticipated opening year of 2036 ‘with’ and ‘without’ the full build-out of the Ascot LSP. Section 7 of this report discusses the assessment years and development traffic generation in more detail.

3.6 Pedestrian and Cyclist Access

Pedestrian and cyclist access has not yet been fully defined; however, it should be provided generally in accordance with the requirements of national and local guidance, the Department of Transport’s Long Term Cycle Network, and areas comprising largely residential uses should be in accordance with *Liveable Neighbourhoods* and Safe System Engineering.

The proposed pedestrian and cyclist facilities should aim to provide a permeable road network within the subject site and create attractive opportunities that maximise the use of non-private vehicle transport modes. Section 5 of this report discusses access to public transport and recommended improvements.



Changes to External Transport Network

4 Changes to External Transport Network

Part of the Ascot Racecourse development is currently within the GGLSP, with Precincts D and E falling wholly within the currently nominated GGLSP area with part of Precinct C. The draft Movement and Access Strategy report prepared by the GGLSP proposed road network changes as part of the LSP to support the LSP, noting that the proposal of a new roundabout at Resolution Drive / Grandstand Boulevard have been mooted based on advertising feedback from stakeholders. Accordingly, the GGLSP is presently in the process of being modified, to address agency concerns and comments and as such the road network is expected to remain much the same as it is presently.

The previous draft proposed road network is shown below in Figure 4-1. The proposed new roundabout, north of the current roundabout at Grandstand Road/Resolution Drive/Stoneham Street, was proposed to be a 3-way roundabout and would have provided Ascot Racecourse Precinct E an opportunity for a fourth approach entry.

The retention of the current road network does have the benefit of retaining Precinct E to be unbisected by any major roadway.

Figure 4-1: Golden Gateway Local Structure Plan



Source: Golden Gateway Public Realm Strategy



5 Integration with Surrounding Area

5.1 Surrounding Attractors / Generators

As Ascot Racecourse is already very well established in the local area, a variety of uses including retail, food, beverage and recreational uses are available in the local area primarily along the Great Eastern Highway and on the Racecourse site itself. In addition, as an attractor and a key employment location itself, the racecourse is located in close proximity to large residential areas of Redcliffe, Belmont, Rivervale and Maylands surrounding the site.

Approximately 1.2 km to the south of the Site, is Belmont Primary School.

5.2 Proposed Changes to Surrounding Land Uses

The City of Belmont’s LPS No.15 details the proposed local zoning of land uses within the area surrounding the Site including DA6 to the south of Great Eastern Highway. The proposed changes to these zones are set out in full in Section 3 of this TIA, in the context of the existing zones.

5.3 Level of Overall Accessibility

As Ascot Racecourse is already very well established in the local area, the existing levels of accessibility will be maintained and built upon with the proposals to improve access for all to the site.

5.4 Pedestrian and Cyclist Accessibility

The existing shared path network on the northern side of Grandstand Road provides good active transport links to the area surrounding Ascot Racecourse. This will be further enhanced by the improvements proposed within the Ascot LSP and Scheme Amendment, as well as the Public Realm Strategy being developed as part of the GGLSP.

It is a recommendation of this TIA that, investigations be undertaken to extend the existing footpath network surrounding the racecourse, including south of Grandstand Road and improving pedestrian and cycle connections towards the local amenities on Great Eastern Highway and Belmont Primary School. If feasible, this would encourage trips on foot and wheels to local centres and help increase public transport usage to reduce the reliance on private vehicles.



6 Analysis of Transport Network

6.1 Assessment Years and Time Period

Each intersection will be assessed using the following two scenarios:

- **Scenario 1** – 2024 ‘current situation’.
- **Scenario 2** – 2036 ‘without development’.
- **Scenario 3** – 2036 ‘with Ascot LSP development’.

Scenario 1 sets the baseline for the area for the current traffic flows as surveyed and derived from intersection counts.

Scenario 2 without the development flows have been based on expected traffic flows in 2036 with no development of the Ascot Racecourse nor the effects of the GGLSP. In discussion with the City of Belmont, it was apparent that the previous modelling assessments undertaken for the GGLSP are presently needing to be revised by the GGLSP team. Consequently, there are too many unknowns relating to the GGLSP to assess/assume the outcomes or specific intersection turning movement traffic flows for various scenarios of the GGLSP and the adoption of the draft (now mooted) traffic flows would lead to erroneous results. Accordingly, the 2036 without development Scenario 2 assumes current traffic flows will increase to 2036 with no GGLSP influences.

Scenario 3 is with full development traffic anticipated in 2036 when all precincts are assumed to be fully developed, in line with the Ascot Racecourse anticipated rollout.

6.2 Background Traffic

The background traffic assumptions for this assessment have been based on PJA’s consultation with the City of Belmont on the City’s current GGLSP traffic assumptions, concluding a 0.5% growth per annum from 2021 through to 2036 is to be applied. Advice from the City of Belmont goes further to say that this growth rate is expected to be maintained through to 2041, beyond the assessment year as noted above. This growth has been applied to major traffic flows on the network but excluding traffic flows to and from:

- Waterways Crescent
- Resolution Drive west of the Grandstand Road/Resolution Drive/Stoneham Street roundabout.

The reason is that the two local Access Roads are established with the Marina Drive residential development recently completed and opened, and therefore ‘ultimate’ flows are captured in the 2024 base data collated.

6.3 Traffic Generation

The traffic generation rates in the AM peak trips for the Bulky Goods and Supermarket land uses are based on 20% of the expected PM peak flows.

The trip generation for Precinct A retirement village is based on a rate of 3 trips er dwelling per day and is appropriate, given that it is expected the units will have limited parking and that the demographics of the residents are expected to suggest a lower car ownership.

Table 6-1, sourced from the various sources, have been used to calculate an estimate of the traffic generated in the AM and PM peak periods. Given the location of the Site, the above is considered robust trip rates, with no reductions applied to account for linked or internal trips.

No trips were assigned to Precinct B (Racecourse) as the use of the racecourse in the AM and PM peaks during normal weekdays is comparatively negligible. The use of this precinct is expected to be at its highest on weekends and big race days, where traffic management may be utilised on Grandstand Road.

Likewise, no trips were assigned to Precinct C (the Stables). The reason for this is that activity at the stables typically occur well before the AM peak when horses are trained on the course early in the morning. After which, traffic movements from the stables will typically then occur after the typical network AM peak period.

Finally, for the retail use in Precinct E (Commercial / Retail), this was assumed to be a café of approximately 100-200m² in gross floor area. This development alone is not expected to generate notable trips independently, but any café patronage would be reciprocal between the proposed supermarket and commercial floorspace proposed to be located under the one roof. The café will also likely attract employees in the nearby area, who are expected to walk to and from the establishment.

The AM trips rates for the Bulky Goods and Supermarket land uses are based on 20% of the expected PM peak flows.

The trip generation for the retirement village is based on a rate of 3 trips er dwelling per day and is appropriate, given that it is expected the units will have limited parking and that the demographics of the residents are expected to suggest a lower car ownership.

Table 6-1: Trip Generation Rates

Land Use	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Retirement (Precinct A)	0.075 trips per dwelling	0.225 trips per dwelling	0.2 trips per dwelling	0.1 trips per dwelling
Racecourse (Precinct B)	NIL	NIL	NIL	NIL
Stables (Precinct C)	NIL	NIL	NIL	NIL
Residential (Precinct D)	0.2 trips per dwelling	0.6 trips per dwelling	0.5 trips per dwelling	0.3 trips per dwelling
Child Care (Precinct D)	0.25 trips per child	0.25 trips per child	0.15 trips per child	0.15 trips per child
Jockey Services (Precinct E)	1.6 trips per 100m²	0.4 trips per 100m²	0.4 trips per 100m²	1.6 trips per 100m²
Supermarket (Precinct E)	1.55 trips per 100m²	1.55 trips per 100m²	7.75 trips per 100m²	7.75 trips per 100m²
Commercial (Precinct E)	0.32 trips per 100m²	0.08 trips per 100m²	0.4 trips per 100m²	1.6 trips per 100m²
Retail (Precinct E)	NIL	NIL	NIL	NIL
Bulky Goods Retail (Precinct E)	0.2 trips per 100m²	0.2 trips per 100m²	1.0 trips per 100m²	1.0 trips per 100m²

Application of the above noted trip generation rates leads to the creation of Table 7-2 which summarises the trip volumes derived from the adopted generation rates.

Table 6-2: Estimated LSP Traffic Generation (vehicles per hour)

Land Use	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Retirement (Precinct A)	29	88	78	39
Racecourse (Precinct B)	0	0	0	0
Stables (Precinct C)	0	0	0	0
Residential (Precinct D)	8	24	21	11



Land Use	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Child Care (Precinct D)	20	20	12	12
Jockey Services (Precinct E)	21	5	5	21
Supermarket (Precinct E)	72	18	224	224
Commercial (Precinct E)	1	0	4	4
Retail (Precinct E)	0	0	0	0
Bulky Goods Retail (Precinct E)	31	8	96	96
Total	182	163	440	407

The Site is expected to generate a total of 345 two-way vehicle trips in the AM peak hour and approximately 845 in the PM peak hour. The overall development is expected to generate the highest flows in the PM and thus the PM peak has been chosen as the basis for the following intersection assessment as these higher flows would be putting the road network under the greatest stress.

Of the above generated trips, 50% of the trips associated with the supermarket have been assumed to be pass-by trips. These trips already exist on the adjacent road network, with drivers diverted from the adjacent road network onto the site and then to exit the site to continue on their journey.

6.4 Future Year Traffic Growth

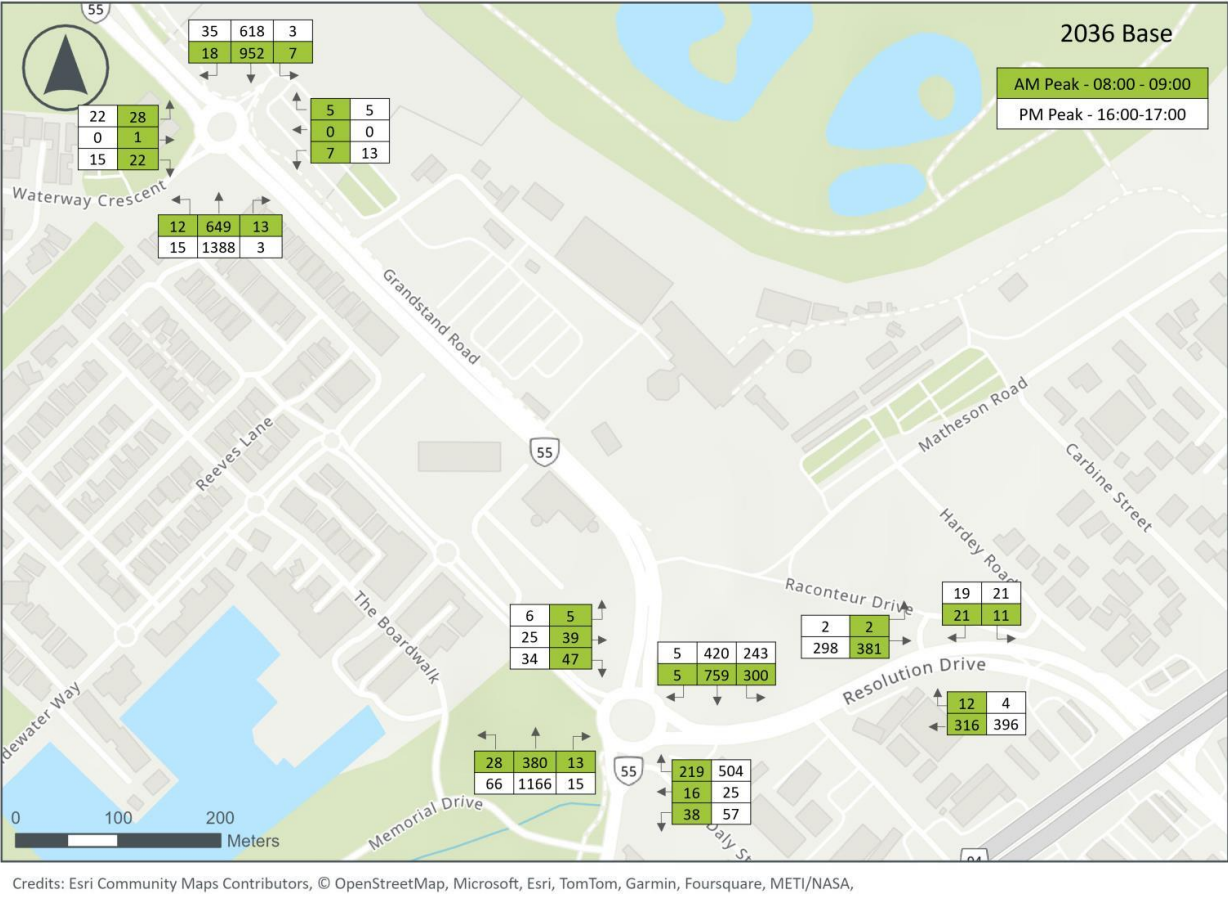
As previously discussed, the future year growth rates to 2036 (and further to 2041) were provided by the City. From 2021 to 2041 traffic flows are expected to increase by 0.5% per annum linear growth. With the Ascot Waters area being now fully developed (apart from the Precinct D component) traffic flows to and from the legs of intersections into Ascot Waters has been assumed to have zero future traffic growth.

6.5 Traffic Distribution and Assignment

The distribution of trips to and from the Site via the various site accesses have been estimated based on the existing traffic flow percentage split travelling in each direction in the AM and PM peak periods.

The percentage split of traffic is in keeping with the expectation that a greater proportion of trips generated by the Site will travel in same direction as the commuter peak for the residential and retirement uses. For the commercial attractions, this will be in the same direction as the commuter peak flows for the pass-by trips, but for new trips these will be attracted to the site based on the arrival flow proportions entering the Ascot Racecourse area along Grandstand Road, Resolution Drive and Stoneham Street. The estimated 2036 flows with expected distribution is presented in Figure 6-1 to Figure 6-3.

Figure 6-1: Base 2036 Traffic Flows (no development; background growth only)



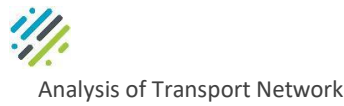
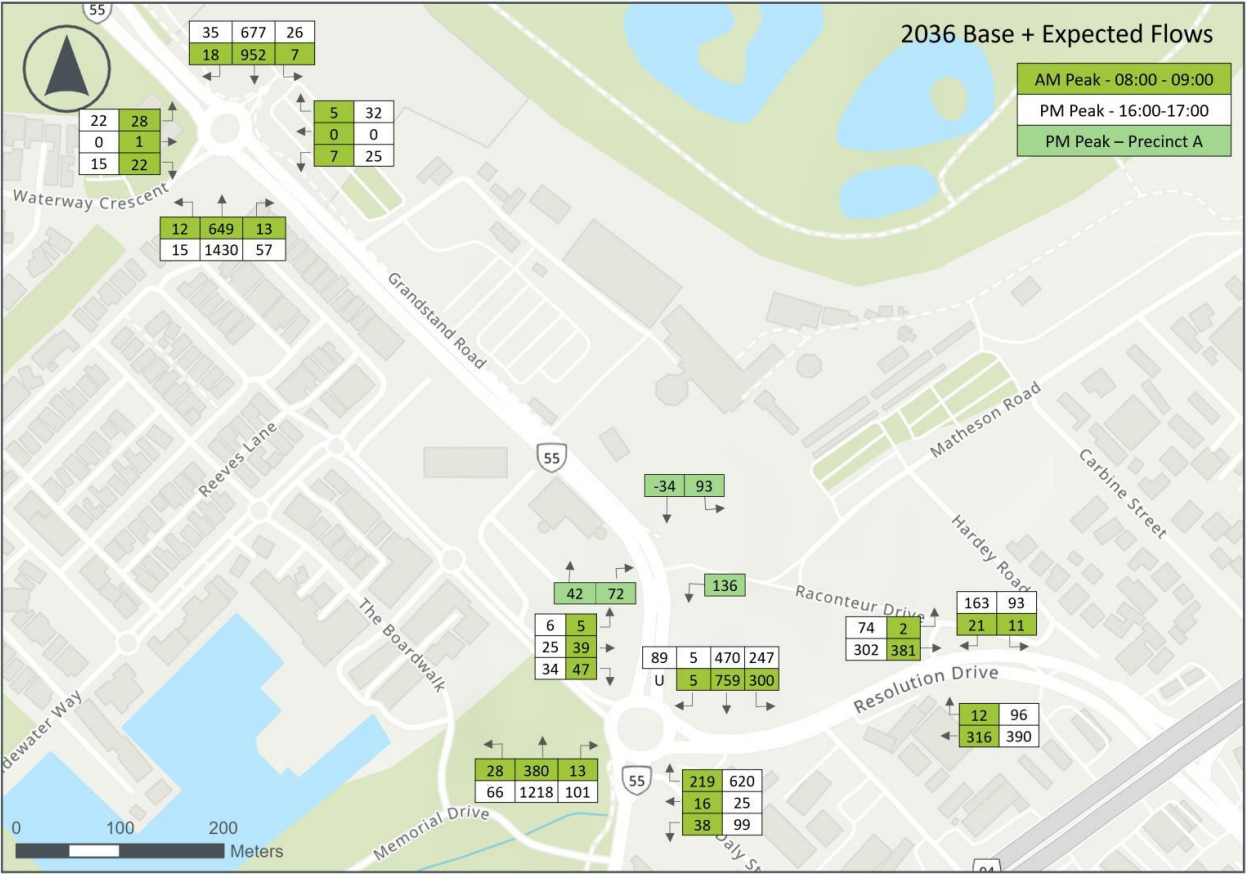
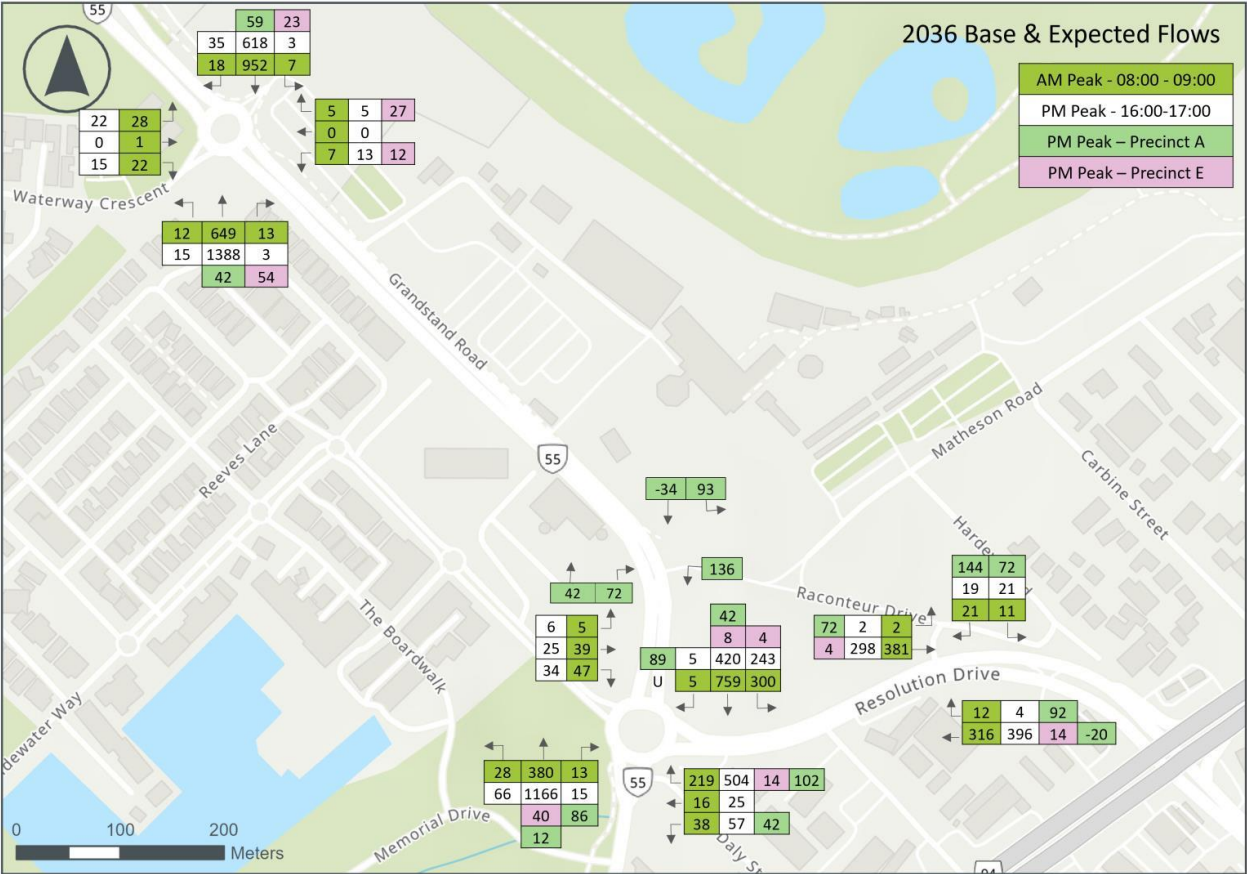


Figure 6-2: 2036 Traffic Flows (plus Precinct A Development Flows)



Credits: Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, Foursquare, METI/NASA,

Figure 6-3: 2036 Traffic Flows (with Ultimate Ascot LSP Development Flows)



Credits: Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, Foursquare, METI/NASA,

The above figure focuses on the distribution of traffic onto the road network for typical AM and PM peak periods. The Racecourse access has not been shown on this figure as the peak movements to and from the racecourse are expected to occur on a Saturday, when traffic flows on Grandstand Road are approximately 60% of typical PM peak values. Peak Racecourse flow is typically at approximately 12pm, prior to the start of the first race at the racecourse and the expected peak arrival time of patrons. The last race typically concludes at about 5:30pm and traffic flows at that time on Grandstand Road are approximately 50% of PM peak flows, this at a time when patrons will be leaving the racecourse at the highest rate.

To put the above into context, the peak weekend flows on Grandstand Road are approximately the same as the inter-peak weekday flows at about the same time.



6.6 Intersection Performance

SIDRA analysis was undertaken at the following intersections to estimate the impact of the development generated traffic on the surrounding transport network:

- Resolution Drive / Stoneham Street / Grandstand Road Roundabout
- Raconteur Drive / Grandstand Road Intersection
- Grandstand Road and Waterways Crescent Roundabout
- Resolution Drive / Raconteur Drive intersection.

SIDRA results for each approach are presented below in the form of Degree of Saturation (DOS), Average Delay, Level of Service (LOS) and 95th Percentile Queue. These characteristics are defined as follows:

- **Degree of Saturation (DOS):** is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded for an un-signalised intersection where DOS > 0.80;
- **95% Queue:** is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected;
- **Average Delay:** is the average of all travel time delays for vehicles through the intersection. An unsignalised intersection is considered to be operated at capacity where the average delay exceeds 40 seconds for any movement; and
- **Level of Service (LOS):** is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers.

6.7 Scenario I - Current Year 2024

The following presents the analysis of the key access points as noted above assuming current traffic flows on the road network and without the Ascot Racecourse developed.

Figure 6-4: Current Performance – Grandstand Rd/Waterways Cres

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Grandstand Rd E	0.45	4	A	26
Precinct A	0.03	7	A	1
Grandstand Rd W	0.20	4	A	12
Waterway Cres	0.05	10	A	2
Intersection	0.45	4	A	26

Figure 6-5: Current Performance – Grandstand Rd/Raconteur Dr

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Grandstand Rd E	0.45	0	A	0
Raconteur Dr	NA	NA	NA	NA
Grandstand Rd W	0.33	0	A	0
Intersection (based on minor leg appr/mvt)	0.45	0	A	0

Figure 6-6: Current Performance – Grandstand Rd/Resolution Dr/Stoneham St

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Stoneham St S	0.62	9	A	54
Resolution Dr E	0.74	15	B	47
Grandstand Rd N	0.33	4	A	21
Resolution Dr W	0.16	13	B	7
Intersection	0.74	9	A	55

Figure 6-7: Current Performance – Resolution Dr/Raconteur Dr

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Resolution Dr E	0.21	0	A	0
Resolution Dr E RT	0.003	4	A	0.1/0.5
Raconteur Dr RT	0.02	6	A	0.5
Resolution Dr W	0.16	0	A	0
Intersection (based on minor leg appr/mvt)	0.02	6	A	0.1/0.5

Figure 6-8: Current Performance – Great Eastern Hwy/Resolution Dr/Hardey Rd

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Hardey Rd E	0.52	76	E	99
GEH N	0.75(T)/0.90(R)	44	D	306
Resolution Dr W	0.93	64	E	75
GEH S	0.83(T)/0.65(R)	31	C	319
Intersection	0.93	42	D	319

Figure 6-9: Current Performance – Great Eastern Hwy/Stoneham St/Belgravia St

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Belgravia St E	0.81	72	E	172
GEH N	0.70(T)/0.63(R)	17	B	173
Stoneham St W	0.93	92	F	129
GEH S	0.80(T)/0.88(R)	25	C	294
Intersection	0.93	34	C	294

As summarised, apart from Great Eastern Highway, intersections all typically operate at a good level of service, with typically LoS A on all leg/movements, with some LoS B on the Resolution Drive approaches to the Resolution Drive / Stoneham Street / Grandstand Road Roundabout. The largest amount of queueing occurs at this same roundabout where it has a DoS (a



Analysis of Transport Network

measure of how much traffic takes up the available traffic carrying capacity) of 0.74, this maximum being on the Resolution Drive eastern approach to the roundabout and considered acceptable. Intersections on Great Eastern Highway at Resolution Drive and Stoneham Street operate with DoS of approximately 0.7 to 0.85 on Great Eastern Highway with higher DoS on the western leg approaches (Resolution Drive and Stoneham Street) where DoS is approaching 0.93.

6.8 Scenario 2 – 2036 No Development, Background Traffic Growth

The following presents the analysis of the same intersections assuming a future growth horizon to 2036 with NO build out of the development. The intersections have been assessed based on the current geometries.

Ascot LSP Area Intersections: Grandstand Road and Raconteur Drive

Figure 6-10: 2036 Performance – Grandstand Rd/Waterways Cres

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Grandstand Rd E	0.54	4	A	38
Precinct A	0.03	7	A	1
Grandstand Rd W	0.25	4	A	15
Waterway Cres	0.06	13	B	3
Intersection	0.54	4	A	38

Figure 6-11: 2036 Performance – Grandstand Rd/Raconteur Dr

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Grandstand Rd E	0.54	0	A	0
Raconteur Dr	NA	NA	NA	NA
Grandstand Rd W	0.35	0	A	0
Intersection (based on minor leg appr/mvt)	0.54	0	A	0

Figure 6-12: 2036 Performance – Grandstand Rd/Resolution Dr/Stoneham St

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Stoneham St S	0.69	11	B	68
Resolution Dr E	0.81	17	B	59
Grandstand Rd N	0.35	4	A	23
Resolution Dr W	0.19	14	B	8
Intersection	0.81	10	A	68

Figure 6-13: 2036 Performance – Resolution Dr/Raconteur Dr

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Resolution Dr E	0.22	0	A	0
Resolution Dr E RT	0.002	6	A	0.6
Raconteur Dr RT	0.02	7	A	0.5/0.6
Resolution Dr W	0.17	0	A	0
Intersection (based on minor leg appr/mvt)	0.02	7	A	0.5/0.6

With no development, and with continued anticipated background traffic growth on the adjacent road network, the intersections are expected to still operate satisfactorily. Noted performance changes to each intersection are:

- Grandstand Road/Waterways Crescent
This intersection is expected to be operating well, with an overall LoS A, the same as now. There is expected to be a lengthening of vehicle queues on Grandstand Road and a slight increase in the DoS, notably for the Grandstand Road eastern approach to the roundabout.
- Grandstand Road/Raconteur Drive
Raconteur Drive is presently closed to traffic on non-race days.
- Grandstand Road/Resolution Drive/Stoneham Street
With the background traffic growth, this intersection is still expected to operate satisfactorily in 2036. Queues are expected to slightly lengthen with the DoS increasing from 0.74 to 0.81. Overall, the intersection is expected to operate at a LoS A.
- Resolution Drive/Raconteur Drive
This intersection is expected to operate in almost identical manner to how it presently operates. There is still expected to be minimal delays and good corresponding LoS. The DoS for the critical right turn from Raconteur Drive onto Resolution Drive is low at 0.02, this being a measure of good operational performance for this intersection.

Great Eastern Highway Intersections

Figure 6-14: 2036 Performance – Great Eastern Hwy/Resolution Dr/Hardey Rd

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Hardey Rd E	0.54	75	E	106
GEH N	0.71(T)/1.25(R)	70	E	411
Resolution Dr W	1.24	132	F	126
GEH S	0.90(T)/0.90(R)	30	C	410
Intersection	1.25	56	E	411



Figure 6-15: 2036 Performance – Great Eastern Hwy/Stoneham St/Belgravia St

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Belgravia St E	1.12	199	F	389
GEH N	0.65(T)/0.82(R)	12	B	127
Stoneham St W	1.13	237	F	232
GEH S	0.91(T)/1.13(R)	38	D	525
Intersection	1.13	67	E	525

- Great Eastern Highway/Resolution Drive/Hardey Road

With the background traffic growth, this intersection is expected to be oversaturated in 2036. Queues are expected to slightly lengthen with the DoS increasing from 0.93 to 1.25, this high DoS as a result of the right turn lane on the northern Great Eastern Highway approach being over saturated. Overall, the intersection is expected to operate at a LoS E. Options tested to improve this intersection included the introduction of an additional right turn lane on the northern Great Eastern Highway approach, this was found to reduce the DoS to 0.99, based on the Resolution Drive approach.

- Great Eastern Highway/Stoneham Street/Belgravia Street

Similar to the intersection above, with the background traffic growth, this intersection is expected to be oversaturated in 2036. Queues are expected to lengthen with the DoS increasing from 0.93 to 1.13, this high DoS as a result of the right turn lane on the southern Great Eastern Highway approach along with the Stoneham Street approach being over saturated. Overall, the intersection is expected to operate at a LoS E. Options tested to improve this intersection included the introduction of an additional right turn lane on the southern Great Eastern Highway approach, this was found to still have a similar overall DoS of 1.17, based on the Stoneham Street approach. But the DoS for the right turn movement on the southern approach on Great Eastern Highway reducing to 0.79.

6.9 Scenario 3 – 2036 With Ascot LSP Development

The following presents the analysis of the assessment of the road network assuming a future growth horizon to 2036 with full build out of the Ascot Racecourse LSP development for a comprehensive assessment.

Ascot LSP Area Intersections: Grandstand Road and Raconteur Drive

Figure 6-16: 2036 Performance with Development – Grandstand Rd/Waterways Cres

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Grandstand Rd E	0.54	5	A	38
Precinct A	0.10	8	A	3
Grandstand Rd W	0.28	4	A	16
Waterway Cres	0.06	13	B	3
Intersection	0.54	5	A	38

Figure 6-17: 2036 Performance with Development – Grandstand Rd/Raconteur Dr

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Grandstand Rd E	0.48	0	A	0
Grandstand Rd E RT	0.09	4	A	2
Raconteur Dr	0.08	6	A	2
Grandstand Rd W	0.18	0	A	0
Intersection (based on minor leg appr/mvt)	0.48	0.5	A	2

Figure 6-18: 2036 Performance with Development – Grandstand Rd/Resolution Dr/Stoneham St

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Stoneham St S	0.85	23	C	136
Resolution Dr E	0.86	17	B	79
Grandstand Rd N	0.28	5	A	16
Resolution Dr W	0.28	18	B	13
Intersection	0.86	17	B	136

Figure 6-19: 2036 Performance with Development – Resolution Dr/Raconteur Dr

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Resolution Dr E	0.22	0	A	0
Resolution Dr E RT	0.09	2.2	A	2
Raconteur Dr RT	0.19	8	A	3.9/4.9
Resolution Dr W	0.17	0	A	0
Intersection (based on minor leg appr/mvt)	0.19	8	A	3.9/4.9

With full development of the Ascot Racecourse LSP area, and with continued background traffic growth on the adjacent road network, the intersections are expected to still operate satisfactorily in Scenario 3 and only minor changes to performance results to each intersection as compared to the previous Scenario 2:

- Grandstand Road/Waterways Crescent

This intersection is expected to continue to operate well, with an overall LoS A, the same as for the no-development Scenario 2. Other metrics for this intersection are expected to be similar to the 2036 scenario and thus there is expected to be no detrimental impact issues caused by the LSP development.

- Grandstand Road/Raconteur Drive

This intersection is proposed to be open permanently to traffic with left and right turns allowed from Grandstand Road into Raconteur Drive and only a left turn out from Raconteur Drive onto Grandstand Road. These are the same



Analysis of Transport Network

movements currently permitted at this intersection when the intersection is open on race days to allow racecourse patrons to park. It is noted that the critical right turn from Grandstand Road onto Raconteur Drive and the left turn from Raconteur Drive onto Grandstand Road are both expected to operate at LoS A with DoS of 0.8 to 0.9, acceptable queues and delays. Queues are expected to be able to be contained within the current right turn pocket length on Grandstand Road.

• Grandstand Road/Resolution Drive/Stoneham Street

With the background traffic growth and the Ascot LSP development traffic, this intersection is still expected to operate satisfactorily in 2036. Queues are expected to lengthen to 136m (68m) on Stoneham Street and 79m (from 59m) on Resolution Drive eastern approach. Overall, the DoS for the intersection is expected to be 0.86, this again acceptable with a total average delay of 17s and overall LoS B. Across all measures, this intersection is expected to operate satisfactorily.

• Resolution Drive/Raconteur Drive

This intersection is expected to still operate similar to 2024 as in 2036 without any development. The DoS for the right turn from Raconteur Drive onto Resolution Drive is expected to be 0.19 with slightly longer queues, but no more than a single vehicle queued either at Raconteur Drive prior to entering Resolution Drive, or within the median waiting to entering the western traffic flow back towards the roundabout at the intersection of Grandstand Road/Resolution Drive/Stoneham Street.

Great Eastern Highway Intersections

Figure 6-20: 2036 Performance with Development – Great Eastern Hwy/Resolution Dr/Hardey Rd

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Hardey Rd E	0.60	81	F	116
GEH N	0.72(T)/1.53(R)	126	F	634
Resolution Dr W	1.51	204	F	195
GEH S	0.91(T)/0.90(R)	30	C	417
Intersection	1.53	86	F	634

Figure 6-21: 2036 Performance with Development – Great Eastern Hwy/Stoneham St/Belgravia St

Lane	PM Peak			
	Degree of Saturation	Average Delay (s)	Level of Service	95 th %ile Q (m)
Belgravia St E	1.20	252	F	461
GEH N	0.63(T)/1.10(R)	15	B	98
Stoneham St W	1.40	480	F	354
GEH S	0.88(T)/1.38(R)	40	D	468
Intersection	1.40	103	F	468

• Great Eastern Highway/Resolution Drive/Hardey Road

The addition of the LSP development traffic is expected to exacerbate the performance of this intersection, which is expected to be over capacity in 2036 without the development. The intersection is expected to be oversaturated with

2036 queues expected to lengthen and the DoS increasing from 1.25 to 1.53. This high DoS is a result of the right turn lane on the northern (or north-east orientated) Great Eastern Highway approach being oversaturated (demand exceeds capacity). Overall, the intersection is expected to operate at a LoS F, slightly worse than the expected E without the LSP development.

• Great Eastern Highway/Stoneham Street/Belgravia Street

Similar to the highway intersection above, with the background traffic growth and the addition of the LSP development traffic, this intersection is expected to also be oversaturated in 2036. Queues are expected to lengthen with the DoS increasing from 1.13 to 1.40, this high DoS as a result of the right turn lane on the southern (or south-west orientated) Great Eastern Highway approach along with the Stoneham Street approach being oversaturated. Overall, the intersection is expected to operate at a LoS F, slightly worse than the expected E without the LSP development.

6.10 SIDRA Intersection Results

Analysis of the intersections in the Ascot LSP area at the 2024 (base) and 2036 (full development) design horizons shows that there is predicted to be no detrimental issues with respect to traffic queuing and delays for any movement in the PM peak period where the highest traffic flows are expected. This is on the basis that the existing intersection of Grandstand Road and Resolution Drive is able to be opened permanently to traffic as a LILO-RI as currently occurs on race days.

The Great Eastern Highway signalised intersections at Resolution Drive and Stoneham Street were also checked for performance in 2036. Unsurprisingly, these highway intersections are expected to be oversaturated in 2036, even without the Ascot LSP development, primarily due to increasing demands on Great Eastern Highway.

In summary, outside of the highway intersections, all parameters of this capacity assessment are within recognised thresholds for acceptable intersection operation.



7 Conclusions & Recommendations

This Transport Impact Assessment (TIA) for Ascot Racecourse has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 2 – Planning Schemes, Structure Plans & Activity Centre Plans (2016)*, which is the most appropriate level of TIA for a proposed Scheme Amendment and Local Structure Plan submission.

The Site, which is the subject of this assessment, is currently zoned as Place of Public Assembly across the proposed five development Precinct. This zoning is proposed be changed to mixed use, place of public assembly, and residential across the five precincts to allow development in keeping with the Applicant’s intention for this Site as a multi-use development and complements the intention for the proposed Golden Gateway LSP.

The following conclusions and recommendations have been made regarding the proposed development with respect to this TIA:

7.1 Overall Integration with Surrounding Attractors / Generators

As Ascot Racecourse is already very well established in the local area, a variety of uses including retail, food, beverage and recreational uses are available in the local area primarily along the route of the Great Eastern Highway and on the Racecourse site itself. In addition, as an attractor and employment location itself, the racecourse is located in close proximity to large residential areas of Redcliffe, Belmont, Rivervale and Maylands surrounding the site.

Approximately 1.2 km to the south of the Site, is situated Belmont Primary School.

7.2 Road Network Accessibility and Parking

The site is well located in relation to the existing road network with access available from the major road network through Ascot via current intersections.

The following key intersections are located on the main road network within the Ascot area and will be immediately affected by traffic flows to and from the development site:

- Resolution Drive / Stoneham Street / Grandstand Road Roundabout
- Raconteur Drive / Grandstand Road Intersection
- Grandstand Road and Waterways Crescent Roundabout
- Resolution Drive / Raconteur Drive intersection.

Under the WAPC Guidelines for TIAs, a Scheme Amendment requires a ‘broad brush’ assessment of the impacts of the development. While individual lot driveway access arrangements and car parking typically fall outside the scope of a general Structure Plan-level transport assessment outlined in the WAPC Guidelines, the Ascot LSP Applicant is proactively presenting discussions/solutions to enhance future lot access arrangements and network performance. These suggestions are subject to further refinement in subsequent stages of development planning.

Given the Ascot LSP restrictions for most access points will be LILOs due to geometrical constraints, a relief valve is needed to support northbound traffic (right turning vehicular demands from the east). In this regard, the existing intersection of Grandstand Road and Raconteur Drive is proposed to be opened permanently to traffic with left and right turns allowed from Grandstand Road into Raconteur Drive and a left turn out from Raconteur Drive onto Grandstand Road (LIL0-RI).

These are the same movements currently permitted at this intersection on race days to allow racecourse patrons to park and exit. This critical left turn out to, and right turn in from Grandstand Road are both expected to operate satisfactorily with acceptable queues and delays to support the Ascot LSP. Ultimate development queues are expected to be able to be contained within the current right turn pocket length on Grandstand Road.

Additionally, the Applicant has undertaken a high-level parking appraisal for the Ascot LSP, even though this is not a standard requirement of a Structure Plan assessment under the WAPC Guidelines. The exiting net parking availability of Ascot on a race day and the proposed new development areas combined, is estimated to be able to adequately meet the currently observed parking demand for a busy typical race day at Ascot. For non-typical large events (such as the New Years Perth Cup) the traffic management plan for the racecourse would be appropriate for continued adoption. To further ensure that racecourse patrons are well informed of parking distribution and pick up / set down areas, it is a recommendation of this TIA to implement a Travel Demand Plan to assist traffic management and actively discourage patrons from using their private motor vehicle to drive to and from the racecourse. This plan may include both the encouragement in the use of the currently available public transport services near the racecourse, improvement in private high occupancy services, and the uptake of ride share services (MaaS).

7.3 Pedestrian and Cycle Accessibility

The existing footpath network on the northern side of Grandstand Road provides good links to the area surrounding Ascot Racecourse. This will be further enhanced by the improvements proposed through the LSP and Scheme Amendment, as well as the Public Realm Strategy being developed as part of the Golden Gateway LSP.

It is a recommendation of this report that, investigations be undertaken to extend the existing footpath network surrounding the racecourse, including south of Grandstand Road and improving pedestrian and cycle connections towards the local amenities on Great Eastern Highway. If feasible, this would encourage trips on foot to local centres and help increase public transport usage to reduce the reliance on private vehicle modes.

7.4 Public Transport Accessibility

The main bus stops accessible from the site are on Grandstand Road immediately adjacent to one of the key pedestrian access points to the racecourse. Based on a desktop review, the infrastructure provided at these stops is limited as a shelter with seating is only available on the south-western side while a raised kerb to assist with reduced mobility access is only available for a short distance on the north-eastern side of Grandstand Road. It would be recommended that a review of these bus stops is undertaken irrespective of any development, particularly as they serve a significant destination, it could also be considered that the proposed development provides a contribution to these improvements.

Additional frequent bus services are accessible from the site along the Great Eastern Highway towards the new Bayswater Railway Station, Redcliffe Station, central Perth and Perth Airport.

7.5 Analysis of the Transport Network

Analysis of the intersections in the Ascot area with and without the Ascot LSP has been assessed at the 2024 (current) and 2036 (ultimate) design horizons. The comparison of results show that there is predicted to be no detrimental issues with respect to traffic queuing and delays for any movement in the PM peak period (PM peak is when the highest traffic flows are expected). All parameters of this capacity assessment are within recognised thresholds for acceptable intersection operation.



Conclusions & Recommendations

The downstream Great Eastern Highway intersections were also assessed for completeness and were shown to operate above their capacity in 2036, this without the addition of the Ascot LSP development.

It is important to note that at the time of preparing this report, the details of the Golden Gateway Local Structure Plan were still under revision. Whilst every endeavour was made to interrogate the previous traffic modelling and road network proposals in the draft reports and liaise with key project members for updates, the details were still unfinished and presented too many unknowns to be adequately and accurately incorporated into this traffic modelling intersection analyses.

7.6 Recommendations

It is the recommendation of this TIA that:

- the existing intersection of Grandstand Road and Raconteur Drive be opened permanently to traffic as a LILO-RI as currently occurs on race days.
- Travel Demand Plan be undertaken to assist Ascot Racecourse patrons better utilise the parking available around the racecourse on race days and/or address this within the Ascot Event Traffic Management Plan.
- When GGLSP details are finalised, the external highway intersections be re-assessed in terms of their capacity to accommodate future development-generated traffic of the wider network and their anticipated background growth:
 - Great Eastern Highway/Resolution Drive/Hardey Road
 - Great Eastern Highway/Stoneham Street/Belgravia Street.



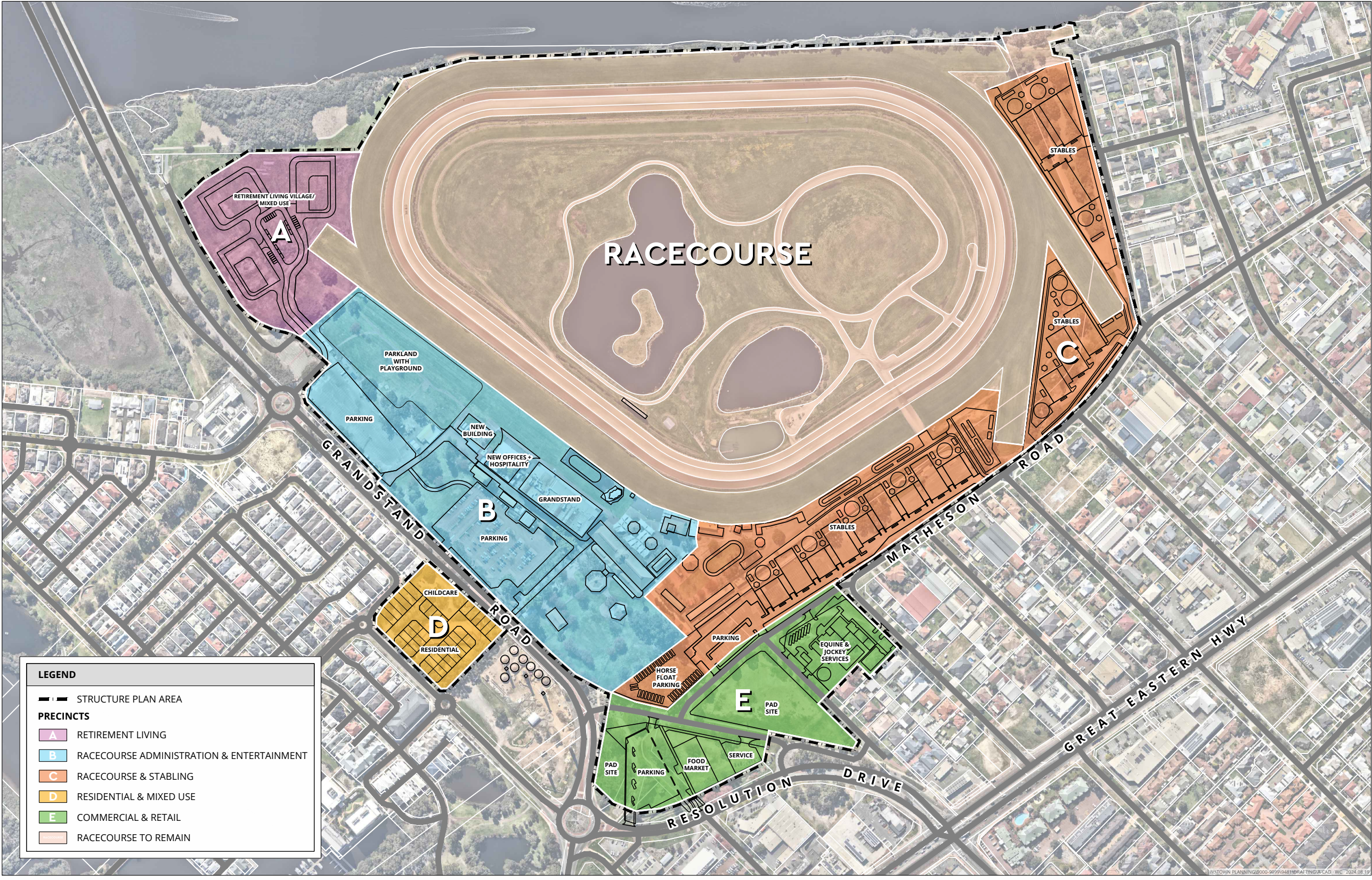
Appendix A TIA Checklist

Item	Provided	Comments/Proposals
Summary	Y	
Introduction / Background	Y	
Structure Plan Proposal		
Regional context	Y	
Proposed land uses	Y	
Table of land uses and quantities	Y	
Major attractors / generators	Y	
Specific issues	Y	
Existing Situation		
Existing land uses within structure plan	Y	
Existing land uses within 800m of structure plan area	Y	
Existing road network within structure plan area	Y	
Existing pedestrian / cycle network within structure plan area	Y	
Existing public transport services within structure plan area	Y	
Existing road network within 2 (or 5) km of the structure plan area	Y	
Traffic flows on roads within the structure plan area (PM and/or AM peak hours)	Y	
Existing pedestrian / cycle networks within 800m of the structure plan area.	Y	
Existing public transport services within 800m of the structure plan area.	Y	
Proposed Internal Transport Networks		
Changes / additions to existing road network or proposed new road network	Y	
Road reservation widths	Y	
Road cross-sections & speed limits	Y	
Intersection controls	Y	
Pedestrian / cycle networks and crossing facilities	Y	
Changes to External Transport Networks		
Road network	Y	
Intersection controls	Y	
Pedestrian/cycle networks and crossing facilities	Y	
Public transport services	Y	

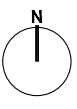
Integration with the surrounding area		
Trip attractors / generators within 800 metres	Y	
proposed changes to land uses within 800 metres	Y	
travel desire lines from development to these attractors/ generators	Y	
adequacy of external transport networks	Y	
deficiencies in external transport networks	Y	
remedial measures to address deficiencies	Y	
Analysis of internal transport networks		
assessment years	Y	
time periods	Y	
Structure plan generated traffic	Y	
Extraneous (through) traffic	Y	
Design traffic flows (that is, total traffic)	Y	
Road cross-sections	Y	
Intersection controls	Y	
Access strategy	Y	
Pedestrian / cycle networks	Y	
Safe routes to schools	Y	
Pedestrian permeability & efficiency	Y	
Access to public transport	Y	
Analysis of external transport networks		
Extent of analysis	Y	
Base flows for assessment year(s)	Y	
Total traffic flows	Y	
Road cross-sections	Y	
Intersection layouts and controls	Y	
Pedestrian / cycle networks	Y	
Conclusions	Y	



Appendix B Proposed Masterplan Precincts



DRAFT MASTER PLAN CONCEPT
VARIOUS LOTS - ASCOT RACECOURSE
ASCOT




0100 m
SCALE @ A3: 1:4000
9481-CON-01-D

DRAWN:
DATE CREATED:
PROJECTION:
CADASTRE:
AERIAL:

WC
2024.08.19
MGA50 GDA94
LANDDATE
NEARMAP 20230831

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Appendix C SIDRA Modelling Outputs

LANE SUMMARY

▼ Site: 103a [Leg 1 PM (Site Folder: Raconteur T)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ Network: N101 [Raconteur
PM with Dev (Network Folder:
AM)]

New Site

Site Category: Existing Design

Give-Way (Two-Way)

Design Life Analysis: Constant Number of Years = 12

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV %	[Total veh/h	HV %	veh/h	v/c	%	sec		[Veh	Dist]		m	%	%
South: Median															
Lane 1	101	0.0	101	0.0	1149	0.088	100	2.2	LOS A	0.3	2.5	Full	6	0.0	0.0
Approach	101	0.0	101	0.0		0.088		2.2	LOS A	0.3	2.5				
North: Racecourse															
Lane 1	172	0.0	172	0.0	1298	0.132	100	5.7	LOS A	0.6	4.5	Short	50	0.0	NA
Lane 2	150	0.0	150	0.0	1122	0.133	100	4.6	LOS A	0.5	3.9	Full	500	0.0	0.0
Approach	322	0.0	322	0.0		0.133		5.2	LOS A	0.6	4.5				
West: Raconteur Dr															
Lane 1	78	0.0	78	0.0	1772	0.044	100	5.6	LOS A	0.0	0.0	Short	75	0.0	NA
Lane 2	314	2.5	314	2.5	1883	0.167	100	0.0	LOS A	0.0	0.0	Full	550	0.0	0.0
Approach	392	2.0	392	2.0		0.167		1.1	NA	0.0	0.0				
All Vehicles	815	1.0	815	1.0		0.167		2.9	NA	0.6	4.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Approach Lane Flows (veh/h)									
South: Median									
Mov. From S To Exit:	T1	Total	%HV		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
	N								
Lane 1	101	101	0.0		1149	0.088	100	NA	NA
Approach	101	101	0.0			0.088			
North: Racecourse									
Mov. From N To Exit:	L2	T1	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
	E	S							
Lane 1	172	-	172	0.0	1298	0.132	100	0.0	2
Lane 2	-	150	150	0.0	1122	0.133	100	NA	NA

Attachment 12.1.5 Transport Impact Assessment

Approach	172	150	322	0.0		0.133				
West: Raconteur Dr										
Mov. From W To Exit:	L2	T1	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	78	-	78	0.0	1772	0.044	100	0.0	2	
Lane 2	-	314	314	2.5	1883	0.167	100	NA	NA	
Approach	78	314	392	2.0		0.167				
Total %HV Deg. Satn (v/c)										
All Vehicles	815	1.0		0.167						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Flow Rate % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec
Merge Delay											
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Median				
Lane 1	0.0	0.0	0.0	0.0
North: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: Raconteur Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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 Project: C:\PJA\Phil Jones Associates\SharedData - 07575 Ascot Racecourse Local Structure Plan & Scheme Amendment\4. Technical\4.3 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

▼ Site: 103b [Leg 2 PM (Site Folder: Raconteur T)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ Network: N101 [Raconteur PM with Dev (Network Folder: AM)]

New Site

Site Category: Existing Design

Give-Way (Two-Way)

Design Life Analysis: Constant Number of Years = 12

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
East: Raconteur Dr															
Lane 1	417	3.8	417	3.8	1860	0.224	100	0.1	LOS A	0.0	0.0	Full	780	0.0	0.0
Lane 2	101	0.0	101	0.0	1773	0.057	100	5.7	LOS A	0.0	0.0	Short	85	0.0	NA
Approach	518	3.0	518	3.0		0.224		1.2	NA	0.0	0.0				
North: Median															
Lane 1	150	0.0	150	0.0	781	0.192	100	3.4	LOS A	0.7	4.9	Full	6	0.0	0.0
Approach	150	0.0	150	0.0		0.192		3.4	LOS A	0.7	4.9				
All Vehicles	668	2.3	668	2.3		0.224		1.7	NA	0.7	4.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Approach Lane Flows (veh/h)									
East: Raconteur Dr									
Mov. From E To Exit:	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	417	-	417	3.8	1860	0.224	100	NA	NA
Lane 2	-	101	101	0.0	1773	0.057	100	0.0	1
Approach	417	101	518	3.0		0.224			
North: Median									
Mov. From N To Exit:	R2	Total	%HV		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	150	150	0.0		781	0.192	100	NA	NA
Approach	150	150	0.0			0.192			
Total %HV Deg. Satn (v/c)									
All Vehicles	668	2.3		0.224					

Attachment 12.1.5 Transport Impact Assessment

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
East: Raconteur Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: Median				
Lane 1	0.0	0.0	0.0	0.0

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 Project: C:\PJA\Phil Jones Associates\SharedData - 07575 Ascot Racecourse Local Structure Plan & Scheme Amendment\4. Technical\4.3 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

Site: 103a [Leg 1 PM (Site Folder: Grandstand/Raconteur)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Grandstand
PM with Dev (Network Folder:
AM)]

New Site

Site Category: Existing Design

Give-Way (Two-Way)

Design Life Analysis: Constant Number of Years = 19

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
NorthEast: Raconteur Dr															
Lane 1	100	0.0	100	0.0	1237	0.081	100	5.7	LOS A	0.3	2.4	Short	50	0.0	NA
Lane 2	1	0.0	1	0.0	871	0.001	100	5.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	101	0.0	101	0.0		0.081		5.7	LOS A	0.3	2.4				
NorthWest: Grandstand Rd															
Lane 1	98	0.0	98	0.0	1548	0.063	100	5.8	LOS A	0.3	1.9	Short	75	0.0	NA
Lane 2	345	3.5	345	3.5	1864	0.185	100	0.1	LOS A	0.0	0.0	Full	550	0.0	0.0
Lane 3	345	3.5	345	3.5	1864	0.185	100	0.1	LOS A	0.0	0.0	Full	550	0.0	0.0
Approach	788	3.1	788	3.1		0.185		0.8	LOS A	0.3	1.9				
SouthWest: Median															
Lane 1	76	0.0	76	0.0	869	0.087	100	3.7	LOS A	0.3	2.2	Full	6	0.0	0.0
Approach	76	0.0	76	0.0		0.087		3.7	LOS A	0.3	2.2				
All Vehicles	964	2.5	964	2.5		0.185		1.5	NA	0.3	2.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Approach Lane Flows (veh/h)										
NorthEast: Raconteur Dr										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From NE					Cap. veh/h	v/c	%	%	No.	
To Exit:	SE	SW								
Lane 1	100	-	100	0.0	1237	0.081	100	0.0	2	
Lane 2	-	1	1	0.0	871	0.001	100	NA	NA	
Approach	100	1	101	0.0		0.081				
NorthWest: Grandstand Rd										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From NW					Cap. veh/h	v/c	%	%	No.	
To Exit:	NE	SE								
Lane 1	98	-	98	0.0	1548	0.063	100	0.0	2	

Attachment 12.1.5 Transport Impact Assessment

Lane 2	-	345	345	3.5	1864	0.185	100	NA	NA
Lane 3	-	345	345	3.5	1864	0.185	100	NA	NA
Approach	98	690	788	3.1		0.185			
SouthWest: Median									
Mov.	T1	Total	%HV		Cap.	Deg.	Lane	Prob.	Ov.
From SW					veh/h	Satn	Util.	SL	Lane
To Exit:	NE					v/c	%	%	No.
Lane 1	76	76	0.0		869	0.087	100	NA	NA
Approach	76	76	0.0			0.087			
Total %HV Deg.Satn (v/c)									
All Vehicles	964	2.5		0.185					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate % veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
NorthEast: Raconteur Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
NorthWest: Grandstand Rd				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
SouthWest: Median				
Lane 1	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

Site: 103b [Leg 2 PM (Site Folder: Grandstand/Raconteur)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Grandstand
PM with Dev (Network Folder:
AM)]

New Site

Site Category: Existing Design

Give-Way (Two-Way)

Design Life Analysis: Constant Number of Years = 19

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh Dist]	m		m	%	%
SouthEast: Grandtand Rd															
Lane 1	912	2.2	912	2.2	1888	0.483	100	0.3	LOS A	0.0	0.0	Full	780	0.0	0.0
Lane 2	912	2.2	912	2.2	1888	0.483	100	0.3	LOS A	0.0	0.0	Full	780	0.0	0.0
Lane 3	76	0.0	76	0.0	1770	0.043	100	5.7	LOS A	0.0	0.0	Short	50	0.0	NA
Approach	1900	2.1	1900	2.1		0.483		0.5	NA	0.0	0.0				
NorthEast: Median															
Lane 1	1	0.0	1	0.0	115	0.009	100	30.2	LOS D	0.0	0.2	Full	6	0.0	0.0
Approach	1	0.0	1	0.0		0.009		30.2	LOS D	0.0	0.2				
All Vehicles	1901	2.1	1901	2.1		0.483		0.5	NA	0.0	0.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Approach Lane Flows (veh/h)									
SouthEast: Grandtand Rd									
Mov. From SE To Exit:	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
	NW	NE							
Lane 1	912	-	912	2.2	1888	0.483	100	NA	NA
Lane 2	912	-	912	2.2	1888	0.483	100	NA	NA
Lane 3	-	76	76	0.0	1770	0.043	100	0.0	2
Approach	1824	76	1900	2.1		0.483			
NorthEast: Median									
Mov. From NE To Exit:	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
	NW								
Lane 1	1	1	0.0	115	0.009	100	NA	NA	
Approach	1	1	0.0		0.009				
Total %HV Deg. Satn (v/c)									

Attachment 12.1.5 Transport Impact Assessment

All Vehicles	1901	2.1	0.483
--------------	------	-----	-------

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Oppng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Grandtand Rd				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
NorthEast: Median				
Lane 1	0.0	0.0	0.0	0.0

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LANE SUMMARY

Site: 103a [Leg 1 PM - No Dev (Site Folder: Raconteur T)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Raconteur
Current PM (Network Folder:
AM)]

New Site

Site Category: Existing Design

Give-Way (Two-Way)

Design Life Analysis: Constant Number of Years = 12

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist m]		m	%	%
South: Median															
Lane 1	4	0.0	4	0.0	1200	0.004	100	1.8	LOS A	0.0	0.1	Full	6	0.0	0.0
Approach	4	0.0	4	0.0		0.004		1.8	LOS A	0.0	0.1				
North: Racecourse															
Lane 1	23	0.0	23	0.0	1298	0.018	100	5.5	LOS A	0.1	0.6	Short	50	0.0	NA
Lane 2	21	0.0	21	0.0	1202	0.018	100	4.1	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	45	0.0	45	0.0		0.018		4.9	LOS A	0.1	0.6				
West: Raconteur Dr															
Lane 1	2	0.0	2	0.0	1838	0.001	100	5.5	LOS A	0.0	0.0	Short	75	0.0	NA
Lane 2	314	2.5	314	2.5	1883	0.167	100	0.0	LOS A	0.0	0.0	Full	550	0.0	0.0
Approach	316	2.5	316	2.5		0.167		0.1	NA	0.0	0.0				
All Vehicles	365	2.1	365	2.1		0.167		0.7	NA	0.1	0.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Approach Lane Flows (veh/h)										
South: Median										
Mov. From S To Exit:	T1	Total	%HV		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	4	4	0.0		1200	0.004	100	NA	NA	
Approach	4	4	0.0			0.004				
North: Racecourse										
Mov. From N To Exit:	L2	T1	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	23	-	23	0.0	1298	0.018	100	0.0	2	
Lane 2	-	21	21	0.0	1202	0.018	100	NA	NA	

Attachment 12.1.5 Transport Impact Assessment

Approach	23	21	45	0.0		0.018				
West: Raconteur Dr										
Mov. From W To Exit:	L2	T1	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
Lane 1	2	-	2	0.0	1838	0.001	100	0.0	2	
Lane 2	-	314	314	2.5	1883	0.167	100	NA	NA	
Approach	2	314	316	2.5		0.167				
Total %HV Deg. Satn (v/c)										
All Vehicles	365	2.1		0.167						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Flow Rate % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec
Merge Delay											
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Median				
Lane 1	0.0	0.0	0.0	0.0
North: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: Raconteur Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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LANE SUMMARY

▼ Site: 103b [Leg 2 PM - No Dev (Site Folder: Raconteur T)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ Network: N101 [Raconteur
Current PM (Network Folder:
AM)]

New Site

Site Category: Existing Design

Give-Way (Two-Way)

Design Life Analysis: Constant Number of Years = 12

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
East: Raconteur Dr															
Lane 1	417	3.8	417	3.8	1860	0.224	100	0.1	LOS A	0.0	0.0	Full	780	0.0	0.0
Lane 2	4	0.0	4	0.0	1838	0.002	100	5.7	LOS A	0.0	0.0	Short	85	0.0	NA
Approach	421	3.7	421	3.7		0.224		0.2	NA	0.0	0.0				
North: Median															
Lane 1	21	0.0	21	0.0	850	0.025	100	2.5	LOS A	0.1	0.6	Full	6	0.0	0.0
Approach	21	0.0	21	0.0		0.025		2.5	LOS A	0.1	0.6				
All Vehicles	443	3.5	443	3.5		0.224		0.3	NA	0.1	0.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Approach Lane Flows (veh/h)										
East: Raconteur Dr										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E					Cap. veh/h	v/c	%	%	No.	
To Exit:	W	N								
Lane 1	417	-	417	3.8	1860	0.224	100	NA	NA	
Lane 2	-	4	4	0.0	1838	0.002	100	0.0	1	
Approach	417	4	421	3.7		0.224				
North: Median										
Mov.	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane		
From N					Cap. veh/h	v/c	%	%	No.	
To Exit:	W									
Lane 1	21	21	0.0		850	0.025	100	NA	NA	
Approach	21	21	0.0			0.025				
Total %HV Deg. Satn (v/c)										
All Vehicles	443	3.5		0.224						

Attachment 12.1.5 Transport Impact Assessment

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
East: Raconteur Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: Median				
Lane 1	0.0	0.0	0.0	0.0

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LANE SUMMARY

 **Site: 101 [Grandstand/Garratt/Waterway 2041 PM - with GG/Dev (Site Folder: Grandstand/Garratt/Waterway)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 12

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	HV %	[Total veh/h]	HV %	veh/h	v/c	%	sec		[Veh m]	Dist m		m	%	%
SouthEast: Grandstand Road															
Lane 1 ^d	917	0.9	917	0.9	1695	0.541	100	4.3	LOS A	5.1	38.1	Full	300	0.0	0.0
Lane 2	772	0.9	772	0.9	1427	0.541	100	4.8	LOS A	5.0	36.9	Full	300	0.0	0.0
Approach	1689	0.9	1689	0.9		0.541		4.6	LOS A	5.1	38.1				
NorthEast: Racecourse															
Lane 1 ^d	74	1.4	74	1.4	710	0.104	100	8.0	LOS A	0.4	3.3	Full	500	0.0	0.0
Approach	74	1.4	74	1.4		0.104		8.0	LOS A	0.4	3.3				
NorthWest: Garratt Road															
Lane 1 ^d	472	1.3	472	1.3	1686	0.280	100	4.2	LOS A	2.2	16.1	Full	500	0.0	0.0
Lane 2	400	1.3	400	1.3	1429	0.280	100	4.7	LOS A	2.1	15.8	Full	500	0.0	0.0
Approach	872	1.3	872	1.3		0.280		4.4	LOS A	2.2	16.1				
SouthWest: Waterway Cres															
Lane 1 ^d	35	0.0	35	0.0	588	0.059	100	11.7	LOS B	0.4	2.8	Full	500	0.0	0.0
Approach	35	0.0	35	0.0		0.059		11.7	LOS B	0.4	2.8				
All Vehicles	2669	1.0	2669	1.0		0.541		4.7	LOS A	5.1	38.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)													
SouthEast: Grandstand Road													
Mov.	L2	T1	R2	U	Total	%HV							
From SE							Cap.	Deg.	Lane	Prob.	Ov.		
To Exit:	SW	NW	NE	SE			veh/h	Satn	Util.	SL	Ov.	Lane	
								v/c	%	%	%	No.	
Lane 1	15	902	-	-	917	0.9	1695	0.541	100	NA	NA		
Lane 2	-	722	48	1	772	0.9	1427	0.541	100	NA	NA		
Approach	15	1624	48	1	1689	0.9		0.541					
NorthEast: Racecourse													
Mov.	L2	T1	R2	Total	%HV								
From NE							Cap.	Deg.	Lane	Prob.	Ov.		
To Exit:	SE	SW	NW				veh/h	Satn	Util.	SL	Ov.	Lane	
								v/c	%	%	%	No.	

Attachment 12.1.5 Transport Impact Assessment

Lane 1	41	1	32	74	1.4		710	0.104	100	NA	NA
Approach	41	1	32	74	1.4			0.104			
NorthWest: Garratt Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From NW							Cap.	Satn	Util.	SL	Lane
To Exit:	NE	SE	SW	NW			veh/h	v/c	%	%	No.
Lane 1	47	424	-	-	472	1.3	1686	0.280	100	NA	NA
Lane 2	-	365	32	3	400	1.3	1429	0.280	100	NA	NA
Approach	47	789	32	3	872	1.3		0.280			
SouthWest: Waterway Cres											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW							Cap.	Satn	Util.	SL	Lane
To Exit:	NW	NE	SE				veh/h	v/c	%	%	No.
Lane 1	19	1	15	35	0.0		588	0.059	100	NA	NA
Approach	19	1	15	35	0.0			0.059			
Total %HV Deg.Satn (v/c)											
All Vehicles	2669	1.0		0.541							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
NorthEast: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
NorthWest: Garratt Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
SouthWest: Waterway Cres				
Lane 1	0.0	0.0	0.0	0.0

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LANE SUMMARY

 **Site: 101 [Grandstand/Garratt/Waterway Current AM (Site Folder: Grandstand/Garratt/Waterway)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj.	Block.
	[Total	HV]	[Total	HV]	veh/h	v/c	%	sec		[Veh	Dist]		m	%	%
	veh/h	%	veh/h	%							m				
SouthEast: Grandstand Road															
Lane 1 ^d	342	2.8	342	2.8	1747	0.196	100	4.0	LOS A	1.1	8.4	Full	300	0.0	0.0
Lane 2	290	2.9	290	2.9	1483	0.196	100	4.2	LOS A	1.1	8.3	Full	300	0.0	0.0
Approach	633	2.8	633	2.8		0.196		4.1	LOS A	1.1	8.4				
NorthEast: Racecourse															
Lane 1 ^d	18	29.1	18	29.1	455	0.039	100	11.0	LOS B	0.1	1.5	Full	500	0.0	0.0
Approach	18	29.1	18	29.1		0.039		11.0	LOS B	0.1	1.5				
NorthWest: Garratt Road															
Lane 1 ^d	589	1.4	589	1.4	1747	0.337	100	4.1	LOS A	2.8	20.9	Full	500	0.0	0.0
Lane 2	498	1.4	498	1.4	1476	0.337	100	4.3	LOS A	2.8	20.6	Full	500	0.0	0.0
Approach	1086	1.4	1086	1.4		0.337		4.2	LOS A	2.8	20.9				
SouthWest: Waterway Cres															
Lane 1 ^d	53	4.0	53	4.0	866	0.061	100	7.4	LOS A	0.3	2.2	Full	500	0.0	0.0
Approach	53	4.0	53	4.0		0.061		7.4	LOS A	0.3	2.2				
All Vehicles	1789	2.2	1789	2.2		0.337		4.3	LOS A	2.8	20.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)													
SouthEast: Grandstand Road													
Mov.	L2	T1	R2	U	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov.	Ov.	Lane No.
From SE							Cap. veh/h	v/c	%	%			
To Exit:	SW	NW	NE	SE									
Lane 1	14	328	-	-	342	2.8	1747	0.196	100	NA	NA		
Lane 2	-	280	9	1	290	2.9	1483	0.196	100	NA	NA		
Approach	14	608	9	1	633	2.8		0.196					
NorthEast: Racecourse													
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov.	Ov.	Lane No.	
From NE							Cap. veh/h	v/c	%	%			
To Exit:	SE	SW	NW										
Lane 1	9	1	7	18	29.1		455	0.039	100	NA	NA		

Attachment 12.1.5 Transport Impact Assessment

Approach	9	1	7	18	29.1		0.039					
NorthWest: Garratt Road												
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW							Cap.	Satn	Util.	SL	SL	Lane
To Exit:	NE	SE	SW	NW			veh/h	v/c	%	%	%	No.
Lane 1	8	580	-	-	589	1.4	1747	0.337	100	NA	NA	
Lane 2	-	481	16	1	498	1.4	1476	0.337	100	NA	NA	
Approach	8	1061	16	1	1086	1.4		0.337				
SouthWest: Waterway Cres												
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.		
From SW							Cap.	Satn	Util.	SL	SL	Lane
To Exit:	NW	NE	SE				veh/h	v/c	%	%	%	No.
Lane 1	25	1	26	53	4.0		866	0.061	100	NA	NA	
Approach	25	1	26	53	4.0			0.061				
Total %HV Deg. Satn (v/c)												
All Vehicles	1789	2.2		0.337								

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Flow Rate % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
NorthEast: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
NorthWest: Garratt Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
SouthWest: Waterway Cres				
Lane 1	0.0	0.0	0.0	0.0

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LANE SUMMARY

 **Site: 101 [Grandstand/Garratt/Waterway Current PM (Site Folder: Grandstand/Garratt/Waterway)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 12

Lane Use and Performance														
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.
	[Total veh/h]	HV %	[Total veh/h]	HV %	veh/h	v/c	%	sec		[Veh m]	Dist m		m	% %
SouthEast: Grandstand Road														
Lane 1 ^d	956	1.0	956	1.0	1758	0.544	100	4.2	LOS A	5.1	37.6	Full	300	0.0 0.0
Lane 2	804	1.0	804	1.0	1480	0.544	100	4.3	LOS A	5.0	36.9	Full	300	0.0 0.0
Approach	1760	1.0	1760	1.0		0.544		4.2	LOS A	5.1	37.6			
NorthEast: Racecourse														
Lane 1 ^d	21	5.0	21	5.0	706	0.030	100	7.1	LOS A	0.1	0.9	Full	500	0.0 0.0
Approach	21	5.0	21	5.0		0.030		7.1	LOS A	0.1	0.9			
NorthWest: Garratt Road														
Lane 1 ^d	438	1.7	438	1.7	1781	0.246	100	4.0	LOS A	2.0	15.1	Full	500	0.0 0.0
Lane 2	370	1.5	370	1.5	1506	0.246	100	4.5	LOS A	2.0	14.6	Full	500	0.0 0.0
Approach	808	1.6	808	1.6		0.246		4.2	LOS A	2.0	15.1			
SouthWest: Waterway Cres														
Lane 1 ^d	35	0.0	35	0.0	610	0.057	100	12.7	LOS B	0.4	3.1	Full	500	0.0 0.0
Approach	35	0.0	35	0.0		0.057		12.7	LOS B	0.4	3.1			
All Vehicles	2624	1.2	2624	1.2		0.544		4.4	LOS A	5.1	37.6			

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)														
SouthEast: Grandstand Road														
Mov.	L2	T1	R2	U	Total	%HV								
From SE														
To Exit:	SW	NW	NE	SE			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.			
Lane 1	15	941	-	-	956	1.0	1758	0.544	100	NA	NA			
Lane 2	-	799	4	1	804	1.0	1480	0.544	100	NA	NA			
Approach	15	1740	4	1	1760	1.0		0.544						
NorthEast: Racecourse														
Mov.	L2	T1	R2	Total	%HV									
From NE														
To Exit:	SE	SW	NW				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.			

Attachment 12.1.5 Transport Impact Assessment

Lane 1	15	1	5	21	5.0		706	0.030	100	NA	NA
Approach	15	1	5	21	5.0			0.030			
NorthWest: Garratt Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From NW								Satn	Util.	SL	Lane
To Exit:	NE	SE	SW	NW			Cap.	v/c	%	%	No.
Lane 1	3	435	-	-	438	1.7	1781	0.246	100	NA	NA
Lane 2	-	335	32	4	370	1.5	1506	0.246	100	NA	NA
Approach	3	769	32	4	808	1.6		0.246			
SouthWest: Waterway Cres											
Mov.	L2	T1	R2	Total	%HV			Deg.	Lane	Prob.	Ov.
From SW								Satn	Util.	SL	Lane
To Exit:	NW	NE	SE				Cap.	v/c	%	%	No.
Lane 1	19	1	15	35	0.0		610	0.057	100	NA	NA
Approach	19	1	15	35	0.0			0.057			
Total %HV Deg.Satn (v/c)											
All Vehicles	2624	1.2		0.544							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
NorthEast: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
NorthWest: Garratt Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
SouthWest: Waterway Cres				
Lane 1	0.0	0.0	0.0	0.0

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LANE SUMMARY

 **Site: 101 [Grandstand/Garratt/Waterway 2041 AM (Site Folder: Grandstand/Garratt/Waterway)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 24

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]	veh/h	v/c	%	sec		[Veh	Dist]		m	%	%
	veh/h	%	veh/h	%							m				
SouthEast: Grandstand Road															
Lane 1 ^d	384	2.8	384	2.8	1751	0.220	100	4.0	LOS A	1.3	9.8	Full	300	0.0	0.0
Lane 2	326	2.8	326	2.8	1484	0.220	100	4.2	LOS A	1.3	9.6	Full	300	0.0	0.0
Approach	710	2.8	710	2.8		0.220		4.1	LOS A	1.3	9.8				
NorthEast: Racecourse															
Lane 1 ^d	18	29.1	18	29.1	421	0.042	100	11.7	LOS B	0.2	1.6	Full	500	0.0	0.0
Approach	18	29.1	18	29.1		0.042		11.7	LOS B	0.2	1.6				
NorthWest: Garratt Road															
Lane 1 ^d	662	1.4	662	1.4	1750	0.379	100	4.1	LOS A	3.3	24.8	Full	500	0.0	0.0
Lane 2	559	1.4	559	1.4	1477	0.379	100	4.3	LOS A	3.3	24.5	Full	500	0.0	0.0
Approach	1221	1.4	1221	1.4		0.379		4.2	LOS A	3.3	24.8				
SouthWest: Waterway Cres															
Lane 1 ^d	53	4.0	53	4.0	839	0.063	100	7.6	LOS A	0.3	2.2	Full	500	0.0	0.0
Approach	53	4.0	53	4.0		0.063		7.6	LOS A	0.3	2.2				
All Vehicles	2002	2.2	2002	2.2		0.379		4.3	LOS A	3.3	24.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)													
SouthEast: Grandstand Road													
Mov.	L2	T1	R2	U	Total	%HV							
From SE													
To Exit:	SW	NW	NE	SE			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		
Lane 1	14	371	-	-	384	2.8	1751	0.220	100	NA	NA		
Lane 2	-	315	9	1	326	2.8	1484	0.220	100	NA	NA		
Approach	14	686	9	1	710	2.8		0.220					
NorthEast: Racecourse													
Mov.	L2	T1	R2	Total	%HV								
From NE													
To Exit:	SE	SW	NW				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		

Attachment 12.1.5 Transport Impact Assessment

Lane 1	9	1	7	18	29.1		421	0.042	100	NA	NA
Approach	9	1	7	18	29.1			0.042			
NorthWest: Garratt Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From NW							Cap.	Satn	Util.	SL	Lane
To Exit:	NE	SE	SW	NW			veh/h	v/c	%	%	No.
Lane 1	8	654	-	-	662	1.4	1750	0.379	100	NA	NA
Lane 2	-	542	16	1	559	1.4	1477	0.379	100	NA	NA
Approach	8	1196	16	1	1221	1.4		0.379			
SouthWest: Waterway Cres											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW							Cap.	Satn	Util.	SL	Lane
To Exit:	NW	NE	SE				veh/h	v/c	%	%	No.
Lane 1	25	1	26	53	4.0		839	0.063	100	NA	NA
Approach	25	1	26	53	4.0			0.063			
Total %HV Deg.Satn (v/c)											
All Vehicles	2002	2.2		0.379							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
NorthEast: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
NorthWest: Garratt Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
SouthWest: Waterway Cres				
Lane 1	0.0	0.0	0.0	0.0

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LANE SUMMARY

 **Site: 101 [Grandstand/Garratt/Waterway 2041 PM (Site Folder: Grandstand/Garratt/Waterway)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 24

Lane Use and Performance														
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.
	[Total veh/h]	HV %	[Total veh/h]	HV %	veh/h	v/c	%	sec		[Veh m]	Dist m		m	% %
SouthEast: Grandstand Road														
Lane 1 ^d	880	1.0	880	1.0	1756	0.501	100	4.1	LOS A	4.3	31.9	Full	300	0.0 0.0
Lane 2	742	1.0	742	1.0	1479	0.501	100	4.3	LOS A	4.2	31.4	Full	300	0.0 0.0
Approach	1622	1.0	1622	1.0		0.501		4.2	LOS A	4.3	31.9			
NorthEast: Racecourse														
Lane 1 ^d	21	5.0	21	5.0	729	0.029	100	6.9	LOS A	0.1	0.9	Full	500	0.0 0.0
Approach	21	5.0	21	5.0		0.029		6.9	LOS A	0.1	0.9			
NorthWest: Garratt Road														
Lane 1 ^d	404	1.7	404	1.7	1779	0.227	100	4.0	LOS A	1.8	13.5	Full	500	0.0 0.0
Lane 2	342	1.5	342	1.5	1506	0.227	100	4.5	LOS A	1.8	13.1	Full	500	0.0 0.0
Approach	747	1.6	747	1.6		0.227		4.2	LOS A	1.8	13.5			
SouthWest: Waterway Cres														
Lane 1 ^d	35	0.0	35	0.0	643	0.054	100	11.3	LOS B	0.4	2.6	Full	500	0.0 0.0
Approach	35	0.0	35	0.0		0.054		11.3	LOS B	0.4	2.6			
All Vehicles	2424	1.2	2424	1.2		0.501		4.3	LOS A	4.3	31.9			

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)														
SouthEast: Grandstand Road														
Mov.	L2	T1	R2	U	Total	%HV								
From SE														
To Exit:	SW	NW	NE	SE			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.		
Lane 1	15	866	-	-	880	1.0	1756	0.501	100	NA	NA			
Lane 2	-	736	4	1	742	1.0	1479	0.501	100	NA	NA			
Approach	15	1602	4	1	1622	1.0		0.501						
NorthEast: Racecourse														
Mov.	L2	T1	R2	Total	%HV									
From NE														
To Exit:	SE	SW	NW				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.		

Attachment 12.1.5 Transport Impact Assessment

Lane 1	15	1	5	21	5.0		729	0.029	100	NA	NA
Approach	15	1	5	21	5.0			0.029			
NorthWest: Garratt Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From NW							Cap.	Satn	Util.	SL	Lane
To Exit:	NE	SE	SW	NW			veh/h	v/c	%	%	No.
Lane 1	3	401	-	-	404	1.7	1779	0.227	100	NA	NA
Lane 2	-	307	32	4	342	1.5	1506	0.227	100	NA	NA
Approach	3	708	32	4	747	1.6		0.227			
SouthWest: Waterway Cres											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW							Cap.	Satn	Util.	SL	Lane
To Exit:	NW	NE	SE				veh/h	v/c	%	%	No.
Lane 1	19	1	15	35	0.0		643	0.054	100	NA	NA
Approach	19	1	15	35	0.0			0.054			
Total %HV Deg.Satn (v/c)											
All Vehicles	2424	1.2		0.501							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
NorthEast: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
NorthWest: Garratt Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
SouthWest: Waterway Cres				
Lane 1	0.0	0.0	0.0	0.0

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LANE SUMMARY

 **Site: 101 [Grandstand/Garratt/Waterway 2041 AM - with GG/Dev (Site Folder: Grandstand/Garratt/Waterway)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 24

Lane Use and Performance														
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist m]		m	% %
SouthEast: Grandstand Road														
Lane 1 ^d	479	2.3	479	2.3	1626	0.295	100	4.3	LOS A	2.0	15.4	Full	300	0.0 0.0
Lane 2	407	2.2	407	2.2	1379	0.295	100	4.8	LOS A	2.0	14.9	Full	300	0.0 0.0
Approach	886	2.2	886	2.2		0.295		4.5	LOS A	2.0	15.4			
NorthEast: Racecourse														
Lane 1 ^d	125	4.2	125	4.2	556	0.225	100	10.5	LOS B	1.0	7.6	Full	500	0.0 0.0
Approach	125	4.2	125	4.2		0.225		10.5	LOS B	1.0	7.6			
NorthWest: Garratt Road														
Lane 1 ^d	683	1.3	683	1.3	1713	0.399	100	4.2	LOS A	3.5	26.4	Full	500	0.0 0.0
Lane 2	577	1.3	577	1.3	1446	0.399	100	4.4	LOS A	3.5	26.0	Full	500	0.0 0.0
Approach	1260	1.3	1260	1.3		0.399		4.3	LOS A	3.5	26.4			
SouthWest: Waterway Cres														
Lane 1 ^d	53	4.0	53	4.0	741	0.071	100	8.4	LOS A	0.3	2.6	Full	500	0.0 0.0
Approach	53	4.0	53	4.0		0.071		8.4	LOS A	0.3	2.6			
All Vehicles	2324	1.9	2324	1.9		0.399		4.8	LOS A	3.5	26.4			

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)												
SouthEast: Grandstand Road												
Mov.	L2	T1	R2	U	Total	%HV						
From SE												
To Exit:	SW	NW	NE	SE			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.	
Lane 1	14	466	-	-	479	2.3	1626	0.295	100	NA	NA	
Lane 2	-	378	27	1	407	2.2	1379	0.295	100	NA	NA	
Approach	14	844	27	1	886	2.2		0.295				
NorthEast: Racecourse												
Mov.	L2	T1	R2	Total	%HV							
From NE												
To Exit:	SE	SW	NW				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.	

Attachment 12.1.5 Transport Impact Assessment

Lane 1	63	1	61	125	4.2		556	0.225	100	NA	NA
Approach	63	1	61	125	4.2			0.225			
NorthWest: Garratt Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From NW							Cap.	Satn	Util.	SL	Lane
To Exit:	NE	SE	SW	NW			veh/h	v/c	%	%	No.
Lane 1	26	657	-	-	683	1.3	1713	0.399	100	NA	NA
Lane 2	-	560	16	1	577	1.3	1446	0.399	100	NA	NA
Approach	26	1217	16	1	1260	1.3		0.399			
SouthWest: Waterway Cres											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW							Cap.	Satn	Util.	SL	Lane
To Exit:	NW	NE	SE				veh/h	v/c	%	%	No.
Lane 1	25	1	26	53	4.0		741	0.071	100	NA	NA
Approach	25	1	26	53	4.0			0.071			
Total %HV Deg.Satn (v/c)											
All Vehicles	2324	1.9		0.399							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
NorthEast: Racecourse				
Lane 1	0.0	0.0	0.0	0.0
NorthWest: Garratt Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
SouthWest: Waterway Cres				
Lane 1	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 101 [Grandstand/Resolution/Stoneham Current AM (Site Folder: Grandstand/Raconteur/Stoneham)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 7

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	HV %	[Total veh/h]	HV %						[Veh]	Dist m				
South: Stoneham St															
Lane 1 ^d	234	2.8	234	2.8	1458	0.160	100	4.3	LOS A	1.0	7.3	Full	300	0.0	0.0
Lane 2	187	3.0	187	3.0	1167	0.160	100	5.2	LOS A	0.9	6.9	Full	300	0.0	0.0
Approach	421	2.9	421	2.9		0.160		4.7	LOS A	1.0	7.3				
East: Resolution Dr															
Lane 1 ^d	271	2.9	271	2.9	773	0.351	100	10.2	LOS B	1.8	14.0	Full	500	0.0	0.0
Approach	271	2.9	271	2.9		0.351		10.2	LOS B	1.8	14.0				
North: Grandstand Road															
Lane 1 ^d	580	3.0	580	3.0	1649	0.352	100	4.0	LOS A	2.9	22.1	Full	500	0.0	0.0
Lane 2	479	3.0	479	3.0	1361	0.352	100	4.2	LOS A	2.8	21.5	Full	500	0.0	0.0
Approach	1059	3.0	1059	3.0		0.352		4.1	LOS A	2.9	22.1				
West: Resolution Dr															
Lane 1 ^d	99	1.0	99	1.0	864	0.115	100	7.3	LOS A	0.6	4.1	Full	500	0.0	0.0
Approach	99	1.0	99	1.0		0.115		7.3	LOS A	0.6	4.1				
All Vehicles	1850	2.8	1850	2.8		0.352		5.3	LOS A	2.9	22.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)													
South: Stoneham St													
Mov.	L2	T1	R2	U	Total	%HV							
From S													
To Exit:	W	N	E	S			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		
Lane 1	28	205	-	-	234	2.8	1458	0.160	100	NA	NA		
Lane 2	-	172	13	2	187	3.0	1167	0.160	100	NA	NA		
Approach	28	377	13	2	421	2.9		0.160					
East: Resolution Dr													
Mov.	L2	T1	R2	Total	%HV								
From E													
To Exit:	S	W	N				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		

Attachment 12.1.5 Transport Impact Assessment

Lane 1	38	16	217	271	2.9		773	0.351	100	NA	NA
Approach	38	16	217	271	2.9			0.351			
North: Grandstand Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	297	283	-	-	580	3.0	1649	0.352	100	NA	NA
Lane 2	-	469	5	4	479	3.0	1361	0.352	100	NA	NA
Approach	297	752	5	4	1059	3.0		0.352			
West: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Cap.	Satn	Util.	SL	Lane
To Exit:	N	E	S				veh/h	v/c	%	%	No.
Lane 1	5	42	51	99	1.0		864	0.115	100	NA	NA
Approach	5	42	51	99	1.0			0.115			
Total %HV Deg.Satn (v/c)											
All Vehicles	1850	2.8		0.352							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
North: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 101 [Grandstand/Resolution/Stoneham Current PM (Site Folder: Grandstand/Raconteur/Stoneham)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 19

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist m]		m	%	%
South: Stoneham St															
Lane 1 ^d	751	2.8	751	2.8	1084	0.693	100	9.7	LOS A	9.0	68.1	Full	300	0.0	0.0
Lane 2	561	3.0	561	3.0	810	0.693	100	12.2	LOS B	8.0	60.7	Full	300	0.0	0.0
Approach	1312	2.9	1312	2.9		0.693		10.8	LOS B	9.0	68.1				
East: Resolution Dr															
Lane 1 ^d	618	2.9	618	2.9	763	0.810	100	17.2	LOS B	7.7	58.7	Full	500	0.0	0.0
Approach	618	2.9	618	2.9		0.810		17.2	LOS B	7.7	58.7				
North: Grandstand Road															
Lane 1 ^d	581	3.0	581	3.0	1677	0.346	100	3.8	LOS A	3.0	23.1	Full	500	0.0	0.0
Lane 2	481	3.0	481	3.0	1388	0.346	100	4.1	LOS A	2.9	22.3	Full	500	0.0	0.0
Approach	1062	3.0	1062	3.0		0.346		3.9	LOS A	3.0	23.1				
West: Resolution Dr															
Lane 1 ^d	75	1.0	75	1.0	404	0.186	100	13.9	LOS B	1.1	8.3	Full	500	0.0	0.0
Approach	75	1.0	75	1.0		0.186		13.9	LOS B	1.1	8.3				
All Vehicles	3066	2.9	3066	2.9		0.810		9.8	LOS A	9.0	68.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)													
South: Stoneham St													
Mov.	L2	T1	R2	U	Total	%HV							
From S													
To Exit:	W	N	E	S			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		
Lane 1	71	680	-	-	751	2.8	1084	0.693	100	NA	NA		
Lane 2	-	543	16	1	561	3.0	810	0.693	100	NA	NA		
Approach	71	1223	16	1	1312	2.9		0.693					
East: Resolution Dr													
Mov.	L2	T1	R2	Total	%HV								
From E													
To Exit:	S	W	N				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		

Attachment 12.1.5 Transport Impact Assessment

Lane 1	60	28	530	618	2.9		763	0.810	100	NA	NA
Approach	60	28	530	618	2.9			0.810			
North: Grandstand Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	255	326	-	-	581	3.0	1677	0.346	100	NA	NA
Lane 2	-	469	6	6	481	3.0	1388	0.346	100	NA	NA
Approach	255	795	6	6	1062	3.0		0.346			
West: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Cap.	Satn	Util.	SL	Lane
To Exit:	N	E	S				veh/h	v/c	%	%	No.
Lane 1	7	29	39	75	1.0		404	0.186	100	NA	NA
Approach	7	29	39	75	1.0			0.186			
Total %HV Deg.Satn (v/c)											
All Vehicles	3066	2.9		0.810							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
North: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 101 [Grandstand/Resolution/Stoneham 2036 AM - No Change (Site Folder: Grandstand/Raconteur/Stoneham)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 19

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist m]		m	%	%
South: Stoneham St															
Lane 1 ^d	247	2.8	247	2.8	1440	0.172	100	4.4	LOS A	1.1	8.0	Full	300	0.0	0.0
Lane 2	197	3.0	197	3.0	1149	0.172	100	5.3	LOS A	1.0	7.5	Full	300	0.0	0.0
Approach	445	2.9	445	2.9		0.172		4.8	LOS A	1.1	8.0				
East: Resolution Dr															
Lane 1 ^d	287	2.9	287	2.9	751	0.382	100	10.7	LOS B	2.1	16.1	Full	500	0.0	0.0
Approach	287	2.9	287	2.9		0.382		10.7	LOS B	2.1	16.1				
North: Grandstand Road															
Lane 1 ^d	614	3.0	614	3.0	1640	0.375	100	4.0	LOS A	3.2	24.2	Full	500	0.0	0.0
Lane 2	506	3.0	506	3.0	1351	0.375	100	4.3	LOS A	3.1	23.4	Full	500	0.0	0.0
Approach	1120	3.0	1120	3.0		0.375		4.1	LOS A	3.2	24.2				
West: Resolution Dr															
Lane 1 ^d	105	1.0	105	1.0	846	0.124	100	7.5	LOS A	0.6	4.5	Full	500	0.0	0.0
Approach	105	1.0	105	1.0		0.124		7.5	LOS A	0.6	4.5				
All Vehicles	1957	2.8	1957	2.8		0.382		5.4	LOS A	3.2	24.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: Stoneham St															
Mov.	L2	T1	R2	U	Total	%HV									
From S															
To Exit:	W	N	E	S			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %				
Lane 1	30	218	-	-	247	2.8	1440	0.172	100	NA	NA				
Lane 2	-	181	14	2	197	3.0	1149	0.172	100	NA	NA				
Approach	30	399	14	2	445	2.9		0.172							
East: Resolution Dr															
Mov.	L2	T1	R2	Total	%HV										
From E															
To Exit:	S	W	N				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %				

Attachment 12.1.5 Transport Impact Assessment

Lane 1	40	17	229	287	2.9		751	0.382	100	NA	NA
Approach	40	17	229	287	2.9			0.382			
North: Grandstand Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	315	300	-	-	614	3.0	1640	0.375	100	NA	NA
Lane 2	-	496	6	5	506	3.0	1351	0.375	100	NA	NA
Approach	315	795	6	5	1120	3.0		0.375			
West: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Cap.	Satn	Util.	SL	Lane
To Exit:	N	E	S				veh/h	v/c	%	%	No.
Lane 1	6	45	54	105	1.0		846	0.124	100	NA	NA
Approach	6	45	54	105	1.0			0.124			
Total %HV Deg. Satn (v/c)											
All Vehicles	1957	2.8			0.382						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
North: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 101 [Grandstand/Resolution/Stoneham 2036 PM - No Change (Site Folder: Grandstand/Raconteur/Stoneham)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 24

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist m]		m	%	%
South: Stoneham St															
Lane 1 ^d	776	2.8	776	2.8	1037	0.749	100	11.2	LOS B	10.5	79.9	Full	300	0.0	0.0
Lane 2	574	3.0	574	3.0	767	0.749	100	14.1	LOS B	9.2	70.1	Full	300	0.0	0.0
Approach	1350	2.9	1350	2.9		0.749		12.4	LOS B	10.5	79.9				
East: Resolution Dr															
Lane 1 ^d	636	2.9	636	2.9	752	0.846	100	20.7	LOS C	10.5	79.7	Full	500	0.0	0.0
Approach	636	2.9	636	2.9		0.846		20.7	LOS C	10.5	79.7				
North: Grandstand Road															
Lane 1 ^d	598	3.0	598	3.0	1673	0.358	100	3.8	LOS A	3.2	24.1	Full	500	0.0	0.0
Lane 2	495	3.0	495	3.0	1384	0.358	100	4.1	LOS A	3.1	23.2	Full	500	0.0	0.0
Approach	1093	3.0	1093	3.0		0.358		4.0	LOS A	3.2	24.1				
West: Resolution Dr															
Lane 1 ^d	77	1.0	77	1.0	371	0.208	100	14.3	LOS B	1.2	8.9	Full	500	0.0	0.0
Approach	77	1.0	77	1.0		0.208		14.3	LOS B	1.2	8.9				
All Vehicles	3156	2.9	3156	2.9		0.846		11.2	LOS B	10.5	79.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)													
South: Stoneham St													
Mov.	L2	T1	R2	U	Total	%HV							
From S													
To Exit:	W	N	E	S			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		
Lane 1	74	703	-	-	776	2.8	1037	0.749	100	NA	NA		
Lane 2	-	556	17	1	574	3.0	767	0.749	100	NA	NA		
Approach	74	1259	17	1	1350	2.9		0.749					
East: Resolution Dr													
Mov.	L2	T1	R2	Total	%HV								
From E													
To Exit:	S	W	N				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.		

Attachment 12.1.5 Transport Impact Assessment

Lane 1	62	28	546	636	2.9		752	0.846	100	NA	NA
Approach	62	28	546	636	2.9			0.846			
North: Grandstand Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	262	336	-	-	598	3.0	1673	0.358	100	NA	NA
Lane 2	-	483	6	6	495	3.0	1384	0.358	100	NA	NA
Approach	262	819	6	6	1093	3.0		0.358			
West: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Cap.	Satn	Util.	SL	Lane
To Exit:	N	E	S				veh/h	v/c	%	%	No.
Lane 1	7	30	40	77	1.0		371	0.208	100	NA	NA
Approach	7	30	40	77	1.0			0.208			
Total %HV Deg.Satn (v/c)											
All Vehicles	3156	2.9		0.846							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
There are no Exit Short Lanes for Merge Analysis at this Site.									

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
North: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 101 [Grandstand/Resolution/Stoneham 2036 PM - NO GG & Ascott (Site Folder: Grandstand/Raconteur/Stoneham)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Roundabout

Design Life Analysis: Constant Number of Years = 19

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist m]		m	%	%
South: Stoneham St															
Lane 1 ^d	821	2.7	821	2.7	963	0.852	100	20.8	LOS C	17.9	135.6	Full	300	0.0	0.0
Lane 2	590	2.7	590	2.7	692	0.852	100	26.1	LOS C	14.9	112.5	Full	300	0.0	0.0
Approach	1411	2.7	1411	2.7		0.852		23.0	LOS C	17.9	135.6				
East: Resolution Dr															
Lane 1 ^d	741	2.4	741	2.4	866	0.855	100	17.2	LOS B	10.5	79.1	Full	500	0.0	0.0
Approach	741	2.4	741	2.4		0.855		17.2	LOS B	10.5	79.1				
North: Grandstand Road															
Lane 1 ^d	444	3.0	444	3.0	1615	0.275	100	3.9	LOS A	2.1	15.9	Full	500	0.0	0.0
Lane 2	363	2.3	363	2.3	1321	0.275	100	5.9	LOS A	2.0	15.2	Full	500	0.0	0.0
Approach	807	2.7	807	2.7		0.275		4.8	LOS A	2.1	15.9				
West: Resolution Dr															
Lane 1 ^d	85	0.9	85	0.9	306	0.277	100	18.2	LOS B	1.7	12.7	Full	500	0.0	0.0
Approach	85	0.9	85	0.9		0.277		18.2	LOS B	1.7	12.7				
All Vehicles	3043	2.6	3043	2.6		0.855		16.6	LOS B	17.9	135.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: Stoneham St															
Mov.	L2	T1	R2	U	Total	%HV									
From S															
To Exit:	W	N	E	S			Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.				
Lane 1	72	749	-	-	821	2.7	963	0.852	100	NA	NA				
Lane 2	-	524	65	1	590	2.7	692	0.852	100	NA	NA				
Approach	72	1273	65	1	1411	2.7		0.852							
East: Resolution Dr															
Mov.	L2	T1	R2	Total	%HV										
From E															
To Exit:	S	W	N				Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.				

Attachment 12.1.5 Transport Impact Assessment

Lane 1	95	28	618	741	2.4		866	0.855	100	NA	NA
Approach	95	28	618	741	2.4			0.855			
North: Grandstand Road											
Mov.	L2	T1	R2	U	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	251	193	-	-	444	3.0	1615	0.275	100	NA	NA
Lane 2	-	282	6	75	363	2.3	1321	0.275	100	NA	NA
Approach	251	474	6	75	807	2.7		0.275			
West: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Cap.	Satn	Util.	SL	Lane
To Exit:	N	E	S				veh/h	v/c	%	%	No.
Lane 1	7	29	49	85	0.9		306	0.277	100	NA	NA
Approach	7	29	49	85	0.9			0.277			
Total %HV Deg.Satn (v/c)											
All Vehicles	3043	2.6		0.855							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
North: Grandstand Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 103av [TCS PM - Current (Site Folder: GEH/Resolution)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 180 seconds (Site Optimum Cycle Time - Minimum Delay)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	HV %	[Total veh/h]	HV %	veh/h	v/c	%	sec		[Veh]	Dist m		m	%	%
SouthEast: Hardey Rd															
Lane 1	121	5.8	121	5.8	307	0.393	87 ⁶	75.6	LOS E	9.4	73.9	Short	60	0.0	NA
Lane 2	144	5.8	144	5.8	319	0.452	100	72.1	LOS E	11.4	89.1	Full	500	0.0	0.0
Lane 3	158	5.8	158	5.8	303	0.522	100	78.9	LOS E	12.7	99.1	Short	60	0.0	NA
Approach	423	5.8	423	5.8		0.522		75.6	LOS E	12.7	99.1				
NorthEast: GEH															
Lane 1	117	5.8	117	5.8	1329	0.088	12 ⁵	18.9	LOS B	2.3	17.7	Short	120	0.0	NA
Lane 2	579	6.3	579	6.3	771 ¹	0.750	100	39.1	LOS D	36.0	283.5	Full	500	0.0	0.0
Lane 3	614	6.3	614	6.3	818	0.750	100	31.0	LOS C	38.8	305.7	Full	500	0.0	0.0
Lane 4	561	6.3	561	6.3	748 ¹	0.750	100	36.3	LOS D	34.6	272.4	Full	500	0.0	0.0
Lane 5	308	5.8	308	5.8	342	0.903	100	101.5	LOS F	29.6	231.4	Short	125	0.0	NA
Approach	2179	6.2	2179	6.2		0.903		43.8	LOS D	38.8	305.7				
NorthWest: Resolution Dr															
Lane 1	157	5.8	157	5.8	742	0.211	100	23.7	LOS C	6.4	50.1	Short	90	0.0	NA
Lane 2	37	5.8	37	5.8	103	0.362	39 ⁶	92.4	LOS F	3.3	25.7	Full	430	0.0	0.0
Lane 3	95	5.8	95	5.8	103	0.926	100	109.3	LOS F	9.5	74.6	Short	140	0.0	NA
Lane 4	32	5.8	32	5.8	98	0.323	100	97.3	LOS F	2.8	21.7	Short	58	0.0	NA
Approach	321	5.8	321	5.8		0.926		64.4	LOS E	9.5	74.6				
SouthWest: GEH															
Lane 1	57	5.8	57	5.8	781	0.073	9 ⁵	52.7	LOS D	2.8	21.8	Short	75	0.0	NA
Lane 2	610	11.7	610	11.7	731 ¹	0.834	100	36.4	LOS D	34.4	291.3	Full	500	0.0	0.0
Lane 3	641	11.7	641	11.7	768	0.834	100	20.1	LOS C	37.6	319.0	Full	500	0.0	0.0
Lane 4	641	11.7	641	11.7	768	0.834	100	20.1	LOS C	37.6	319.0	Full	500	0.0	0.0
Lane 5	221	5.8	221	5.8	342	0.647	100	77.8	LOS E	17.9	140.2	Short	240	0.0	NA
Approach	2169	10.9	2169	10.9		0.834		31.4	LOS C	37.6	319.0				
All Vehicles	5093	8.2	5093	8.2		0.926		42.5	LOS D	38.8	319.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

Attachment 12.1.5 Transport Impact Assessment

SouthEast: Hardey Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SE						Cap.	Satn	Util.	SL	Lane	
To Exit:	SW	NW	NE			veh/h	v/c	%	%	No.	
Lane 1	85	36	-	121	5.8	307	0.393	87 ⁶	23.9	2	
Lane 2	-	144	-	144	5.8	319	0.452	100	NA	NA	
Lane 3	-	-	158	158	5.8	303	0.522	100	51.1	2	
Approach	85	180	158	423	5.8		0.522				
NorthEast: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NE						Cap.	Satn	Util.	SL	Lane	
To Exit:	SE	SW	NW			veh/h	v/c	%	%	No.	
Lane 1	117	-	-	117	5.8	1329	0.088	12 ⁵	0.0	2	
Lane 2	-	579	-	579	6.3	771 ¹	0.750	100	NA	NA	
Lane 3	-	614	-	614	6.3	818	0.750	100	NA	NA	
Lane 4	-	561	-	561	6.3	748 ¹	0.750	100	NA	NA	
Lane 5	-	-	308	308	5.8	342	0.903	100	61.9	4	
Approach	117	1754	308	2179	6.2		0.903				
NorthWest: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW						Cap.	Satn	Util.	SL	Lane	
To Exit:	NE	SE	SW			veh/h	v/c	%	%	No.	
Lane 1	157	-	-	157	5.8	742	0.211	100	0.0	2	
Lane 2	-	37	-	37	5.8	103	0.362	39 ⁶	NA	NA	
Lane 3	-	95	-	95	5.8	103	0.926	100	0.0	2	
Lane 4	-	-	32	32	5.8	98	0.323	100	0.0	3	
Approach	157	133	32	321	5.8		0.926				
SouthWest: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW						Cap.	Satn	Util.	SL	Lane	
To Exit:	NW	NE	SE			veh/h	v/c	%	%	No.	
Lane 1	57	-	-	57	5.8	781	0.073	9 ⁵	0.0	2	
Lane 2	-	610	-	610	11.7	731 ¹	0.834	100	NA	NA	
Lane 3	-	641	-	641	11.7	768	0.834	100	NA	NA	
Lane 4	-	641	-	641	11.7	768	0.834	100	NA	NA	
Lane 5	-	-	221	221	5.8	342	0.647	100	0.0	4	
Approach	57	1892	221	2169	10.9		0.834				
Total %HV Deg.Satn (v/c)											
All Vehicles	5093	8.2		0.926							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.
- ⁵ Lane under-utilisation found by the program
- ⁶ Lane under-utilisation due to downstream effects

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
SouthEast Exit: Hardey Rd												
Merge Type: Priority												
Exit Short Lane	1	45	0.0	316	326	3.09	2.06	154	1413	0.109	0.5	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed			316	1800	0.176	0.0	0.0	
NorthEast Exit: GEH												

Attachment 12.1.5 Transport Impact Assessment

Merge Type: Priority												
Exit Short Lane	1	120	0.0	610	642	3.09	2.06	157	1076	0.146	1.3	1.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				610	1800	0.339	0.0	0.0
NorthWest Exit: Resolution Dr												
Merge Type: Priority												
Exit Short Lane	1	140	0.0	453	466	3.09	2.06	92	1265	0.073	0.8	1.0
Merge Lane	2	-	100.0	Merge Lane is not Opposed				453	1800	0.252	0.0	0.0

Variable Demand Analysis				
	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
SouthEast: Hardey Rd				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0
NorthWest: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0

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 Project: C:\PJA\Phil Jones Associates\SharedData - 07575 Ascot Racecourse Local Structure Plan & Scheme Amendment\4. Technical\4.3
 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 103av [TCS PM - 2036 (Site Folder: GEH/Resolution)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 180 seconds (Site Optimum Cycle Time - Minimum Delay)

Design Life Analysis: Constant Number of Years = 14

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]	veh/h	v/c	%	sec		[Veh	Dist]		m	%	%
	veh/h	%	veh/h	%							m				
SouthEast: Hardey Rd															
Lane 1	141	5.8	141	5.8	318	0.442	87 ⁵	75.2	LOS E ¹¹	11.0	86.3	Short	60	0.0	NA
Lane 2	167	5.8	167	5.8	329	0.508	100	72.2	LOS E ¹¹	13.3	104.1	Full	500	0.0	0.0
Lane 3	169	5.8	169	5.8	312 ¹	0.542	100	78.5	LOS E ¹¹	13.5	106.0	Short	60	0.0	NA
Approach	477	5.8	477	5.8		0.542		75.3	LOS E ¹¹	13.5	106.0				
NorthEast: GEH															
Lane 1	125	5.8	125	5.8	1341	0.093	13 ⁵	16.1	LOS B	2.6	20.0	Short	120	0.0	NA
Lane 2	619	6.3	619	6.3	866 ¹	0.714	100	28.6	LOS C	33.7	265.4	Full	500	0.0	0.0
Lane 3	650	6.3	650	6.3	910	0.714	100	23.7	LOS C	36.0	283.4	Full	500	0.0	0.0
Lane 4	608	6.3	608	6.3	852 ¹	0.714	100	29.4	LOS C	32.9	259.6	Full	500	0.0	0.0
Lane 5	330	5.8	330	5.8	264	1.252	100	333.4	LOS F ¹¹	52.6	411.1	Short	125	0.0	NA
Approach	2331	6.2	2331	6.2		1.252		69.9	LOS E ¹¹	52.6	411.1				
NorthWest: Resolution Dr															
Lane 1	168	5.8	168	5.8	628	0.267	100	31.7	LOS C	8.4	65.5	Short	90	0.0	NA
Lane 2	40	5.8	40	5.8	82	0.485	39 ⁶	96.0	LOS F ¹¹	3.6	28.2	Full	430	0.0	0.0
Lane 3	102	5.8	102	5.8	82	1.239	100	320.5	LOS F ¹¹	16.0	125.5	Short	140	0.0	NA
Lane 4	34	5.8	34	5.8	78	0.433	100	100.9	LOS F ¹¹	3.1	23.9	Short	58	0.0	NA
Approach	344	5.8	344	5.8		1.239		131.7	LOS F ¹¹	16.0	125.5				
SouthWest: GEH															
Lane 1	61	5.8	61	5.8	869	0.070	8 ⁵	44.9	LOS D	2.7	21.2	Short	75	0.0	NA
Lane 2	735	11.7	735	11.7	813 ¹	0.903	100	31.6	LOS C	42.6	360.7	Full	500	0.0	0.0
Lane 3	772	11.7	772	11.7	855	0.903	100	17.9	LOS B	48.4	410.3	Full	500	0.0	0.0
Lane 4	772	11.7	772	11.7	855	0.903	100	17.9	LOS B	48.4	410.3	Full	500	0.0	0.0
Lane 5	237	5.8	237	5.8	264	0.897	100	100.4	LOS F ¹¹	22.8	178.1	Short	240	0.0	NA
Approach	2576	11.0	2576	11.0		0.903		30.0	LOS C	48.4	410.3				
All Vehicles	5728	8.3	5728	8.3		1.252		56.1	LOS E ¹¹	52.6	411.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

Attachment 12.1.5 Transport Impact Assessment

Approach Lane Flows (veh/h)											
SouthEast: Hardey Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SW	NW	NE			veh/h	v/c	%	%	No.	
Lane 1	91	49	-	141	5.8	318	0.442	87 ⁵	38.2	2	
Lane 2	-	167	-	167	5.8	329	0.508	100	NA	NA	
Lane 3	-	-	169	169	5.8	312 ¹	0.542	100	57.5	2	
Approach	91	217	169	477	5.8		0.542				
NorthEast: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SE	SW	NW			veh/h	v/c	%	%	No.	
Lane 1	125	-	-	125	5.8	1341	0.093	13 ⁵	0.0	2	
Lane 2	-	619	-	619	6.3	866 ¹	0.714	100	NA	NA	
Lane 3	-	650	-	650	6.3	910	0.714	100	NA	NA	
Lane 4	-	608	-	608	6.3	852 ¹	0.714	100	NA	NA	
Lane 5	-	-	330	330	5.8	264	1.252	100	100.0	4	
Approach	125	1876	330	2331	6.2		1.252				
NorthWest: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NE	SE	SW			veh/h	v/c	%	%	No.	
Lane 1	168	-	-	168	5.8	628	0.267	100	0.0	2	
Lane 2	-	40	-	40	5.8	82	0.485	39 ⁶	NA	NA	
Lane 3	-	102	-	102	5.8	82	1.239	100	0.0	2	
Lane 4	-	-	34	34	5.8	78	0.433	100	0.0	3	
Approach	168	142	34	344	5.8		1.239				
SouthWest: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NW	NE	SE			veh/h	v/c	%	%	No.	
Lane 1	61	-	-	61	5.8	869	0.070	8 ⁵	0.0	2	
Lane 2	-	735	-	735	11.7	813 ¹	0.903	100	NA	NA	
Lane 3	-	772	-	772	11.7	855	0.903	100	NA	NA	
Lane 4	-	772	-	772	11.7	855	0.903	100	NA	NA	
Lane 5	-	-	237	237	5.8	264	0.897	100	0.0	4	
Approach	61	2278	237	2576	11.0		0.903				
Total %HV Deg.Satn (v/c)											
All Vehicles	5728	8.3		1.252							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.
- ⁵ Lane under-utilisation found by the program
- ⁶ Lane under-utilisation due to downstream effects

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
SouthEast Exit: Hardey Rd												
Merge Type: Priority												
Exit Short Lane	1	45	0.0	319	328	3.09	2.06	165	1411	0.117	0.5	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				319	1800	0.177	0.0	0.0

Attachment 12.1.5 Transport Impact Assessment

NorthEast Exit: GEH Merge Type: Priority												
Exit Short Lane	1	120	0.0	735	773	3.09	2.06	168	935	0.179	1.8	2.3
Merge Lane	2	-	100.0	Merge Lane is not Opposed				735	1800	0.408	0.0	0.0
NorthWest Exit: Resolution Dr Merge Type: Priority												
Exit Short Lane	1	140	0.0	431	443	3.09	2.06	110	1289	0.086	0.8	1.0
Merge Lane	2	-	100.0	Merge Lane is not Opposed				431	1800	0.239	0.0	0.0

Variable Demand Analysis				
	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear sec	Duration of Oversatn sec
	veh	veh		
SouthEast: Hardey Rd				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	33.2	453.8	NA
NorthWest: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	9.8	429.8	NA
Lane 4	0.0	0.0	0.0	0.0
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

Site: 103av [TCS PM - 2036 - mod (Site Folder: GEH/Resolution)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 180 seconds (Site Optimum Cycle Time - Minimum Delay)

Design Life Analysis: Constant Number of Years = 14

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist]			Adj. Block.	
					veh/h	v/c	%	sec			m		m	%	%
SouthEast: Hardey Rd															
Lane 1	148	5.8	148	5.8	351	0.422	87 ⁶	54.2	LOS D	9.6	75.3	Short	60	0.0	NA
Lane 2	160	5.8	160	5.8	329	0.486	100	71.9	LOS E ¹¹	12.7	99.0	Full	500	0.0	0.0
Lane 3	169	5.8	169	5.8	312 ¹	0.542	100	78.5	LOS E ¹¹	13.5	106.0	Short	60	0.0	NA
Approach	477	5.8	477	5.8		0.542		68.8	LOS E ¹¹	13.5	106.0				
NorthEast: GEH															
Lane 1	125	5.8	125	5.8	1326	0.094	13 ⁵	16.6	LOS B	2.7	21.5	Short	120	0.0	NA
Lane 2	614	6.3	614	6.3	868 ¹	0.707	100	28.2	LOS C	33.2	261.5	Full	500	0.0	0.0
Lane 3	644	6.3	644	6.3	910	0.707	100	23.6	LOS C	35.3	278.3	Full	500	0.0	0.0
Lane 4	619	6.3	619	6.3	875 ¹	0.707	100	27.6	LOS C	33.5	264.2	Full	500	0.0	0.0
Lane 5	149	5.8	149	5.8	239	0.624	83 ⁶	90.3	LOS F ¹¹	12.5	98.0	Short	125	0.0	NA
Lane 6	181	5.8	181	5.8	239	0.756	100	89.4	LOS F ¹¹	15.8	124.0	Short	125	0.0	NA
Approach	2331	6.2	2331	6.2		0.756		34.8	LOS C	35.3	278.3				
NorthWest: Resolution Dr															
Lane 1	168	5.8	168	5.8	628	0.267	100	31.7	LOS C	8.4	65.5	Short	90	0.0	NA
Lane 2	40	5.8	40	5.8	103	0.387	39 ⁶	92.6	LOS F ¹¹	3.5	27.5	Full	430	0.0	0.0
Lane 3	102	5.8	102	5.8	103	0.991	100	128.6	LOS F ¹¹	11.1	87.1	Short	140	0.0	NA
Lane 4	34	5.8	34	5.8	98	0.346	100	97.5	LOS F ¹¹	3.0	23.3	Short	58	0.0	NA
Approach	344	5.8	344	5.8		0.991		74.0	LOS E ¹¹	11.1	87.1				
SouthWest: GEH															
Lane 1	61	5.8	61	5.8	869	0.070	8 ⁵	44.7	LOS D	2.7	21.2	Short	75	0.0	NA
Lane 2	735	11.7	735	11.7	813 ¹	0.903	100	31.6	LOS C	42.6	360.7	Full	500	0.0	0.0
Lane 3	772	11.7	772	11.7	855	0.903	100	17.9	LOS B	48.4	410.3	Full	500	0.0	0.0
Lane 4	772	11.7	772	11.7	855	0.903	100	17.9	LOS B	48.4	410.3	Full	500	0.0	0.0
Lane 5	237	5.8	237	5.8	244	0.969	100	120.5	LOS F ¹¹	25.2	197.2	Short	240	0.0	NA
Approach	2576	11.0	2576	11.0		0.969		31.9	LOS C	48.4	410.3				
All Vehicles	5728	8.3	5728	8.3		0.991		38.7	LOS D	48.4	410.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.

Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

Attachment 12.1.5 Transport Impact Assessment

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

Approach Lane Flows (veh/h)											
SouthEast: Hardey Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SW	NW	NE			veh/h	v/c	%	%	No.	
Lane 1	91	57	-	148	5.8	351	0.422	87 ⁶	25.6	2	
Lane 2	-	160	-	160	5.8	329	0.486	100	NA	NA	
Lane 3	-	-	169	169	5.8	312 ¹	0.542	100	57.5	2	
Approach	91	217	169	477	5.8		0.542				
NorthEast: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SE	SW	NW			veh/h	v/c	%	%	No.	
Lane 1	125	-	-	125	5.8	1326	0.094	13 ⁵	0.0	2	
Lane 2	-	614	-	614	6.3	868 ¹	0.707	100	NA	NA	
Lane 3	-	644	-	644	6.3	910	0.707	100	NA	NA	
Lane 4	-	619	-	619	6.3	875 ¹	0.707	100	NA	NA	
Lane 5	-	-	149	149	5.8	239	0.624	83 ⁶	4.2	4	
Lane 6	-	-	181	181	5.8	239	0.756	100	4.2	5	
Approach	125	1876	330	2331	6.2		0.756				
NorthWest: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NE	SE	SW			veh/h	v/c	%	%	No.	
Lane 1	168	-	-	168	5.8	628	0.267	100	0.0	2	
Lane 2	-	40	-	40	5.8	103	0.387	39 ⁶	NA	NA	
Lane 3	-	102	-	102	5.8	103	0.991	100	0.0	2	
Lane 4	-	-	34	34	5.8	98	0.346	100	0.0	3	
Approach	168	142	34	344	5.8		0.991				
SouthWest: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NW	NE	SE			veh/h	v/c	%	%	No.	
Lane 1	61	-	-	61	5.8	869	0.070	8 ⁵	0.0	2	
Lane 2	-	735	-	735	11.7	813 ¹	0.903	100	NA	NA	
Lane 3	-	772	-	772	11.7	855	0.903	100	NA	NA	
Lane 4	-	772	-	772	11.7	855	0.903	100	NA	NA	
Lane 5	-	-	237	237	5.8	244	0.969	100	0.0	4	
Approach	61	2278	237	2576	11.0		0.969				
Total %HV Deg.Satn (v/c)											
All Vehicles	5728	8.3			0.991						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.

Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h	pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
SouthEast Exit: Hardey Rd											

Attachment 12.1.5 Transport Impact Assessment

Merge Type: Priority												
Exit Short Lane	1	45	0.0	339	348	3.09	2.06	165	1389	0.119	0.6	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				339	1800	0.188	0.0	0.0
NorthEast Exit: GEH Merge Type: Priority												
Exit Short Lane	1	120	0.0	735	773	3.09	2.06	168	935	0.179	1.8	2.3
Merge Lane	2	-	100.0	Merge Lane is not Opposed				735	1800	0.408	0.0	0.0
NorthWest Exit: Resolution Dr Merge Type: Priority												
Exit Short Lane	1	140	0.0	341	351	3.09	2.06	267	1387	0.192	0.6	0.8
Merge Lane	2	-	100.0	Merge Lane is not Opposed				341	1800	0.189	0.0	0.0

Variable Demand Analysis				
	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
SouthEast: Hardey Rd				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0
Lane 6	0.0	0.0	0.0	0.0
NorthWest: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

Site: 103av [TCS PM - 2036 - with LSP (Site Folder: GEH/Resolution)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 180 seconds (Site Optimum Cycle Time - Minimum Delay)

Design Life Analysis: Constant Number of Years = 14

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist]		m	%	%
SouthEast: Hardey Rd															
Lane 1	168	5.4	168	5.4	321	0.522	87 ⁵	81.3	LOS F ¹¹	13.4	104.2	Short	60	0.0	NA
Lane 2	184	4.8	184	4.8	307 ¹	0.600	100	78.8	LOS E ¹¹	14.9	115.6	Full	500	0.0	0.0
Lane 3	169	5.8	169	5.8	312 ¹	0.542	100	83.8	LOS F ¹¹	13.5	106.0	Short	60	0.0	NA
Approach	521	5.3	521	5.3		0.600		81.2	LOS F ¹¹	14.9	115.6				
NorthEast: GEH															
Lane 1	125	5.8	125	5.8	1341	0.093	13 ⁵	16.2	LOS B	2.6	20.0	Short	120	0.0	NA
Lane 2	620	6.3	620	6.3	866 ¹	0.716	100	28.8	LOS C	33.9	266.7	Full	500	0.0	0.0
Lane 3	652	6.3	652	6.3	910	0.716	100	23.7	LOS C	36.2	285.0	Full	500	0.0	0.0
Lane 4	605	6.3	605	6.3	844 ¹	0.716	100	44.8	LOS D	32.7	257.9	Full	500	0.0	26.6 ⁸
Lane 5	405	4.7	405	4.7	265	1.529	100	593.6	LOS F ¹¹	81.9	633.9	Short	125	0.0	NA
Approach	2406	6.0	2406	6.0		1.529		125.8	LOS F ¹¹	81.9	633.9				
NorthWest: Resolution Dr															
Lane 1	207	4.7	207	4.7	631	0.328	100	33.4	LOS C	11.1	85.8	Short	90	0.0	NA
Lane 2	49	4.7	49	4.7	83	0.590	39 ⁵	96.8	LOS F ¹¹	4.5	34.6	Full	430	0.0	0.0
Lane 3	125	4.7	125	4.7	83	1.508	100	559.7	LOS F ¹¹	25.2	194.9	Short	140	0.0	NA
Lane 4	41	4.8	41	4.8	78	0.525	100	101.5	LOS F ¹¹	3.7	29.0	Short	58	0.0	NA
Approach	422	4.7	422	4.7		1.508		203.7	LOS F ¹¹	25.2	194.9				
SouthWest: GEH															
Lane 1	75	4.7	75	4.7	872	0.085	9 ⁵	44.8	LOS D	3.4	25.9	Short	75	0.0	NA
Lane 2	729	11.7	729	11.7	805 ¹	0.906	100	31.8	LOS C	42.2	357.5	Full	500	0.0	0.0
Lane 3	774	11.7	774	11.7	855	0.906	100	18.3	LOS B	49.3	417.3	Full	500	0.0	0.0
Lane 4	774	11.7	774	11.7	855	0.906	100	18.3	LOS B	49.3	417.3	Full	500	0.0	0.0
Lane 5	237	5.8	237	5.8	264	0.897	100	100.4	LOS F ¹¹	22.8	178.1	Short	240	0.0	NA
Approach	2589	11.0	2589	11.0		0.906		30.4	LOS C	49.3	417.3				
All Vehicles	5939	8.0	5939	8.0		1.529		85.8	LOS F ¹¹	81.9	633.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.

Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Attachment 12.1.5 Transport Impact Assessment

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

Approach Lane Flows (veh/h)											
SouthEast: Hardey Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SE						Cap.	Satn	Util.	SL	SL	Lane
To Exit:	SW	NW	NE			veh/h	v/c	%	%	%	No.
Lane 1	91	77	-	168	5.4	321	0.522	87 ⁶	55.9		2
Lane 2	-	184	-	184	4.8	307 ¹	0.600	100	NA		NA
Lane 3	-	-	169	169	5.8	312 ¹	0.542	100	57.5		2
Approach	91	261	169	521	5.3		0.600				
NorthEast: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NE						Cap.	Satn	Util.	SL	SL	Lane
To Exit:	SE	SW	NW			veh/h	v/c	%	%	%	No.
Lane 1	125	-	-	125	5.8	1341	0.093	13 ⁵	0.0		2
Lane 2	-	620	-	620	6.3	866 ¹	0.716	100	NA		NA
Lane 3	-	652	-	652	6.3	910	0.716	100	NA		NA
Lane 4	-	605	-	605	6.3	844 ¹	0.716	100	NA		NA
Lane 5	-	-	405	405	4.7	265	1.529	100	100.0		4
Approach	125	1876	405	2406	6.0		1.529				
NorthWest: Resolution Dr											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW						Cap.	Satn	Util.	SL	SL	Lane
To Exit:	NE	SE	SW			veh/h	v/c	%	%	%	No.
Lane 1	207	-	-	207	4.7	631	0.328	100	0.7		2
Lane 2	-	49	-	49	4.7	83	0.590	39 ⁶	NA		NA
Lane 3	-	125	-	125	4.7	83	1.508	100	35.2		2
Lane 4	-	-	41	41	4.8	78	0.525	100	0.0		3
Approach	207	175	41	422	4.7		1.508				
SouthWest: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW						Cap.	Satn	Util.	SL	SL	Lane
To Exit:	NW	NE	SE			veh/h	v/c	%	%	%	No.
Lane 1	75	-	-	75	4.7	872	0.085	9 ⁵	0.0		2
Lane 2	-	729	-	729	11.7	805 ¹	0.906	100	NA		NA
Lane 3	-	774	-	774	11.7	855	0.906	100	NA		NA
Lane 4	-	774	-	774	11.7	855	0.906	100	NA		NA
Lane 5	-	-	237	237	5.8	264	0.897	100	0.0		4
Approach	75	2278	237	2589	11.0		0.906				
Total %HV Deg.Satn (v/c)											
All Vehicles	5939	8.0		1.529							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane	Opposing Flow Rate % veh/h pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
SouthEast Exit: Hardey Rd											
Merge Type: Priority											

Attachment 12.1.5 Transport Impact Assessment

Exit Short Lane	1	45	0.0	320	329	3.08	2.05	174	1413	0.123	0.5	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				320	1800	0.178	0.0	0.0
NorthEast Exit: GEH Merge Type: Priority												
Exit Short Lane	1	120	0.0	729	768	3.07	2.05	207	952	0.217	1.7	2.3
Merge Lane	2	-	100.0	Merge Lane is not Opposed				729	1800	0.405	0.0	0.0
NorthWest Exit: Resolution Dr Merge Type: Priority												
Exit Short Lane	1	140	0.0	449	460	3.07	2.05	151	1281	0.118	0.8	1.0
Merge Lane	2	-	100.0	Merge Lane is not Opposed				449	1800	0.250	0.0	0.0

Variable Demand Analysis				
	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
SouthEast: Hardey Rd				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	70.0	952.5	NA
NorthWest: Resolution Dr				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	21.1	914.4	NA
Lane 4	0.0	0.0	0.0	0.0
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 103av [TCS PM - Current (Site Folder: GEH/Stoneham)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site Optimum Cycle Time - Minimum Delay)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist m]		m	%	%
SouthEast: Belgravia St															
Lane 1	268	13.0	268	13.0	332	0.806	100	69.0	LOS E	19.9	172.3	Full	500	0.0	0.0
Lane 2	247	13.0	247	13.0	306 ¹	0.806	100	74.3	LOS E	18.4	159.3	Full	500	0.0	0.0
Lane 3	173	13.0	173	13.0	320	0.540	67 ⁵	71.6	LOS E	11.5	99.3	Short	73	0.0	NA
Approach	687	13.0	687	13.0		0.806		71.5	LOS E	19.9	172.3				
NorthEast: GEH															
Lane 1	136	4.6	136	4.6	1226	0.111	16 ⁵	13.6	LOS B	3.2	24.9	Full	500	0.0	0.0
Lane 2	587	6.2	587	6.2	835	0.702	100	13.8	LOS B	22.0	173.4	Full	500	0.0	0.0
Lane 3	587	6.2	587	6.2	835	0.702	100	13.8	LOS B	22.0	173.4	Full	500	0.0	0.0
Lane 4	587	6.2	587	6.2	835	0.702	100	13.8	LOS B	22.0	173.4	Full	500	0.0	0.0
Lane 5	82	5.8	82	5.8	129	0.637	100	82.4	LOS F	6.2	48.2	Short	180	0.0	NA
Approach	1978	6.1	1978	6.1		0.702		16.7	LOS B	22.0	173.4				
NorthWest: Stoneham St															
Lane 1	11	5.8	11	5.8	199	0.053	100	71.4	LOS E	0.7	5.4	Short	75	0.0	NA
Lane 2	194	5.8	194	5.8	210	0.926	100	88.9	LOS F	16.5	128.7	Full	300	0.0	0.0
Lane 3	188	5.8	188	5.8	203 ¹	0.926	100	92.5	LOS F	15.9	124.6	Full	300	0.0	0.0
Lane 4	184	5.8	184	5.8	199	0.926	100	95.8	LOS F	15.7	122.6	Short	60	0.0	NA
Approach	577	5.8	577	5.8		0.926		91.9	LOS F	16.5	128.7				
SouthWest: GEH															
Lane 1	712	5.8	712	5.8	1261	0.564	70 ⁵	13.5	LOS B	21.0	164.6	Short	145	0.0	NA
Lane 2	646	6.8	646	6.8	804	0.803	100	25.6	LOS C	34.9	277.3	Full	500	0.0	0.0
Lane 3	665	6.8	665	6.8	828	0.803	100	26.0	LOS C	36.9	293.5	Full	500	0.0	0.0
Lane 4	665	6.8	665	6.8	828	0.803	100	26.0	LOS C	36.9	293.5	Full	500	0.0	0.0
Lane 5	114	4.6	114	4.6	130	0.877	100	91.6	LOS F	9.3	72.0	Short	210	0.0	NA
Approach	2802	6.5	2802	6.5		0.877		25.4	LOS C	36.9	293.5				
All Vehicles	6044	7.0	6044	7.0		0.926		34.1	LOS C	36.9	293.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

Approach Lane Flows (veh/h)

SouthEast: Belgravia St

Attachment 12.1.5 Transport Impact Assessment

Mov. From SE To Exit:	L2 SW	T1 NW	R2 NE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	84	184	-	268	13.0	332	0.806	100	NA	NA
Lane 2	-	247	-	247	13.0	306 ¹	0.806	100	NA	NA
Lane 3	-	-	173	173	13.0	320	0.540	67 ⁵	33.0	2
Approach	84	431	173	687	13.0		0.806			
NorthEast: GEH										
Mov. From NE To Exit:	L2 SE	T1 SW	R2 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	136	-	-	136	4.6	1226	0.111	16 ⁵	NA	NA
Lane 2	-	587	-	587	6.2	835	0.702	100	NA	NA
Lane 3	-	587	-	587	6.2	835	0.702	100	NA	NA
Lane 4	-	587	-	587	6.2	835	0.702	100	NA	NA
Lane 5	-	-	82	82	5.8	129	0.637	100	0.0	4
Approach	136	1760	82	1978	6.1		0.702			
NorthWest: Stoneham St										
Mov. From NW To Exit:	L2 NE	T1 SE	R2 SW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	11	-	-	11	5.8	199	0.053	100	0.0	2
Lane 2	-	194	-	194	5.8	210	0.926	100	NA	NA
Lane 3	-	100	87	188	5.8	203 ¹	0.926	100	NA	NA
Lane 4	-	-	184	184	5.8	199	0.926	100	71.4	3
Approach	11	295	272	577	5.8		0.926			
SouthWest: GEH										
Mov. From SW To Exit:	L2 NW	T1 NE	R2 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	712	-	-	712	5.8	1261	0.564	70 ⁵	16.5	2
Lane 2	-	646	-	646	6.8	804	0.803	100	NA	NA
Lane 3	-	665	-	665	6.8	828	0.803	100	NA	NA
Lane 4	-	665	-	665	6.8	828	0.803	100	NA	NA
Lane 5	-	-	114	114	4.6	130	0.877	100	0.0	4
Approach	712	1977	114	2802	6.5		0.877			
Total %HV Deg. Satn (v/c)										
All Vehicles	6044	7.0		0.926						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.

Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
NorthEast Exit: GEH Merge Type: Priority												
Exit Short Lane	1	100	0.0	646	667	3.09	2.06	11	1049	0.010	1.4	1.5
Merge Lane	2	-	100.0	Merge Lane is not Opposed				646	1800	0.359	0.0	0.0
SouthWest Exit: GEH Merge Type: Priority												
Exit Short Lane	1	100	0.0	587	604	3.16	2.11	84	1069	0.079	1.3	1.6

Attachment 12.1.5 Transport Impact Assessment

Merge Lane	2	-	100.0	Merge Lane is not Opposed	587	1800	0.326	0.0	0.0
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Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Belgravia St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0
NorthWest: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0

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 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

 **Site: 103av [TCS PM - 2036 (Site Folder: GEH/Stoneham)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 180 seconds (Site Optimum Cycle Time - Minimum Delay)

Design Life Analysis: Constant Number of Years = 14

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh m]	[Dist m]		m	%	%
SouthEast: Belgravia St															
Lane 1	333	13.0	333	13.0	296	1.123	100	213.6	LOS F ¹¹	44.9	389.1	Full	500	0.0	0.0
Lane 2	276	13.0	276	13.0	246 ¹	1.123	100	241.7	LOS F ¹¹	37.5	324.9	Full	500	0.0	0.0
Lane 3	185	13.0	185	13.0	275 ¹	0.672	60 ⁵	108.9	LOS F ¹¹	15.3	132.5	Short	73	0.0	NA
Approach	793	13.0	793	13.0		1.123		199.0	LOS F ¹¹	44.9	389.1				
NorthEast: GEH															
Lane 1	145	4.6	145	4.6	1296	0.112	17 ⁵	12.9	LOS B	3.6	27.8	Full	500	0.0	0.0
Lane 2	628	6.2	628	6.2	962	0.652	100	7.1	LOS A	16.1	127.1	Full	500	0.0	0.0
Lane 3	628	6.2	628	6.2	962	0.652	100	7.1	LOS A	16.1	127.1	Full	500	0.0	0.0
Lane 4	628	6.2	628	6.2	962	0.652	100	7.1	LOS A	16.1	127.1	Full	500	0.0	0.0
Lane 5	88	5.8	88	5.8	107	0.818	100	104.3	LOS F ¹¹	8.3	64.6	Short	180	0.0	NA
Approach	2116	6.1	2116	6.1		0.818		11.5	LOS B	16.1	127.1				
NorthWest: Stoneham St															
Lane 1	11	5.8	11	5.8	185	0.061	100	97.0	LOS F ¹¹	0.9	7.0	Short	75	0.0	NA
Lane 2	221	5.8	221	5.8	195 ¹	1.129	100	232.6	LOS F ¹¹	29.7	232.7	Full	300	0.0	0.0
Lane 3	194	5.8	194	5.8	172 ¹	1.129	100	241.9	LOS F ¹¹	26.2	205.2	Full	300	0.0	0.0
Lane 4	191	5.8	191	5.8	170 ¹	1.129	100	245.0	LOS F ¹¹	25.9	202.8	Short	60	0.0	NA
Approach	617	5.8	617	5.8		1.129		236.9	LOS F ¹¹	29.7	232.7				
SouthWest: GEH															
Lane 1	761	5.8	761	5.8	1254	0.607	67 ⁵	18.4	LOS B	30.1	235.3	Short	145	0.0	NA
Lane 2	665	6.8	665	6.8	729 ¹	0.912	100	36.5	LOS D	46.1	366.3	Full	500	0.0	0.0
Lane 3	870	6.8	870	6.8	954	0.912	100	30.8	LOS C	66.1	525.0	Full	500	0.0	9.4
Lane 4	846	6.8	846	6.8	928 ¹	0.912	100	36.9	LOS D	63.4	503.5	Full	500	0.0	5.6
Lane 5	122	4.6	122	4.6	108	1.126	100	233.7	LOS F ¹¹	16.3	127.0	Short	210	0.0	NA
Approach	3264	6.5	3264	6.5		1.126		38.2	LOS D	66.1	525.0				
All Vehicles	6791	7.1	6791	7.1		1.129		66.7	LOS E ¹¹	66.1	525.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

Approach Lane Flows (veh/h)											
SouthEast: Belgravia St											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SW	NW	NE			veh/h	v/c	%	%	No.	
Lane 1	90	242	-	333	13.0	296	1.123	100	NA	NA	
Lane 2	-	276	-	276	13.0	246 ¹	1.123	100	NA	NA	
Lane 3	-	-	185	185	13.0	275 ¹	0.672	60 ⁵	60.0	2	
Approach	90	519	185	793	13.0		1.123				
NorthEast: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SE	SW	NW			veh/h	v/c	%	%	No.	
Lane 1	145	-	-	145	4.6	1296	0.112	17 ⁵	NA	NA	
Lane 2	-	628	-	628	6.2	962	0.652	100	NA	NA	
Lane 3	-	628	-	628	6.2	962	0.652	100	NA	NA	
Lane 4	-	628	-	628	6.2	962	0.652	100	NA	NA	
Lane 5	-	-	88	88	5.8	107	0.818	100	0.0	4	
Approach	145	1883	88	2116	6.1		0.818				
NorthWest: Stoneham St											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NE	SE	SW			veh/h	v/c	%	%	No.	
Lane 1	11	-	-	11	5.8	185	0.061	100	0.0	2	
Lane 2	-	221	-	221	5.8	195 ¹	1.129	100	NA	NA	
Lane 3	-	95	99	194	5.8	172 ¹	1.129	100	NA	NA	
Lane 4	-	-	191	191	5.8	170 ¹	1.129	100	100.0	3	
Approach	11	315	291	617	5.8		1.129				
SouthWest: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NW	NE	SE			veh/h	v/c	%	%	No.	
Lane 1	761	-	-	761	5.8	1254	0.607	67 ⁵	49.5	2	
Lane 2	-	665	-	665	6.8	729 ¹	0.912	100	NA	NA	
Lane 3	-	870	-	870	6.8	954	0.912	100	NA	NA	
Lane 4	-	846	-	846	6.8	928 ¹	0.912	100	NA	NA	
Lane 5	-	-	122	122	4.6	108	1.126	100	0.0	4	
Approach	761	2381	122	3264	6.5		1.126				
Total %HV Deg.Satn (v/c)											
All Vehicles	6791	7.1		1.129							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Delay and stops experienced by drivers upstream of short lane entry have been accounted for.
- ⁵ Lane under-utilisation found by the program

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
NorthEast Exit: GEH												
Merge Type: Priority												
Exit Short Lane	1	100	0.0	665	686	3.09	2.06	11	1029	0.011	1.4	1.6
Merge Lane	2	-	100.0	Merge Lane is not Opposed				665	1800	0.369	0.0	0.0
SouthWest Exit: GEH												

Attachment 12.1.5 Transport Impact Assessment

Merge Type: Priority												
Exit Short Lane	1	100	0.0	628	647	3.16	2.11	80	1024	0.078	1.4	1.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				628	1800	0.349	0.0	0.0

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Belgravia St				
Lane 1	0.0	18.2	221.7	NA
Lane 2	0.0	15.1	221.7	NA
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0
NorthWest: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	12.6	232.6	NA
Lane 3	0.0	11.1	232.6	NA
Lane 4	0.0	11.0	232.6	NA
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	6.8	226.7	NA

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 Project: C:\PJA\Phil Jones Associates\SharedData - 07575 Ascot Racecourse Local Structure Plan & Scheme Amendment\4. Technical\4.3
 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

Site: 103av [TCS PM - 2036 - mod (Site Folder: GEH/Stoneham)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 180 seconds (Site Optimum Cycle Time - Minimum Delay)

Design Life Analysis: Constant Number of Years = 14

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist]		m	%	%
SouthEast: Belgravia St															
Lane 1	336	13.0	336	13.0	303	1.109	100	184.7	LOS F ¹¹	43.9	380.6	Full	500	0.0	0.0
Lane 2	272	13.0	272	13.0	245 ¹	1.109	100	229.8	LOS F ¹¹	36.2	313.9	Full	500	0.0	0.0
Lane 3	185	13.0	185	13.0	275 ¹	0.671	61 ⁵	108.1	LOS F ¹¹	15.3	132.5	Short	73	0.0	NA
Approach	793	13.0	793	13.0		1.109		182.4	LOS F ¹¹	43.9	380.6				
NorthEast: GEH															
Lane 1	145	4.6	145	4.6	1336	0.109	17 ⁵	11.7	LOS B	3.3	25.5	Full	500	0.0	0.0
Lane 2	628	6.2	628	6.2	1003	0.626	100	4.6	LOS A	11.5	90.6	Full	500	0.0	0.0
Lane 3	628	6.2	628	6.2	1003	0.626	100	4.6	LOS A	11.5	90.6	Full	500	0.0	0.0
Lane 4	628	6.2	628	6.2	1003	0.626	100	4.6	LOS A	11.5	90.6	Full	500	0.0	0.0
Lane 5	88	5.8	88	5.8	78	1.125	100	228.7	LOS F ¹¹	11.8	92.3	Short	180	0.0	NA
Approach	2116	6.1	2116	6.1		1.125		14.4	LOS B	11.8	92.3				
NorthWest: Stoneham St															
Lane 1	11	5.8	11	5.8	312	0.036	100	83.0	LOS F ¹¹	0.8	6.3	Short	75	0.0	NA
Lane 2	217	5.8	217	5.8	185	1.173	100	268.7	LOS F ¹¹	31.2	244.1	Full	300	0.0	0.0
Lane 3	196	5.8	196	5.8	167 ¹	1.173	100	279.5	LOS F ¹¹	28.2	220.2	Full	300	0.0	0.0
Lane 4	193	5.8	193	5.8	165 ¹	1.173	100	282.6	LOS F ¹¹	27.8	217.6	Short	60	0.0	NA
Approach	617	5.8	617	5.8		1.173		273.1	LOS F ¹¹	31.2	244.1				
SouthWest: GEH															
Lane 1	761	5.8	761	5.8	1276	0.597	68 ⁵	20.2	LOS C	28.6	224.0	Short	145	0.0	NA
Lane 2	635	6.8	635	6.8	722 ¹	0.880	100	32.6	LOS C	41.0	325.4	Full	500	0.0	0.0
Lane 3	875	6.8	875	6.8	995	0.880	100	21.9	LOS C	57.4	456.4	Full	500	0.0	0.0
Lane 4	870	6.8	870	6.8	990 ¹	0.880	100	22.9	LOS C	56.9	452.1	Full	500	0.0	0.0
Lane 5	61	4.6	61	4.6	77	0.790	100	107.4	LOS F ¹¹	5.8	44.8	Short	210	0.0	NA
Lane 6	61	4.6	61	4.6	77	0.790	100	106.3	LOS F ¹¹	5.8	44.8	Short	210	0.0	NA
Approach	3264	6.5	3264	6.5		0.880		27.0	LOS C	57.4	456.4				
All Vehicles	6791	7.1	6791	7.1		1.173		63.6	LOS E ¹¹	57.4	456.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.

Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

Attachment 12.1.5 Transport Impact Assessment

Approach Lane Flows (veh/h)											
SouthEast: Belgravia St											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SW	NW	NE			veh/h	v/c	%	%	No.	
Lane 1	90	246	-	336	13.0	303	1.109	100	NA	NA	
Lane 2	-	272	-	272	13.0	245 ¹	1.109	100	NA	NA	
Lane 3	-	-	185	185	13.0	275 ¹	0.671	61 ⁵	60.0	2	
Approach	90	519	185	793	13.0		1.109				
NorthEast: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SE	SW	NW			veh/h	v/c	%	%	No.	
Lane 1	145	-	-	145	4.6	1336	0.109	17 ⁵	NA	NA	
Lane 2	-	628	-	628	6.2	1003	0.626	100	NA	NA	
Lane 3	-	628	-	628	6.2	1003	0.626	100	NA	NA	
Lane 4	-	628	-	628	6.2	1003	0.626	100	NA	NA	
Lane 5	-	-	88	88	5.8	78	1.125	100	0.0	4	
Approach	145	1883	88	2116	6.1		1.125				
NorthWest: Stoneham St											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NE	SE	SW			veh/h	v/c	%	%	No.	
Lane 1	11	-	-	11	5.8	312	0.036	100	0.0	2	
Lane 2	-	217	-	217	5.8	185	1.173	100	NA	NA	
Lane 3	-	98	98	196	5.8	167 ¹	1.173	100	NA	NA	
Lane 4	-	-	193	193	5.8	165 ¹	1.173	100	100.0	3	
Approach	11	315	291	617	5.8		1.173				
SouthWest: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NW	NE	SE			veh/h	v/c	%	%	No.	
Lane 1	761	-	-	761	5.8	1276	0.597	68 ⁵	44.9	2	
Lane 2	-	635	-	635	6.8	722 ¹	0.880	100	NA	NA	
Lane 3	-	875	-	875	6.8	995	0.880	100	NA	NA	
Lane 4	-	870	-	870	6.8	990 ¹	0.880	100	NA	NA	
Lane 5	-	-	61	61	4.6	77	0.790	100	0.0	4	
Lane 6	-	-	61	61	4.6	77	0.790	100	0.0	5	
Approach	761	2381	122	3264	6.5		0.880				
Total %HV Deg.Satn (v/c)											
All Vehicles	6791	7.1		1.173							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.
Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

- ⁵ Lane under-utilisation found by the program

Merge Analysis											
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec
Merge Delay											
NorthEast Exit: GEH											
Merge Type: Priority											
Exit Short Lane	1	100	0.0	635	656	3.09	2.06	11	1061	0.011	1.3

Attachment 12.1.5 Transport Impact Assessment

Merge Lane	2	-	100.0	Merge Lane is not Opposed	635	1800	0.353	0.0	0.0
SouthWest Exit: GEH Merge Type: Priority									
Exit Short Lane	1	100	0.0	628 647	3.16	2.11	81	1024	0.079 1.4 1.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed	628	1800	0.349	0.0	0.0

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Belgravia St				
Lane 1	0.0	16.6	196.5	NA
Lane 2	0.0	13.4	196.5	NA
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	4.9	224.9	NA
NorthWest: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	16.0	311.0	NA
Lane 3	0.0	14.4	311.0	NA
Lane 4	0.0	14.2	311.0	NA
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	0.0	0.0	0.0
Lane 6	0.0	0.0	0.0	0.0

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 Project: C:\PJA\Phil Jones Associates\SharedData - 07575 Ascot Racecourse Local Structure Plan & Scheme Amendment\4. Technical\4.3
 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9

LANE SUMMARY

Site: 103av [TCS PM - 2036 - with LSP (Site Folder: GEH/Stoneham)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 180 seconds (Site Optimum Cycle Time - Minimum Delay)

Design Life Analysis: Constant Number of Years = 14

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob.	
	[Total veh/h	HV %	[Total veh/h	HV %						[Veh	Dist]			Adj. Block.	
					veh/h	v/c	%	sec			m		m	%	%
SouthEast: Belgravia St															
Lane 1	359	12.1	359	12.1	299	1.199	100	276.3	LOS F ¹¹	53.7	460.6	Full	500	0.0	0.0
Lane 2	302	11.8	302	11.8	251 ¹	1.199	100	307.9	LOS F ¹¹	45.3	387.2	Full	500	0.0	0.0
Lane 3	185	13.0	185	13.0	274 ¹	0.674	56 ⁵	112.9	LOS F ¹¹	15.3	132.5	Short	73	0.0	NA
Approach	845	12.2	845	12.2		1.199		251.8	LOS F ¹¹	53.7	460.6				
NorthEast: GEH															
Lane 1	145	4.6	145	4.6	1336	0.109	17 ⁵	11.7	LOS B	3.3	25.5	Full	500	0.0	0.0
Lane 2	628	6.2	628	6.2	1003	0.626	100	4.6	LOS A	11.5	90.6	Full	500	0.0	0.0
Lane 3	628	6.2	628	6.2	1003	0.626	100	4.6	LOS A	11.5	90.6	Full	500	0.0	0.0
Lane 4	628	6.2	628	6.2	1003	0.626	100	4.6	LOS A	11.5	90.6	Full	500	0.0	0.0
Lane 5	97	5.2	97	5.2	88	1.105	100	212.0	LOS F ¹¹	12.7	98.4	Short	180	0.0	NA
Approach	2126	6.0	2126	6.0		1.105		14.6	LOS B	12.7	98.4				
NorthWest: Stoneham St															
Lane 1	13	4.9	13	4.9	167	0.080	100	108.2	LOS F ¹¹	1.1	8.4	Short	75	0.0	NA
Lane 2	247	5.0	247	5.0	176	1.402	100	479.2	LOS F ¹¹	45.6	353.6	Full	300	0.0	19.9
Lane 3	228	5.0	228	5.0	163 ¹	1.402	100	490.1	LOS F ¹¹	42.2	327.1	Full	300	0.0	12.8
Lane 4	225	5.0	225	5.0	161 ¹	1.402	100	493.2	LOS F ¹¹	41.6	322.6	Short	60	0.0	NA
Approach	714	5.0	714	5.0		1.402		480.2	LOS F ¹¹	45.6	353.6				
SouthWest: GEH															
Lane 1	846	5.2	846	5.2	1264	0.669	76 ⁵	22.6	LOS C	31.9	247.9	Short	145	0.0	NA
Lane 2	627	6.8	627	6.8	709 ¹	0.885	100	34.1	LOS C	41.4	328.6	Full	500	0.0	0.0
Lane 3	881	6.8	881	6.8	995	0.885	100	22.6	LOS C	58.9	468.1	Full	500	0.0	0.0
Lane 4	873	6.8	873	6.8	986 ¹	0.885	100	23.6	LOS C	58.0	460.5	Full	500	0.0	0.0
Lane 5	122	4.6	122	4.6	88	1.376	100	448.3	LOS F ¹¹	22.1	171.7	Short	210	0.0	NA
Approach	3348	6.3	3348	6.3		1.376		40.5	LOS D	58.9	468.1				
All Vehicles	7033	6.8	7033	6.8		1.402		102.7	LOS F ¹¹	58.9	468.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.

Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

Approach Lane Flows (veh/h)											
SouthEast: Belgravia St											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SW	NW	NE			veh/h	v/c	%	%	No.	
Lane 1	90	269	-	359	12.1	299	1.199	100	NA	NA	
Lane 2	-	302	-	302	11.8	251 ¹	1.199	100	NA	NA	
Lane 3	-	-	185	185	13.0	274 ¹	0.674	56 ⁵	60.1	2	
Approach	90	570	185	845	12.2		1.199				
NorthEast: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NE						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	SE	SW	NW			veh/h	v/c	%	%	No.	
Lane 1	145	-	-	145	4.6	1336	0.109	17 ⁵	NA	NA	
Lane 2	-	628	-	628	6.2	1003	0.626	100	NA	NA	
Lane 3	-	628	-	628	6.2	1003	0.626	100	NA	NA	
Lane 4	-	628	-	628	6.2	1003	0.626	100	NA	NA	
Lane 5	-	-	97	97	5.2	88	1.105	100	0.0	4	
Approach	145	1883	97	2126	6.0		1.105				
NorthWest: Stoneham St											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From NW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NE	SE	SW			veh/h	v/c	%	%	No.	
Lane 1	13	-	-	13	4.9	167	0.080	100	0.0	2	
Lane 2	-	247	-	247	5.0	176	1.402	100	NA	NA	
Lane 3	-	118	111	228	5.0	163 ¹	1.402	100	NA	NA	
Lane 4	-	-	225	225	5.0	161 ¹	1.402	100	100.0	3	
Approach	13	365	336	714	5.0		1.402				
SouthWest: GEH											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From SW						Cap.	Satn	Util.	SL Ov.	Lane	
To Exit:	NW	NE	SE			veh/h	v/c	%	%	No.	
Lane 1	846	-	-	846	5.2	1264	0.669	76 ⁵	54.4	2	
Lane 2	-	627	-	627	6.8	709 ¹	0.885	100	NA	NA	
Lane 3	-	881	-	881	6.8	995	0.885	100	NA	NA	
Lane 4	-	873	-	873	6.8	986 ¹	0.885	100	NA	NA	
Lane 5	-	-	122	122	4.6	88	1.376	100	0.0	4	
Approach	846	2381	122	3348	6.3		1.376				
Total %HV Deg.Satn (v/c)											
All Vehicles	7033	6.8		1.402							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes.

Delay and stops experienced by drivers upstream of short lane entry have been accounted for.

⁵ Lane under-utilisation found by the program

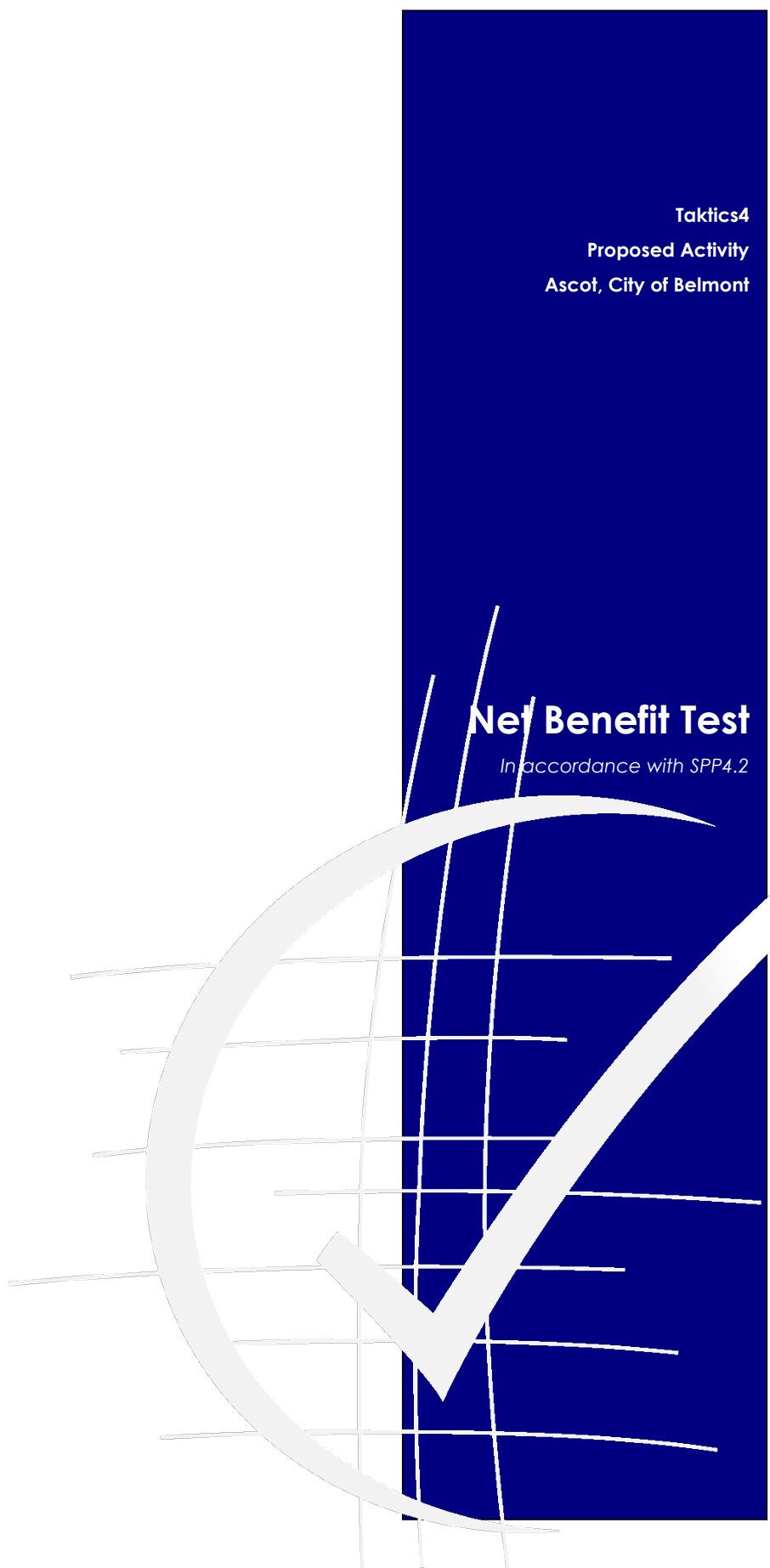
Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
NorthEast Exit: GEH												
Merge Type: Priority												
Exit Short Lane	1	100	0.0	627	648	3.07	2.05	13	1079	0.012	1.3	1.5
Merge Lane	2	-	100.0	Merge Lane is not Opposed				627	1800	0.349	0.0	0.0
SouthWest Exit: GEH												

Attachment 12.1.5 Transport Impact Assessment

Merge Type: Priority												
Exit Short Lane	1	100	0.0	628	647	3.16	2.11	75	1024	0.073	1.4	1.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				628	1800	0.349	0.0	0.0

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
SouthEast: Belgravia St				
Lane 1	0.0	29.8	358.4	NA
Lane 2	0.0	25.0	358.4	NA
Lane 3	0.0	0.0	0.0	0.0
NorthEast: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	4.6	189.6	NA
NorthWest: Stoneham St				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	35.4	723.2	NA
Lane 3	0.0	32.7	723.2	NA
Lane 4	0.0	32.3	723.2	NA
SouthWest: GEH				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
Lane 4	0.0	0.0	0.0	0.0
Lane 5	0.0	16.6	677.1	NA

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 Project: C:\PJA\Phil Jones Associates\SharedData - 07575 Ascot Racecourse Local Structure Plan & Scheme Amendment\4. Technical\4.3
 Analysis\4.3.1 Transport\07575_M_01_A_Ascot Racecourse LSP&SA.sip9



Project

Project name	Ascot Centre
Project number	2360
Prepared for	Perth Racing / Rowe Group

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Version

Document Name	Date	Description	Prepared
2360-Ascot-NBT-T4-Draft-02	May 2024	Draft for Consideration	GRD
2360-Ascot-NBT-T4-Draft-03	June 2024	Draft for Consideration	GRD
2360-Ascot-NBT-T4-Final-01.docx	Aug 2024	Draft for Consideration	GRD

Distribution

Document Name	Date	Distribution	Format	Delivery
2360-Ascot-NBT-T4-Draft-02	May 2024	LL-RG	PDF	email
2360-Ascot-NBT-T4-Draft-03	June 2024	LL-RG	PDF	email
2360-Ascot-NBT-T4-Final-01.docx	Aug 2024	LL-RG	PDF	email

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Acknowledgement of Country

Tactics4 acknowledges the First Nations people as the custodians of the land which is the subject of this assessment. Tactics4 recognise and respect their continuing culture, and Elders past, present, and emerging.

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1. EXECUTIVE SUMMARY

This assessment considers the net benefit of two proposed activity categories proposed in Ascot, in the City of Belmont. The assessment has been prepared in response to the policy requirements established by State Planning Policy 4.2. This Net Benefit Test assesses:

1. Proposed local centre of 3,400 sqm NLA (PLUC 5 – 'SHOP')
2. Proposed bulky goods precinct of 9,600 sqm (PLUC 6 – 'OTHER RETAIL')

Proposed Local Centre

The assessment reveals that the proposed local centre activity will generate a Net Benefit by:

- being sustainable from 2026 – satisfying an existing resident trade area and filling an existing demand/gap/need in the market
- having low – insignificant impacts on surrounding activity network – with any impacts likely to be offset by potential sales growth generated by additional resident population and spending over the next 15 years.
- creating up to 85 full time equivalent jobs,
- reducing the number of vehicle km required to be travelled by residents in the immediate trade area.

Residents in Ascot and Belmont:

- are the communities most likely to experience the benefit from the proposed activity.
- are estimated to account for 40% of total sales / trips at the proposed activity.
- do not currently have access to a full line supermarket-based centre within 2.5 km.
- travel up to 2.5 km each way (5 km round trip) every time they access their full line supermarket needs.

Proposed Bulky Goods

The assessment reveals that the proposed activity will generate a Net Benefit by:

- complementing the existing offer in the vicinity
- being accessible through strong north south and east west connections.
- creating up to 120 jobs.
- having low/insignificant impacts on existing and planned activity precincts – which will subsequently be offset by planned population and retail spending growth in the trade area.

Net Benefit

Subsequently, the proposed activity:

- will not impact the integrity of the surrounding activity centre network – and as such will not have any negative impact on existing or planned public or private investment in the trade area.
- will reduce the amount of trip kilometres that Ascot and Belmont residents must travel each year to satisfy their daily/weekly and bulky goods shopping needs.
- will save over 530,000 to 700,000 trips p.a. to centres outside their trade area
- will save between 40 and 50 trips per person per annum.

- will save between 2.7 M km p.a. and 3.5 M km p.a. of vehicular travel per annum
- is consistent with the objectives and outcomes of SPP 4.2.
- is aligned with local planning strategies.



2. INTRODUCTION

This assessment represents a 'Net Benefit Test' for two activity categories proposed in Ascot, City of Belmont. The Net Benefit Test has been prepared in response to the policy requirements established by State Planning Policy 4.2 – Activity Centres. The Net Benefit Test assesses:

1. a proposed local centre of 3,400 sqm NLA (PLUC 5 – 'SHOP')
2. a proposed bulky goods precinct of 9,600 sqm (PLUC 6 – 'OTHER RETAIL')

This assessment has been prepared in three distinct parts and should be read in conjunction with the proposed Local Structure Plan and Scheme Amendment documents.

Part 1	Relevant market variables appropriate to the assessment of both activity types	Activity Centre Network Trade Area Definition Population Retail Spending Profile Retail Spending capacity
Part 2	Proposed Local Centre (PLUC 5)	Market Demand/Need Impact Test Net Benefit Test
Part 3	Proposed Bulky Goods (PLUC 6)	Market Demand/Need Impact Test Net Benefit Test

2.1 Purpose

A net benefit occurs when the benefits (pros) to the community arising from a proposal outweigh any identified impacts (cons) to the community arising from a proposal. The Net Benefit Test assesses the potential impacts and benefits of a proposal to the community and on existing and planned activity centres and is expected to answer the following questions.

- Is there a demand for additional floorspace, and if so, how does the proposal meet this demand?
- How will the proposed development impact on the role of the activity centre?
- How will the proposal impact the viability and vibrancy of other activity centres in the hierarchy?
- Are any potential impacts reduced or mitigated over the longer term?
- What is the anticipated loss and/or gain of services to the community?
- What is the anticipated impact on access (distance, time, mode of travel) to services by the community?
- Will the proposal contribute to a net increase in employment?
- Does the proposal align with the objectives and outcomes of this policy and the planning framework?

A Net Benefit Test is to be prepared when:

- A proposal introduces floorspace in an existing or planned activity centre which exceeds the floorspace identified for that centre in a current 'Needs Assessment'.
- A proposal introduces new land or rezones land to facilitate major development or out-of-centre development.

2.2 Out-of-Centre Development

An Out of Centre Development is defined by SPP4.2 as a proposal which introduces:

- Category A or B activity centre (see table) uses outside of an existing or planned activity centre as identified by a Needs Assessment (regardless of land size).
- More than 500 sqm NLA of Category A uses outside an existing or planned activity centre as identified by a Needs Assessment.

Exemptions to Out of Centre Development includes:

- Development applications for Category B activity centre uses where the existing zoning contemplates (P, D, A) land uses.
- Development applications for Category A activity centre uses up to 1,500 sqm NLA where they are located substantially within the 400m walkable catchment of a rail station.

Out of Centre Development may only be appropriate where a proposal:

- is sufficiently separated from nearby activity centres to minimise negative impacts to those activity centres (as demonstrated through the Net Benefit Test).
- is in proximity to existing housing at an average dwelling density of at least 25 dwellings per gross Urban Zone (Region Schemes) hectare within a 400 m walkable catchment of the development; and
- accessible to its catchment community by walking and cycling, minimising the need for additional private vehicle trips.

2.3 Major Development

A major development is defined by SPP4.2 as a proposal which introduces additional Category A activity floor space which exceeds the threshold for the activity centre hierarchy in the table below.

FIGURE 1 - MAJOR DEVELOPMENT FLOORSPEACE THRESHOLDS by CENTRE TYPE

Existing Activity Centre Hierarchy	Additional Floor space threshold (sqm NLA)
Strategic	10,000
Specialised	3,000
Secondary	10,000
District	5,000
Neighbourhood	3,000
Local	1,500
Proposed Activity Centre Hierarchy	any development in a proposed / planned centre is a major development regardless of floor space amount

2.4 Activity Centre Uses

Assessments are only required to be undertaken for the following activity types.

FIGURE 2 – PLANNING CATEGORY

Planning Land Use Code (PLUC)	Category A Activity Centre Uses	Category B Activity Centre Uses
5 – 'SHOP'	Shop Liquor Store - Large Fast Food Outlet Lunch Bar Restaurant & Café	Convenience store Liquor store - small Restricted premises Service station
6 – 'OTHER RETAIL'		Bulky goods showroom Motor vehicle, boat, or caravan sales

2.5 Scope and Methodology

The Net Benefit Test is to be based on:

- The contextual description of the proposal and location with supporting maps, identifying if out-of-centre, within-centre or new activity centre.
- The change in net lettable area (NLA) of the shop/ retail (PLUC 5 - SHP) and/or other retail (PLUC 6 - RET) floor space.
- The defined trade area (including primary trade area and any secondary and tertiary trade areas).
- The estimated existing and forecast population of the trade area.
- The trade area resident attributes and implications for floorspace need and spending estimates.
- The estimated existing and forecast expenditure of the trade area using latest ABS Household Expenditure Survey or other reliable source.
- The estimated average annual sales (aggregate and per sqm NLA) for the proposed development and/or activity centre pre-and post-development proposal.

2.6 Modelling Method

The retail model is designed to assess the likely propensity for a resident in a particular area to visit/spend at each centre in the network. Based on the proximity of the resident to each centre, the role and function of each centre, the size of the retail offer at each centre, relative to other centres. The sales potential for the proposed centre will be based on the extent to which it may capture retail sales from each trade area. The results of the retail modelling shows:

- The expected market share that each centre may expect to capture from each trade area.
- The retail sales that may therefore be expected to be captured by each centre in the network from the designated trade areas.
- The relative contribution of each trade area to the overall sales at each centre.

The model results are focused primarily on the centres which can be expected to generate most of their sales from within the modelled trade areas. Centres located on the fringe of, or outside the trade areas will only show that proportion of sales captured from the trade areas. Subsequently, centres on the fringe of, or outside will not show a true sales figure, but rather

that part of the sales captured solely from within the trade area modelled. The impact assessment typically focuses primarily on the existing and planned centres closest to the proposed centre.

2.7 Measuring Impact

The potential sales generated by the development of the proposed centre will be drawn from centres in the network that would have reasonably expected to capture those sales had the proposed centre not been developed. The impact of the proposal on existing and planned activity centres is defined as an estimate of the retail turnover for each relevant activity centre identified for the following scenarios:

- without the proposed activity centre and
- with the new activity centre(s) assumed to be developed (or expanded).
- The differences between the 'without' and 'with' scenario is the potential turnover impact for each activity centre.

Competition between businesses in and of itself is not considered a relevant planning consideration. The impact of a proposal on an activity centre is defined as the potential loss of services and any associated detriment to the community caused by the proposed development. The following impact percentage and risk level for retail turnover is provided as a general guide and should not be used as the only indicator of acceptability of a proposal.

FIGURE 3 - SPP4.2 IMPACT and RISK GUIDE

Impact Percentage	Potential Impact	Risk Level	Description
0-5%	Insignificant	Low	Any impacts are likely to be temporary and have no long-term effects on the viability of individual activity centres.
5-10%	Moderate	Medium	Impacts are likely to be more significant for individual centres, but overall network sustainability is unlikely to be undermined in the long term.
10% +	Significant	High	Impacts are likely to be very significant for individual centres and are likely to undermine the long-term network sustainability.

Where the short-term impact is initially high before falling to a medium or low level in the long term, consideration should be given to how the development can be staged or if there needs to be any additional short-term benefits to ensure that level of service is always maintained. However, the overall impact of the proposal may be lessened or offset by the potential growth in sales each activity centre may generate from the introduction of additional residents and spending in the trade area over time.

3. ACTIVITY CENTRE NETWORK

The existing and planned activity centres in the immediate network of a proposed activity centre represents a key determinant for assessing the demand for a proposed activity centre. The following activity centres are considered most likely to influence and be influenced by the proposed activity.

3.1 Strategic / Secondary Activity Centres

A Strategic Centre and two Secondary Centres are estimated to influence the potential demand and sustainability of the proposed activity.

Morley Strategic Centre

Designated / Classified	Strategic Centre	SPP4.2
Performs the role of a	Strategic Centre	
Location from proposed activity	4.5 km north	
Estimated current 'Shop' floor space (PLUC 5)	99,000 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	C, W, A, S, K, T	
Estimated current 'Other Retail' floor space (PLUC 6)	22,500 sqm NLA	(LUS 2015/17)
Development potential	Medium	

Belmont

Designated / Classified	Secondary Centre	SPP4.2
Performs the role of a	Secondary Centre	
Location from proposed activity	3.0 km south	
Estimated current 'Shop' floor space (PLUC 5)	63,000 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	C, W, A, K, BW	
Estimated current 'Other Retail' floor space (PLUC 6)	30,000 sqm NLA	(LUS 2015/17)
Development potential	Medium	

Victoria Park

Designated / Classified	Secondary Centre	SPP4.2
Performs the role of a	Neighbourhood	
Location from proposed activity	4.5 km southwest	
Estimated current 'Shop' floor space (PLUC 5)	22,000 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	W	
Estimated current 'Other Retail' floor space (PLUC 6)	25,000 sqm NLA	(LUS 2015/17)
Development potential	Low	

3.2 District Centres

Four district centres are estimated to influence the potential demand and sustainability of proposed the activity.

Inglewood

Designated / Classified	District Centre	SPP4.2
Performs the role of a	Neighbourhood	
Location from proposed activity	4 km north	
Estimated current 'Shop' floor space (PLUC 5)	10,000 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	C, W, A	
Estimated current 'Other Retail' floor space (PLUC 6)	2,700 sqm NLA	(LUS 2015/17)
Development potential	Low	

Bayswater

Designated / Classified	District Centre	SPP4.2
Performs the role of a	Local	
Location from proposed activity	2.5 km north	
Estimated current 'Shop' floor space (PLUC 5)	3,800 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	IGA	
Estimated current 'Other Retail' floor space (PLUC 6)	0 sqm NLA	(LUS 2015/17)
Development potential	Low	

Maylands

Designated / Classified	District Centre	SPP4.2
Performs the role of a	Neighbourhood	
Location from proposed activity	3 km northwest	
Estimated current 'Shop' floor space (PLUC 5)	12,000 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	C, 2 x IGA	
Estimated current 'Other Retail' floor space (PLUC 6)	0 sqm NLA	(LUS 2015/17)
Development potential	Low	

Ashfield

Designated / Classified	District Centre	SPP4.2
Performs the role of a	Local	
Location from proposed activity	3 km northeast	
Estimated current 'Shop' floor space (PLUC 5)	750 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	IGA	
Estimated current 'Other Retail' floor space (PLUC 6)	0 sqm NLA	(LUS 2015/17)
Development potential	Medium	

3.3 Neighbourhood/Local

Four neighbourhood/local centres are estimated to influence the potential demand and sustainability of the proposed activity.

Rivervale

Designated / Classified	Neighbourhood Centre	
Performs the role of a	Local	
Location from proposed activity	2.5 km southwest	
Estimated current 'Shop' floor space (PLUC 5)	3,000 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	IGA	
Estimated current 'Other Retail' floor space (PLUC 6)	0 sqm NLA	(LUS 2015/17)
Development potential	Low	

Kooyong

Designated / Classified	Neighbourhood Centre	
Performs the role of a	Local	
Location from proposed activity	3 km southwest	
Estimated current 'Shop' floor space (PLUC 5)	2,250 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	IGA	
Estimated current 'Other Retail' floor space (PLUC 6)	0 sqm NLA	(LUS 2015/17)
Development potential	Low	

Belvidere

Designated / Classified	Neighbourhood Centre	
Performs the role of a	Local	
Location from proposed activity	1.5 km east	
Estimated current 'Shop' floor space (PLUC 5)	6,200 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	IGA	
Estimated current 'Other Retail' floor space (PLUC 6)	0 sqm NLA	(LUS 2015/17)
Development potential	Low	

Epsom

Designated / Classified	Local Centre	
Performs the role of a	Local	
Location from proposed activity	1.5 km east	
Estimated current 'Shop' floor space (PLUC 5)	6,200 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	IGA	
Estimated current 'Other Retail' floor space (PLUC 6)	0 sqm NLA	(LUS 2015/17)
Development potential	Low	

3.4 Service Commercial Precincts / Other Centres**Airport**

Designated / Classified	Specialised Centre	
Performs the role of a	Neighbourhood	
Location from proposed activity	2.5 km east	
Estimated current 'Shop' floor space (PLUC 5)	5,000 sqm NLA	
Majors / Anchor Tenants	W	
Estimated current 'Other Retail' floor space (PLUC 6)	25,000 sqm NLA	
Development potential	High	

Great Eastern Highway

Designated / Classified	N/a	
Performs the role of a	Service Commercial	
Location from proposed activity	1.5 km east	
Estimated current 'Shop' floor space (PLUC 5)	8,600 sqm NLA	(LUS 2015/17)
Majors / Anchor Tenants	-	
Estimated current 'Other Retail' floor space (PLUC 6)	4,700 sqm NLA	(LUS 2015/17)
Development potential	Medium	

3.5 Summary

Analysis of the activity centre network reveals that:

- Residents in the trade area have access to approximately 70,500 sqm NLA of total convenience-based retail floor space.
- There are no full line supermarkets within 1.5 km of the proposed activity.
- There are only two full line supermarkets (Coles at Maylands and Woolworths at Airport) within 3km of the proposed activity.
- There are four small, limited line IGA supermarkets located between 1.5 km and 3 km of the proposed activity.
- The closest 'clusters' of multiple supermarket operators are located at Belmont (3 km) and Inglewood (4 km)

- There are three classified district activity centres north of the proposed activity (Maylands, Bayswater, Ashfield), yet none of these activity centres perform the role of a district centre and function more as neighbourhood or local centres due to their limited retail offer.
- Residents in the trade area have access to nearly 105,000 sqm NLA of bulky goods retail activity across six precincts.

FIGURE 4

EXISTING & PLANNED ACTIVITY CENTRES FRAMEWORK

By Centre Name, by Centre Type, by Floorspace /Year

Total Convenience		Estimated NLA Floorspace (sqm) by Year				
Centre Name	Centre Type	2023	2026	2031	2036	2041
Morley	Strategic	13,100	13,100	13,100	13,100	13,100
Belmont	Secondary	11,250	11,250	11,250	11,250	11,250
East Vic Park	District	5,400	5,400	5,400	5,400	5,400
Victoria Park	Secondary	3,750	3,750	3,750	3,750	3,750
Inglewood	District	8,750	8,750	8,750	8,750	8,750
Bassendean	District	4,400	4,400	4,400	4,400	4,400
Maylands	District	4,600	4,600	4,600	4,600	4,600
GEH (west)	Local	1,500	1,500	1,500	1,500	1,500
Airport	Special	4,400	4,400	4,400	4,400	4,400
Bayswater	District	500	500	500	500	500
Belvidere	Local	3,000	3,000	3,000	3,000	3,000
Rivervale (Kooyong)	Local	1,250	1,250	1,250	1,250	1,250
Ashfield	District	550	550	550	550	550
GEH (east)	District	6,900	6,900	6,900	6,900	6,900
Epsom	Local	1,200	1,200	1,200	1,200	1,200
All Existing and Planned Centres		70,550	70,550	70,550	70,550	70,550
Ascot		-	3,400	3,400	3,400	3,400
All Centres		70,550	73,950	73,950	73,950	73,950

Land Use Employment Survey (WAPC 2015) / Taktics4

FIGURE 5

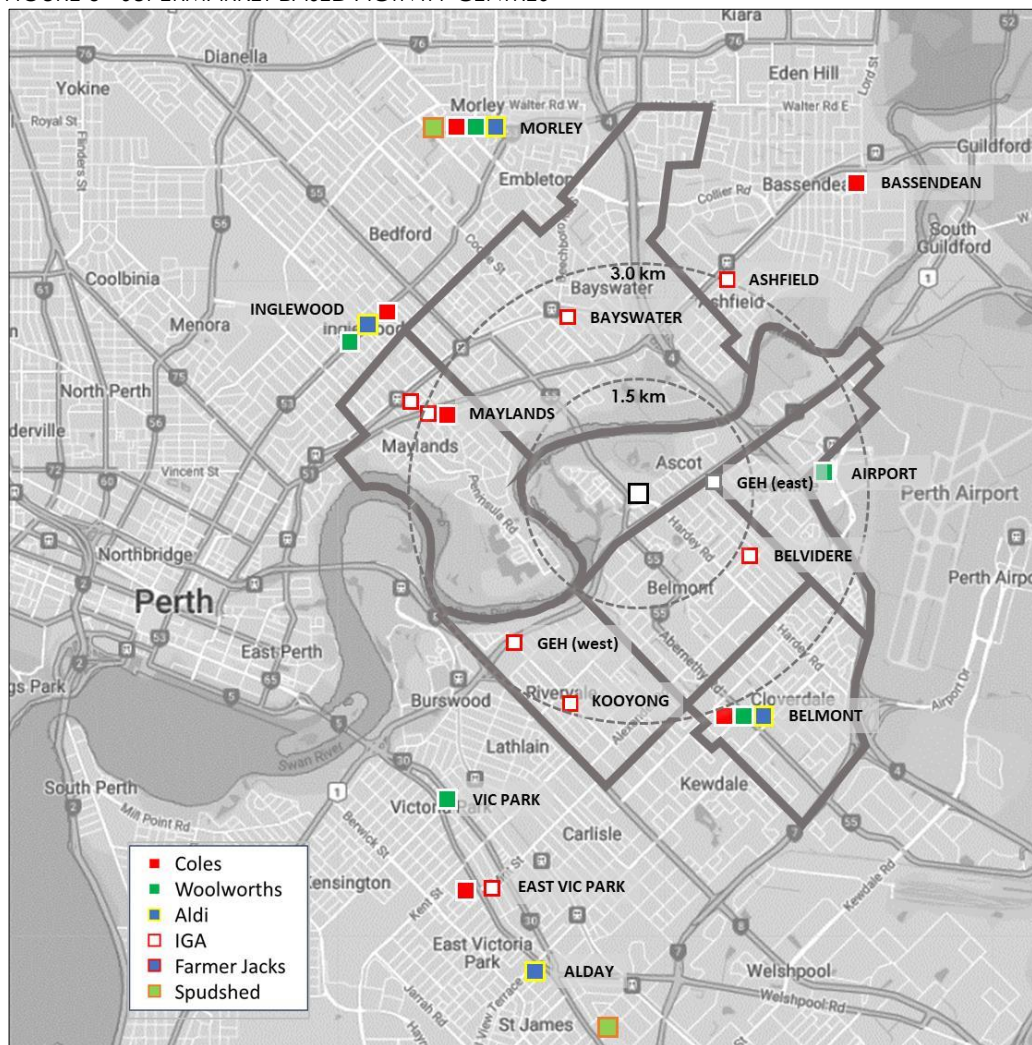
EXISTING & PLANNED ACTIVITY CENTRES FRAMEWORK

By Centre Name, by Centre Type, by Floorspace /Year

Bulky Goods/LFR		Estimated NLA Floorspace (sqm) by Year				
Centre Name	Centre Type	2023	2026	2031	2036	2041
Morley	Strategic	22,500	22,500	22,500	22,500	22,500
Belmont	Secondary	30,000	30,000	30,000	30,000	30,000
East Vic Park	District	0	0	0	0	0
Victoria Park	Secondary	25,000	25,000	25,000	25,000	25,000
Inglewood	District	2,700	2,700	2,700	2,700	2,700
Bassendean	District	0	0	0	0	0
Maylands	District	0	0	0	0	0
GEH (west)	Local	0	0	0	0	0
Airport	Special	20,000	20,000	20,000	20,000	20,000
Bayswater	District	0	0	0	0	0
Belvidere	Local	0	0	0	0	0
Rivervale (Kooyong)	Local	0	0	0	0	0
Ashfield	District	0	0	0	0	0
Eastgate/GE Hwy	District	4,700	4,700	4,700	4,700	4,700
Epsom	District	0	0	0	0	0
All Existing and Planned Centres		104,900	104,900	104,900	104,900	104,900
Ascot		-	9,600	9,600	9,600	9,600
All Centres		104,900	114,500	114,500	114,500	114,500

Land Use Employment Survey (WAPC 2015) / Taktics4

FIGURE 6 - SUPERMARKET BASED ACTIVITY CENTRES



Tactics4

4. TRADE AREA

The trade area for retail activity is largely determined by a range of industry, market and consumer-based principles. Consumer dynamics vary significantly between different retail categories and is influenced by the frequency in which consumers require access to certain retail goods and services. Retailers, shopping centre developers, and urban planners acknowledge this variation in dynamics through the establishment of a clearly defined hierarchy of activity centres which reflect different shopping trips and expectations for consumers/residents.

4.1 Market Behaviour

Convenience retail

Convenience retail trips include visits to supermarkets, other food and grocery stores, newsagencies, and cafes/takeaway stores. These trips are typically daily or weekly trips and are generally made to activity centres closest to the resident/consumer. Activity centres serving this category are typically anchored by a supermarket, or small grocery store and classified as Neighbourhood and/or Local Centres.

Comparative retail

Comparative retail trips include visits to department stores, discount department stores, fashion, and household goods stores. These are typically less frequent trips than convenience-based trips and consumers are more likely to target specific items, brands, products, and prices on these trips. They are therefore more likely to travel further to access these goods and services. Centres serving this category are typically anchored by a Department Store or DDS and classified as Strategic, Secondary, or District Centres. These centres invariably also serve a convenience-based role.

Large Format/Bulky Goods

Homewares, furnishing, and recreation goods are more likely to reflect infrequent trips for targeted goods/purchases. Consumers are prepared to travel further for these goods and services. These centres are less likely to include a convenience-based role beyond access to cafes/takeaway facilities as part of the shopping experience.

Behaviour Philosophy

The fundamental retail consumer principles adopted by modelling techniques in this assessment are that residents are generally:

- Less likely to travel beyond the nearest Strategic Centre and or Secondary Centre to visit another centre with the same role/function/offer.
- Less likely to travel beyond the nearest District Centre to visit another District Centre with the same role/function/offer.
- Just as likely to travel beyond one supermarket-based neighbourhood centre to visit another supermarket-based centre with another operator (i.e., to shop at a Coles instead of a Woolworths or vice versa).
- Less likely to travel beyond the nearest local centre to visit another local centre with the same role/function/offer (i.e., to drive past one IGA to shop at another IGA).

That is not to say that residents will not visit other centres, but that they will not visit these centres frequently enough to establish a pattern of behaviour.

4.2 Delineation of Trade Area

The trade area for proposed activity represents the area likely to generate most of the sales for a proposed activity centre. A trade area can be defined by applying these market behaviour principles, collating proximity of existing and planned urban areas with their accessibility to existing and planned centres, based on road networks, and physical barriers.

The trade area for the proposed activity may be delineated by residents in:

Ascot, Belmont	Mainly within 1.5 km of the proposed activity.
Redcliffe, Rivervale, Bayswater, Maylands, Cloverdale	All or partly within 1.5 km-3.0 km of the proposed activity.

This trade area comprises residents which are likely to generate most of the sales for the proposed activity. The trade area is divided north and south by the Swan River. However, the proposed activity is located on a road with access across the river, which therefore creates direct access to residents in the trade areas to the north and the south. The trade area incorporates residents across three Local Government Areas – City of Belmont, City of Bayswater, and Town of Victoria Park.

4.3 Population

The existing and forecast resident population in the trade area represents the first variable for determining the demand for retail activity in a trade area. According to adopted population forecasts for the three local government areas the total trade area is:

- Estimated to contain nearly 78,000 residents in 2026.
- Forecast to increase to 93,500 residents by 2041.
- Therefore, estimated to grow by 15,800 additional residents over the 15-year period at an average of over 1,050 additional residents p.a.

Ascot and Belmont trade areas are:

- Estimated to contain a resident population of 11,000 residents in 2026.
- Forecast to increase to 16,400 residents by 2041.
- Therefore, estimated to grow by an additional 5,400 over a 15-year period at an average of 300 additional residents per annum.
- Expected to be the trade areas with the largest proportional growth over the next 15 years.

FIGURE 7 - TRADE AREA MAP



Tactics4/Australian Bureau of Statistics/ id forecast

FIGURE 8

CURRENT and FORECAST POPULATION
By Trade Area by Year

Catchment	2023	2026	2031	2036	2041	2023-2041	%
Bayswater	25,050	25,600	26,800	28,000	29,200	4,150	17%
Maylands	13,350	13,400	13,900	14,400	14,900	1,550	12%
Ascot	3,300	3,400	3,700	4,600	5,200	1,900	58%
Belmont	7,400	7,600	9,000	10,300	11,200	3,800	51%
Rivervale	11,850	12,400	13,400	14,200	15,000	3,150	27%
Redcliffe	5,400	5,500	5,700	5,800	7,000	1,600	30%
Cloverdale	9,500	9,800	10,200	10,500	11,000	1,500	16%
Total Trade Area	75,850	77,700	82,700	87,800	93,500	17,650	23%
Average growth per census		1,850	5,000	5,100	5,700		
Average growth p.a.	-	617	1,000	1,020	1,140		
Average growth p.a. (%)		0.8%	1.3%	1.2%	1.3%		

id forecast - LGA Bayswater, Belmont Victoria Park

Tactics4/Australian Bureau of Statistics/ id forecast

4.4 Resident Demographic Profiles

The demographic profile of the resident population in a trade area represents a second level of demand for retail activity in a trade area. Consumer spending surveys confirm that residents with different personal, household and economic characteristics are likely to exhibit different spending behaviour regarding the amount they buy and the type of goods they buy. The demographic characteristics of the resident population in the trade area will determine the retail spending profile and retail spending capacity available to retailers/centres in the trade areas. Key demographic characteristics include household composition, dwelling tenure, and income potential. Relevant socio-economic characteristics for residents in the trade area are highlighted below.

Person and Household Profile

The resident population in the Ascot, Belmont, Bayswater trade area is characterised by:

- an average age of 40 years which is 3.8% above the Perth average.
- an average household size of 2.3 persons per dwelling which is 9% smaller than the Perth average.
- a higher representation of one person households.
- a predominantly Australian born population.
- an ethnic/cultural balance consistent with Perth averages.
- a stable resident base with longevity in the trade area.

Employment, Income, Economic Profile

The resident labour force in the Ascot, Belmont, Bayswater trade area is characterised by:

- a labour force participation rate consistent with Perth averages.
- a higher representation of professionals.
- a higher representation of labour force employed in the retail, accommodation, and F&B sector and professional services sector.
- an average personal income that is 6% above Perth averages.
- an average of 2 incomes per dwelling which is 5% below Perth averages.
- an average household income that is 1% higher than Perth averages.
- an average mortgage that is 1% higher than Perth averages.
- an average rent that is 6% lower than Perth averages.
- a higher representation of rental dwellings.
- a slightly lower representation of dwellings with a mortgage.

Dwelling Profile

The dwelling stock in the Ascot, Belmont, Bayswater trade area is characterised by:

- slightly higher representation of townhouses and semi-detached dwellings.
- an average of 3 bedrooms per dwellings which is 9% smaller than the average Perth dwelling.

4.5 Resident Retail Spending Profile

Resident retail spending profiles for the trade area are derived by extrapolating data from a range of sources including:

- Household Expenditure Survey by socio economic characteristics (ABS 2015)
- Population and Household Census by socio economic characteristics (ABS 2021)
- Retail Sales by store categories (ABS 2024)

Correlation of data from these sources relative to the demographic profiles of an area produces an estimate of the average retail spending potential of residents within that area. Some of the trade areas may not currently have sufficient population bases to extract valid demographic profiles. Where trade areas do not have sufficient population base the retail spending profiles have been adopted from neighbouring/adjoining trade areas. Correlation of demographic profiles to retail spending profiles for residents in the trade area reveal that:

- Ascot and Bayswater residents are estimated to have an average total retail spending profile of between \$19,550 and \$21,900 per resident p.a. which is higher than Perth averages.
- Maylands, Belmont, Rivervale, Redcliffe, and Cloverdale residents have an average total retail spending profile of between \$15,200 and \$16,600 per resident p.a. which is lower than Perth averages.

FIGURE 9

ESTIMATED AVERAGE RETAIL SPENDING PER CAPITA					
By Retail Category by Trade Area					
Dec-23					
Retail Store Category	Total Convenience Retail	Total Comparison Retail	Total Shop	Bulky Goods/LFR	Total 'Shop' & 'Other Retail'
Bayswater	\$11,143	\$5,367	\$16,510	\$3,046	\$19,556
Maylands	\$9,464	\$4,446	\$13,910	\$2,605	\$16,515
Ascot	\$12,289	\$6,240	\$18,529	\$3,363	\$21,891
Belmont	\$8,933	\$4,198	\$13,130	\$2,468	\$15,598
Rivervale	\$9,495	\$4,461	\$13,956	\$2,613	\$16,568
Redcliffe	\$8,829	\$4,149	\$12,977	\$2,441	\$15,418
Cloverdale	\$8,741	\$4,108	\$12,848	\$2,418	\$15,267
Perth Average	\$10,374	\$4,872	\$15,246	\$2,839	\$18,086
8501.0 Retail Trade, Australia					
Retail Turnover, State by Industry Subgroup					

4.6 Resident Retail Spending Capacity

The resident retail spending capacity represents the total retail spending that is generated by residents in a trade area that is available to be captured by existing and planned centres in the trade area (and beyond). It is measured by multiplying the average potential resident retail spending profile for each area by the forecast resident population in each area to determine the forecast resident retail spending capacity of each trade area over time. Based on the average potential resident retail spending profiles for supermarkets, residents in the trade area are estimated to generate:

FIGURE 10

ESTIMATED ANNUAL RESIDENT RETAIL SPENDING CAPACITY in TRADE AREA (\$M p.a.) By Retail Category by Year					
	2023	2026	2031	2036	2041
Total Convenience Retail	\$755	\$774	\$823	\$875	\$931
Total Comparison Retail	\$360	\$368	\$392	\$417	\$444
Total Shop	\$1,115	\$1,142	\$1,215	\$1,291	\$1,374
Bulky Goods/LFR	\$208	\$213	\$226	\$240	\$256
Total 'Shop & Other' Retail	\$1,323	\$1,355	\$1,441	\$1,532	\$1,630
8501.0 Retail Trade, Australia Retail Turnover, State by industry Subgroup					

Convenience based retail spending

Residents across the total trade area are estimated to spend:

- \$774 M p.a. in convenience-based shops/centres in 2026.
- \$931 M p.a. in convenience-based shops/centres by 2041.

Residents in Ascot and Belmont trade areas are estimated to:

- spend \$106 M p.a. in convenience-based shops/centres in 2026.
- spend \$164 M p.a. in convenience-based shops/centres by 2041.

Other Retail (Bulky Goods/Showroom)

Residents across the total trade area are estimated to spend:

- spend \$213 M p.a. in total bulky goods/LFR outlets in 2026.
- spend \$256 M p.a. in total bulky goods/LFR outlets by 2041.

5. PART A – LOCAL CENTRE

This section assesses the potential market demand for, and potential sustainability of a proposed local centre at Ascot. This assessment subsequently informs the assessment of potential impacts at existing and planned activity centres. The proposed local centre is:

- Included as part of the planning for the City of Belmont Golden Gateway Precinct.
- Located 3 km from the nearest supermarket-based activity centre.
- Classified as a planned activity centre.
- Not classified as an out of centre development.
- Considered a major development because it proposes 3,400 sqm NLA of PLUC 5 activity.

Eligibility for Exemption from a Net Benefit Test

The proposed local centre activity:

- is accessible to an existing walkable trade area.
- includes more than 1,500 sqm NLA of PLUC 5 activity
- is not located within 400 metres of a railway station.
- is therefore not eligible for exemption from a Net Benefit Test under the provisions of SPP4.2.

5.1 Market Share

Market share represents the proportion of resident spending generated from a trade area to a proposed activity centre. Market share is a measure of influence that a centre will have over customers in an area.

Example:

Total annual retail spending generated by residents in a trade area is \$100M p.a.

A centre is capturing a market share of 20% of that retail spending

The centre therefore captures \$20M p.a. in sales from the trade area

The proposed local centre if developed by 2026, is estimated to capture:

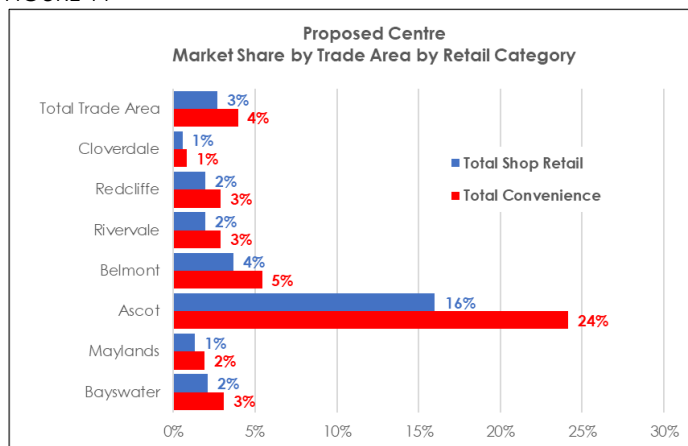
Convenience Spending

- 24% of all convenience/food/grocery/local spending generated by residents in Ascot.
- 5% of all convenience/food/grocery/local spending generated by residents in Belmont.
- A combined total of 4% of all convenience/food/grocery/local spending generated by residents across the total trade area.

Total Retail Spending

- 16% of all retail spending generated by residents in Ascot.
- 4% of all retail spending generated by residents in Belmont.
- A combined total of 3% of all retail spending generated by residents in the total trade area.

FIGURE 11



Taktics4 Retail Model

5.2 Sales Contribution

Sales contribution represents the proportion of a centres annual sales that is captured from a trade area. Sales contribution is a measure of the reliance / exposure that an activity centre has to a trade area.

Example:

A centre is capturing total retail sales of \$20M p.a.

\$15M p.a. of those sales are being captured from one trade area.

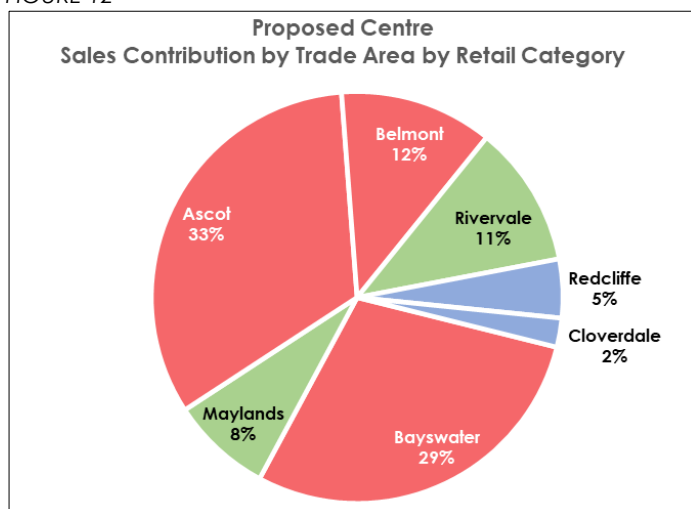
Therefore 75% of the centre sales are being contributed from that trade area.

The proposed local centre is ultimately estimated to generate:

- 62% of its forecast annual retail sales from residents in the immediate suburbs of Ascot (33%), and Bayswater (29%).
- 31% of its forecast annual retail sales from residents in Maylands, Belmont, and Rivervale.
- A combined total of 74% of its forecast annual retail sales will be derived from residents in the immediate local catchment it is intended to serve.

This sales contribution level is consistent with industry expectations.

FIGURE 12



Taktics4 Retail Model

5.3 Sales Potential

The Sales Potential represents the total sales that a centre may be expected to capture based on achieving the estimated market share from each trade area. It is a measure of a centre's viability and sustainability. Sales potential is measured by either annual sales and/or by sales productivity. Sales productivity is the total annual sales of centre divided by the total retail floor space NLA of the centre.

Example:

A centre captures total annual retail sales of \$20M p.a.

The centre has a retail floor space of 4,000 sqm NLA.

The centre has a sales productivity of \$20M p.a. divided by 4,000 sqm NLA = \$5,000/sqm p.a.

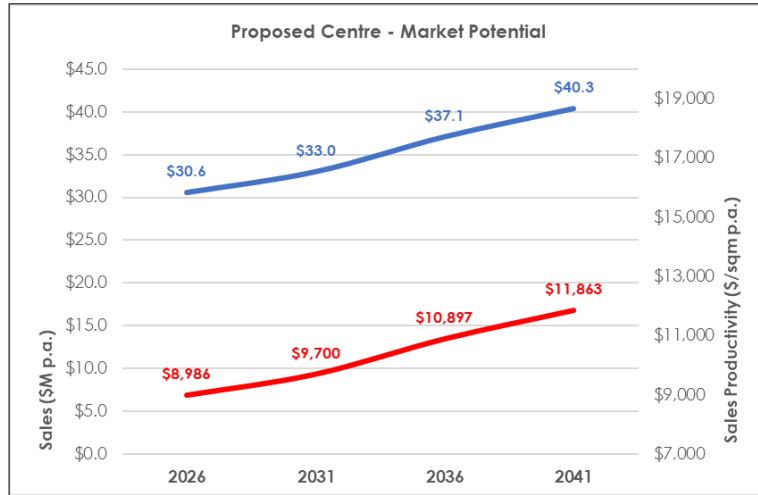
The proposed local centre if developed in 2026 is estimated to have the potential to generate:

- \$30.6M p.a. at \$9,000/sqm p.a. by 2026
- \$33.0M p.a. at \$9,700/sqm p.a. by 2031
- \$37.1M p.a. at \$10,900/sqm p.a. by 2036
- \$40.3M p.a. at \$11,800/sqm p.a. by 2041

The proposed local centre at Ascot:

- Has the potential to generate sufficient sales to be sustainable by 2026, satisfying industry measures conducive to a sustainable supermarket based local centre.
- Serve an immediate role in meeting the day-to-day convenience needs of residents in the immediate walkable catchment of the proposed local centre.
- Rely predominantly on sales being captured from the immediate suburbs of Ascot, Maylands and Belmont.
- Be sustainable despite a potential market capture of only 16% of total retail sales from resident spending in Ascot, leaving 84% of retail spending to be captured by existing and planned centres.

FIGURE 13



Tactics4 Retail Model

5.4 Sales Impact

Sales impact represents the potential loss of sales at a centre due to the development of another centre. Sales impact is measured by comparing the potential sales of a centre at a particular year/period with the other centre included and excluded from the equation/modelling. Sales impact may be measured by potential actual annual sales or a percentage of potential annual sales.

Example

A centre is forecast to generate annual sales of \$20M p.a. in 2026 without the proposed centre being developed by 2026.

The centre is forecast to generate annual sales of \$18M p.a. in 2026 if the proposed centre is developed by 2026.

The centre is therefore estimated to experience a potential sales impact of \$2M p.a. in 2026.

The centre is estimated to subsequently experience a potential sales impact of 10% of its sales (\$2M p.a. loss from its \$20M p.a.)

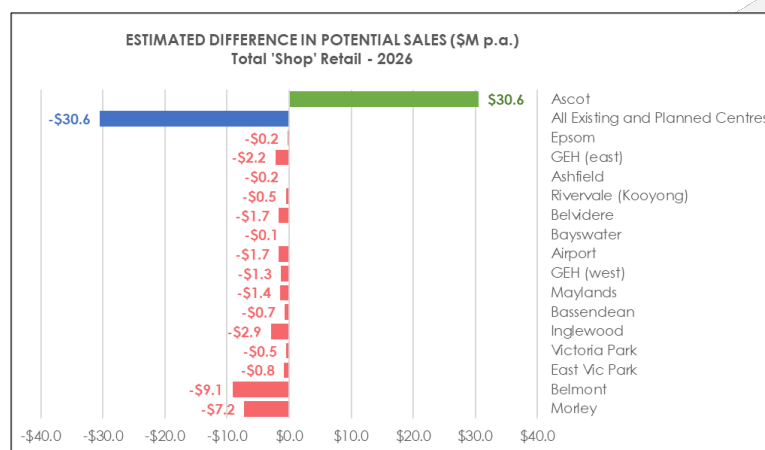
Actual Sales

Modelling the activity centres network with and without the proposed activity reveals that the development of the proposed activity by 2026 would have the potential to capture \$30.6M p.a. in retail sales that might otherwise be captured from existing or planned centres.

Over 68% of all retail sales generated by the proposed local centre would be captured from four centres including Belmont Centre (-\$9.1M p.a.), Morley Centre (-\$7.2M p.a.), Inglewood (-\$2.9M p.a.), and Maylands (\$1.4M p.a.). This is because these centres currently contain the retail offer that a proposed local centre is likely to provide at Ascot.

FIGURE 14

ESTIMATED ACTUAL ANNUAL SALES CAPTURED from OTHER ACTIVITY CENTRES
by SHOP SALES by FIRST YEAR TRADE of PROPOSED ACTIVITY (2026)



Tactics4 Retail Model (2024)

Percentage of Sales

The modelling shows that upon trading in 2026, the retail sales captured by a proposed local centre has the potential to impact the overall retail sales generated by residents in the trade area at:

Belmont

The public and private investment at Belmont Centre will not be impacted by the proposed local centre. The potential sales impact is forecast to be less than 3.0% which is classified as insignificant impact/risk. The potential sales impact at Belmont is in effect considerably less than 3.0% as the model only shows the potential loss in sales at Belmont from residents in the modelled trade area. The Belmont Centre generates sales from a more extensive trade area than the trade area for the proposed local centre.

Morley

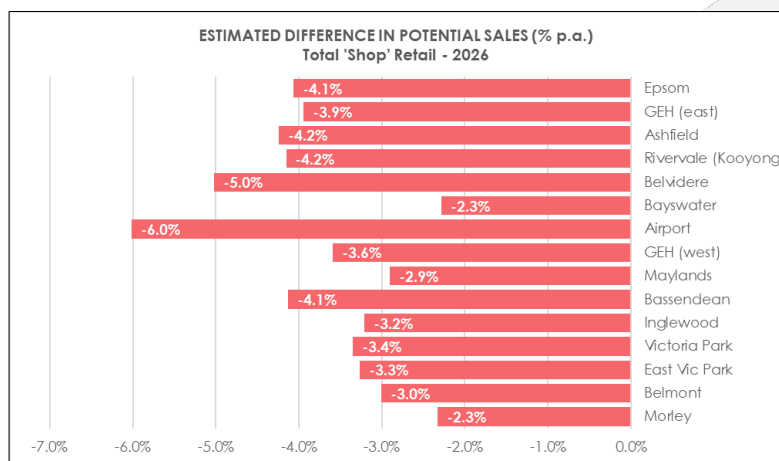
The public and private investment at Morley Centre will not be impacted by the proposed local centre. The potential sales impact is forecast to be less than 2.3% which is classified as insignificant impact/risk. The potential sales impact is in effect considerably less than 2.3% as the model only shows the potential loss in sales at Morley from residents in the modelled trade area. The Morley Centre generates sales from a more extensive trade area than the trade area for the proposed local centre.

Bayswater

The public and private investment at Bayswater will not be impacted by the proposed local centre. The potential sales impact at Bayswater is less than 2.3% which is classified as low impact/low risk. The low impact is because the Bayswater Centre does not provide the offer intended at the proposed local centre. Therefore, the Bayswater Centre is not capturing the sales that will be captured by the proposed local centre.

FIGURE 15

ESTIMATED IMPACT of PROPOSED ACTIVITY on ANNUAL SALES at OTHER ACTIVITY CENTRES by SHOP SALES by FIRST YEAR TRADE of PROPOSED ACTIVITY (2026)



Tactics4 Retail Model (2024)

Local Centres

Centres at Epsom (4.1%), Ashfield (4.2%), Rivervale/Kooyong (4.2%) and Belvidere (5.0%) are all estimated to be impacted by between 4% and 5%. These impacts are classified as insignificant impact/ low risk. There is not expected to be an impact to private or public investment. This is because these centres do not currently offer the extent of the retail offer intended to be provided by the proposed local centre.

Airport

The convenience-based centre anchored by Woolworths at the Airport, is the only centre which is estimated to experience a moderate impact (6%). The potential sales impact is in effect considerably less than 6.0% as the model only shows the potential loss in sales at the Airport from resident spending generated from within the modelled trade area. The Airport Centre generates sales from a far more extensive trade area than the trade area for the proposed local centre.

5.5 Sales Growth

Sales Growth represents the increase in retail sales that may be expected from a centre because of an increase in population growth in the trade area.

For example:

A centre is currently capturing total retail sales of \$20M p.a.

It achieves these sales by capturing 20% market share of all resident spending in the trade area.

Therefore, the trade area has a current resident retail spending capacity of \$100M p.a.

Residential development occurs in the trade area at 10% growth over a five-year period.

In five years, the resident retail spending capacity in the trade area has increased to \$110M p.a.

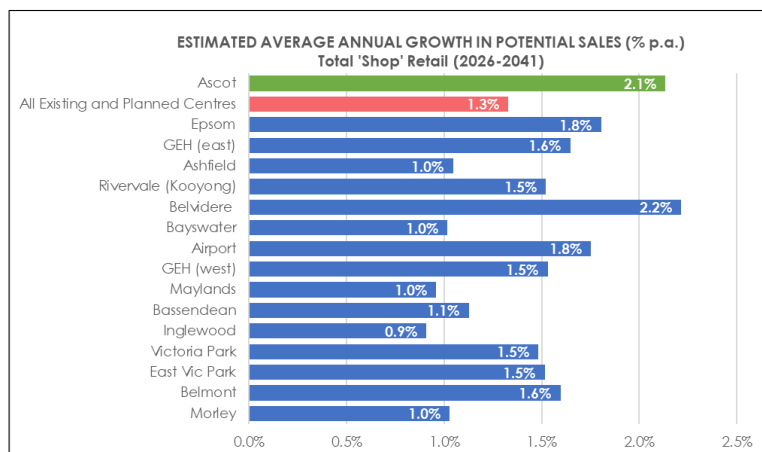
The sales potential for the centre is forecast to increase to \$22M p.a. (in constant dollars) despite maintain the same market share within the trade area.

This potential sales growth across centres has the potential to offset any initial sales impact generated by the development of a proposed local centre.

The population in the total trade area is expected to increase from 77,700 in 2026 to 93,500 in 2041. This population growth will result in an increase in resident retail spending capacity in the total trade area from \$1,142M p.a. in 2026 to \$1,374M p.a. in 2041. That represents an additional \$232M p.a. in the total trade area for all centres to capture.

The graph shows that beyond the development of the proposed local centre in 2026, all centres in the trade area, or area of influence by the proposed local centre is forecast to have the potential to experience an average annual growth in sales of between 1% and 2.0% p.a. over the subsequent 15 years.

FIGURE 16
ESTIMATED AVERAGE ANNUAL SALES GROWTH at ACTIVITY CENTRES SHOP SALES
Between 2026 and 2041



Tactics4 Retail Model (2024)

5.6 Summary

The findings in this Net Benefit Test confirm that a proposed local centre at Ascot will result in insignificant/low risk impacts on the surrounding existing and planned activity centres network. With any potential sales impact offset by the potential for substantial average sales growth in the trade area over the next 15 years.

Overall, the development of the proposed local centre at Ascot is not expected to generate significant impacts for the surrounding centres network. The centres network is currently bereft of full line supermarket-based centres. This means that residents in the trade area are already bypassing the smaller local centres to access their convenience retail needs at centres further afield than they should have to travel.

6. PART B - BULKY GOODS

This section assesses the potential market demand for, and potential sustainability of proposed 'Other' Retail Bulky Goods Precinct at Ascot. This assessment is necessary to subsequently inform the assessment of potential impacts at existing and planned activity centres. The proposed bulky goods activity is considered an 'out of centre' development.

6.1 Market Share

Market share represents the proportion of resident spending generated from a trade area to the proposed centre. Market share is a measure of influence that a centre will have over customers in an area.

Example:

Total annual retail spending generated by residents in a trade area is \$100M p.a.

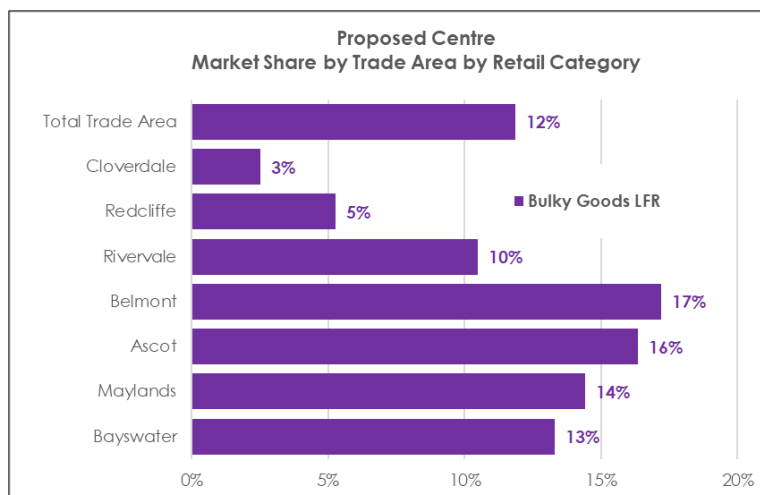
A centre is capturing a market share of 20% of that retail spending

The centre therefore captures \$20M p.a. in sales from the trade area

The proposed bulky goods activity if developed by 2026, is estimated to capture:

- 12% of all bulky goods spending generated by residents across the total trade area.
- relatively consistent market capture between 13%-17% of all bulky goods retail spending from residents in Ascot, Belmont, Maylands, Bayswater and Rivervale. 5% of all convenience/food/grocery/local spending generated by residents in Belmont, reflecting the propensity for residents to travel further to access this type of retail category.

FIGURE 17



Tactics4 Retail Model

6.2 Sales Potential

The Sales potential represents the total sales that a centre may be expected to capture based on achieving the estimated market share from each trade area. It is a measure of a centre's viability and sustainability. Sales potential is measured by either annual sales and/or by sales productivity. Sales productivity is the total annual sales of centre divided by the total retail floor space NLA of the centre.

Example:

A centre captures total annual retail sales of \$20M p.a.

The centre has a retail floor space of 4,000 sqm NLA.

The centre has a sales productivity of \$20M p.a. divided by 4,000 sqm NLA = \$5,000/sqm p.a.

The proposed local centre if developed in 2026 is estimated to have the potential to generate:

\$25.2M p.a. at \$2,600/sqm p.a. by 2026

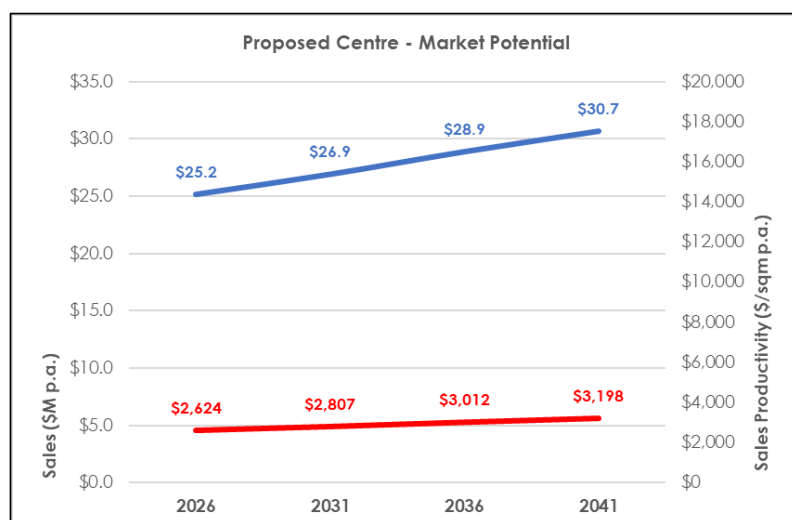
\$26.9M p.a. at \$2,800/m p.a. by 2031

\$28.9M p.a. at \$3,000/sqm p.a. by 2036

\$30.7M p.a. at \$3,200/sqm p.a. by 2041

The proposed bulky goods activity at Ascot has the potential to generate sufficient sales to be sustainable by 2026, satisfying industry measures conducive to a sustainable bulky goods activity. Be sustainable despite a potential market capture of only 12% of total bulky goods sales from resident spending in the total trade area, leaving 88% of bulky goods retail spending to be captured by existing and planned centres.

FIGURE 18



Taktics4 Retail Model

6.3 Sales Impact

Sales impact represents the potential loss of sales at a centre due to the development of another centre. Sales impact is measured by comparing the potential sales of a centre at a particular year/period with the other centre included and excluded from the equation/modelling. Sales impact may be measured by potential actual annual sales or a percentage of potential annual sales.

Example

A centre is forecast to generate annual sales of \$20M p.a. in 2026 without the proposed centre being developed by 2026.

The centre is forecast to generate annual sales of \$18M p.a. in 2026 if the proposed centre is developed by 2026.

The centre is therefore estimated to experience a potential sales impact of \$2M p.a. in 2026.

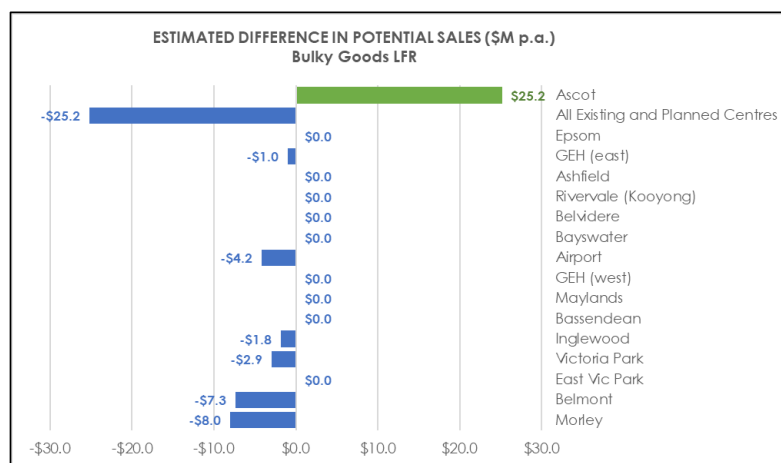
The centre is estimated to subsequently experience a potential sales impact of 10% of its sales (\$2M p.a. loss from its \$20M p.a.)

Actual Sales

The development/introduction of the proposed bulky goods activity in Ascot by 2026 will have the potential to capture \$25.2M p.a. in retail sales that might otherwise be captured from existing or planned centres.

Over 81% of all retail sales generated by the proposed bulky goods activity to be captured from four centres including Belmont Centre (-\$7.3M p.a.), Morley Centre (-\$8.0M p.a.), Airport (-\$4.2M p.a.), and Victoria Park (-\$2.9M p.a.).

FIGURE 19



Tactics4 Retail Model

Percentage of Sales

The modelling shows that upon trading in 2026, the retail sales captured by proposed bulky goods activity centre has the potential to impact the overall retail sales generated by residents in the trade area at:

Belmont

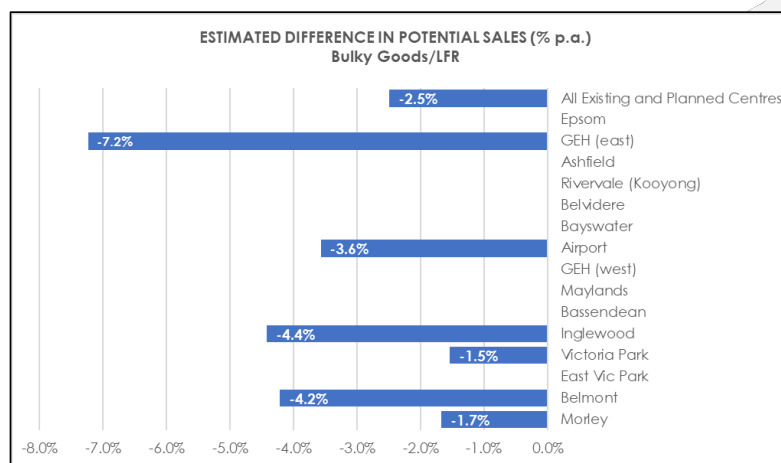
The public and private investment at Belmont Centre will not be impacted by the proposed local centre. The potential sales impact is forecast to be less than 4.2% which is classified as insignificant impact/risk. The potential sales impact at Belmont is in effect considerably less than 4.2% as the model only shows the potential loss in sales at Belmont from residents in the modelled trade area. The Belmont Centre generates sales from a more extensive trade area than the trade area for the proposed bulky goods activity at Ascot.

Morley

The public and private investment at Morley Centre will not be impacted by the proposed bulky goods activity. The potential sales impact is forecast to be less than 1.7% which is classified as insignificant impact/risk. The potential sales impact is in effect considerably less than 1.7% as the model only shows the potential loss in sales at Morley from residents in the modelled trade area. The Morley Centre generates sales from a more extensive trade area than the trade area for the proposed bulky goods activity at Ascot.

Airport

The public and private investment at the Airport will not be impacted by the proposed bulky goods activity. The potential sales impact is forecast to be less than 3.6% which is classified as insignificant impact/risk. The potential sales impact is in effect considerably less than 3.6% as the model only shows the potential loss in sales at the Airport from residents in the modelled trade area. The Airport generates sales from a more extensive trade area than the trade area for the proposed bulky goods activity at Ascot.

FIGURE 20

6.4 Sales Growth

Sales Growth represents the increase in retail sales that may be expected from a centre because of an increase in population growth in the trade area.

For example:

A centre is currently capturing total retail sales of \$20M p.a.

It achieves these sales by capturing 20% market share of all resident spending in the trade area.

Therefore, the trade area has a current resident retail spending capacity of \$100M p.a.

Residential development occurs in the trade area at 10% growth over a five-year period.

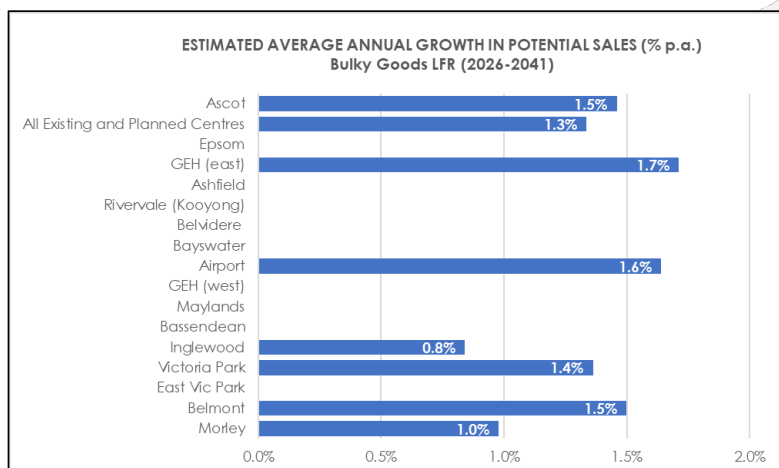
In five years, the resident retail spending capacity in the trade area has increased to \$110M p.a.

The sales potential for the centre is forecast to increase to \$22M p.a. (in constant dollars) despite maintain the same market share within the trade area.

This potential sales growth across centres has the potential to offset any initial sales impact generated by the development of a proposed local centre.

The population in the total trade area is expected to increase from 77,700 in 2026 to 93,500 in 2041. This population growth will result in an increase in resident retail spending capacity in the total trade area from \$1,142M p.a. in 2026 to \$1,374M p.a. in 2041. That represents an additional \$232M p.a. in the total trade area for all centres to capture. The graph shows that beyond the development of the proposed bulky goods in 2026, all relevant centres in the trade area, or area of influence by the proposed bulky goods activity at Ascot is forecast to have the potential to experience an average annual growth in sales of between 1.0% and 2.0% p.a. over the subsequent 15 years.

FIGURE 21



Taktics4 Retail Model

6.5 Summary

The findings in this Net Benefit Test confirm that proposed bulky goods activity at Ascot will.

- Result in insignificant/low risk impacts on the surrounding existing and planned activity centres network. With any potential sales impact offset by the potential for substantial average sales growth in the trade area over the next 15 years.
- Subsequently not have an unreasonable impact on the delivery and sustainability of private and public infrastructure at other activity centres.



7. NET BENEFIT TEST

When estimating benefits to the community, the Net Benefit Test should:

- Detail what benefit will occur due to the proposed development.
- Use existing data and standards to measure the size of the benefit and how important it will be to the community.
- Identify those in the community who will be likely to experience the benefit.
- Estimate how many individuals are expected to experience the benefit.
- Describe the degree of change expected due to the benefit.
- Determine the expected duration for which stakeholders are expected to experience the benefit.

SPP4.2 provides a guide to estimating/measuring the net benefit to the community including:

7.1 Employment

Will the proposal provide new jobs in addition to any that may be lost elsewhere – net additional jobs?

The proposed activity has the potential to create up to 205 Full Time Equivalent jobs including 85 in the shopping precinct and 120 in the bulky goods showroom precinct.

FIGURE 22

TOTAL EMPLOYMENT OPPORTUNITIES				
PLUC	Activity Type	Floor space (sqm NLA)	Ratio (FTE jobs/sqm)	FTE Jobs
PLUC 5	Shops	3,400	40	85
PLUC 6	Bulky Goods/Showroom	9,600	80	120
Combined		13,000	63	205

Land Use and Employment Survey (WAPC 2017)

Will the proposed activity contribute to diversifying local jobs – creating more strategic employment versus population-driven employment?

Will the proposal have the potential to improve access to economic opportunity for minority and vulnerable groups?

Employment in shop and bulky goods activity typically attracts residents which fit the following:

- Female labour force
- Part time labour force
- Young adult labour force
- Local labour force
- Labour force without access to a motor vehicle

Gender	Employment Sector	
	Total Retailing	All Sectors
Male Employees	34%	43%
Female Employees	66%	57%
All Employees	100%	100%

The proposed activity is conducive to the female employment labour force. Females on average represent 66% of all retail related jobs compared to 57% for all job sectors.

Employment Status	Employment Sector	
	Total Retailing	All Sectors
Full Time Employment	38%	54%
Part time Employment	62%	46%
All Employment	100%	100%

The proposed activity is conducive to the part time employment labour force. Part time employees represent 62% of all retail related jobs compared to 46% for all job sectors.

Age of Employee	Employment Sector	
	Total Retailing	All Sectors
15-19 years	19%	9%
All Ages	100%	100%

The proposed activity is conducive to young adults in the labour force. Young adults represent 19% of all retail related jobs compared to 9% for all job sectors.

Distance Travelled	Employment Sector	
	Total Retailing	All Sectors
less than 2.5 km	15%	10%
2.5 km - 10 km	42%	32%
All Distances	100%	100%

The proposed activity is conducive to residents who live within 2.5 km of the proposed activity. 15% of all residents in retail related jobs on average travel up to 2.5km from their home compared to 10% for all job sectors.

Travel Mode	Employment Sector	
	Total Retailing	All Sectors
Car, as passenger	9%	6%
Bicycle	1%	0%
Walked only	2%	2%
Walked, Cycled, Passenger	11%	8%
All Modes	100%	100%

The proposed activity is conducive to residents who do not have ready access to motor vehicle for travel to work. 11% of residents working in the retail sector cycle, walk or travel by passenger to work compared to 8% for all job sectors.

The impact assessment shows that all activity centres in the network have the potential to increase sales and subsequently not need to reduce employment levels. The proposed local centre is therefore expected to provide new local jobs for residents.

7.2 Impact

How is the proposal expected to impact upon the current and expected turnover and role of relevant activity centres?

The proposed activity is estimated to have an initial low / insignificant risk to activity centres in the network. Any impacts on these activity centres are likely to be temporary and have no long-term effects on the viability of individual activity centres. The initial impacts to activity centres are expected to be offset by future growth in sales from resident and spending growth.

Will the proposal increase the choice and availability of goods and services in the area?

Retail modelling confirms that the residents in Ascot and Belmont are the communities most likely to experience the benefit from the proposed activity. Residents in Ascot and Belmont are estimated to account for 60% of total sales / trips at the proposed activity confirming the importance of the proposed activity to these residents.

Ascot and Belmont trade area currently comprise 11,000 residents. Ascot and Belmont trade area resident population base will grow to 16,400 residents by 2041. Despite this population profile, residents in Ascot do not currently have access to a full line supermarket-based centre within 2.5 km. Ascot residents must therefore travel up to 2.5 km each way (5 km round trip) every time they access their full line supermarket needs.

The introduction of the proposed activity will fill an identified gap in the supply and demand of convenience-based activity in the Ascot and Belmont area.

7.3 Impact on Activity Centre Hierarchy

Retail modelling confirm that the proposed activity centre is sufficiently sized, located and configured to satisfy the local trade area needs without impinging on the trading potential of other centres. And that the proposed centre will not have a significant or long-term impact on any of the individual activity centres modelled as part of the centres network.

It therefore follows that the proposed activity centre will not create any unreasonable or detrimental impact on the role and function of the activity centre hierarchy and framework in the trade area.

All centres will have the opportunity to compete for the additional retail sales available through the increased retail spending capacity planned in the trade area. It will be up to each of the centres and their respective operators in the existing and planned network to establish plans and strategies to target that additional retail spending capacity.

The forecast population growth in the trade area will ultimately create the potential for all centres in the network to achieve an average increase in sales of between 1% and 3% per annum over the period between 2026 and 2041. This average sales growth will further offset the immediate impact experienced from the introduction of the proposed activity.

7.4 Compatibility

Is the proposal compatible with surrounding land uses?

The proposed activity will introduce proposed activity in the middle of a trade area which contains 11,000 – 16,400 residents within a 1.5 km radius of the proposed activity. This resident population is a significant base for a supermarket-based centre.

7.5 Environment

Will there be an improvement in the level of amenity and vibrancy that benefits the wider community? Will the proposal include land uses such as healthcare, education, and community facilities? Will the proposal have an impact on overall vehicle trips? Will car-based net trips (by distance) increase or reduce because of the proposal?

The proposed activity has the potential to create a community hub for the Ascot and Belmont communities, increasing a sense of place for residents. The proposed activity does not in itself create these facilities. However, some of these facilities will likely be attracted to the area because of the introduction of the proposed activity.

The proposed activity has the potential to reduce the amount of trip kilometres that Ascot and Belmont residents must travel each year to satisfy their daily/weekly shopping needs. As stated, the Ascot and Belmont resident population base represents 11,000 growing to 16,400 residents who will benefit directly from the proposed activity. Ascot and Belmont residents therefore have the potential to:

- reduce the amount of trip kilometres that Ascot and Belmont residents must travel each year to satisfy their daily/weekly shopping needs.
- save over 530,000 to 700,000 trips p.a. to centres outside their trade area
- save between 40 and 50 trips per person per annum.
- save between 2.7 M km p.a. and 3.5 M km p.a. of vehicular travel per annum

7.6 Infrastructure

Is there significant government investment in services, infrastructure or development in the area or nearby centres that may be affected by the proposal? Will the proposal impact patronage/viability of the investment and what is the expected impact? Will the proposal include new, or improvements to existing transport infrastructure, particularly walking, cycling and public transport, that increases access and helps manage congestion? Will the proposal include enhancements to utilities that benefit the local area?

As previously stated, the proposed activity has the potential to significantly reduce the number of trips/trip km by residents especially for residents in Ascot and Belmont. Residents in these areas will be far more likely to walk to the proposed activity than their current trip patterns to supermarket-based centres over 2 km from the proposed activity. The proposed activity has the potential to generate demand for enhancements to community and non-retail related to services in the local area.

7.7 Strategic Alignment

Is the proposal consistent with the strategic planning for the area? Is it aligned with the relevant regional strategy and approved local planning strategy? Is the size and scale of the proposal consistent with the level of the hierarchy? What are the potential impacts on the activity centre hierarchy? Is the proposal consistent with the objectives and outcomes of SPP 4.2?

The proposed activity is classified as a planned centre in an adopted planning instrument. The proposed activity is a size, scale, function, and role that is consistent with and complements the overall activity centre hierarchy. The proposed local centre activity is consistent with the City of Belmont's Activity Centre Planning strategy.

The proposed activity will not have a significant impact on any of the activity centres in the network. The proposed activity does not have the potential to result in the loss of or change the role and function of any activity centre in the network. As such the proposed activity is not have the potential to have any impact or change to the activity centre hierarchy.

The Net Benefit Test confirms that the proposed activity satisfies the criteria for assessing the benefits to the community and is therefore consistent with the objectives and outcomes of SPP4.2.



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Transportation Noise Assessment

Ascot Racecourse Structure Plan

Reference: 23118540-01

Prepared for:
Perth Racing C/- Davison Advisory Services



Reference: 23118540-01

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Date	Rev	Description	Author	Verified
16-Nov-23	0	Issued to Client	Terry George	-

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1. INTRODUCTION

A Local Structure Plan (LSP) and Scheme Amendment are being prepared for landholdings in Ascot, referred to as the Ascot Racecourse Structure Plan (refer Figure 1-1). Parts of the site will be potentially impacted by road traffic noise, being the subject of this report, with consideration given to *State Planning Policy No. 5.4 Road and Rail Noise*, being the subject of this report.

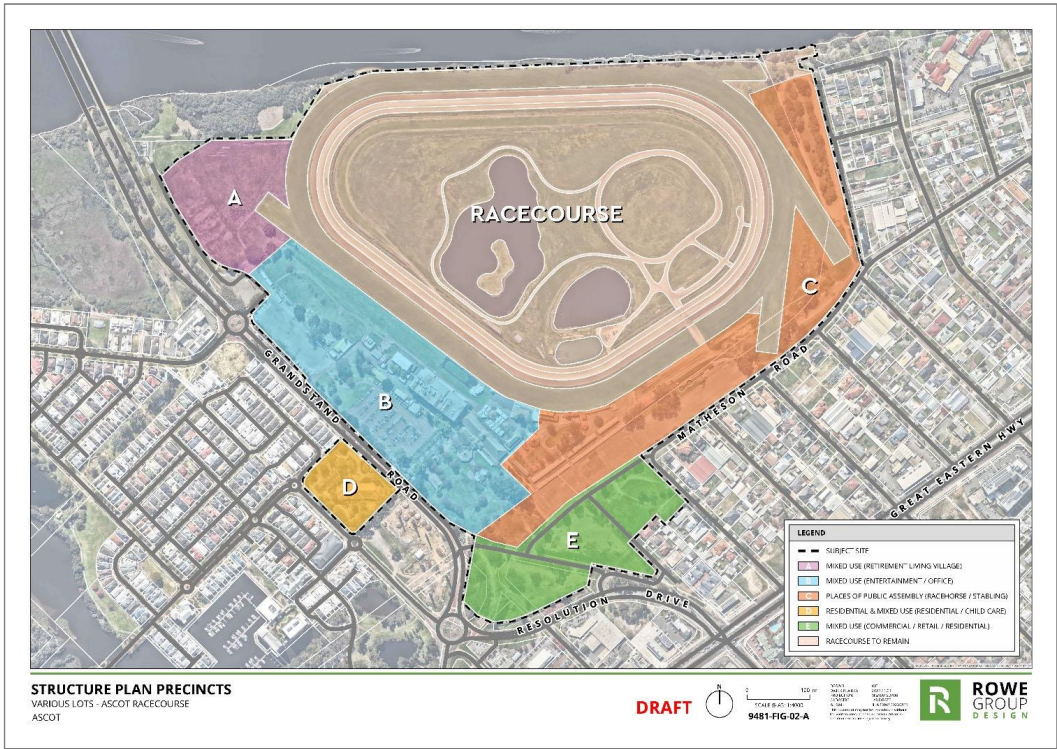


Figure 1-1: Structure Plan Precincts

Appendix B contains a description of some of the terminology used throughout this report.

2. CRITERIA

The criteria relevant to this project is provided in *State Planning Policy No. 5.4 Road and Rail Noise* (hereafter referred to as SPP 5.4) produced by the Western Australian Planning Commission (WAPC). SPP 5.4 is supported by the *Road and Rail Noise Guidelines* (the Guidelines) and the Department of Planning, Lands and Heritage mapping. The objectives of SPP 5.4 are to:

- Protect the community from unreasonable levels of transport noise;
- Protect strategic and other significant freight transport corridors from incompatible urban encroachment;
- Ensure transport infrastructure and land-use can mutually exist within urban corridors;
- Ensure that noise impacts are addressed as early as possible in the planning process; and
- Encourage best practice noise mitigation design and construction standards.

Table 2-1 sets out noise targets that are to be achieved by proposals under which SPP 5.4 applies. Where the targets are exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

Table 2-1: Noise Targets for Noise Sensitive Land-Use

Scenario	Outdoor Noise Target		Indoor Noise Target	
Noise-sensitive land-use and/or development	55 dB LAeq(Day)	50 dB LAeq(Night)	40 dB LAeq(Day) (Living and Work Areas)	35 dB LAeq(Night) (Bedrooms)

Notes:

- Day period is from 6am to 10pm and night period from 10pm to 6am.
- The outdoor noise target is to be measured at 1-metre from the most exposed, habitable¹ facade of a noise sensitive building.
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 *Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors* (as amended) for each relevant time period.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practicable to do so using the various noise mitigation measures outlined in the Guidelines.

The application of SPP 5.4 is to consider anticipated traffic volumes for the next 20 years from when the noise assessment has been undertaken.

¹ A habitable room is defined in State Planning Policy 3.1 as a room used for normal domestic activities that includes a bedroom, living room, lounge room, music room, sitting room, television room, kitchen, dining room, sewing room, study, playroom, sunroom, gymnasium, fully enclosed swimming pool or patio.

3. METHODOLOGY

The site is within the trigger distance of Great Eastern Highway, considered to be a ‘Strategic Freight/Major Traffic Route’ as shown on the PlanWA Maps (refer Table 1-1 and Figure 3-1).

Table 3-1: Transport Corridor Classification and Trigger Distances

Transport Road Classification	Trigger Distance	Distance Measured From
Strategic Freight and Major Traffic Routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other Significant Freight/Traffic Routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meets the criteria of either ≥ 100 Class 7 to 12 Austroads vehicles daily or ≥ 23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)	200 metres	Road carriageway edge



Figure 3-1: Subject Site Locality in Relation to Road (Source: DPLH PlanWA)

Attachment 12.1.7 Transportation Noise Assessment

Lloyd George Acoustics

The methodology used in this assessment is to follow the screening assessment procedure provided in the Guidelines. From *Table 2* of the Guidelines (refer *Figure 3-2*), noise levels at the proposed site are up to 58 dB $L_{Aeq}(\text{Day})$, with Great Eastern Highway being a total of 6 lanes and at its closest point at a distance of 130 metres.

The forecast levels provided in the Guidelines assume open and level ground. The Guidelines allow a 4 dB reduction in noise level where:

- an existing building or structure screens more than 50% of the most exposed part of the noise-sensitive land-use; or
- where a solid continuous minimum 1.8 metre noise wall/fence exists or is proposed; or
- through a combination of permanent structures and terrain so there is no direct line of sight.

In this project, the 4 dB reduction is applicable to the ground floor due to other buildings located between the subject site and road corridor.

Transport Corridor Classification		Number of lanes (both directions), including bus/priority lanes and entrance/ exit ramps	Forecast noise exposure category based on lot distance(m) from edge of nearest main road carriageway (not entrance/exit ramps)																				Forecast Noise Level, dB	Exposure Category	Policy requirements for noise- sensitive land-use and/or development																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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		10 or more lanes	78	74	71	70	68	67	66	66	65	64	64	63	62	62	61	60	59	58	57	56	55	54	53	52	51	50	49	E	• Noise-sensitive land-use and/or development is not recommended. There is no default quiet house option due to excessive forecast noise. Professional design input is required in order to achieve compliance with relevant criteria. Noise-sensitive land-use and/or development is not recommended, an approved noise management plan is required to demonstrate compliance with the noise target (see Table 1).																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Other significant freight / traffic routes • Any actual or planned future State Administered Road • Local Government Roads Carrying 100 or more Class 7 – 12 Austroads vehicles/day • 25,000+ vehicles per day	Urban Region Scheme areas 60-80 km/hr	1 to 2 lanes	67	64	62	61	60	59	58	57	56	56	55	54	54	53	53	52	51	50	49	48	47	46	45	44	43	12 to 15	D	• Noise-sensitive land-use and/or development is not recommended. There is no default quiet house option due to excessive forecast noise. Professional design input is required in order to achieve compliance with relevant criteria. Noise-sensitive land-use and/or development is not recommended, an approved noise management plan is required to demonstrate compliance with the noise target (see Table 1).																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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986	-987	-988	-989	-990	-991	-992	-993	-994	-995	-996	-997	-998	-999	-1000	-1001	-1002	-1003	-1004	-1005	-1006	-1007	-1008	-1009	-1010	-1011	-1012	-1013	-1014	-1015	-1016	-1017	-1018	-1019	-1020	-1021	-1022	-1023	-1024	-1025	-1026	-1027	-1028	-1029	-1030	-1031	-1032	-1033	-1034	-1035	-1036	-1037	-1038	-1039	-1040	-1041	-1042	-1043	-1044	-1045	-1046	-1047	-1048	-1049	-1050	-1051	-1052	-1053	-1054	-1055	-1056	-1057	-1058	-1059	-1060	-1061	-1062	-1063	-1064	-1065	-1066	-1067	-1068	-1069	-1070	-1071	-1072	-1073	-1074	-1075	-1076	-1077	-1078	-1079	-1080	-1081	-1082	-1083	-1084	-1085	-1086	-1087	-1088	-1089	-1090	-1091	-1092	-1093	-1094	-1095	-1096	-1097	-1098	-1099	-1100	-1101	-1102	-1103	-1104	-1105	-1106	-1107	-1108	-1109	-1110	-1111	-1112	-1113	-1114	-1115	-1116	-1117	-1118	-1119	-1120	-1121	-1122	-1123	-1124	-1125	-1126	-1127	-1128	-1129	-1130	-1131	-1132	-1133	-1134	-1135	-11

Figure 3-2: Noise Exposure Forecast Table from Guidelines

The results of the screening assessment are summarised as follows:

-
- Signs and symbols**
- Subject Site
 - Exposure A
 - Zone A
 - Zone B
 - Zone C
 - Zone D
 - Zone E

Reference: 23118540-01

5. CONCLUSION

The objectives of SPP 5.4 are to achieve:

- Indoor noise levels specified in *Table 2-1* in noise-sensitive areas (e.g. bedrooms and living rooms of houses); and
- A reasonable degree of acoustic amenity for outdoor living areas on each residential lot.

Where the outdoor noise targets of *Table 2-1* are achieved, no further noise controls are necessary. Based on the SPP 5.4 screening assessment procedure, any part of the development outside of 200 metres is compliant. Any ground floor noise sensitive development within 200 metres is also compliant.

The only area of potential exceedance, based on the screening assessment procedure of SPP 5.4 are upper residential floors within Zone E where a small area is shown to be in Exposure A. As the Structure Plan develops further, measurements could be undertaken to quantify actual noise levels from Great Eastern Highway, rather than using the screening assessment procedure. Alternatively given the relatively low impact, the screening assessment procedure can be adopted, applying Quiet House Package A to upper floors of noise sensitive dwellings within the marked area on *Figure 4-1*. Alternatives to the Deemed to Comply Package A can be accepted if supported by a report from a suitably qualified acoustical consultant (member firm of the Association of Australasian Acoustical Consultants (AAAC)) once the specific plans are available

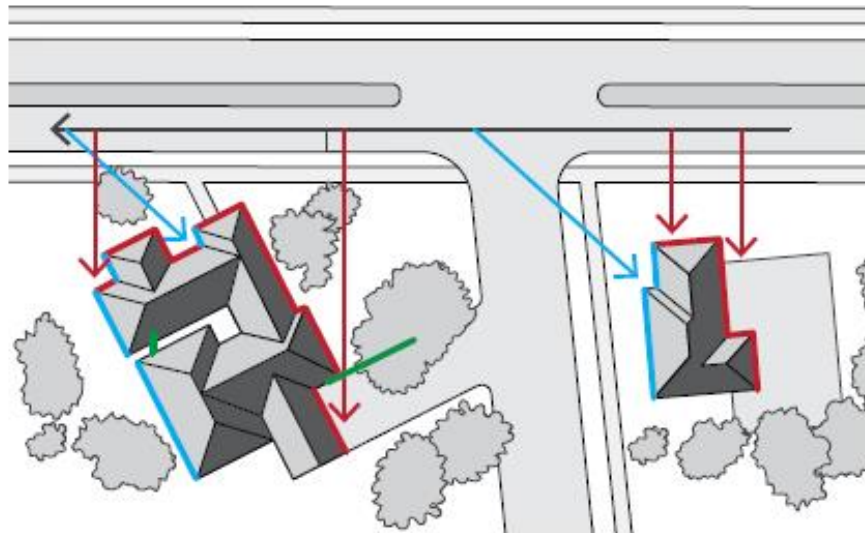
Appendix A – Quiet House Packages

The packages and information provided on the following pages are taken from *Road and Rail Noise Guidelines* (September 2019).

Where outdoor and indoor noise levels received by a noise-sensitive land-use and/or development exceed the policy's noise target, implementation of quiet house requirements is an acceptable solution.

With regards to the packages, the following definitions are provided:

- **Facing** the transport corridor (red): Any part of a building façade is 'facing' the transport corridor if any straight line drawn perpendicular (at a 90 degree angle) to its nearest road lane or railway line intersects that part of the façade without obstruction (ignoring any fence).
- **Side-on** to transport corridor (blue): Any part of a building façade that is not 'facing' is 'side-on' to the transport corridor if any straight line, at any angle, can be drawn from it to intersect the nearest road lane or railway line without obstruction (ignoring any fence).
- **Opposite** to transport corridor (green): Neither 'side on' nor 'facing', as defined above.



Quiet House Package A**56-58 dB $L_{Aeq}(\text{Day})$ & 51-53 dB $L_{Aeq}(\text{Night})$**

Element	Orientation	Room	
		Bedroom	Indoor Living and Work Areas
External Windows	Facing	<ul style="list-style-type: none"> Up to 40% floor area ($R_w + C_{tr} \geq 28$): <ul style="list-style-type: none"> Sliding or double hung with minimum 10mm single or 6mm-12mm-10mm double insulated glazing; Sealed awning or casement windows with minimum 6mm glass. Up to 60% floor area ($R_w + C_{tr} \geq 31$): <ul style="list-style-type: none"> Sealed awning or casement windows with minimum 6mm glass. 	<ul style="list-style-type: none"> Up to 40% floor area ($R_w + C_{tr} \geq 25$): <ul style="list-style-type: none"> Sliding or double hung with minimum 6mm single or 6mm-12mm-6mm double insulated glazing; Up to 60% floor area ($R_w + C_{tr} \geq 28$); Up to 80% floor area ($R_w + C_{tr} \geq 31$).
	Side On	As above, except $R_w + C_{tr}$ values may be 3 dB less or max % area increased by 20%.	
	Opposite	No specific requirements	
External Doors	Facing	<ul style="list-style-type: none"> Fully glazed hinged door with certified $R_w + C_{tr} \geq 28$ rated door and frame including seals and 6mm glass. 	<ul style="list-style-type: none"> Doors to achieve $R_w + C_{tr} \geq 25$: <ul style="list-style-type: none"> 35mm Solid timber core hinged door and frame system certified to $R_w 28$ including seals; Glazed sliding door with 10mm glass and weather seals.
	Side On	As above, except $R_w + C_{tr}$ values may be 3 dB less.	
	Opposite	No specific requirements	
External Walls	All	<ul style="list-style-type: none"> $R_w + C_{tr} \geq 45$: <ul style="list-style-type: none"> Two leaves of 90mm thick clay brick masonry with minimum 20mm cavity; or Single leaf of 150mm brick masonry with 13mm cement render on each face; or One row of 92mm studs at 600mm centres with: <ul style="list-style-type: none"> Resilient steel channels fixed to the outside of the studs; and 9.5mm hardboard or fibre cement sheeting or 11mm fibre cement weatherboards fixed to the outside; 75mm thick mineral wool insulation with a density of at least 11kg/m³; and 2 x 16mm fire-rated plasterboard to inside. 	
Roofs and Ceilings	All	<ul style="list-style-type: none"> $R_w + C_{tr} \geq 35$: Concrete or terracotta tile or metal sheet roof with sarking and at least 10mm plasterboard. 	
Outdoor Living Areas		At least one outdoor living area located on the opposite side of the building from the transport corridor or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2 metres height above ground level.	

Mechanical Ventilation requirements

In implementing the acceptable treatment packages, fresh air requirements of the National Construction Code must be satisfied on the basis of windows closed. Whilst not the only solution, the most common is mechanical ventilation / air-conditioning is installed with the following considerations:

- Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40 dB into sensitive spaces;
- Evaporative systems require attenuated ceiling air vents to allow closed windows;
- Refrigerant based systems need to be designed to achieve National Construction Code fresh air ventilation requirements;
- Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable.

Notification

Notifications on title advise prospective purchasers of the potential for noise impacts from major transport corridors and help with managing expectations.

The Notification is to state as follows:

This lot is in the vicinity of a transport corridor and is affected, or may in the future be affected, by road and rail transport noise. Road and rail transport noise levels may rise or fall over time depending on the type and volume of traffic.

Appendix B – Terminology

The following is an explanation of the terminology used throughout this report:

- **Decibel (dB)**

The decibel is the unit that describes the sound pressure levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

- **A-Weighting**

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as $L_{A\omega}$ dB.

- **L_{eq}**

The L_{eq} level represents the average noise energy during a measurement period.

- **L_1**

The L_1 level represents the noise level exceeded for 1 percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

- **L_{10}**

The L_{10} level represents the noise level exceeded for 10 percent of the measurement period and is considered to represent the “intrusive” noise level.

- **L_{90}**

The L_{90} level represents the noise level exceeded for 90 percent of the measurement period and is considered to represent the “background” noise level.

- **$L_{Aeq(Day)}$**

The $L_{Aeq(Day)}$ level is the logarithmic average of the L_{Aeq} levels from 6.00am to 10.00pm.

- **$L_{Aeq(Night)}$**

The $L_{Aeq(Night)}$ level is the logarithmic average of the L_{Aeq} levels from 10.00pm to 6.00am.

- **$L_{A10,18hour}$**

The $L_{A10,18hour}$ level is the arithmetic average of the hourly L_{A10} levels between 6.00am and midnight.

- **$L_{Aeq,24hour}$**

The $L_{Aeq,24hour}$ level is the logarithmic average of the L_{Aeq} levels from over an entire day.

- **Noise-sensitive land use and/or development**

Land-uses or development occupied or designed for occupation or use for residential purposes (including dwellings, residential buildings or short-stay accommodation), caravan park, camping ground, educational establishment, child care premises, hospital, nursing home, corrective institution or place of worship.

- **R_w**

This is the weighted sound reduction index. It is a single number rating determined by moving a grading curve in integral steps against the laboratory measured transmission loss until the sum of the deficiencies at each one-third-octave band, between 100 Hz and 3.15 kHz, does not exceed 32 dB. The higher the R_w value, the better the acoustic performance.

- **C_{tr}**

This is a spectrum adaptation term for airborne noise and provides a correction to the R_w value to suit source sounds with significant low frequency content such as road traffic or home theatre systems. A wall that provides a relatively high level of low frequency attenuation (i.e. masonry) may have a value in the order of – 4 dB, whilst a wall with relatively poor attenuation at low frequencies (i.e. stud wall) may have a value in the order of -12 dB.

- **About the Term ‘Reasonable’**

An assessment of reasonableness should demonstrate that efforts have been made to resolve conflicts without comprising on the need to protect noise-sensitive land-use activities. For example, have reasonable efforts been made to design, relocate or vegetate a proposed noise barrier to address community concerns about the noise barrier height? Whether a noise mitigation measure is reasonable might include consideration of:

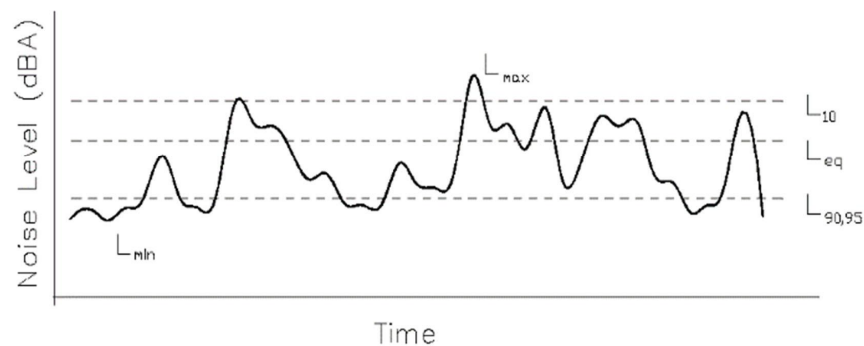
- The noise reduction benefit provided;
- The number of people protected;
- The relative cost vs benefit of mitigation;
- Road conditions (speed and road surface) significantly differ from noise forecast table assumptions;
- Existing and future noise levels, including changes in noise levels;
- Aesthetic amenity and visual impacts;
- Compatibility with other planning policies;
- Differences between metropolitan and regional situations and whether noise modelling requirements reflect the true nature of transport movements;
- Ability and cost for mobilisation and retrieval of noise monitoring equipment in regional areas;
- Differences between Greenfield and infill development;
- Differences between freight routes and public transport routes and urban corridors;
- The impact on the operational capacity of freight routes;
- The benefits arising from the proposed development;
- Existing or planned strategies to mitigate the noise at source.

- **About the Term 'Practicable'**

'Practicable' considerations for the purposes of the policy normally relate to the engineering aspects of the noise mitigation measures under evaluation. It is defined as "reasonably practicable having regard to, among other things, local conditions and circumstances (including costs) and to the current state of technical knowledge" (*Environmental Protection Act 1986*). These may include:

- Limitations of the different mitigation measures to reduce transport noise;
- Competing planning policies and strategies;
- Safety issues (such as impact on crash zones or restrictions on road vision);
- Topography and site constraints (such as space limitations);
- Engineering and drainage requirements;
- Access requirements (for driveways, pedestrian access and the like);
- Maintenance requirements;
- Bushfire resistance or BAL ratings;
- Suitability of the building for acoustic treatments.

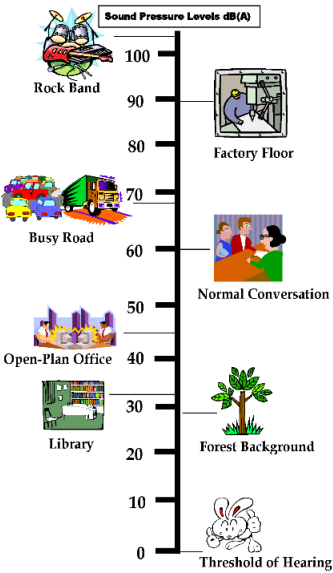
- **Chart of Noise Level Descriptors**



• Austroads Vehicle Class

VEHICLE CLASSIFICATION SYSTEM	
AUSTRADS	
CLASS	LIGHT VEHICLES
1	SHORT Car, Van, Wagon, 4WD, Utility, Bicycle, Motorcycle
2	SHORT - TOWING Trailer, Caravan, Boat
HEAVY VEHICLES	
3	TWO AXLE TRUCK OR BUS *2 axles
4	THREE AXLE TRUCK OR BUS *3 axles, 3 axle groups
5	FOUR (or FIVE) AXLE TRUCK *4 (5) axles, 2 axle groups
6	THREE AXLE ARTICULATED *3 axles, 3 axle groups
7	FOUR AXLE ARTICULATED *4 axles, 3 or 4 axle groups
8	FIVE AXLE ARTICULATED *5 axles, 3+ axle groups
9	SIX AXLE ARTICULATED *6 axles, 3+ axle groups or 7+ axles, 3 axle groups
LONG VEHICLES AND ROAD TRAINS	
10	8 DOUBLE or HEAVY TRUCK and TRAILER *7+ axles, 4 axle groups
11	DOUBLE ROAD TRAIN *7+ axles, 5 or 6 axle groups
12	TRIPLE ROAD TRAIN *7+ axles, 7+ axle groups

• Typical Noise Levels





Ascot Racecourse Local Structure Plan Landscape Master Plan

FOR: Davison Advisory Services

SLR PROJECT No: 675.072227.00001

ISSUE 0.2 7th August 2024



Document No.

675.072227.00001 Ascot Racecourse Structure Plan

Revision History

Revision	Revision Date	Details	Drawn By	Authorised by
0.1	June 2024	Draft for Review	Dallas Ellis	Dean Butcher
0.2	August 2024	Submission	Dallas Ellis	Dean Butcher

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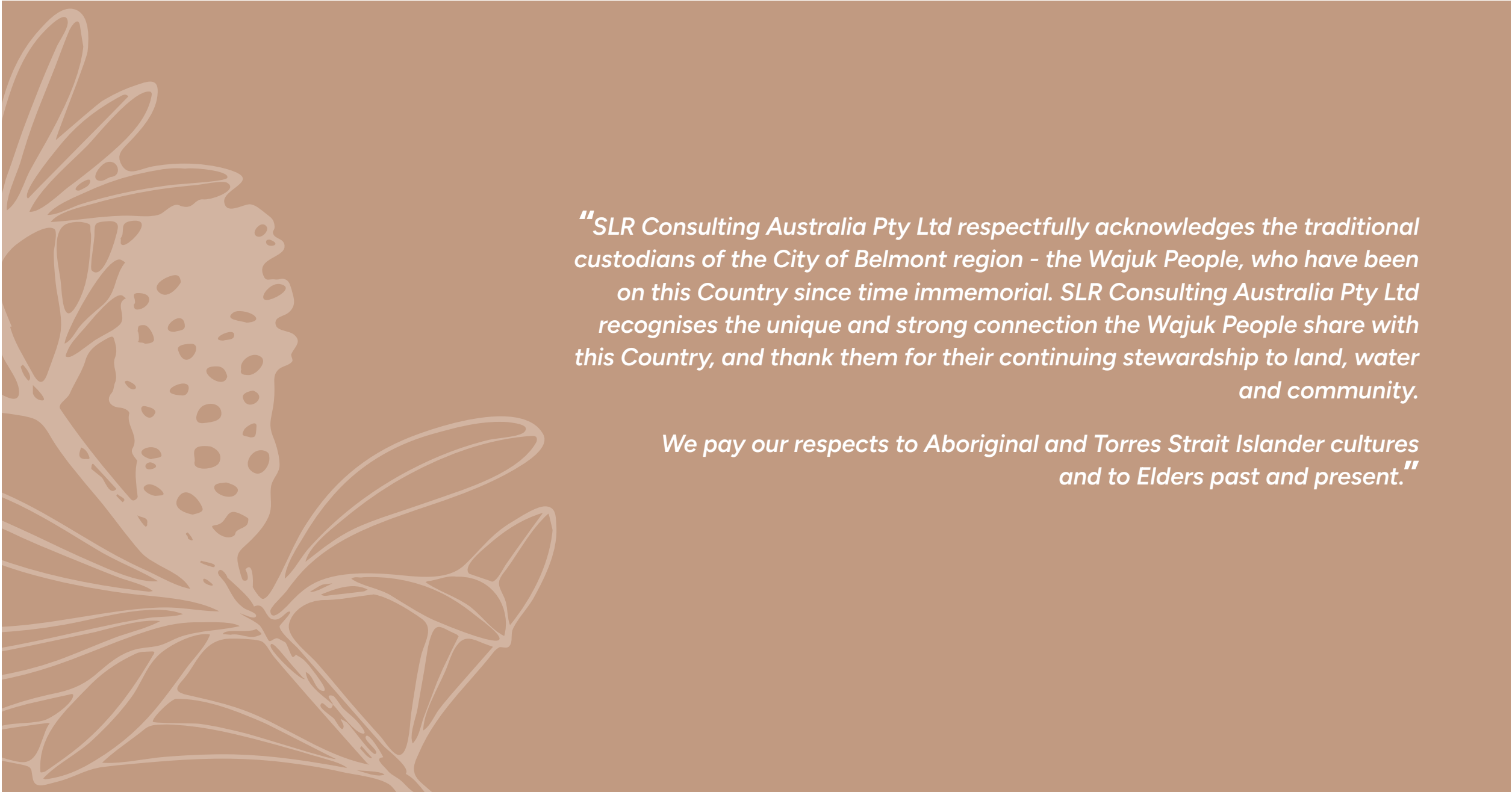
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Acknowledgment of Country





1. Background

SLR Consulting Australia Pty Ltd (SLR) has been commissioned on behalf of Perth Racing to prepare a Landscape Master Plan for Perth Racing’s landholdings in Ascot, including and surrounding the existing Ascot Racecourse.

Perth Racing’s landholdings encompass the area bound by the Swan River to the north, the Ascot Stables area and Matheson Road to the east and south-east, Resolution Drive to the south and south-west, and Grandstand Road to the west.

The Landscape Master Plan supports the Ascot Racecourse Structure Plan prepared to guide the future use and development of Perth Racing’s landholdings. The plan establishes a vision and objectives for the Precinct, and identifies design response opportunities to achieve the intended landscape outcomes for the site.



LEGEND

- | | |
|-----------------------------|--------------------------------------|
| 1. Riverside Gardens | 5. Heritage Listed Ascot Brickworks |
| 2. Garratt Road Bridge park | 6. Ascot Waters Park, Memorial Drive |
| 3. Garratt Road Bridge | 7. Member's Carpark Entry |
| 4. Ascot Racecourse Entry | |



2. Process



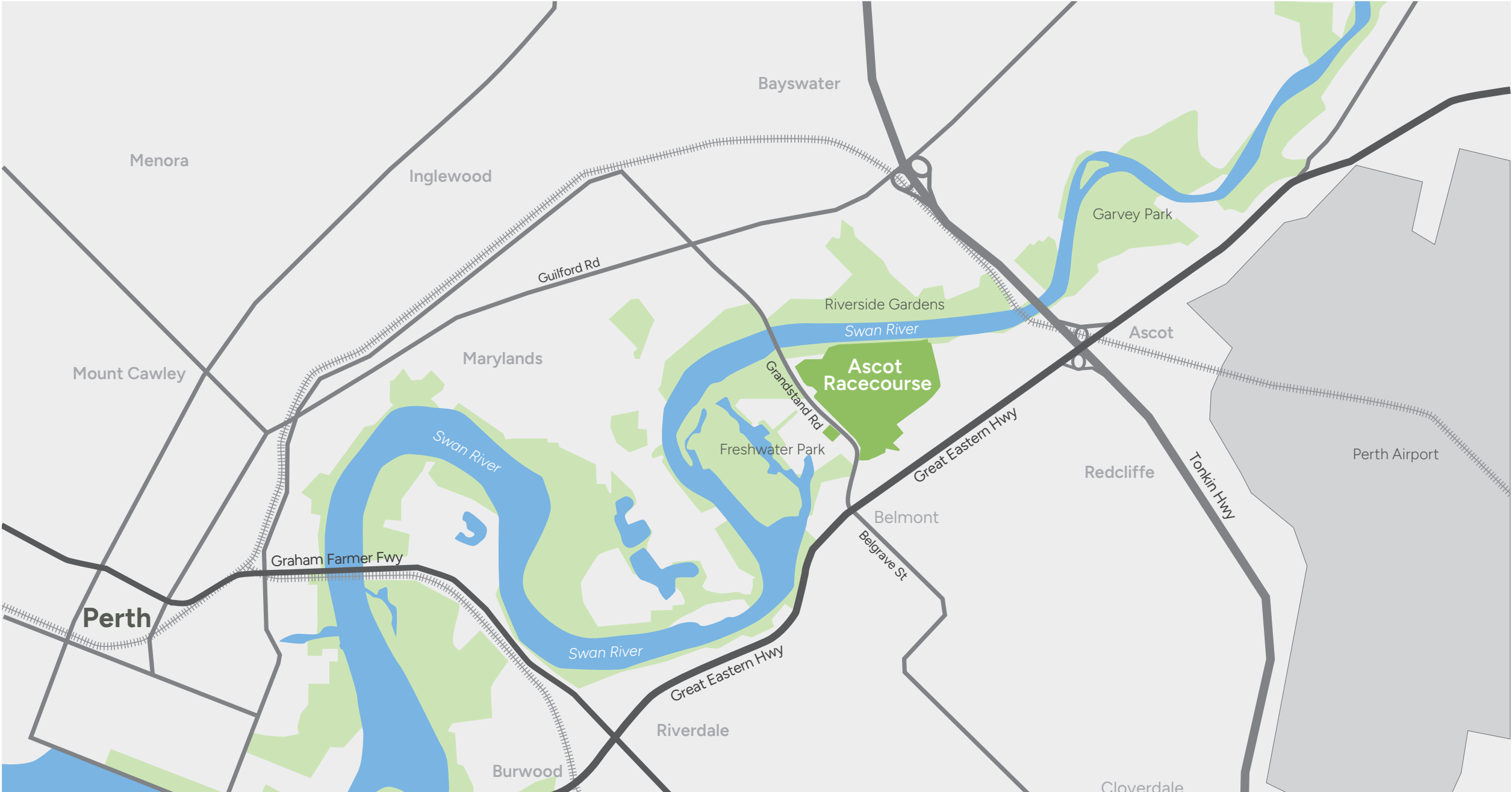
Image: © SLR Consulting



Image: © SLR Consulting



3. Location & Context





4. Existing Situation

The existing elements within the site and its immediate surrounds define the local Visual Environment. This includes natural elements such as vegetation, built form elements including:

Legibility

- Prominent areas of the site feel detached from its surrounds both visually and physically as a result of fencing and vegetation
- Entry points generally have a low level of visibility and legibility
- ‘Ascot Racecourse’ sign and views into the site are not clearly visible from the roundabout on Grandstand Road which results in reduced legibility
- Broader racecourse land especially to the east feel detached from the site
- Entry points are marked by piers and structures, reflecting traditional elements and materials used through the site in built form
- The well-defined vegetated edge along Grandstand Road enhances the site’s legibility and character
- A variety of fencing styles and hoarding along Grandstand Road detract from the character of the racecourse

Visibility

- Views into the Racecourse and the open areas are obscured by low-level hedging and hoarding signs.
- Views and visibility of main corner from the roundabout is poor
- The corner ‘Ascot Racecourse’ sign is obscured by shrubs



Images: © SLR Consulting



Character

- General
 - Natural forms such as the existing vegetation is juxtaposed against the ‘historical racecourse design’
 - Mix of built form styles and materials
 - High quality features such as open space areas, feature trees and historical structures create a strong identity within the racecourse however this character is less evident around it's edges and at entry points.
 - The racecourse has a ‘village’ feel around the open bar areas created by the shade and laneways
 - Large areas of open pavement car parks visible from Grandstand Road and Matheson Road are hot and uninteresting
 - The combination of ‘equine’ character elements such as post and rail fencing, grass areas and formal planting promote a racecourse feel within the site
- Materials
 - The red bricks and brickwork used throughout the site is a prominent element used within the site and which is reinforced by the materiality across Granstand Road at the Ascot Kilns site
 - Terra cotta tiles gable roofs complement the brick elements around the site
 - Brick piers with stone capping are traditional elements used along boundaries and within the site
 - Brick patterning in pavements – checker board pattern
 - Entry structures/ admission points utilise traditional built form theming
 - Open/ permeable fencing varies in materiality around the site
 - Timber lattice work and wrought iron balustrading are detailed features elements used on the entry structures and within the built form
 - Broader areas of pavement can vary in appearance, quality and finish such as larger areas of bitumen outside of feature paving
 - Steel and brickwork reminiscent of historical periods in history



Images: © SLR Consulting



- Structures
 - Red brick with cream coloured plinths, lintels and capping
 - Pitched terra cotta tiled roofing
 - Detailing, façade colours and treatments, arches and architectural features are of high quality
- Vegetation
 - Large feature trees both native and exotic are scattered throughout the site
 - Large shade trees provide shade in public areas to complement the structures especially around the open grassed areas
 - Detailed low-level shrub and groundcover planting is a feature around key congregation areas and at entry points and which include a combination of native and exotic species



Images: © SLR Consulting

5. Key Character Elements

Key character elements are those elements that typically characterise the identity of the Ascot Racecourse and strengthen its sense of place.

Key character elements can be materials, patterns, vegetation, built form or symbols and should be and their use should be encouraged where appropriate to further reinforce the identity and character of the racecourse.

- Red Bricks used for pedestrian pavements, walls, piers and building elements
- Checkerboard patterning used in feature pedestrian areas
- Large feature trees planted in avenues at entry points
- Large shade and feature trees used in open park areas and open equine display areas
- Open fencing that reflects an rural-style or equine character, usually painted white



Images: © SLR Consulting





6. Ascot Racecourse Identity

All future works within the Ascot Racecourse should reflect character elements as outlined in section 5 to strengthen its identity and character.

Whilst development will occur on the racecourse the ability to reflect the key character elements within the context of its equine and racing use and history, will act to positively reinforce its character and setting.

The identity of Ascot Racecourse is reflected in both spatial, physical and thematic elements.

Spatial

Open grassed areas - these primarily reflect the character of the racetrack and key outdoor function areas. Open function areas are further improved by feature specimen trees that provide shade and established character within the context of its open character.

Views and Visibility

Views of the feature open areas and significant structures from internal areas and areas external to the site.

Views of the racetrack along key pedestrian and vehicular axis.

Materiality

Materials characteristic of the racetrack are embodied in the red bricks of the area. The red bricks are a key element in the built form, pedestrian paved areas, landscaped walls and other external elements. The red bricks/ pavers and the distinct checkerboard patterning is evident at entry points and key external spaces.

Colours

Whilst the red colouration of the bricks stands out as the key colour element at and near ground level, this is also offset by the cream bricks and finishes. This light colour is a counterpoint to the red finish that is also reflected in the brick piers and capping along the perimeter and internal walls as well as on the colouration of the built form.

Planting

Planting takes a number of forms within the racecourse, but that which helps to define its identity is mainly around the feature specimens. This takes the forms of native Eucalypt species reflecting the native/ endemic character of the area, large non endemic feature trees and palms that reference the history of the use. Whilst the informality of planting within open spaces and plazas has a defined character, formal avenue planting with large specimens along entry paths, entrances and concourse areas also helps to define its character.

At a detailed level, formal shrubs, feature plants and annual gardens reflect the European history of the racecourse mainly around entry points.



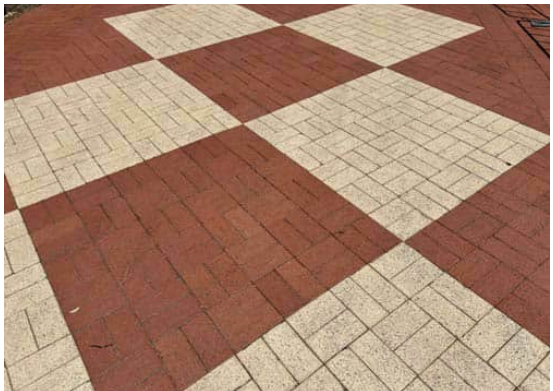
7. Opportunities & Challenges

Opportunities

- Use the materials and patterning in the wider open space and landscape areas
- Create greater visibility or visual permeability into the site at key locations such as entry points
- Screen or reduce visibility into the site to areas such as car parks where visibility is currently very high
- Create a greater degree of legibility around entry points
- Strengthen feature vegetation at entry points
- Improve internal pedestrian legality throughout the site
- Use key character elements through all areas of the broader site to strengthen the identity and character instead of limiting it to around the main racing and grandstand area

Challenges

- Screening and limiting access to service areas and facilities
- Large areas of parking highly visible from Grandstand Road
- Creating visible linkages to racecourse from Grandstand Road
- Integrating future service and back-of-house uses



Images: © SLR Consulting



Image: © SLR Consulting



8. Landscape & Open Space Vision Statement



Image: © SLR Consulting



9. Landscape & Open Space Principles

The following Landscape Principles provide high level guidance around future development of Landscape and Open Space elements at the Ascot Racecourse. These are grouped under key topics relevant to the site, its uses and landscape outcomes.

Community

Create a safe and welcoming place where the community can use a range of facilities focused around the equine uses of the racecourse.

History and Culture

Recognise, and utilise the key historical, cultural and character elements within the design to strengthen its meaning and sense of place.

Sustainability

Utilise sustainable principles in the planning, design and implementation of landscapes and open spaces.

Environment

Recognise inherent environmental and ecological values of the broader context of the site in strengthening the linkages and relationship of the racecourse to its surrounds.

Context and Linkages

Improve the legibility of the site by providing safe and functional connectivity to the site and within the site.

Open Space

Provide a range of open spaces within the site that cater for a diverse range of users and activities with a focus around the equine uses of the racecourse.

Economics

A place that provides a wide range of open spaces and outdoor uses in attracting the local community.



10. Landscape & Open Space Objectives

Landscape and Open Space Objectives provide further direction on how the Landscape Principles can be achieved through incorporating identified landscape elements into future works on site.

Community

- Incorporate programmable open spaces and recreational uses within the development to attract community users and to complement the existing racecourse uses.

Environment

- Utilise riparian plant species endemic to the Swan River within the Precincts, to reinforce the visual and landscape linkages to between the racecourse and the river.
- Where possible integrate sustainable practices into the racecourse planning and design of landscapes and open spaces.

Open Space

- Provide a feature recreation and open space area adjoining the racecourse that incorporates a range of recreational, play and community facilities.
- Provide programmable open space areas that integrate with the formal play and recreational elements and respond to annual/ season events.
- Utilise natural shade in open spaces and recreation areas to improve the amenity of the open spaces.

History and Culture

- Make reference within open spaces to historical and cultural values of the site and broader locality through the use of artwork and sculpture, plant species, and materials and finishes.
- Reinforce historical and cultural values of the site and its uses through signage and wayfinding that informs the community and provides a finer layer of detail and interest within the landscapes and open spaces.

Context and Linkages

- Provide safe and efficient linkages between the racecourse site and open space areas along the Swan River.
- Provide safe and legible pedestrian paths and vehicular access through the site that reinforces the pedestrian dual use areas.
- Provide shaded pathways throughout the site that reinforce the vegetated character of the site.

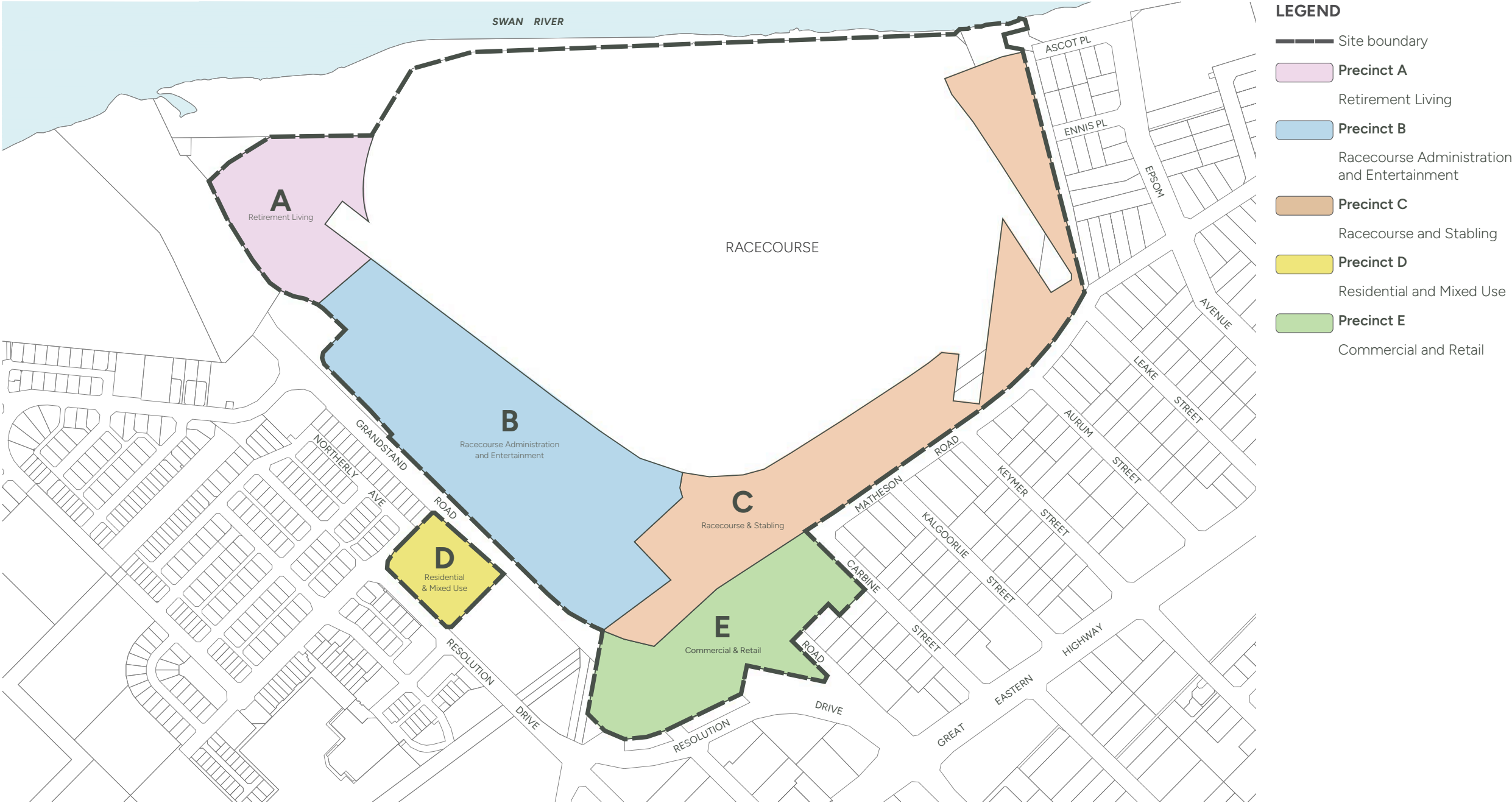
Economics

- Open space uses are to respond to the community needs and annual events of the racecourse.
- Landscapes are to be designed to to maximise efficiencies in maintenance and ongoing management, and utilise principles around water efficiency, efficient replacement and management.
- Design for landscapes and open spaces that can be efficiently maintained and managed in line with the current racecourse landscaped areas.



Image: © SLR Consulting

11. Precincts





11.1 Precinct A

Retirement Living

Precinct A is a highly visible area and arrival point into the City of Belmont when crossing the Garratt Road Bridge. It provides a visual link between the edges of the Swan River and the Ascot Racecourse. Its elevated location above the Swan River provides potential outlook opportunities to both this environment and the Ascot Racecourse.

- Interface with Swan River, Racecourse and Grandstand Road
- Flat open space with clear views of the race track
- No existing vegetation
- Separated from Grandstand Road by informal tree planting outside of the subject site boundary
- The precinct is very visible from Grandstand Road
- Separated from Swan River by Riparian edge vegetation, recreational path
- Limited views to river from ground level but potential for physical path links. Views from higher points in future development
- Limited views through from Grandstand Road and pedestrian path
- Reinforce the character of the informal natural edge along Grandstand Road through planting design
- Retain glimpses to the Swan River from Grandstand Road
- Create links to other precincts by including key landmark species in planting palette that are used in Precinct B
- Create links to public walkways along Swan River
- Create outlooks to new public playgrounds in Precinct B - clear wayfinding from Waterway Crescent roundabout
- Create a "northern bookend" to the racecourse site

Potentials

- Allow glimpses through future site development to the racecourse
- Glimpses through street trees to development
- Landscape to borrow from riparian vegetation along Swan River (species and character)
- Consideration of the Precinct A interface with the Swan River and foreshore areas given its proposed elevated location.
- Consideration of built form, scale and appearance and will require further material, vegetative screening and setback considerations to integrate with the appearance of the Swan River and minimise visual impacts.



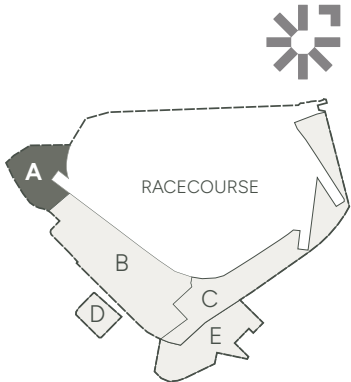
Images: © SLR Consulting



PRECINCT A ARRANGEMENT PLAN
1:2500 @ A3

LEGEND

- Site boundary
 - - - Precinct boundary
 - * Entry sign focal point
 - ⊙ Enhanced entry point - vehicle / pedestrian
 - ⊙ Enhanced entry point - pedestrian
 - ← Existing shaded pedestrian path along Swan River
 - Enhanced vehicle / pedestrian link
 - - - Key view lines
 - Pedestrian links
-
- ① Landscape to reflect / complement the riparian species of the Swan River foreshore
 - ② Grandstand Road interface planting. Informal tree and shrub planting along the edge to complement the existing public realm edge
 - ③ Open space area that complements the character of the proposed parkland areas in Precinct B
 - ④ Open landscapes allowing views to the racecourse and Swan River edge
 - ⑤ Central communal space





PRECINCT A INDICATIVE LAYOUT PLAN





11.2 Precinct B

Racecourse Administration & Entertainment

- Large precinct with existing established infrastructure
- Strong visitor focus
- 1 main vehicular entry point
- 1 major pedestrian entry point
- Limited views through from Grandstand Road to racecourse
- Grandstand and other structures highly visible from Grandstand Road
- Parking areas very visible and prominent from Grandstand Road
- Landmark/ feature vegetation very visible from Grandstand Road but does not maximise opportunities to either allow or screen views at appropriate points
- Carparks are open and not screened
- Fencing, planting and hoarding along southern part of Grandstand Road block views into key public areas of the racecourse from pedestrian paths and road
- Key views to the racecourse from Grandstand Road are obscured containers and 'back of house' elements
- Legibility generally poor along Grandstand Road

Potentials

- Create views through to key areas such as racecourse and open spaces from key entry points along Grandstand Road
- Limit views to car parks and 'back of house' areas through screening vegetation and quality fencing

- Promote shade in open areas such as car parks and future open space and community park areas
- Upgrade entry points to improve legibility and access to key areas in racecourse -pavement changes, vegetation, improved signage
- Upgrade interface/ presentation with Grandstand Road – high quality fencing
- Create a shaded, safe and legible pedestrian access system through a series of interconnected paths that complement the racecourse theming and promote movement through the site
- Provide a clear signage and wayfinding system throughout the site that complements the branding and character of the racecourse
- Provide a new Play and Recreation Hub
 - Playground – accessible to car park and pedestrian connections, shaded areas, themed, multi-age play equipment
 - Picnic Spaces – adjoining the playground feature, shaded picnic spaces in close proximity to the racecourse
- Minimise water usage in new landscape and open space use areas through
 - Minimising bore water usage (especially for ongoing grass maintenance),
 - Use of hardy drought tolerant species
 - Mulching to garden areas
 - Use of hard surface finishes where appropriate
 - Increased areas of planting



Images: © SLR Consulting





LEGEND

- Site boundary
- - - Precinct boundary
- ✱ Entry sign focal point
- ⊙ Enhanced entry point - vehicle / pedestrian
- ⊙ Enhanced entry point - pedestrian
- ⇄ Shaded pedestrian priority link
- ⇄ Enhanced vehicle / pedestrian link
- Key view lines
- ~~~~~ Grandstand Road edge upgrade - high quality fencing and planting to screen carparking but allow views to buildings
- High quality permeable fencing that allows views to the open space
- Shaded Pedestrian Avenue
- ① Picnic space within new recreation hub
- ② Playground within new recreational hub
- ③ Carpark edges adjusted and tree planting added
- ④ Upgraded park space
- ⑤ Relocated existing building
- ⑥ New offices / hospitality
- ⑦ Existing grandstand retained
- ⑧ Service area
- ⑨ Existing plaza uses and covered spaces
- ⑩ Open grassed function and recreational space to be retained
- ⑪ Buffer planting to screen horse float parking
- ⑫ Lower planting to allow views to entry sign and enhance vista into racecourse
- ⑬ Existing service area to be retained

NORTH

PRECINCT B ARRANGEMENT PLAN



0 10 20 30 40 50 10m
SCALE 1:250 @ A3

PRECINCT B INDICATIVE LAYOUT PLAN



11.3 Precinct C

Racecourse & Stabling

- Primarily for Permanent Stabling purposes and horse float and jockey on race days
- Facilities around the stabling uses that interface with the ‘entertainment’ and ‘racing’ uses
- Interface with Matheson Road important to reinforce the character of the precinct rather than to turn its back on the surrounding residential uses

Potentials

- Screen the horse float area from surrounding uses
- Reinforce the pedestrian entry and arrival point along Matheson Road and Raconteur Drive
- Avenue of street tree planting along Matheson Road to integrate with the surrounding residential area and define the edge and enhance the character of the racecourse
- Where possible facilitate views into the racecourse from nearby roads
- New stables and structures to reference and reinforce the built form character of the existing racecourse buildings.
- Enhance the character of Precinct C and the southern and eastern extents of the site along Matheson Road and Ennis Place respectively through landscape elements. These would reference existing landscape character elements within the racecourse and integrate with the surrounding residential uses through appropriate streetscape planting and landscaping around buildings
- Promote shade in open areas such as car park areas, open space and community spaces
- Shade tree planting within new car parking areas



Images: © SLR Consulting



PRECINCT C ARRANGEMENT PLAN

LEGEND

- Site boundary
- Precinct boundary
- Staff access
- ↔ Pedestrian link
- Key view lines
- ① Day stalls
- ② Visitors, trainers and jockeys carpark
- ③ Buffer planting to screen horse float parking
- ④ Horse float parking
- ⑤ Oncourse stables
- ⑥ Avenue planting to enhance streetscape appearance
- ⑦ Interface with racetrack
- ⑧ Interface with Swan River

The location close to the Swan River and foreshore requires consideration of built form, scale and appearance and will require further material, vegetative screening and setback considerations to integrate with the appearance of the Swan River and minimise visual impacts.

General Note:
Landscape treatment around proposed buildings in proximity to the Swan River Foreshore (within Precinct C) will help to create shade, support habitat and complement the character of the Swan River foreshore areas.





PRECINCT C INDICATIVE LAYOUT PLAN





11.4 Precinct D

Residential & Mixed Use

- Current site for administration building
- Isolated from main racecourse site by Grandstand Road
- Adjoins existing low and medium density residential uses
- Existing mature trees on site
- No visible connection to Racecourse uses except for red bricks on admin building

Potentials

- Create similar interface with Grandstand Road
- Interface with Ascot Kilns where possible through the use of materials, visual links and signage
- Retain existing established trees along Grandstand Road and existing feature trees within the site where possible
- Align the character and appearance to complement the existing Ascot Waters Estate
- Minimum 1 shade tree for every 4 open air parking bays for non-residential development



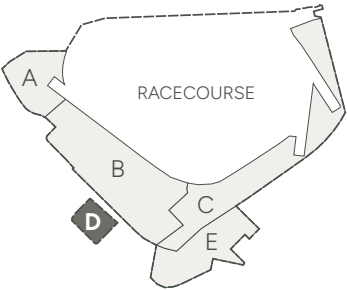
Images: © SLR Consulting





PRECINCT D ARRANGEMENT PLAN
1:2500 @ A3

- LEGEND**
- Site boundary
 - - - Precinct boundary
 - ↔ Existing pedestrian link
-
- ① Childcare centre
 - ② Residential lots
 - ③ Internal tree-lined streets
 - ④ Entry points to Resolution Drive
 - ⑤ Existing pedestrian path linkage to be retained





PRECINCT D INDICATIVE LAYOUT PLAN



11.5 Precinct E

Commercial & Retail

- Current existing open grassed areas used for overflow car parking
- Scattered existing vegetation along drainage lines and roads
- Low level of visual amenity
- No visible connection to Racecourse uses

Potentials

- Create edges to proposed development that focus towards key entry points and vistas toward the racecourse buildings
- Street tree theming to strongly define racecourse edge and enhance the character of the site
- Create links to the Historic Ascot Kilns through the use of strategic viewpoints along roads and between buildings. Use of kiln-related materials and colours in built form and pavements to reinforce the connections to the Ascot Kilns
- Building forms and styles to complement the existing feature buildings visible on site
- Activation of Matheson Road and Raconteur Drive to complement the proposed uses such as the food markets
- Integrate with the residential context with street tree planting that reflects the character of the site
- Creation of ‘sleeve’ uses around the racecourse that enhance its presentation, character and identity, especially along Resolution Drive, Grandstand Road
- Improve the appearance of the open drain along the eastern edge of Precinct E as it adjoins Resolution Drive. This could be achieved through additional planting to naturalise its appearance
- 1 shade tree for every 4 open air parking bays
- Minimum 3m wide landscaping to Grandstand Road frontage



Images: © SLR Consulting

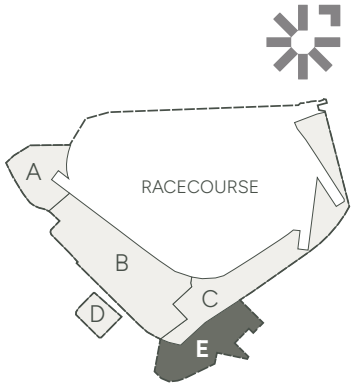


PRECINCT E ARRANGEMENT PLAN
1:2500 @ A3

LEGEND

- Site boundary
- Precinct boundary
- Entry sign focal point
- Enhanced entry point - vehicle / pedestrian
- Enhanced vehicle / pedestrian link
- Key view lines
- Shaded pedestrian Avenue

- 1 Future research facilities
- 2 Commercial uses
- 3 Vegetated buffers
- 4 Service area
- 5 Retail/ Commercial uses
- 6 Carparking
- 7 Jockey accommodation
- 8 Upgrade appearance of drainage corridor





PRECINCT E INDICATIVE LAYOUT PLAN





Planting Palette

PLANT SCHEDULE	
SPECIES	COMMON NAME
TREES	
<i>Agonis flexuosa</i>	Weeping peppermint
<i>Allocasuarina fraseriana</i>	Western sheoak
<i>Banksia attenuata</i>	Candlestick banksia
<i>Banksia grandis</i>	Bull banksia
<i>Banksia menziesii</i>	Firewood banksia
<i>Brachychiton discolour</i>	Lacebark tree
<i>Casuarina glauca</i>	Swamp she-oak
<i>Casuarina obesa</i>	Western swamp oak
<i>Corymbia calophylla</i>	Marri
<i>Corymbia ficifolia</i>	Red flowering gum
<i>Corymbia maculata</i>	Spotted gum
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Eucalyptus gomphocephala</i>	Tuart
<i>Eucalyptus lane-poolei</i>	Salmon white gum
<i>Eucalyptus marginata</i>	Jarrah
<i>Eucalyptus rudis</i>	Flooded gum
<i>Eucalyptus tottiana</i>	Coastal blackbutt
<i>Eucalyptus wandoo</i>	Wandoo
<i>Lophostemon confertus</i>	Queensland brush box
<i>Melaleuca quinquenervia</i>	Broad-leaved paperbark
<i>Melaleuca raphiophylla</i>	Swamp paperbark
<i>Melaleuca viminalis</i>	Weeping bottlebrush
<i>Platanus x acerifolia</i>	London Plane
<i>Quercus palustris</i>	Pin Oak



Agonis flexuosa



Allocasuarina fraseriana



Banksia attenuata



Banksia grandis



Banksia menziesii



Brachychiton discolour



Casuarina glauca



Casuarina obesa



Corymbia calophylla



Corymbia ficifolia



Corymbia maculata



Cupaniopsis anacardioides



Eucalyptus gomphocephala



Eucalyptus lane-poolei



Eucalyptus marginata



Eucalyptus rudis



Eucalyptus tottiana



Eucalyptus wandoo



Lophostemon confertus



Melaleuca quinquenervia



Melaleuca raphiophylla



Melaleuca viminalis



Platanus x acerifolia



Quercus palustris



PLANT SCHEDULE

SPECIES	COMMON NAME
SHRUBS	
<i>Adenanthos cunninghamii</i>	Wollybush
<i>Adenanthos cygnorum</i>	Common Woollybush
<i>Adenanthos obovatus</i>	Basket Flower
<i>Beaufortia squarrosa</i>	Sandplains Brush Myrtle
<i>Boronia crenulata</i>	Aniseed Boronia
<i>Calothamnus sanguineus</i>	Silky-leaved Blood Flower
<i>Callitris pyramidalis</i>	Swamp Cypress
<i>Darwinia citriodora</i>	Lemon Scented Myrtle
<i>Eremophila glabra</i>	Tarbush
<i>Grevillea 'Bonfire'</i>	Grevillea
<i>Hakea lissocarpa</i>	Hakea lissocarpa
<i>Hypocalymma angustifolium</i>	White Myrtle
<i>Melaleuca nesophila</i>	Western Tea Myrtle
<i>Melaleuca radula</i>	Graceful Honey-myrtle
<i>Verticordia plumosa</i>	Plumed Featherflower
GROUNDCOVERS	
<i>Anigozanthos manglesii</i>	Kangaroo Paw
<i>Carex appressa</i>	Tall Sedge
<i>Conostylis candicans</i>	Grey Cottonheads
<i>Dampiera linearis</i>	Common Dampiera
<i>Darwinia citriodora 'Seaspray'</i>	Lemon Scented Myrtle
<i>Dianella revoluta</i>	Blueberry Lily
<i>Ficinia nodosa</i>	Knotted Club Rush
<i>Gahnia trifida</i>	Coast Saw-sedge
<i>Hemandra pungens</i>	Snakebush
<i>Kennedia prostrata</i>	Running Postman
<i>Patersonia occidentalis</i>	Purple Flag
<i>Poa poiformis</i>	Coastal Poa
<i>Themeda triandra</i>	Kangaroo Grass



Adenanthos cunninghamii

Adenanthos cygnorum

Adenanthos obovatus

Beaufortia squarrosa

Boronia crenulata

Calothamnus sanguineus

Callitris pyramidalis

Darwinia citriodora



Eremophila glabra

Grevillea 'Bonfire'

Hakea lissocarpa

Hypocalymma angustifolium

Melaleuca nesophila

Melaleuca radula

Verticordia plumosa



Anigozanthos manglesii

Carex appressa

Conostylis candicans

Dampiera linearis

Darwinia citriodora 'Seaspray'

Dianella revoluta

Ficinia nodosa

Gahnia trifida



Hemandra pungens

Kennedia prostrata

Patersonia occidentalis

Poa poiformis

Themeda triandra



Materials Palette





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Schedule of Modifications

Document	Modification No.	Section/Page	Change
Structure Plan Report	1	Throughout	Refer to the current version of the draft Golden Gateway Local Structure Plan. Council endorsed the updated version at the 25 February 2025 Ordinary Council Meeting.
Structure Plan Report	2	2.1 Precinct Objectives Precinct D (Residential & Mixed Use) – Page 18	Update Point B to "Support small-scale non-residential uses along Grandstand Road that is compatible with nearby residential development."
Structure Plan Report	3	Table 1 – Indicative Development Staging – Page 19	Include specific staging details with reference to infrastructure considerations. Include reference to small scale food and beverage uses within Precinct A.
Structure Plan Report	4	4.1.2 Land Use Permissibility – Page 20	Update the wording of the Table so that it lists the restricted uses. It should be noted that a restricted use is the only use or uses that is permitted on a specific portion of land and other uses that would otherwise be permissible in the zone are not permitted.
Structure Plan Report	5	4.1.2 Land Use Permissibility – Page 20	Ensure that 'Restricted Uses' for Precincts D and E listed in Table 2 do not include 'Fast Food Outlet/Lunch Bar', 'Funeral Parlour', 'Garden Centre', 'Pet Day Care' 'Night Club', 'Radio or TV Installation', 'Restricted Premises', 'Service Station', 'Vet Hospital' and 'Showroom'.
Structure Plan Report	6	4.1.2 Land Use Permissibility – Page 20	Update Table 2 with 'Restricted Uses' specifically applicable to Precinct A. These should be 'Nursing Home', 'Multiple Dwelling' and 'Restaurant/Café'.
Structure Plan Report	7	4.1.2 Land Use Permissibility – Page 21	Delete 'Animal Establishment' from Table 3.
Structure Plan Report	8	4.1.3 – Road Reserves – Page 21	Include information about the options for this road reserve i.e remain in private ownership or be ceded.
Structure Plan Report	9	4.1.4 – Public Open Space – Page 21	Include text that: <ul style="list-style-type: none"> states public open space for 'Residential' zoned land will need to be considered as part of future applications for subdivision or development approval over the land. Reflects existing public open space within 300m of the 'Commercial' and 'Mixed Use' zoned land in accordance with liveable neighbourhoods.
Structure Plan Report	10	4.2.2 - Development Provisions – Page 22	Precinct A - Include justification for the proposed plot ratio within the PSP or investigate and apply a more appropriate plot ratio for Precinct A.
Structure Plan Report	11	4.2.2 – Development Provisions – Page 22	Precinct C - Include a 3m wide landscaping requirement for stables fronting Matheson Road and along the eastern boundary of the precinct.
Structure Plan Report	12	4.2.2 – Development Provisions – Page 22	Precinct D - Delete "Non-residential development adjoining land used for residential purposes shall confirm with the setback requirements under Volume 1 of the Residential Design Codes" and replace with a minimum setback requirement of 3m to adjoining residential development and a requirement that this area be landscaped.
Structure Plan Report	13	4.2.2 – Development Provisions – Page 23	Precinct E - Specify that heights above two storeys are only applicable to residential and office development.
Structure Plan Report	14	4.2.2 – Development	Precinct E - Include development provisions that require activation of all street frontages.

		Provisions – Page 23	
Structure Plan Report	15	4.2.2 – Development Provisions – Page 24	Precinct E - Include development provisions that address the interface to the Belmont Main Drain.
Structure Plan Report	16	4.3.3 – Land Assembly – Page 24	With reference to Precinct E, include additional details regarding land assembly having regard to comments provided by Water Corporation and the Land Use Management team at the Department of Planning Lands and Heritage.
Structure Plan Report	17	4.3 – Other Requirements	Include reference to the need for a local planning scheme amendment.
Structure Plan Report	18	4.3 – Other Requirements	Include reference to additional documents as follows: <ul style="list-style-type: none"> • Geotechnical report • Foreshore Management Plan (Applicable to Precincts A and C) • Acoustic Report • Environmental Impact Assessment • Aboriginal Heritage Management Plan
Structure Plan Report	19	4.3.2 – Heritage – Page 24	Include Aboriginal Heritage details consistent with section 2.2.2.1.
Structure Plan Report	20	4.3.2 – Heritage – Page 24	Insert “The Master Plan does not propose any development within the boundaries of the identified Aboriginal heritage places. Notwithstanding, should development occur within Precinct B that intersects the boundary of Site 3753, a DPLH file search should be undertaken to accurately determine the extent of the site, prior to any works commencing and an Aboriginal Heritage Management Plan may be required.”
Structure Plan Report	21	4.3.2 – Heritage – Page 24	Insert a requirement that prior to demolition of Lee-Steere House, the site should be photographically recorded, as per the recommendations of the City’s Local Heritage Survey.
Structure Plan Report	22	4.3.2 – Heritage – Page 24	Include reference to Matheson Rail Line.
Structure Plan Report	23	4.3.7 – Acid Sulphate Soils – Page 25	Insert “should ASS be encountered within a ‘moderate to low’ risk area, an ASS Management Plan will be prepared and implemented at subdivision and/or development stage”.
Structure Plan Report	24	4.3.8 - Environmental Protection & Management – Page 25	Include a discussion on opportunities for tree retention.
Structure Plan Report	25	2.1.4.2 – Acid Sulphate Soils – Page 39	Replace text with “The Department of Water and Environmental Regulation Acid Sulphate Soils (‘ASS’) risk mapping indicates that the majority of the site is considered to have a ‘high to moderate’ risk of ASS occurrence within 3 m of the natural surface. Subdivision and development within this area will be required to undertake an ASS assessment and may require the preparation of an ASS management plan and dewatering plan as a condition of approval. A portion of the site, including parts of Precinct B, Precinct C and the Racecourse are mapped as having a ‘moderate to low’ risk of ASS occurring within the 3m of the natural surface. Should ASS be encountered within this area, an ASS Management Plan will be prepared and implemented at subdivision and/or development stage.”
Structure Plan Report	26	2.1.4.3 Site Contamination Page 39	Update site contamination details with details included in the site investigation report and discuss implications of this for future development.
Structure Plan Report	27	2.1.6 – People Movement – Page 45	Delete “connectivity through central Perth and Bayswater Train Station” and replace with “north to destinations including Bayswater Station, Morley Bus Station/Shopping Centre and south to destinations including Belmont Forum Shopping Centre, Oats Street Station and Curtin University.”

Structure Plan Report	28	2.2.2.2.3 – Local Heritage Survey and Heritage List – Page 49	Describe the Ascot Residential and Stables Area as being partly within the precinct.
Structure Plan Report	29	2.3.1.3 – City of Belmont Activity Centre Planning Strategy – Page 52	<p>Update this section to accurately describe what the Activity Centre Planning Strategy says about retail floorspace having regard to the following:</p> <p><i>"The WAPC's Land Use and Employment Survey indicates that the Golden Gateway precinct and the southern side of Great Eastern Highway accommodated 4,286sqm of retail floor space in 2016. This is currently comprised of car/highway orientated retail (fast food outlets, service stations, showrooms) rather than serving the daily/weekly needs of the local residential population.</i></p> <p><i>The Retail Needs Assessment prepared to inform this Strategy anticipates a gradual increase in retail floorspace within this area (Golden Gateway precinct and southern side of Great Eastern Highway, between Belgravia Street and Hardey Road) from 4,286 in 2016 and 5,500 in 2031 to approximately 7,000sqm by 2036. This estimate provides for the establishment of a neighbourhood centre to a size of approximately 2,700sqm-3,000sqm within the Golden Gateway precinct.</i></p> <p><i>It is anticipated that redevelopment of the Golden Gateway precinct will occur over an extended period of time. It is also noted that the RNA covered land on the southern side of Great Eastern Highway, outside the Golden Gateway precinct which has capacity to accommodate additional retail floorspace. In light of this, it is considered appropriate for a 1,200sqm local centre to be developed within the Golden Gateway precinct in the first instance, without specific control on floorspace and supporting residential development.</i></p> <p><i>Following further residential development within the Golden Gateway precinct, it may be appropriate for this figure to be reviewed through a Needs Assessment or Net Benefit Test to determine where additional retail floorspace is required . This may also determine whether it is appropriate for the centre to be classified as a neighbourhood centre, using the City's RNA prepared to inform this Strategy as a guide."</i></p>
Structure Plan Report	30	2.3.3 Draft Golden Gateway Local Structure Plan – Page 56	Delete "in response to the above and of relevance to the Precinct Structure Plan area, Council resolved to:" and replace with "in response to the above and of relevance to the Precinct Structure Plan area, Council's resolution included:"
Structure Plan Report	31	2.3.3 Draft Golden Gateway Local Structure Plan – Page 56	Delete "Council also noted their desire to see the Ascot Kiln site developed into a park to allow for the wider community to access and interact with the heritage structures" and replace with "Council also resolved to require a Local Development Plan to be prepared for the Ascot Kilns site and for 10% of its area to be designated as Public Open Space."
Structure Plan Report	32	2.3.3 Draft Golden Gateway Local Structure Plan – Page 56	Update text to reflect the current status of the Draft Golden Gateway Local Structure Plan.
Structure Plan Report	33	2.3.3 Draft Golden Gateway Local Structure Plan – Page 57	Replace Figure 6 with an up to date version of the Draft Golden Gateway Local Structure Plan map.
Structure Plan Report	34	3.3 – Concept Development – Figure 7 – Page 67	Outline the Golden Gateway precinct consistent with the draft Golden Gateway Local Structure Plan
Structure Plan Report	35	3.3 – Concept Development – Figure 8 – Page 68	Remove proposed new crossover locations from the plan.
Structure Plan Report	36	4.1.1 – City of Belmont – Page 69	Delete "It is understood that the City of Belmont are supportive of this approach and would look to excise Perth Racing's landholdings from the draft Golden Gateway Structure Plan."

Structure Plan Report	37	4.1.1 – City of Belmont – Page 70	Delete “the above feedback has been considered and addressed in the preparation of this Structure Plan” and replace with “the above feedback was considered in the preparation of this Structure Plan.”
Structure Plan Report	38	4.1.4 – Community Engagement	Update this section to address the current version of the Golden Gateway Local Structure Plan.
Structure Plan Report	39	5.1 – Vision and Objectives – Page 74	Update the second objective for Precinct D to reference “that is compatible with surrounding residential development.”
Structure Plan Report	40	5.2 – Urban Ecology – Page 77	Under O1.1 Include reference to the Belmont Main Drain.
Structure Plan Report	41	5.2 – Urban Ecology – Page 77	Under O1.3 Include reference to opportunities for tree retention and other sustainability initiatives/criteria.
Structure Plan Report	42	5.2.5 – Green Network – Page 81	With reference to “to support this linkage, treatments along Ascot Racecourse’s existing interface to Grandstand Road are relevant and have been addressed in the supporting Landscape Master Plan” include further details on this within this section and within Part One of the Structure Plan.
Structure Plan Map	43	5.2.6 – Heritage – Page 82	Identify the ‘Ascot Residential and Stables Area’ site as being partly within the Precinct and included on the City’s Heritage List as a Category 2 site.
Structure Plan Report	44	5.2.6 – Heritage – Page 82	Include reference to the Matheson Rail Line.
Structure Plan Report	45	Figure 83 – Page 83	Identify the Matheson Rail Line and Aboriginal Heritage Sites 3756 and 3753.
Structure Plan Report	46	5.3.1 – Northern Gateway – Page 85	Delete reference to Precinct A being within the walkable catchment of the future Golden Gateway activity centre.
Structure Plan Report	47	5.3.4 – Commercial Precinct – Page 86	Update this section to reflect advice received by the applicant from Water Corporation and the Department of Planning Lands and Heritage summarised by the applicant as follows: <i>“We have received advice from the Department of Lands that indicates the land is capable of accommodating car parking above it (it was previously a road) and thus the intention is that the land will be utilised and leased to provide parking of the future commercial. Water Corporation have confirmed the requirements for building parking above the mains in the old road reserve which can be accommodated.”</i>
Structure Plan Report	48	Figure 11 – Urban Structure – Page 87	Update this plan to show walkable catchments and the Belmont Main Drain.
Structure Plan Report	49	5.4 – Public Realm – Page 89	Update O3.3 to talk about the relationship of the land to the Belmont Main Drain.
Structure Plan Report	50	5.5 – Movement – Page 97	Update the Design Element Response for O4.2 to clearly explain how the Precinct Structure Plan promotes sustainable and healthy modes of transport, reducing reliance on the private motor vehicle.
Structure Plan Report	51	5.5 – Movement – Page 97	Update the Design Element Response for O4.3 to clearly explain specific measures proposed by the Precinct Structure Plan.
Structure Plan Report	52	5.5.1 – Proposed Vehicle Access & Intersection Upgrades – Page 98	Include details about the existing gates at the intersection of Raconteur Drive and Grandstand Road and the gates along Hardey Road and Matheson Road. The impact of opening these gates on traffic within the residential and stables area must be detailed within the PSP and Transport Impact Assessment.
Structure Plan Report	53	5.5.1 – Proposed Vehicle Access & Intersection Upgrades – Page 98	Include additional details regarding the appropriateness of the proposed vehicle access arrangements. Particular attention should be paid to the impact on roads within the residential and stables precinct (e.g. Matheson Road and Ennis Place). Access from Ennis Place should be referenced within the draft PSP and TIA. There may need to be restrictions on vehicle types and access hours. Additionally, this would require access through Lot 10194 which is owned by the State of WA. Therefore, permission may also be required for access through this lot. These matters shall be referenced in the draft PSP.

Structure Plan Report	54	5.5.2 – Proposed Pedestrian Network – Page 98	Update this section to include additional information about proposed pedestrian network improvements with a particular focus on enhancing pedestrian safety across Grandstand Road. This section should also be updated to specify who is responsible for delivering this infrastructure.
Structure Plan Report	55	5.5.3 – Parking Improvements – Page 99	Include additional details about the contents of the Travel Demand Plan and a requirement for its preparation within Part One of the Precinct Structure Plan.
Structure Plan Report	56	5.5.3 – Parking Improvements – Page 99	Update this section with a more comprehensive assessment of parking supply/demand.
Structure Plan Report	57	5.5.4 – Public Transport – Page 100	Delete “providing connectivity to the central Perth and Bayswater Train Stations” and replace with “providing connections north to destinations including Bayswater Station, Morley Bus Station/Shopping Centre and south to destinations including Belmont Forum Shopping Centre, Oats Street Station and Curtin University.”
Structure Plan Report	58	Figure 14 – Movement Network – Page 101	Update this figure to clarify what 4 – Potential left in/left out relates to.
Structure Plan Report	59	5.6 – Land Use – Page 103	Under 05.1 delete “The Precinct Structure Plan facilitates a residential interface to Ascot Waters Estate” and replace with “Except for one ‘Mixed Use’ lot, the Structure Plan facilitates a residential interface to Ascot Waters”.
Structure Plan Report	60	5.6.1.4 – Precinct E – Page 105	Delete reference within this section and throughout the document to bulky goods showrooms.
Structure Plan Report	61	5.6.2.1 – Activity Centre Considerations	Update all text references within this section and throughout the document to clarify that the future activity centre is the portion of land bound by Resolution Drive, Grandstand Road and Raconteur Drive noting that the Activity Centre Planning Strategy doesn’t designate a specific location for the activity centre within the precinct.
Structure Plan Report	62	5.6.2.2 – Retail Needs Assessment – Page 107	<p>Update this section to accurately describe what the Activity Centre Planning Strategy says about retail floorspace having regard to the following:</p> <p><i>“The WAPC’s Land Use and Employment Survey indicates that the Golden Gateway precinct and the southern side of Great Eastern Highway accommodated 4,286sqm of retail floor space in 2016. This is currently comprised of car/highway orientated retail (fast food outlets, service stations, showrooms) rather than serving the daily/weekly needs of the local residential population.</i></p> <p><i>The Retail Needs Assessment prepared to inform this Strategy anticipates a gradual increase in retail floorspace within this area (Golden Gateway precinct and southern side of Great Eastern Highway, between Belgravia Street and Hardey Road) from 4,286 in 2016 and 5,500 in 2031 to approximately 7,000sqm by 2036. This estimate provides for the establishment of a neighbourhood centre to a size of approximately 2,700sqm-3,000sqm within the Golden Gateway precinct.</i></p> <p><i>It is anticipated that redevelopment of the Golden Gateway precinct will occur over an extended period of time. It is also noted that the RNA covered land on the southern side of Great Eastern Highway, outside the Golden Gateway precinct which has capacity to accommodate additional retail floorspace. In light of this, it is considered appropriate for a 1,200sqm local centre to be developed within the Golden Gateway precinct in the first instance, without specific control on floorspace and supporting residential development.</i></p> <p><i>Following further residential development within the Golden Gateway precinct, it may be appropriate for this figure to be reviewed through a Needs Assessment or Net Benefit Test to determine where additional retail floorspace is required. This may also determine whether it is appropriate for the centre to be classified as a neighbourhood centre, using the City’s RNA prepared to inform this Strategy as a guide.”</i></p>
Structure Plan Report	63	Figure 16 – Golden Gateway Activity Centre – Page 110	Update Figure 16 and associated text by removing the access arrows, deleting the “Activity Centre Frame” and clarifying what the “Verge” relates to.

Structure Plan Report	64	5.7.1 – Commercial Precinct – Page 112	Update building heights referred to for the draft Golden Gateway Local Structure Plan as per the current version of the structure plan.
Structure Plan Report	65	5.7.3 – Ascot Waters & Bristle Kilns Interface – Page 114	Include additional information addressing the interface of the 'Mixed Use' portion of Precinct D to Ascot Waters, as per modification 10.
Structure Plan Report	66	Figure 17 – Built Form – Page 115	Identify existing buildings to be retained on the Plan and update building heights to be consistent with the current version of the Golden Gateway Local Structure Plan.
Structure Plan Report	67	Cross Section A – Resolution Drive – Page 116	Update the cross section to show building heights consistent with the current version of the Golden Gateway Local Structure Plan.
Structure Plan Report	68	Throughout	Amend all text references and plans relating to Precinct A to make it clear that no development will occur within the Crown Grant in Trust land.
Structure Plan Report	69	Throughout	Update all plans to show the Belmont Main Drain as being located within the subject land.
Local Water Management Strategy	70	Throughout	Remove all references to subsurface drainage beneath road reserves and verges.
Environmental Assessment Report	71	Throughout	Update the entire report to address and identify trees on the site worthy of protection at development and subdivision stage.
Engineering Servicing Report	72	Figure 16 – Page 24	Update Figure 16 to show power lines running through a portion of Lot 100 Raconteur Drive.
Transport Impact Assessment	73	Transport Impact Assessment - 1.2 – Summary of TIA	Delete "and it is understood that through a later iteration of the concurrent Golden Gateway LSP, the City of Belmont will look to remove the Applicant's landholdings from the GGLSP."
Transport Impact Assessment	74	1.3.4 - Recent Movement Network Upgrades in Ascot – Page 2-3	Remove all information in this section that does not relate to Ascot.
Transport Impact Assessment	75	1.3.4 - Recent Movement Network Upgrades in Ascot – Page 2-3	Delete "Increase in residential development from The Springs development. City is planning to restrict one car bay per unit, allowing all other on street bays to be for visitors and people visiting the commercial shops and local businesses. The City has installed 'P' signs which have encouraged Fly-in/Fly-out (FIFO) workers and ALL DAY motorists heading to the Perth CBD."
Transport Impact Assessment	76	3.3 – Parking Impacts – Page 13-15	Review and restructure this section to provide clarity about current and future parking availability.
Transport Impact Assessment	77	6.3 – Traffic Generation	Include trip generation rates for Precinct B and Precinct C.
Transport Impact Assessment	78	3.6 – Pedestrian and Cyclist Access – Page 15, 5.4 – Pedestrian and Cyclist Accessibility – Page 17, 7.3 – Pedestrian and Cycle Accessibility – Page 25	Assess and determine necessary upgrades to pedestrian facilities surrounding Ascot Racecourse and model treatments within SIDRA to evaluate their viability.
Transport Impact Assessment	79	3.6 – Pedestrian and Cyclist Access	Detail mechanisms for future delivery of pedestrian facilities.

		– Page 15, 5.4 – Pedestrian and Cyclist Accessibility – Page 17, 7.3 – Pedestrian and Cycle Accessibility – Page 25	
Transport Impact Assessment	80	7.5 – Analysis of the Transport Network – Page 26	Delete “It is important to note that at the time of preparing this report, the details of the Golden Gateway Local Structure Plan were still under revision. Whilst every endeavour was made to interrogate the previous traffic modelling and road network proposals in the draft reports and liaise with key project members for updates, the details were still unfinished and presented too many unknowns to be adequately and accurately incorporated into this traffic modelling intersection analyses.”
Transport Impact Assessment	81	Throughout	Update the Transport Impact Assessment to adequately address increased traffic movements within the residential and stables area noting that the report recommends the intersection of Grandstand Road and Raconteur Drive be opened permanently. It is also presumed that the gates along Hardey Road and Matheson Road will also be opened. As well as include reference to traffic calming measures to deter vehicle movements through this area.
Transport Impact Assessment	82	Throughout	Update modelling and details within the report to reflect the latest version of the Golden Gateway Local Structure Plan.
Retail Assessment (Net Benefit Test)	83	7 – Net Benefit Test – Page 35	Include clear answers to the questions raised within Section 2.1 within the conclusions of the report.
Retail Assessment (Net Benefit Test)	84	7.7 – Strategic Alignment – Page 38	Delete “the proposed local centre activity is consistent with the City of Belmont’s Activity Centre Plan Strategy” and include further commentary about why the proposal is not consistent with what the City’s Activity Centre Planning Strategy says about retail floor area and incremental expansion.
Retail Assessment (Net Benefit Test)	85	Throughout	Include additional justification why the activity centre will be sustainable from 2026 and engage with what the Activity Centre Planning Strategy says about incremental expansion.
Retail Assessment (Net Benefit Test)	86	Throughout	Remove reference to Bulky Goods Showrooms.

Schedule of Submissions

No.	Submitter	Summary of Submission	Officer Comment
1	Public Submitter	<p>Raises concerns</p> <p>States that the area proposed to be used for stables is crucial for the endangered black cockatoos survival in the urban environment. Is concerned that there has been too much loss of habitat.</p> <p>States that it would be incredible if another option is found.</p>	Refer to Environment section of the report.
2	Public Submitter	<p>Raises concerns</p> <p>States that the natural food source for red and Baudin black cockatoos is diminishing on the Swan Coastal Plain. Concerned that these species are being driven to the point of extinction as suburbia encroaches and destroys their remaining feeding grounds.</p> <p>Highlights being a volunteer at Karrakin Black Cockatoo Conservation Centre located in Martin and sees firsthand the results of the loss of their habitat and food source.</p> <p>Estimates that the black cockatoo will be extinct within the next fifty years and states this is not the legacy we should be leaving for our future generations.</p> <p>Asks the City to reconsider the plans.</p>	Refer to Environment section of the report.
3	Public Submitter	<p>Supports subject to modifications and raises concerns</p> <p>Considers there is currently chaos along Grandstand Road whenever there is an event at the Racecourse. Notes that cars are banked up waiting for access, pedestrians crossing haphazardly, and through traffic at a standstill.</p> <p>Notes that no part of the precinct area appears to be designated for vehicle parking. Considers that Precinct B, which currently contains extensive gardens and small entertainment buildings, as well as parking, is under-utilised. Suggests that the City should require a greater part of that area to be used for parking, with Raconteur Drive continuing as the southern feeder road to divert traffic off Grandstand Road and Resolution Drive to the parking entry, with enhanced turn lanes.</p> <p>Considers that access from the north should be via a feeder road off Grandstand Road before the roundabout, with the gate at the roundabout closed. If this is not feasible due to the steep slope, suggests preventing a right turn from the south at the roundabout.</p> <p>To improve pedestrian safety across Grandstand Road, suggests installing pedestrian crossing lights (or other control measures) at each end of the area near bus stops, with railings along the road to prevent crossing at other points.</p> <p>Supports using part of the land in Precinct C for stabling and prefers this to be the only area in Belmont permitted for horse stabling. Following the development, proposes that the 'enclave' of racing stables between Matheson Road and Great Eastern Highway be discontinued and the land rezoned to make better use of the large blocks.</p>	<p>Refer to Movement section of the report.</p> <p>The draft PSP includes details of parking availability and access. As detailed within the Movement section of the report, a modification is proposed that clarity around the parking calculations is provided within the draft PSP and Transport Impact Assessment.</p> <p>The existing arrangement at the roundabout provides for safe access/egress from all directions. A separate intersection is not considered necessary or appropriate.</p> <p>Refer to Movement Section of the report.</p> <p>Noted. The future zoning and land use permissibility of properties within the residential and stables area will be further considered through the preparation of a new local planning scheme.</p>

		Criticises the proposal for elderly housing in Precinct A, noting that the area near the river would leave residents exposed to mosquitoes, event noise, and traffic, while being outside walking distance to shops.	These matters can be mitigated and where relevant will be further considered at development application stage.
4	Public Submitter	<p>Raises concerns</p> <p>Notes being deeply concerned and considers that the Ascot Racecourse Precinct Structure Plan will destroy crucial habitat and food sources for the endangered Black Cockatoo. Notes that this area currently provides many hollows used for nesting, as well as an important food source for this endangered species.</p> <p>Observes that these birds are struggling with so much of their habitat being cleared, pushing them to the brink of extinction. Emphasises that, as a community, it is essential to support these birds so that future generations can also experience these majestic birds in the wild.</p>	Refer to Environment section of the report.
5	Public Submitter	<p>Raises concerns</p> <p>States that the clearing of remaining green space around the racecourse for stables and other structures in areas C and E on the map will remove vital tree canopy and green space.</p> <p>Notes that these established trees are essential for native species, including the endangered Carnaby's Black Cockatoos, as they provide resting, nesting, and food sources. Emphasises the importance of preserving a green corridor to allow wildlife to traverse the urban landscape, with established trees being crucial for nesting. Considers that offsetting tree clearing by replanting does not account for the time required for trees to mature enough to serve as food sources or provide nesting hollows.</p> <p>States that replacing green space with more concrete structures will increase heat in the area.</p>	<p>Refer to Environment section of the report.</p> <p>Noted.</p>
6	Public Submitter	<p>Raises concerns</p> <p>Strongly opposes the plan of clearing critical habitat.</p>	Refer to Environment section of the report.
7	Public Submitter	<p>Raises concerns</p> <p>States that, as a racing patron with an interest in the welfare of Carnaby's Cockatoos, there is concern about the increasing pressure on these birds due to land clearing.</p> <p>Notes that the area proposed for development serves as an important remnant native stopping point for Carnabys, where they feed and water, and that destroying this area will negatively impact their survival.</p> <p>Emphasises that councils have a responsibility to conservation and must uphold this duty by resisting development pressures. Suggests that there are other suitable areas available for the proposed development.</p>	Refer to Environment section of the report.

8	Public Submitter	<p>Raises concerns</p> <p>States that the City of Belmont must not clear 1.27 hectares of Black Cockatoo habitat.</p> <p>Emphasises that these birds are endangered and currently face starvation due to habitat destruction. Notes that, in addition to this issue, the community—including non-human species—faces challenges from climate change, the heat island effect, and other ecological impacts. Considers the current structure plan to reflect corporate and LGA irresponsibility. Asserts that this habitat must be preserved to protect the City's reputation.</p>	<p>The Precinct Structure Plan is not the City of Belmont's plan.</p> <p>Refer to Environment section of the report.</p>
9	Public Submitter	<p>Raises concerns</p> <p>States that there are vital areas frequently visited by Black Cockatoos for foraging, and that these areas are critical for their survival. Requests that these areas be left untouched.</p>	Refer to Environment section of the report.
10	Public Submitter	<p>Raises concerns</p> <p>States that the plans should be amended to prevent the clearing of mature trees in areas designated for horse stables. Notes that these trees provide valuable habitat for endangered Carnaby's Cockatoos and other wildlife. Highlights that Belmont has a limited tree canopy and expresses disappointment that the development proposal plans to destroy mature trees instead of valuing and incorporating them into the design.</p>	Refer to Environment section of the report.
11	Public Submitter	<p>Supports</p> <p>Happy with the plan proposed.</p>	Noted
12	Public Submitter	<p>Raises concerns</p> <p>States that horse racing is diminishing as an industry as the public becomes more aware of animal cruelty. Considers that demolishing pristine habitat for threatened species, such as Black Cockatoos, is unconscionable, as is reducing canopy that is already under threat from climate change. Requests that this destruction be halted.</p>	Refer to Environment section of the report.
13	Public Submitter	<p>Raises concerns</p> <p>States that cockatoo habitat and food sources should not be destroyed.</p>	Refer to Environment section of the report.
14	Public Submitter	<p>Raises concerns</p> <p>States that vegetation and trees supporting endangered Black Cockatoos should not be cleared.</p>	Refer to Environment section of the report.
15	Public Submitter	<p>Raises concerns</p> <p>States that Black Cockatoo habitat should not be destroyed, as there is so little left for them, and clearing it will hasten their demise. Urges developers to act responsibly and care for native wildlife.</p>	Refer to Environment section of the report.
16	Public Submitter	<p>Raises concerns</p>	

		Understands that the development will impact the environment and natural habitat for local wildlife. Opposes the decision and hopes an alternative solution to the development can be found.	Refer to Environment section of the report.
17	Public Submitter	<p>Raises concerns</p> <p>States that they drive through the precinct most days and do not support horse and dog racing, as they believe it promotes gambling, excessive drinking, and provides opportunities for organised crime. Criticises the claim that animal welfare is a priority, asserting that making money is the true focus.</p> <p>Expresses strong opposition to the proposed development, noting that it threatens critical wildlife corridors that support native species like Black Cockatoos. States frustration with the proposal and warns that, when racing is eventually recognised as unethical, the city will suffer from the loss of trees and wildlife, holding the government and councils responsible.</p>	<p>Noted.</p> <p>Refer to Environment section of the report.</p>
18	Public Submitter	<p>Raises concerns</p> <p>Opposes the proposal to clear excess area for Ascot stables, as vegetation for the Carnaby's Cockatoos is not only vital but critical. Requests research into recent findings regarding the lack of food for Cockatoos due to the destruction of their native habitats and food sources. Appeals to consider the health and well-being of the Earth and urges looking beyond financial interests to recognise what is truly important.</p>	Refer to Environment section of the report.
19	Public Submitter	<p>Raises concerns</p> <p>Concerned about the clearing of 1.27 hectares of Cockatoo foraging and feeding habitat, as the birds are now at risk of starving. Urges that no further clearing take place and requests that an alternative solution be found.</p>	Refer to Environment section of the report.
20	Public Submitter	<p>Raises concerns</p> <p>States being stunned that endangered Cockatoo habitat could be destroyed for the expansion of horse racing facilities. Highlights the climate crisis and WA's poor record on habitat destruction, expressing disbelief that this proposal is even being considered. Urges that the woodland and its animals be left alone, noting that their world is shrinking quickly and extinction is a very real threat. Calls for taking a stand against this environmental travesty.</p>	Refer to Environment section of the report.
21	Public Submitter	<p>Raises concerns</p> <p>States that any development which destroys Black Cockatoo habitat and food sources is environmentally irresponsible. Emphasises the need to support these birds for their survival, noting that every area on the river is important. Strongly disagrees with the development.</p>	Refer to Environment section of the report.
22	Public Submitter	<p>Raises concerns</p> <p>States opposition to the clearing of Black Cockatoo habitat, highlighting that the birds are starving and that all existing bushland must be preserved to prevent their extinction.</p>	Refer to Environment section of the report.
23	Public Submitter	<p>Raises concerns</p> <p>States that mature, established trees should not be cleared.</p>	Refer to Environment section of the report.

24	Public Submitter	<p>Raises concerns</p> <p>States that the area proposed for clearance is a vital source of food and shelter for various Australian birds, fauna, and flora. Notes that the area has been extensively developed, impacting native plants, birds, and fauna.</p> <p>Highlights the suffering of the endangered and fragile Black Cockatoo population due to land clearing and building, with green corridors disappearing. Points out that the extreme summer last year led to the death of many adult shrubs and trees, further limiting nesting and feeding options. Expresses concern over the increasing number of sick and injured birds being cared for at Perth Zoo, noting that they are literally starving.</p> <p>Emphasises that the Black Cockatoos cannot relocate, be driven to food sources, or simply leave for other areas, as all regions with these birds are under pressure from land clearance. Notes that breeding pair numbers are down this year due to hunger and that the birds are eating non-nutritional items like bottlebrush shoots. Requests reconsideration of the development, arguing that horses do not depend on nature and bushland to survive. Urges careful thought on the decision, warning that such action could lead to regret in 30 years, as the land and resources cannot be replaced.</p>	Refer to Environment section of the report.
25	Public Submitter	<p>Raises concerns</p> <p>States that essential habitat for endangered Carnaby's Black-Cockatoos should be protected and prioritised over racing developments.</p>	Refer to Environment section of the report.
26	Public Submitter	<p>Raises concerns</p> <p>States that horse racing is a business and should not be allowed to destroy native vegetation surrounding Ascot Racecourse to enable a private entity to profit further.</p> <p>Requests that this application be refused permission. Highlights that Black Cockatoos depend on a dwindling food source and are federally protected, though this protection seems to be ignored. Suggests that this and similar applications should be rejected.</p>	Refer to Environment section of the report.
27	Public Submitter	<p>Raises concerns</p> <p>States that for the best long-term community outcomes and a sustainable future, the total environmental impact must be considered. Urges consideration of the ongoing impacts of native tree canopy removal for short-term financial gain. Suggests that any activity requiring gambling as its business model should offset its negative community impact.</p>	Refer to Environment section of the report.
28	Public Submitter	<p>Raises concerns</p> <p>States a strong request to reconsider the plans to destroy this precious habitat, emphasising that once it's gone, it cannot be replaced. Highlights that it is the responsibility of all Western Australians to protect these areas, not destroy them for commercial gain.</p>	Refer to Environment section of the report.
29	Public Submitter	<p>Supports subject to modifications</p> <p>States that it is great to see a plan in place for the suburb, noting that Ascot is a good location close to the City and river, but is underused and disconnected from the river.</p>	Noted. The Golden Gateway Local Structure and Draft Ascot Racecourse Precinct Structure Plan propose to apply zones to land to facilitate the development of shops, cafes and restaurants.

		Observes that despite its proximity to the river, the area lacks a strong lifestyle offering, with no cafes or shops within walking distance. Suggests the addition of a coffee shop, retail shops, or a small supermarket, such as an IGA, nearby.	
30	Public Submitter	Raises concerns States opposition to the development, as it will clear over 700 hectares of prime foraging land for the Black Cockatoo. Highlights that these birds are facing severe food shortages due to widespread land clearing for developments, with their numbers now at critically low levels and extinction being a significant threat.	Refer to Environment section of the report.
31	Public Submitter	Raises concerns States that the parcel of land should not be allowed to be cleared, as Carnaby's and Red-Tailed Cockatoos are desperate for food and this area provides a vital food source. Urges the need to keep this habitat and vegetation safe for the birds and their future, requesting that no land clearance take place.	Refer to Environment section of the report.
32	Public Submitter	Raises concerns States objection to the proposed clearing of 1.27 hectares of Black Cockatoo foraging habitat for stables in Ascot. Notes that the population of Cockatoos has already declined due to habitat degradation and that these endangered birds are facing imminent starvation because of a decline in food resources. Highlights that the proposed development would worsen the current crisis.	Refer to Environment section of the report.
33	Public Submitter	Raises concerns States that the clearing of feeding and foraging areas for the threatened Black Cockatoo should not be allowed, particularly for the creation of new stables. Highlights that these birds are threatened with extinction due to the lack of feeding areas, especially along the river.	Refer to Environment section of the report.
34	Public Submitter	Raises concerns States that the expansion would result in the removal of over 1 hectare of bushland used by endangered Cockatoos for food. Highlights the struggle these birds are already facing, referencing Perth Zoo's reports on the increasing number of starving Cockatoos being cared for. Questions the need for expansion, noting that racing is not becoming more popular, and argues against encroaching on dwindling bush reserves. States opposition to the proposal.	Refer to Environment section of the report.
35	Public Submitter	Supports States that the plan has been well thought out by Perth Racing and serves the best interests of racing in WA and the City of Belmont. Considers the Plan will provide a safer environment for horses and staff, and offer an opportunity for new trainers to use the best facilities in WA, which is currently limited by the availability of houses and stables in Ascot. Considers that the plan may also allow Council to potentially rezone parts of Ascot for more housing, which could increase rates and benefit the City. Expresses full support for the plan from Perth Racing, considering it a great initiative.	Noted. The future zoning and density of properties within the residential and stables area will be further considered through the preparation of a new local planning scheme.

36	Public Submitter	<p>Raises concerns</p> <p>States that the racing industry represents only a small portion of the community. Considers that clearing vital Cockatoo foraging habitat will contribute to the State's legacy of extinctions and exacerbate the heat island effect in the local area.</p>	Refer to Environment section of the report.
37	Public Submitter	<p>Raises concerns</p> <p>States concern about the clearing of trees, particularly those used by Carnaby's and Black Cockatoos. Emphasises the importance of preserving tree canopy and building around existing trees, as they hold significant value for biodiversity and are crucial for the life and health of the Black Cockatoo population.</p>	Refer to Environment section of the report.
38	Public Submitter	<p>Raises concerns</p> <p>States strong opposition to the removal of 1.27 hectares of vegetation used as a food source for Black Cockatoos and other fauna, particularly for the creation of a stable that is not needed in the area. Argues that remnant bushland should be preserved, as Black Cockatoos are in crisis due to the loss of their food sources from development.</p>	Refer to Environment section of the report.
39	Public Submitter	<p>Raises concerns</p> <p>States concerns about turning Precinct E into commercial and retail space with parking, which would likely be used by commercial operations instead of the racecourse overflow, potentially pushing racecourse patrons into nearby residential areas.</p> <p>Highlights that the existing Golden Gateway activity centre is underutilised, questioning the need for further commercial and retail expansion.</p> <p>Raises concerns about the lack of accommodation for safe taxi and Uber pickups near the racecourse, which currently poses safety risks due to drunken pedestrians.</p> <p>Notes that the plan does not address traffic disruptions for events, particularly for users of Garratt Road Bridge.</p> <p>Suggests that the parkland with a playground needs adjustment to improve walking connectivity to the surrounding residential areas.</p> <p>Points out that the proposed retirement apartments may not have enough parking for the number of units and questions whether the demand for an industry-specific retirement living facility has been established.</p> <p>Expresses concerns about the proximity of residential areas to flood-prone zones and suggests Precinct E could be a better location for development, provided it includes sufficient parking and improves connectivity to surrounding areas and racecourse facilities.</p>	<p>Refer to Movement section of the report.</p> <p>There is currently no local centre within the Golden Gateway precinct. The City's Activity Centre Planning Strategy and Golden Gateway Local Structure Plan identify a future local centre within the area.</p> <p>The Transport Impact Assessment recommends the implementation of a Travel Demand Plan which could identify appropriate pickup or set down areas for taxis and ubers.</p> <p>Refer to Movement section of the report.</p> <p>Pedestrian crossing points are addressed within the Movement section of the report.</p> <p>The draft Precinct Structure Plan requires parking to be provided in accordance with Volume 2 of the R-Codes for residential development. The adequacy of future parking will be further considered through the development application process. While demand is not a relevant planning consideration, Perth Racing have advised that there is a strong demand for racecourse living both nationally and globally.</p> <p>The Structure Plan has been referred to the Department of Water and Environmental Regulation (DWER) for comment. DWER has advised that a small portion of Precinct A is located within the floodway and as such any future development would have to comply with floodplain management and meet minimum habitable floor levels. A minimum habitable floor level of 0.5m above the adjacent 1% AEP flood level is recommended to ensure adequate flood protection. The Structure Plan complies with this and requires that all structures are built 0.5m above the flood level.</p>

40	Public Submitter	<p>Raises concerns</p> <p>Concerned about Area D, designated for residential use, and whether the construction and new residential development could impact existing households. Requests further details on the type of residential buildings planned for this area.</p>	The draft Precinct Structure Plan proposes to allow three-storey dwellings within Precinct D which is no higher than existing buildings within Ascot Waters. There are currently no detailed plans for this land. Future development will be assessed in accordance with the draft Precinct Structure Plan and other relevant and applicable planning documents.
41	Public Submitter	<p>Supports</p> <p>Supports the forward-thinking idea and considers that each precinct benefits someone.</p>	Noted
42	Public Submitter	<p>Supports</p> <p>Considers the plans put forward by Perth Racing and the Belmont Council as a positive step towards prioritising both the safety of horses and the public. States the current situation, with a six-lane highway carrying 55,000 vehicles a day and access to unpredictable 500kg animals, is concerning. The proposed plans are seen as a valuable initiative that will benefit both the racing industry (based in Belmont) and the wider precinct.</p>	Noted. The Structure Plan is a private led Precinct Structure Plan. The City's role is to advertise the document, consider the submissions received and provide a recommendation to the Western Australian Planning Commission.
43	Public Submitter	<p>Supports subject to modifications</p> <p>Considers the development plans to be a positive and long-overdue opportunity to revitalise an underutilised asset. Considers the area is in need of improved facilities and community infrastructure.</p> <p>Urges Perth Racing to demonstrate the necessary leadership to build for the future and implement required changes to the existing road infrastructure. Retaining the current roundabout is seen as an inadequate compromise. It is suggested to relocate the roundabout connecting Grandstand Road and Resolution Drive closer to the Grandstand, allowing a left turn to Matheson and a direct exit to Resolution Drive, to improve access to Great Eastern Highway. The provision of adequate public parking in Section C would support this change, helping to manage traffic on event days.</p> <p>The need for Section E (commercial and retail) is questioned, given the current development along Great Eastern Highway.</p> <p>Also suggests rethinking Section D as Residential and Mixed Use to align with State housing goals, potentially allowing for quality high-rise developments with commercial and retail components at the base.</p>	<p>Noted</p> <p>Refer to Movement section of the Council report.</p> <p>The City's Activity Centre Planning Strategy and Golden Gateway Local Structure Plan support a local centre within the precinct, including Precinct E. The intent is to accommodate small retail shops, cafés, and restaurants, distinct from the existing commercial development along Great Eastern Highway. The centre is considered appropriate within Precinct E as it will also serve future residents of Golden Gateway.</p> <p>Land within Precinct D is proposed to be zoned 'Residential' and 'Mixed Use' with a maximum building height of three storeys. Higher rise buildings are proposed within the Golden Gateway precinct due to its separation and distance to lower scale residential development.</p>
44	Public Submitter	<p>Supports</p> <p>Highlights being in favour of the plan.</p>	Noted.
45	Public Submitter	<p>Raises concerns</p> <p>Opposes the proposed stables area being directly opposite their house. Outlines that stables are currently spread apart, allowing odours and noise to be broken up.</p>	Refer to responses to specific concerns below:

		<p>Considers that compressing it all into one location is going to directly affect living and property value.</p> <p><u>Noise of trainers</u> Notes that the noise of trainers early in the morning is already quite noticeable as they are very loud vocally, as well their transport for those who aren't in walking distance.</p> <p>Also notes that trainers will be spending more time in one location with greater population instead of one or two trainers here and there, which are broken up by buildings.</p> <p><u>Noise of horses</u> States that having all these stables so close together is going to dramatically increase the noise of the horses, as more horses together will communicate with each other.</p> <p><u>Noise from trucks</u> Considers that instead of having deliveries spread out over the suburb, deliveries will be compressed into one area, still receiving the same amount of deliveries.</p> <p><u>Acoustics</u> States that currently, it's an open area where trainers operate, which helps break up the sound. However, with walls and barriers, noises from the horses in the stables, along with traffic, will reverberate and become amplified.</p> <p><u>Odours</u> Outlines that currently, odours are spread out over the suburb, which reduces them due to the environment and wind. With all the horses and their waste in one area, the odours will be much more noticeable.</p> <p><u>Neighbourhood views</u> States that their neighbourhood currently has nice views of the grass all the way down to the river. Having stables will block these views and make them less appealing.</p> <p>Mentions that many racetracks around the world have their onsite stables based in the centre of the racetrack, giving more clearance for residents to prevent or reduce the impacts stated above. Questions why this hasn't been considered in the plans, as there is significant unused space in the centre of the track that could be used.</p>	<p>Stables can already be established on the site, and the land has always been able to support more intensive horse-related activities. Notwithstanding, noise has been/will be further considered through the development application process. The acoustic study prepared in support of the recently approved stables development find that any noise associated with the proposed stables development is compliant with the Environmental (Noise) Regulations 1997 with mitigation or operational management measures proposed to address specific use of the development.</p> <p>Future stables will need to be managed in accordance with the City's Consolidated Local Law which requires stables to be kept in a clean and sanitary condition and as far as practicable, free from flies, rats, other vectors of disease and offensive odours.</p> <p>It should be noted that stables can currently be developed on the subject land irrespective of this structure plan. Notwithstanding, it is not considered that views to the river are a relevant planning consideration.</p> <p>The applicant has advised that a tunnel would be required to access the infield and that this would be cost prohibitive (approximately \$45 million). The infield is also noted to be required for stormwater retention purposes.</p>
46	Public Submitter	<p>Raises concerns</p> <p>Considers any development will directly impact them as they live across the road from Precinct D. Raises major concerns regarding the height of the development, parking, and traffic noise and flow.</p> <p>States they can rarely park outside their house due to their neighbours not having enough car parking and taking all the street parking, leaving their visitors with</p>	<p>The maximum height proposed within Precinct D is three storeys which is consistent with the height of buildings within the Ascot Waters Estate.</p> <p>Parking requirements for future development within Precinct D will be assessed against the R-Codes and Local Planning Scheme No. 15.</p>

		nowhere to park. Considers this will only become worse with further development unless the Council insists that as part of the approvals each property has two parking bays, which is still not enough.	Regarding traffic, refer to the Movement section of the report.
47	Public Submitter	Raises concerns Raises concerns about the proposed clearing of land near the Swan River, as it includes important foraging space for Black Cockatoos. Considers that at the rate trees and habitat are being cleared in and around Perth, these birds are being driven to extinction. Requests the development be reconsidered.	Refer to Environment section of the report.
48	Public Submitter	Raises concerns Understands that the plan involves clearing more precious city bushland to build horse stables. Notes that following last summer's loss of many food and habitat trees, the endangered and rapidly diminishing populations of Carnaby's and Red-tailed Black Cockatoos are now starving. Urges that the bushland along the Swan River be preserved. Highlights that it is well-established that the rapid clearing of bushland is threatening the natural environment.	Refer to Environment section of the report.
49	Public Submitter	Raises concerns States section A is in a flood plain and understands that property on Bayswater side has been resumed because of the inability to build on such an area. Questions why an exemption applies here.	The Structure Plan has been referred to the Department of Water and Environmental Regulation (DWER) for comment. DWER has advised that a small portion of Precinct A is located within the floodway and as such any future development would have to comply with floodplain management and meet minimum habitable floor levels. A minimum habitable floor level of 0.5m above the adjacent 1% AEP flood level is recommended to ensure adequate flood protection. The Structure Plan complies with this and requires that all structures are built 0.5m above the flood level.
50	Public Submitter	Raises concerns Concerned about the proposal to clear 1.27 hectares of black cockatoo foraging habitat in Ascot for stables. States this area is a crucial part of the Swan River ecosystem, supporting not only endangered black cockatoos but also a range of other wildlife that relies on these green spaces. Notes that with their habitats increasingly threatened by urban development, these cockatoos are struggling to find adequate food sources along the river. Considers that clearing their foraging habitat for profit disregards the long-term environmental impacts, particularly for endangered species like the black cockatoo. Believes we need to prioritise conservation and look for alternative solutions that do not further compromise these sensitive ecosystems.	Refer to Environment section of the report.
51	Public Submitter	Raises concerns Expresses concerns regarding the proposed clearing of 1.27 hectares of critical foraging habitat for Carnaby Black Cockatoos and Red-tailed Black Cockatoos in Ascot. States these endangered species are already facing significant threats to their survival, and the loss of this vital habitat would further jeopardise their existence. Outlines that the Swan River corridor is a crucial refuge for these birds, providing essential food sources and resting sites. Considers removing these trees, we are directly impacting their ability to survive. Notes these majestic creatures are an integral part of our local ecosystem and we have a responsibility to protect them.	Refer to Environment section of the report.

		Urges the City of Belmont to reconsider this proposal and prioritise the preservation of this valuable habitat.	
52	Public Submitter	<p>Supports</p> <p>States that the project is a fantastic initiative, and the new facilities will support a vital industry and provide much needed real estate opportunities covering multiple sectors.</p>	Noted
53	Public Submitter	<p>Raises concerns</p> <p>Concerned about the parking for stable staff relating to on course stable and whether the side streets of Kalgoorlie Street, Keymer Street, Leake Street and Aurum Street are going to be parking lots similar to what is currently being experienced in Leake and Aurum Streets.</p> <p>Questions if the manure bins for on course stabling will be situated inside the race course. States that the smell of bins would be offensive if not monitored and desired particularly in the hotter months.</p>	<p>This level of detail has been/will be addressed through the development application process. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link: Minute - No 65 - City of Belmont - City of South Perth</p> <p>This level of detail has been/will be addressed through the development application process. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link: Minute - No 65 - City of Belmont - City of South Perth</p> <p>Future stables will need to be managed in accordance with the City's Consolidated Local Law which requires stables to be kept in a clean and sanitary condition and as far as practicable, free from flies, rats, other vectors of disease and offensive odours.</p>
54	Public Submitter	<p>Raises concerns</p> <p>Raises concerns about increased traffic on Matheson Road and adjacent feeder roads and an increase in noise and movements through the day, evening and night associated with the on-course stabling.</p> <p>Questions what the aesthetics of the stables will be.</p> <p>Notes having stables and raises concerns about the potential loss of income and loss of value of the property.</p> <p>Considers a rezoning to a much higher density for the precinct is the only way stable/property owners will accept on course stabling and changes to Ascot Racecourse.</p>	<p>Refer to Movement section of the Council report.</p> <p>This level of detail has been/will be addressed through the development application process. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link: Minute - No 65 - City of Belmont - City of South Perth</p> <p>Potential loss of income is not a relevant planning consideration. It should be noted that stables can currently be developed without the precinct structure plan.</p> <p>Officers will further consider the future planning of this area through the preparation of the City's Local Housing Strategy, Local Planning Strategy and Local Planning Scheme.</p>
55	Public Submitter	<p>Supports subject to modifications and raises concerns</p> <p>States that heights within Precinct D need to be height restricted to fit with other properties in Ascot Vale and Ascot Waters.</p>	<p>A maximum building height of three storeys is proposed within Precinct D. This height is considered to integrate well with neighbouring building heights. Further comment about the interface of the 'Mixed Use' portion of Precinct D to Ascot Waters is included within the report.</p> <p>Noted</p>

		<p>Considers a Childcare Centre is a good fit for this location.</p> <p>Concerned about how the impact of the increased volume of traffic on Grandstand Road will be managed. States it is already difficult to cross Grandstand Road as a pedestrian or cyclist and difficult to access and leave the roundabout at Waterway Crescent by vehicle.</p> <p>States that while the roundabouts on Grandstand Road look great they are becoming increasingly difficult to enter and exit from Ascot Waters. Believes they need to be fitted with traffic lights.</p>	<p>Refer to Movement section of the report.</p> <p>Traffic lights were previously considered at the intersection of Resolution Drive, Stoneham Street and Grandstand Road. These were not supported by Main Roads Western Australia due to the proximity to the Stoneham Street and Great Eastern Highway intersection.</p>
56	Public Submitter	<p>Raises concerns</p> <p>Concerned that the Structure Plan would no longer allow pedestrians or cyclists to walk along the river at the point where the racecourse intends to increase their boundary line. States that it appears there will no longer be pedestrian or cyclist access or footpaths along the river edge.</p> <p>Requests Council not support the proposal.</p>	<p>There is no change proposed to the lot boundary or pedestrian and cyclist infrastructure in this location.</p> <p>Noted.</p>
57	Public Submitter	<p>Supports and raises questions</p> <p>States that generally the plan is excellent.</p> <p>Wishes to know more about the development plans for Precinct D as this area is opposite the submitters home. In particular wishes to know:</p> <ul style="list-style-type: none"> • Maximum height of dwellings – will they be 3 storeys? • Will there be adequate parking particularly street parking? • Will the setback from Northerly Avenue contain landscaping including trees? • How many dwellings are proposed? • What plans exist for the Kilns land e.g. public parklands? 	<p>Noted</p> <p>A maximum building height of three storeys is proposed for Precinct D.</p> <p>Parking will need to be provided on-site in accordance with the R-Codes and the parking standards included in the Structure Plan.</p> <p>Landscaping of private residential development sites will need to comply with the R-Codes. A modification to the draft Structure Plan is proposed to include a provision requiring landscaping adjacent to Northerly Avenue within the 'Mixed Use' zoned portion of the lot.</p> <p>The structure plan applies an R60 density code to the area. While the exact number of dwellings will be subject to a subsequent development application and/or subdivision application, the indicative plan prepared by Perth Racing identifies 41 lots.</p> <p>The Ascot Kilns land is owned by the State and is not subject to this structure plan. The draft Golden Gateway Local Structure Plan identifies this land as subject to a separate planning process and requires the preparation of a local development plan with 10% of this area set aside as public open space.</p>
58	Public Submitter	<p>Raises concerns</p>	

		Questions when humans will learn that decimating native fauna habitat is not the way? Points out that Carnaby cockatoos are at a dangerously low population and that the proposal will wipe out further habitat.	Refer to Environment section of the report.
59	Public Submitter	<p>Raises concerns</p> <p>Does not believe the expansion to the racecourse is beneficial to the residents of the surrounding areas.</p> <p>States the destruction of the vital natural areas that support native animal life and human well-being is the most important thing. States that the destruction of natural areas to support gambling is not how we should be planning our future.</p>	<p>Noted.</p> <p>Refer to Environment section of the report.</p>
60	Public Submitter	<p>Raises concerns</p> <p>Considers that stabling on the racecourse is an excellent idea but there is inadequate parking for high usage days such as race meetings and public events. Additionally, details on traffic flow are vague.</p> <p>Questions if the proposal to build stables will change some of the restrictions on building in the original stables area. Considers that the requirement to allow for stables even if landowners aren't involved in the industry is a nightmare.</p>	<p>Parking for residential and commercial developments within the precinct will need to comply with the Structure Plan requirements and the Residential Design Codes. Regarding parking availability of patrons of the racecourse and traffic, refer to Movement section of the report.</p> <p>The Ascot Racecourse Precinct Structure Plan does not propose changes to the use and development of properties within the 'Residential and Stables' zone. Officers will further consider the future planning of this area through the preparation of the City's Local Housing Strategy, Local Planning Strategy and Local Planning Scheme.</p>
61	Public Submitter	<p>Raises concerns</p> <p>Has attended a meeting hosted by Perth Racing and raises the following concerns:</p> <p>Traffic management on Matheson Road and connecting roads once the oncourse stabling is completed. States that if a licensed venue were to be built, sufficient parking and access arrangements would need to be demonstrated. Mentions that Perth Racing has lost parking bays.</p> <p>On race days, the streets connecting to Matheson Road have cars parked on both sides of the streets. Raises safety concerns with this and believes a disaster will happen.</p> <p>Mentions that there was talk at the meeting about getting media and politicians involved. Believes this is not necessary if the City of Belmont looks at the impact of the proposed development.</p>	<p>Refer to Movement section of the report.</p> <p>Refer to Movement section of the report.</p> <p>Submissions will be reviewed and considered by Officers, Council and the Western Australian Planning Commission. The Western Australian Planning Commission will ultimately be responsible for determining the draft Precinct Structure Plan.</p>
62	Public Submitter	<p>Raises concerns</p> <p>States that the main concerns is the potential to construct a 'landmark' building as part of a vertical retirement village for retirees of the horse-racing industry. Does not accept it practical for retirees who in the event of an emergency would need to use staircases. Requests that building heights are kept to practical levels for retirees to manage.</p> <p>Notes that there is reference to "A site responsive design that integrates the aspirations of Perth Racing with the characteristics of the local area". States that buildings in the area are not 20 storeys high but considerably lower. Mentions that</p>	<p>All buildings will need to comply with the Building Code of Australia, which includes fire safety and accessibility requirements. Suitable emergency evacuation procedures would need to be established to ensures safety for residents.</p> <p>Refer to Precinct A section of the report.</p>

		<p>more housing options for retirees and others should be provided but that the area shouldn't be ruined by building too high.</p> <p>Believes landmark buildings are the vision and objective of Council who want to pack more ratepayers into a very small part of its community and hoping that its 'northern gateway' will be the site of some building that will demonstrate Belmont as the City of Opportunity it claims to be.</p> <p>States fill may be required to achieve minimum groundwater clearance and that a 20 storey building may become an unsightly blot on an otherwise attractively and to date thoughtfully managed environment the Council can be proud of.</p>	<p>Ratepayer income is not a consideration when assessing planning frameworks.</p> <p>Noted.</p>
63	Public Submitter	<p>Raises concerns</p> <p>Writes to provide feedback on the proposed Structure Plan, particularly the oncourse stabling adjacent to their property and its implications for residents within the 'Residential and Stables' area.</p> <p>Notes that under the current zoning, stables are located within the 'Residential and Stables' are interspersed among residential properties. Considers that the Structure Plan's proposal to consolidate stables into "on-track" stabling introduces several significant concerns for residents whose properties are adjacent to this new development.</p> <p>Raises the following concerns:</p> <ol style="list-style-type: none"> 1. Odour Management: Considers the relocation and consolidation of a large number of stables directly adjacent to their property significantly heightens the risk of odour issues, particularly during warmer months when stable waste becomes more challenging to manage. Highlights that this would adversely affect the quality of life for them and residents in the immediate vicinity. 2. Noise Pollution: Outlines that on-track stabling, while operationally necessary for the racecourse, creates noise associated with horses, stable operations, and transport activities. Considers that relocating this activity to an area directly adjacent to residential properties, including theirs, would intensify the level of disruption, particularly during pre-dawn hours when horse training occurs. 3. Light Pollution: States that pre-dawn stable operations require lighting, which introduces artificial light into an area traditionally residential in nature. This would further disrupt the sleep and well-being of residents living nearby. 	<p>Noted</p> <p>Noted.</p> <p>It should be noted that stables can be constructed on the subject land irrespective of the structure plan. However, Future stables will need to be managed in accordance with the City's Consolidated Local Law which requires stables to be kept in a clean and sanitary condition and as far as practicable, free from flies, rats, other vectors of disease and offensive odours.</p> <p>Stables can already be established on the site, and the land has always been able to support more intensive horse-related activities. Notwithstanding, noise has been/will be further considered through the development application process. The acoustic study prepared in support of the recently approved stables development find that any noise associated with the proposed stables development is compliant with the Environmental (Noise) Regulations 1997 with mitigation or operational management measures proposed to address specific use of the development.</p> <p>It should be noted that stables can be constructed on the subject land irrespective of the structure plan. However, Lighting has been/will be further considered through the development application process. The recently approved stables development includes a condition requiring a lighting plan to be submitted for approval prior to commencement of works. The plan must show all proposed lighting for the public spaces, landscaped areas, buildings, and carparking areas onsite</p> <p>The distribution of stables and future planning of the 'Residential and Stables' area will be further considered by Council through the preparation</p>

		<p>Urges Council to reconsider the zoning and management of the Residential and Stables area to mitigate these impacts. Specifically, requests:</p> <ol style="list-style-type: none"> 1. Reduction of stables Within the Residential Area: To counter the addition of a large number of stables in this location, considers it appropriate to revisit the distribution of stables within the area with an eye toward reducing or removing them entirely. States that this would alleviate existing land use conflict and allow for a more cohesive and sustainable residential community. 2. Rezoning to support subdivision: Considers that rezoning the area to allow for subdivision would facilitate the gradual removal of stables. States this would reduce the cumulative impacts of the new on-course stabling arrangements while creating opportunities for residential redevelopment. <p>Considers the above approach strikes a balance by addressing the operation needs of the racecourse while safeguarding the quality of life for residents in the area. Believes it aligns with broader goals of urban liveability and sustainable development, ensuring that residents are not disproportionately affected by these changes.</p>	<p>of the City's Local Housing Strategy, Local Planning Strategy and new Local Planning Scheme having regard to the amenity and sensitivity of the area.</p>
64	Public Submitter	<p>Raises concerns</p> <p>States having lived on Ennis Place for 24 years and opposes the development of the stables complex.</p> <p>States that Ennis Place, a cul-de-sac with eight houses, will be the principal access to the complex which means that stable hands, strappers, riders and others will arrive from 4am until about 10am and again in the afternoon for several hours. Mentions that there will be feed truck deliveries, manure collections, horse boxes, trucks and floats using the road continually and that on race days semi trailer trucks, four wheel drives and the like will be loading horses especially when racing is at Kalgoorlie, Belmont Park, Bunbury, Northam and Pinjarra. Notes there will also be return trips from these venues late in the evening.</p> <p>Mentions that horses require a lot of care and this will result in 24/7 use of Ennis Place representing major traffic and noise disruptions and a hazard and nuisance for residents, particularly children, the elderly and residents' pets.</p> <p>States that Ennis Place is not mentioned in the documentation and that it appears the Turf Club has knowingly and callously disregarded the residents of this road. States residents were not in the loop of the implications of on course stabling with the bulldozing of the back track and the 70 or more mature trees to build three storey high stables for 480 racehorses.</p> <p>States they purchased the property because of the magnificent tree line, the tranquillity, the views and openness of the location. Mentions that it now appears the trees will be gone and that they will be confronted by a mass of three storey stables built directly in line of sight just 10 metres from their living room, veranda and bedrooms. States that there was never any mention of this when they bought the property and that the little sandown back track training circuit has been in continuous</p>	<p>Noted</p> <p>Access of Ennis Place was considered through the assessment of the recently approved stables complex. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link:</p> <p>Minute - No 65 - City of Belmont - City of South Perth</p> <p>A modification is proposed to the Transport Impact Assessment to identify the possibility of access from this road.</p> <p>Noted.</p> <p>It should be noted that stables could always have been developed on the subject land without the structure plan.</p>

	<p>use for at least 60 years, possibly longer and so it was understood this was a permanent fixture.</p> <p>Notes that the City of Belmont has been committed to cultivating a vibrant and sustainable ecosystem and spends tens of thousands of taxpayers dollars on a tree planting program each year. Also notes that City trees located on verges, in parks or reserves are managed by the City of Belmont and that it is an offence to prune, damage or remove any of the City's trees without approval. Questions whether the Trub Club of WA need permission to remove trees. Objectives to this and labels it "environmental vandalism".</p> <p>Mentions that CSIRO research scientist Peter Caccetta, was part of a team that mapped canopy cover above three metres using aerial photography who said:</p> <p><i>"we found that for every increase of 10% tree canopy cover, you get 0.62 degree decrease in land surface temperature."</i></p> <p><i>"Local government authorities with low tree canopy cover tend to have higher land surface temperatures."</i></p> <p><i>"On average they can be up to five degrees hotter in land surface temperature than the suburbs that have greater canopy covers."</i></p> <p>States the proposed stables complex with the removal of over 70 matures trees, not including the self sown saplings, will make the situation worse and be counter productive to the City of Belmont's initiative to plant more trees. Considers that the loss will significantly impact on neighbourhood character, landscape and wildlife.</p> <p>Quotes what the Structure Plan records about vegetation and black cockatoos foraging habitat and considers this should be of concern to Perth Racing and the City of Belmont.</p> <p>States it is already established that Belmont and suburbs close to the airport are regularly the hottest in Perth in summer. This is presumably due to the expanse of bitumen and concrete used for runaways and roads.</p> <p>Considers that not only will the proposed development devalue their property, but there will be nuisance created by the smells and flies. States that the proposed height of three storeys would block the afternoon sea breeze. Believes their rights are being infringed upon and that their home is sacred and that losing their serene rural outlook to a 450 stable monstrosity is insane in the context. Has made a lifetime commitment to live in the Belmont community and that as a ratepayer they expect far better. States that they are standing up for their rights to not have their lifestyle ruined.</p> <p>References the objective of precinct C to mitigate potential land use conflict through appropriate design and management practices, and states that there is a case for mitigation having regard to the above comments.</p> <p>Questions how the Structure Plan can say that road reserves will be maintained in their current configuration, when an extension to Ennis Place would require a crossover at the end to connect to the stables.</p>	<p>Refer to Environment section of the Council report.</p> <p>It should be noted that stables can be developed on the subject land without the structure plan. As detailed in previous responses to submitter comments, amenity impacts have been considered during the assessment of the recently approved application. If Perth Racing do not act on this approval, amenity impacts will also be considered as part of other applications.</p> <p>A modification is proposed to the structure plan for the Transport Impact Assessment to identify the possibility of access from Ennis Place.</p>
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		References "the management of transport noise will ultimately be considered as part of future application to subdivide or develop land within the structure plan area" and points out that the volume of traffic which will use Ennis Place night and day can only be described as unprecedented and very dangerous.	Refer to Movement section of the report.
65	Public Submitter	<p>Raises concerns</p> <p>Outlines owning a property adjacent to the area identified as 'Precinct D' and notes that this precinct is proposed to be 'Residential' and 'Mixed Use' and that the 'Mixed Use' portion could be used for a small-scale non residential use fronting Grandstand Road, including but not limited to a 'Child Care Premises.'</p> <p>Notes that the area adjacent to Precinct D is currently a residential area with single or 2 storey houses, and considers it ideal to either develop this area only as a residential use area by changing the zoning to 'residential' or to leave its current zoning 'place of public assembly'. States that changing the zoning to 'Mixed Use' carries the risk that this area may be used at a later date for the opening of shops, small offices, retail outlets, showrooms and other uses. Considers this will not be an ideal outcome as the adjoining area is residential and development will increase noise and create more traffic issues.</p> <p>Regarding the development of a childcare premises, the submitter states that the demographics of Ascot Waters and neighbouring area shows that its population mostly consists of elderly and retirees not young families who would benefit from the childcare premises. Believes this will result in additional traffic and noise along Grandstand Road as young families from distant areas come to the area for drop off and pick up. States race days will impact young couples as traffic moves very slowly on Grandstand Road on those days.</p> <p>Considers Precinct E is a better area for a 'mixed use' zoning instead of 'Precinct D'.</p> <p>Notes that Precinct D is proposed to have a height of 3 storeys, could accommodate 40+ houses and traffic movements will occur on Resolution Drive. States that residents of Ascot Waters face traffic issues at the roundabout of Grandstand Road, Resolution Drive and Stoneham Street. Questions if the impact of adding additional households or an emergency evacuation plan has been looked into. States that there are only three exist points for Ascot Waters residents and that in the case of flooding, there may be difficulty for emergency vehicle to reach the area in a timely manner.</p> <p>Notes that adjacent to Precinct D is the Ascot Kilns site for which a development plan has not been prepared. States that the City of Belmont should wait to see what development is planned for that land so that there is synergy between it and the entire area stretching from the Ascot Kilns site to Ascot Waters.</p>	<p>Noted</p> <p>Refer to Precinct D and Restricted Uses sections of the Report.</p> <p>It should be noted that child care premises can currently be proposed under the existing zoning. While the Structure Plan indicates the 'Mixed Use' portion of Precinct D may be developed as a childcare centre, access arrangements for the specific use will be further considered through the development application process. Proponents will be required to provide a Traffic Impact Assessment or Traffic Impact Statement as part of their application and consistent with the City's Local Planning Policy No. 9, will need to submit a traffic safety assessment.</p> <p>Refer to Precinct D and Restricted Uses sections of the Report.</p> <p>Properties within Ascot Waters were required to have Finished Floor Levels 0.5m above the 1% AEP flood level and so flooding is not anticipated within this precinct. Regarding traffic movements, a Transport Impact Assessment has been prepared in support of the structure plan. The assessment concludes that all intersections into Ascot Waters will have an appropriate level of service.</p> <p>A draft Local Development Plan has been prepared by Department of Planning, Lands and Heritage (DPLH). The future planning of this site is ultimately at the discretion of the DPLH. It is not considered necessary for the planning of this site to progress before the Precinct Structure Plan is progressed.</p>
66	Public Submitter	<p>Raises concerns</p> <p>Notes being excited to see movement in developing the area and the surrounding precinct. States that Ascot has always been seen as a sleeping giant. Looks forward to see the area built and used to its potential.</p>	Noted.

		Welcomes the structure plan and looks forward to bringing life and entertainment to the area along with safer on course stabling options. Hopes the structure plan lowers entry constraints to new trainers and boosts the industry, suburb and Council as a whole.	
67	Public Submitter	<p>Raises concerns</p> <p>States that despite raising the issue with the City of Belmont on many occasions, traffic in the area is continually ignored. Notes on one occasion, traffic counters were placed on Carbine Street to track traffic but between the Christmas and new years break. Considers this provided inaccurate information about traffic volumes and seemed deliberate to avoid data which would reveal a genuine issue. States that occurred at least 2 years ago and since, Carbine Street and Matheson Road has become a rat race for cars wanting to avoid traffic queues on Great Eastern Highway. States that cars speed down the street which has more than 15 children under 11 years of age as residents, whirl around the bend onto Matheson Road and accelerate past horses who are coming back from their afternoon walk.</p> <p>States there have been multiple ducks killed on the road and complaints made but the issue is ignored.</p> <p>Considers that any plan to change development in the area cannot reasonably occur until detailed and proper road management consultation and investigation occurs. In their view, Carbine Street should be closed off to traffic entering from Great Eastern Highway, leaving only exiting the street possible at the Great Eastern Highway end. The submitter believes this would stop the rat race and dangerous driving and that perhaps this should occur to all streets between Matheson Road and Great Eastern Highway to prevent the issue being moved up one street.</p> <p>Is concerned that mixed use and commercial development at the end of Carbine Street will generate more traffic in the area. Questions whether a horse or child need to be killed before the City will take the matter seriously. Submitter does not understand why feedback from local residents is not being taken seriously.</p> <p>States that the area already looks abandoned and poorly maintained. The verges are rarely mowed, there are weeds waist height in the median strips on Matheson Road but nothing is done. Submitter believes it is at odds to develop the area when it is already not being maintained.</p> <p>Believes allowing commercial and retail uses on Carbine Street will de-value properties and cause parking chaos. States the street already has one abandoned car which has been there for months and on race days, the street is packed with cars parked. States that in the submitters five years of living in the area, a ranger has never been seen patrolling on race days.</p> <p>Considers the whole plan is shortsighted taking into account the current traffic issues and lack of management by the City of Belmont. States increased traffic in the area is the last thing that is needed and if anything occurs, traffic calming measures should be considered, blocking off the entry from Great Eastern Highway, and installing speedhumps and S bends in the road.</p>	<p>Traffic counts along Carbine Street were conducted over a three-day period from 29 December 2020. The counts did not show any abnormal patterns, and it is unlikely that conducting them at a different time would have revealed significant differences.</p> <p>A modification is proposed for the draft Precinct Structure Plan and Transport Impact Assessment to be updated to include further details about vehicle movements within the residential and stables area. Regarding the closure of Carbine Street, officers are not supportive at this stage as this would likely result in traffic impacts on other roads within the residential and stables area.</p> <p>This matter is not relevant to the precinct structure planning process. The submitter is welcome to further liaise with officers about this.</p> <p>Future development proposals will need to comply with the parking requirements of the Structure Plan. Regarding parking on race days, refer to the Movement section of the Council report.</p> <p>Refer to Movement section of the report.</p>

		<p>Deeply concerned about the way the changes will impact their lifestyle and urges better consultation with Carbine Street residents who will be disproportionately affected by the proposal.</p> <p>Notes being happy to attend the Civic Centre and speak to representatives of the City about the issues.</p>	<p>The Structure Plan is not a City led plan. The City's role is to advertise the structure plan in accordance with the Planning and Development (Local Planning Schemes) Regulations 2015, consider the submissions and make a recommendation to the Western Australian Planning Commission.</p> <p>The submitter is welcome to request a meeting with the City.</p>
68	Public Submitter	<p>Raises concerns</p> <p>Notes that the plan proposes the removal of 70 mature trees and many of these trees are used by both Carnaby and Red Tail Cockatoos for feeding and nesting and that section 2.1.4.8 says:</p> <p>"The two conservation significant species recorded at the time of survey include one threatened species, being the Forest Red-Tailed Black Cockatoo (<i>Zanda banksia naso</i>) and one Priority 4 species (blue-billed duck (<i>Oxyura australis</i>)).</p> <p>A total of 1.27ha of Carnaby's Black Cockatoo foraging habitat was recorded on the site, of which 0.35ha comprised primary foraging habitat and 0.92ha of secondary foraging habitat. A total of 0.84ha of Forest Red-Tailed Black Cockatoo foraging habitat was recorded on the site, comprising 0.28ha of primary native habitat, 0.56ha of secondary foraging habitat. A total of 32 Black Cockatoo habitat trees were recorded during the survey, of which 29 were located within the subject site. Of the trees located on the site, four (4) trees contained hollows potentially suitable for Black Cockatoo breeding."</p> <p>Notes section 5.2.4 indicates that most of these trees will be removed:</p> <p>"Emerge Associates also found that the site contains 1.27ha of Black Cockatoo foraging habitat and 29 habitat trees, of which four (4) trees contained hollows potentially suitable for Black Cockatoo breeding. These areas are primarily located within the eastern and southern portions of Precinct C, with a small area also located in the north-eastern corner of Precinct E. These areas generally conflict with plans for the on-course stabling and the equine welfare centre, however there may be opportunities to retain some limited areas. This will be considered further through detailed design, however in any event, a referral under the EPBC Act may be warranted prior to works being undertaken."</p> <p>States that whereas other local authorities are doing everything to conserve and protect cockatoos, this structure plan will remove their habitat with the proviso that more trees will be planted. Asks the City to let the cockatoos know to come back in 50 or 70 years when the trees have reached maturity.</p> <p>Considers it is time for Belmont Council to protect endangered species. States that the tree canopy around Belmont has been significantly impacted by the Tonkin Gap project where hundreds of mature trees were removed.</p>	<p>Refer to Environment section of the Council report.</p>
69	Public Submitter	<p>Raises concerns</p> <p>States it is striking that the current track will be maintained and presumably used for racing and that all of the area now used for parking during races will be developed and no longer used for parking.</p>	<p>Refer to Movement section of the Council report.</p>

		<p>Questions how parking issues will be addressed.</p> <p>States another issue is the construction and use of stables for 400+ horses and that the support needed for such an endeavour is exceedingly limited. The submitter states that they are not a horse person and don't know how much one eats per day but just 10kg per horse means about three tonne of manure would be produced per week (likely more). States this requires large amounts of feed and "bi-products" moving through the neighbourhood streets daily. States that when the movements of horses is added, it will be devastating for the area, turning it from a relaxed residential area into an industrial zone focused on a critter that is pretty much anachronistic to the current trajectory of Belmont and Perth general.</p> <p>Mentions that the area has a very distinctive aroma (especially in the heat of summer). States the massive barns will make this into a daily and all year round noxious neighbourhood enhanced by the reduced tree cover increasing temperatures even more.</p> <p>Requests that we move beyond horse racing and see this area redeveloped completely without racing, in a responsible way.</p>	<p>It should be noted that stables can be constructed on the subject land irrespective of the structure plan. However, Future stables will need to be managed in accordance with the City's Consolidated Local Law which requires stables to be kept in a clean and sanitary condition and as far as practicable, free from flies, rats, other vectors of disease and offensive odours. A Waste Management Plan was submitted in support of the development application for the on-course stables.</p> <p>Noting that the area is used for horse related activities a level of odour within the area can be expected.</p> <p>Perth Racing as a private landowner are able to continue their horse racing activities. Regarding stabling within the broader area, the City of Belmont will further consider the future planning of this area through the scheme review process.</p>
70	Public Submitter	<p>Supports</p> <p>Believes it is a great idea. States that the property market is out of control and young and up and coming trainers will be able to stable their horse on course like the other Australian racecourses.</p>	Noted.
71	Public Submitter	<p>Supports</p> <p>Submitter provided a purple tick symbol.</p>	Noted.
72	Public Submitter	<p>Supports</p> <p>Supports the structure plan and is happy that horse racing activities will remain a part of the suburb.</p>	Noted.
73	Public Submitter	<p>Raises concerns</p> <p>States that traffic on the street has already increased and the speed limit is rarely adhered to. Would like to know how shops directly next door would impact traffic, what kind of demographic it would attract and how it would impact the value of the submitters home.</p>	<p>Shops are not proposed along Carbine Street.</p> <p>Regarding traffic within the area, refer to the Movement section of the Council report.</p> <p>Property values are not a relevant planning consideration.</p>
74	Public Submitter	<p>Raises concerns</p> <p>States that changing the zoning of Precinct D will increase traffic which will not be beneficial for Ascot Waters residents. On this basis, does not agree with the proposed plan.</p>	Refer to Movement Section of the Council report.
75	Public Submitter	Raises concerns	

		<p>Notes that the area next to Ascot Waters accommodates the Ascot Racecourse office in Lee-Steere House, which is designated as Precinct D and proposed to be rezoned to Residential and Mixed Use. States that this proposal raises several concerns that warrant consideration.</p> <p>Notes that the area surrounding Precinct D primarily consists of single- and two-storey residential homes. Considers that, given this context, it would be more appropriate to either rezone Precinct D exclusively for residential use or retain its existing designation as a "Place of Public Assembly." States that rezoning the precinct for "Mixed Use" introduces the possibility of developments such as shops, offices, or retail outlets, which would be incompatible with the predominantly residential character of the area. Considers that such developments are likely to result in increased noise and heightened traffic congestion.</p> <p>Notes that the current plan includes provisions for a "Child Care Premises" within the proposed mixed-use zone. Highlights that, according to the Australian Bureau of Statistics, the area's average age is 46 years, with only about 4% of the population being under five years old. States that this demographic profile indicates limited local demand for childcare services. Considers that families from outside the area would need to drive in for drop-offs and pick-ups, further increasing traffic congestion and noise, particularly along Grandstand Road. Highlights that such impacts would negatively affect nearby properties, especially on race days when Grandstand Road is completely blocked, exacerbating congestion and delays.</p> <p>Notes that the portion of Precinct D proposed to be zoned for residential use, with a three-storey building height, is expected to accommodate approximately 40 houses. Considers that the traffic generated by these households would primarily use Resolution Drive, which already experiences congestion. States that residents of Ascot Waters currently face challenges navigating the roundabout at Grandstand Road, Resolution Drive, and Stoneham Street, and additional households would likely worsen these issues. Highlights that the impact of increased housing on the area's emergency evacuation plans has not been adequately addressed. Notes that the area, located within a 100-year floodplain, has only three exit points, which could hinder timely evacuation or emergency access during flooding.</p> <p>The submitter notes that the adjacent Ascot Kilns area lacks a finalised development plan. Considers that the City of Belmont should delay decisions on Precinct D until a cohesive plan is developed for the entire area. States that such an approach would promote synergy between Ascot Waters, Precinct D, and the Ascot Kilns area, ensuring a more harmonious and practical development strategy for the region.</p>	<p>Noted.</p> <p>Refer to Precinct D and Restricted Uses sections of the Report.</p> <p>It should be noted that child care premises can currently be proposed under the existing zoning.</p> <p>While the Structure Plan indicates the 'Mixed Use' portion of Precinct D may be developed as a childcare centre, access arrangements for the specific use will be further considered through the development application process. Proponents will be required to provide a Traffic Impact Assessment or Traffic Impact Statement as part of their application and consistent with the City's Local Planning Policy No. 9, will need to submit a traffic safety assessment.</p> <p>Refer to Movement section of the Council report.</p> <p>Properties within Ascot Waters were required to have Finished Floor Levels 0.5m above the 1% AEP flood level and so flooding is not anticipated within this precinct.</p> <p>A draft Local Development Plan has been prepared by DPLH. The future planning of this site is ultimately at the discretion of the DPLH. It is not considered necessary for the planning of this site to progress before the Precinct Structure Plan is progressed.</p>
76	Public Submitter	<p>Raises concerns</p> <p>States that changing the zoning does not align well with the existing character of the area. Notes that Ascot Waters would be the main area affected by the proposed rezoning. Highlights that Ascot Waters is primarily comprised of older or retired residents, with very few families with children.</p> <p>The submitter questions the appropriateness of a childcare facility at the location of the old Racecourse offices. Considers that such a facility would encourage increased</p>	<p>Refer to Precinct D and Restricted Uses sections of the Report.</p> <p>It should be noted that child care premises can currently be proposed under the existing zoning.</p>

		<p>traffic in and out of the area as parents drop off and pick up children who do not reside nearby. Questions the suitability of mixed-use zoning, noting that it would bring additional traffic and people to the area.</p> <p>The submitter suggests building houses that are consistent with the scale and character of those surrounding the site on Grandstand Road and Tidewater Way. States that high-rise buildings would add another layer of congestion and would be better suited to Great Eastern Highway, where there is more suitable land and access to major bus routes and roadways.</p> <p>The submitter highlights that the races across the road already cause congestion, which would become significantly worse on race days under the proposed rezoning. Considers that only normal residential housing would be appropriate for this area.</p>	<p>While the Structure Plan indicates the 'Mixed Use' portion of Precinct D may be developed as a childcare centre, access arrangements for the specific use will be further considered through the development application process. Proponents will be required to provide a Traffic Impact Assessment or Traffic Impact Statement as part of their application and consistent with the City's Local Planning Policy No. 9, will need to submit a traffic safety assessment.</p> <p>A maximum building height of three storeys is proposed for Precinct D. It is considered that this height integrates well with existing heights within Ascot Waters.</p> <p>Regarding traffic, refer to Movement section of the Council Report. Regarding dwelling typology, a maximum building height of three storeys is proposed. This height is considered to integrate well with the dwelling typology and scale of residential development within Ascot Waters.</p>
77	Public Submitter	<p>Raises concerns</p> <p>Hopes the structure plan can stay as residential use only, to keep the natural beauty and quiet of the area.</p>	<p>The appropriateness of zones, density codes and land use permissibility is further detailed for each precinct within the report.</p> <p>A modification is proposed to the Structure Plan to address the interface of the 'Mixed Use' portion with residential development within Ascot Waters.</p>
78	Public Submitter	<p>Raises concerns</p> <p>Concerned about the planned construction near the neighbourhood, notes that it may disrupt daily life. Highlights the potential for noise, dust, and increased traffic to negatively impact the peaceful environment. Considers that these changes could affect the well-being of residents, including children and the elderly.</p> <p>Hopes that the construction team will consider measures to minimise its impact on the community. Emphasises the importance of maintaining a quiet and healthy living space and requests understanding and support in this matter.</p>	<p>A construction management plan will be required to accompany future building applications to ensure construction does not adversely affect health and safety.</p> <p>Noted.</p>
79	Public Submitter	<p>Raises concerns</p> <p>Notes that the adjacent area is residential and considers that this pocket should remain residential or community space. Highlights that there are sufficient opportunities for business premises along the highway and in the future planned Golden Gate project.</p> <p>States that the proposed plans fail to address the impact on traffic and parking, which are already problematic. Highlights that safety issues regarding emergency services access have also not been addressed.</p>	<p>The appropriateness of zones, density codes and land use permissibility is further detailed for each precinct within the report.</p> <p>Parking and traffic details are included within the Transport Impact Assessment attached to the structure plan. Further discussion on this document is contained within the Movement section of the Council report. Regarding emergency services, there is no requirement for this to be specifically addressed in the structure plan documentation.</p>
80	Public Submitter	<p>Supports subject to modifications and raises concerns</p>	

	<p>Notes reviewing the draft Precinct Structure Plan including the applicants Retail Assessment (Net Benefit Test). Is concerned that the draft PSP is inconsistent with key contemporary aspects of the City of Belmont Local Planning Framework and as such has the potential to jeopardise the planning and future development of the Golden Gateway Activity Centre, as well as undermining and disrupting the City's established activity centre hierarchy.</p> <p>Supports the intent of the draft PSP and acknowledges that it may facilitate the development of a local centre scale activity centre as per the City's planning framework at the intersection of Grandstand Road and Resolution Drive.</p> <p>Requests an amendment to the amount of shop/retail floorspace proposed within the draft PSP to ensure consistency with the City's established planning framework.</p> <p>Background Understands that the draft PSP has been prepared to guide the future use and development of Perth Racing's landholdings in Ascot, including and surrounding the existing Ascot Racecourse. The PSP applies to Lots 1 (No. 88), 3 (No. 96), 13, 50, and 9002 (Nos. 71), and Lot 452 (No. 70) Grandstand Road, Lot 7005 (No. 71) Matheson Road, and Lots 51 (No. 2) and Lots 51 (No. 2) and 100 (No. 1) Raconteur Drive, Ascot. The PSP area comprises nine (9) lots with a total area 61.3294ha, all of which are owned by Perth Racing, except for one (1) lot which is owned by the WAPC.</p> <p>Notes that the Structure Plan designates five (5) precinct areas subject to different objectives and planning requirements:</p> <ul style="list-style-type: none"> • Precinct A (Retirement Living) • Precinct B (Racecourse Administration & Entertainment) • Precinct C (Racecourse & Stabling) • Precinct D (Residential & Mixed Use) • Precinct E (Commercial) <p>Notes that Part One – Implementation, Section 4.3.1 Activity Centre of the PSP Report states that:</p> <p><i>'This Precinct Structure Plan includes a portion of the Golden Gateway Activity Centre (within Precinct E) and is supported by a Net Benefit Test to assess the economic demand and implications for potential retail and commercial development in this area. Refer Appendix 6 – Retail Assessment (Net Benefit Test).</i></p> <p><i>Development within the Golden Gateway Activity Centre shall be in accordance with the provisions of this Precinct Structure Plan and the requirements of State Planning Policy 4.2 – Activity Centres ('SPP 4.2').</i></p> <p><i>Development of Shop/Retail floorspace up to 3,400m² NLA is permitted within the Golden Gateway Activity Centre without requiring further assessment. Any development proposal involving net additional Shop/Retail floorspace above 3,400m² NLA within the Golden Gateway Activity Centre constitutes 'major development' and shall be supported by a further Net Benefit Test prepared in accordance with SPP 4.2'.</i></p> <p>Matters for Consideration</p>	<p>Noted.</p> <p>Refer to the Precinct E section of the report.</p>
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		<p>Is of the opinion that shop/retail floorspace allowance within the draft PSP should be amended to comply with the City's current planning framework.</p> <p>Notes that the City of Belmont Activity Centre Planning Strategy (ACPS) which was adopted by Council at its meeting on 27 February 2024, identifies a new future local centre with 1,200m² of retail floor space within the Golden Gateway precinct and that its location will be guided by future detailed planning.</p> <p>Understands the updated draft Golden Gateway Local Structure Plan (LSP) which was advertised by the City during October 2024, supports the development of a 1,200m² local centre within the Golden Gateway precinct, with no specific site designated within the Plan.</p> <p>Notes Section 2.3.4.3 of the PSP Report states that, 'SPP 4.2 applies to the Precinct Structure Plan as Precinct E is intended to facilitate the development of an activity centre at the intersection of Grandstand Road and Resolution Drive, forming part of the wider Golden Gateway activity centre. The size and scale of the proposed Golden Gateway activity centre would be akin to a 'Local Centre' or a 'Neighbourhood Centre' under SPP 4.2'.</p> <p>Notes that both the City's ACPS and the updated draft Golden Gateway LSP support the development of a 1,200m² local centre within the Golden Gateway precinct. States it is also clear that neither of these planning documents support the development of a neighbourhood scale activity centre with the proposed extent of shop/retail floorspace being sought in the draft PSP. Believes it is likely that the objective of the increased floorspace is to accommodate a full line supermarket which is a use not contemplated in this location under the City's current planning framework.</p> <p>Conclusion Based on a review of the draft Ascot Racecourse PSP including the supporting Net Benefit Test, states that it appears the amount of shop/retail floorspace proposed within the PSP area significantly exceeds that specified in the ACPS and recently advertised updated draft Golden Gateway LSP.</p> <p>States that both the City's ACPS and updated draft Golden Gateway LSP support development of a new/future local centre with 1,200m² of retail floor space within the Golden Gateway precinct. Notes that although no specific site has been designated within the LSP, it does mention that the local centre may be located on Western Australian Turf Club land.</p> <p>States that despite this, Part One – Implementation, Section 4.3.1 Activity Centre of the draft Ascot Racecourse PSP Report states that, '<i>Development of Shop/Retail floorspace up to 3,400m² NLA is permitted within the Golden Gateway Activity Centre without requiring further assessment</i>'.</p> <p>Considers the amount of shop/retail floorspace proposed within the PSP does not comply with and is fundamentally inconsistent with the City's current planning framework, including the Retail Needs Assessment (RNA) prepared to inform the City's ACPS. In this respect, considers the PSP Report is incorrect, as development of shop/retail floorspace up to 3,400m² NLA is not permitted within the Golden Gateway Activity Centre without requiring further assessment. On this basis, requests an amendment to Part One – Implementation, Section 4.3.1 Activity Centre of the draft</p>	
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		PSP, such that the development of a new/future local centre is limited to 1,200m ² NLA of retail floor space not 3,400m ² NLA. This amendment would ensure that the scale and composition of the future local centre is consistent with the intent of the City's planning framework and does not undermine the City's established activity centre hierarchy.	
81	Public Submitter	<p>Neither Supports or raises concerns</p> <p>Notes that the Belmont Men's Shed Inc. is a registered charitable community service organisation serving men in the City of Belmont and surrounding areas. Highlights its range of activities and services benefiting local residents and community groups, leveraging the skills of its members.</p> <p>States that the organisation operates under a Board of Management, which oversees governance, ensures safety, and supports its members and visitors. Notes that membership is open to men over the age of 16 and caters to diverse ages, ethnicities, and skills, including woodworking, metalwork, and fostering fellowship.</p> <p>Refers to the Australian Men's Shed Association's statement that Men's Sheds deliver programs fostering community spirit, connecting communities, and contributing to inclusivity in Australia. Considers that this ethos is reflected in the Belmont Men's Shed's focus on health, wellbeing, and community engagement.</p> <p>Highlights the Shed's health education initiatives, including stroke education, medication advice, exercise programs, falls prevention, and first aid training. Notes that the Shed has received numerous accolades, including the Community Spirit Award at the 31st Belmont & Western Australian Small Business Awards, earning induction into the Hall of Fame for its sustained community contributions.</p> <p>States that the Shed's vision aligns with the values of the Men's Shed movement, providing a safe, friendly environment for men to share knowledge, engage in community projects, and connect socially. Emphasises that its diversity of backgrounds and commitment to sustainability, such as recycling and promoting Australian timber, enhances its role in the multicultural community.</p> <p>Considers that the proposed Ascot Racecourse Precinct Structure Plan provides an opportunity to integrate a community facility such as the Belmont Men's Shed in Precincts A and E. Suggests that Precinct A, envisioned for retirement living, could benefit from a Shed offering activities like gardening, fellowship, and skills-based projects. Notes that Precinct E, similar to the Shed's current location, could facilitate partnerships with local industries, as seen in their ongoing collaboration with Bunnings and other community initiatives.</p> <p>Proposes consultation with the racing community and the City of Belmont to explore opportunities for a shared vision for Precincts A and E, ensuring alignment with the Racecourse's community-focused objectives. Highlights the Shed's extensive work with over 30 local organisations, providing services like park seating, school facilities, and youth programs.</p> <p>Concludes that the Belmont Men's Shed Board seeks to engage in discussions regarding the Ascot Racecourse Precinct Structure Plan and considers its involvement as a valuable contribution to the wellbeing of Belmont residents and the broader community.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted.</p> <p>Noted.</p> <p>Noted.</p> <p>Noted. This is a private matter that requires discussions with Perth Racing.</p> <p>Given the Structure Plan is not a City led project, the Belmont Men's Shed will need to liaise with Perth Racing privately.</p> <p>Refer to previous comments.</p>

82	Public Submitter	<p>Raises concerns</p> <p>Strongly objects to the Ascot Racecourse Precinct Structure Plan, specifically in relation to Zone C, due to concerns about the negative impacts on the character and amenity of Ennis Place. Describes Ennis Place as a quiet, no-through road with minimal traffic, providing a peaceful environment with views of the back track and surrounding trees. The location is said to foster a strong sense of community, with a low crime rate, supported by a neighbourhood watch, which ensures a safe and secure atmosphere.</p> <p>Raises significant concerns regarding the proposed use of Ennis Place as an access road for Zone C. It states that this would result in increased traffic congestion, involving not only cars and bikes but also trucks, trailers, and service vehicles such as feed trucks and manure removal vehicles. Believes this increase in traffic would be incompatible with the residential nature of the area, resulting in safety risks for children and a loss of security due to the heightened activity and constant comings and goings. Further mentions that the proposed plans would lead to increased noise levels, particularly at all hours, further disrupting the peaceful environment of the area.</p> <p>Requests that Ennis Place and the back track remain no-access zones, in order to protect the area's residential character, safety, and environmental values. Considers that the proposed plans would significantly and negatively alter the current peaceful and quiet nature of the area.</p> <p>In addition to the concerns about traffic and safety, the submission highlights environmental issues. It is mentioned that the proposed plans include the clearing of trees, which currently provide habitat for birds and contribute to the area's natural character. The submitter states that this would contradict the City of Belmont's focus on tree planting and enhancing urban greenery. Furthermore, concerns are raised about potential increases in rodent activity, mosquitoes, and fly populations as a result of the stabling operations, which would negatively affect the local environment.</p>	<p>Noted.</p> <p>It should be noted that stables can be developed on the subject land without the structure plan. As detailed in previous responses to submitter comments, amenity and traffic impacts have been considered during the assessment of the recently approved development application. If Perth Racing do not act on this approval, these impacts will also be considered as part of other applications.</p> <p>Access of Ennis Place was considered through the assessment of the recently approved stables complex. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link:</p> <p>Minute - No 65 - City of Belmont - City of South Perth</p> <p>A modification is proposed to the Transport Impact Assessment to identify the possibility of access from this road.</p> <p>Refer to Environment section of the Council report.</p>
83	Public Submitter	<p>Raises concerns</p> <p>Mentions that despite the comprehensive documentation provided for the Ascot Racecourse Precinct Structure Plan, in conjunction with the Golden Gateway developments, all stakeholders, including government agencies, private sector third parties, and developers, should be required to declare any perceived or actual conflicts of interest in the interest of transparency and accountability.</p> <p>Emphasises that the primary concern is to protect and preserve the amenity of the property, which was chosen as a 'forever home' almost 24 years ago. Invites others to consider the challenges faced by residents when density increases around infrastructure that was not designed to handle it, such as the difficulties of exiting the</p>	<p>Elected members will be required to declare any interests under the <i>Local Government Act 1995</i>.</p> <p>Refer to Movement section of the Council report.</p>

		<p>Resolution Drive roundabout at peak times or navigating traffic after the realignment of Grandstand Road.</p> <p>Expresses opposition to the introduction of mixed-use, commercial, and retail developments within Areas D and E, citing concerns about noise, waste, infrastructure load, and traffic, which would negatively affect nearby residential properties. Believes that if Area D is approved for residential use, it should remain consistent with the zoning of houses on Tidewater Way.</p> <p>Opposes the proposed high-rise (>5 storey) retirement village in Area A, due to concerns over its impact on traffic, particularly on the Garratt Road Bridge, and its effect on local infrastructure.</p> <p>Questions whether an Emergency Management Plan has been developed to address potential catastrophic events such as a Swan River storm surge and flooding, given the area's location on a 100-year floodplain. Requests assurance that the anticipated density, including humans and horses, can exit safely from the current locations within Ascot Waters and Ascot Vale Estates.</p> <p>Requests clarification on any implications for nearby residents due to asbestos removal from structures within the Ascot Racecourse development.</p> <p>States they are not opposed to development but have significant concerns regarding the potential loss of amenity, such as increased rates, decreased quality of life, and exacerbated issues with noise, traffic, and parking. Believes the current plans do not adequately address broader concerns related to labour and construction challenges, the lack of affordable housing, and the reliability of essential services.</p> <p>Mentions that, as one of the many affected residents, they wish to retain the amenity that existed when they first chose to live in Ascot in 2001. Calls for the area's character to be preserved, under the hashtag #SaveOurSky.</p>	<p>Amenity impacts such as noise and waste will be further considered as part of future development applications. Regarding residential development within Precinct D, a maximum height of three storeys is proposed by the structure plan which is considered to integrate well with neighbouring development in Ascot Waters. The appropriateness of zones, density codes and land use permissibility is further detailed for each precinct within the report.</p> <p>For details relating to traffic, refer to the Movement section of the report.</p> <p>There is no requirement for an emergency management plan to be developed. Regarding flooding, the Structure Plan has been referred to the Department of Water and Environmental Regulation (DWER) for comment. DWER has advised that a small portion of Precinct A is located within the floodway and as such any future development would have to comply with floodplain management and meet minimum habitable floor levels. A minimum habitable floor level of 0.5m above the adjacent 1% AEP flood level is recommended to ensure adequate flood protection. The Structure Plan complies with this and requires that all structures are built 0.5m above the flood level.</p> <p>Asbestos products will be required to be transported in accordance with Department of Health requirements.</p> <p>Amenity considerations will be further considered through the development application process.</p> <p>It is unclear why rates will increase.</p> <p>Traffic and Parking details are further discussed within the Movement section of the Council report.</p> <p>There is no requirement for this Structure Plan to address affordable housing and labour and construction challenges.</p> <p>The Structure Plan adequately details the availability of services for future development.</p> <p>Noted.</p>
84	Public Submitter	Raises concerns	

		<p>Commercial Zones – Questions why commercial and retail developments are proposed adjacent to the racecourse in the current plans, as these areas would be better suited for mixed-use developments, particularly apartments.</p> <p>Highlights the aim of placing commercial and retail development along the GEH corridor in the area structure plan and suggests that a retail supermarket in Area AC3, as shown in Plan 1 or Figure 8 (Pages 68, areas 11, 12, and 13), would be better located as part of a residential development closer to the GEH corridor. Believes this would align with the intended retail and commercial use along the GEH corridor, as seen in examples such as Belmont Racecourse and Claremont Oval.</p> <p>Parking – Inquires about parking provisions for race patrons, particularly whether multistorey parking facilities will be required. Notes that the current overflow car parks are heavily used on significant race days and seeks clarification on where parking will be located for retail developments.</p> <p>Traffic Flows – Raises concerns about the proposed traffic flow in Figure 16, Page 110, which shows a right turn across traffic into Raconteur Drive, which would be problematic, especially on race days. Also questions the right turn indicated into Daly Street across traffic, suggesting this may be a drawing error as both Daly and Hargreaves Streets should be blocked for right-hand turning traffic.</p>	<p>A 'Mixed Use' zoning is proposed to be applied to several landholdings which would facilitate mixed use development outcomes. The 'Commercial' zoning is proposed to facilitate the development of a future local centre. Further commentary about the appropriateness of each zone is included within the report under the precinct subheadings.</p> <p>Land fragmentation closer to Great Eastern Highway presents a challenge to develop a local centre in that location. Land availability within Precinct E provides an opportunity for a local centre to establish that will serve future residential development within the Golden Gateway precinct.</p> <p>Refer to Movement section of the Council report.</p> <p>Refer to Movement section of the Council report.</p>
85	Public Submitter	<p>Raises concerns</p> <p>Concerned about the potential effects of the proposal on the community, particularly when combined with the Golden Gateway Local Structure Plan. Believes this could lead to overcrowding, traffic chaos, and congestion in an area that is already struggling.</p> <p>Raises additional concerns regarding the lack of infrastructure, public transport, and parking, with the belief that these issues will be exacerbated on major racing days.</p> <p>Suggests a solution involving the sale of the racetrack and the transfer of all racing to Belmont Park. This could allow for easier management of infrastructure, with funds from the sale potentially benefiting the broader Belmont community.</p>	<p>A modification is proposed that the Transport Impact Assessment be updated with details of traffic within the Golden Gateway precinct. Refer to Movement section of the report for further detail.</p> <p>Regarding infrastructure, an Engineering Servicing Report has been prepared in support of the Precinct Structure Plan. It identifies that all required services can be made available for future development. Regarding public transport, the draft Precinct Structure plan identifies bus routes within and surrounding the precinct. These include the 998/999 Circle route operating along Grandstand Road and the 293 and 940 routes operating along Great Eastern Highway. For parking details, refer to the Movement section of the report.</p> <p>This is not a relevant planning consideration of the draft Precinct Structure Plan.</p>
86	Public Submitter	<p>Supports subject to modifications and raises concerns</p> <p>Generally supports R60 mixed-use development of Precinct D, limited to 3 storeys in height. States that whatever is built must respect the heritage nature of the adjoining Ascot Kilns site.</p> <p>Generally supports the development of commercial businesses within Precinct E and considers this will provide positive amenities and services to the current residents of</p>	<p>Noted. The scale of residential development within this precinct (3 storeys) is consistent with building heights within Ascot Waters and will not undermine the heritage values of the Bristle Kilns.</p> <p>Noted.</p>

		<p>Ascot, in addition to those who will occupy new residences in the proposed Golden Gateway development.</p> <p>Is not opposed to aged care and residential developments in Precinct A. However, does not support development of Precinct A with buildings that are 15 storeys in height, and with an R-code of RAC0. Notes that residents of Ascot Waters previously made an effective argument against a 15-storey building on the Craig Care site at 52 Grandstand Road, successfully limiting the height to 5 storeys. States that, given this precedent, Precinct A should also be limited to 5 storeys for the same arguments used at the adjoining Craig Care site with an R-Code of R160.</p> <p>Believes that further large-scale development in Precinct A will only exacerbate unaddressed safety issues in that area, placing additional pressure on the Grandstand Road/Waterway Crescent roundabout. Mentions that it is currently extremely difficult and sometimes unsafe to leave Ascot Waters by car at peak hour due to heavy commuter traffic at the roundabout at Waterway Crescent and Great Eastern Highway.</p> <p>Also highlights the challenge of crossing Grandstand Road on foot to access bus stops for the 999/998 bus routes, given traffic at peak hour and the lack of pedestrian control.</p>	<p>Refer to the Precinct A section of the report.</p> <p>Refer to Movement section of the Council report.</p> <p>Refer to Movement section of the Council report.</p>
87	Public Submitter	<p>Raises concerns</p> <p>Notes that the WA Horse Council has not been included in any of the planning structures, despite its relevance to the welfare of horses. States that this is a concern and provides contact details for the council (horsecouncilwa@gmail.com) and a link to their website (https://www.wahorsecouncil.com.au/).</p> <p>Mentions having been a private equine veterinarian for 40 years in Western Australia and expresses concern about the lack of planning decisions that consider the social license for racing to continue in WA, including the Five Freedom Model of equine welfare.</p>	<p>There is no requirement for the draft Precinct Structure Plan to be referred to the WA Horse Council.</p> <p>Noted.</p>
88	Public Submitter	<p>Raises concerns</p> <p>Concerns about the potential development of the carpark areas (E), with the belief that this will result in significant parking in local residential streets. The street is currently very quiet and not particularly wide for regular traffic flow.</p> <p>States that although the proposed entrance for patrons is on Grandstand Road, this road already struggles to cope with traffic on race days, often reducing to one lane. Any disruption to this traffic flow is believed to negatively impact traffic going north/south and into/out of Ascot Waters.</p> <p>Raises concerns about how horses will travel to the track once Matheson Road is potentially opened up and commercial premises are established across the road, which is thought to be frightening for horses. Raises concerns about the busy nature of</p>	<p>Refer to Movement section of the report.</p> <p>Refer to Movement section of the report.</p> <p>Refer to Movement section of the report.</p>

		<p>Matheson Road in the mornings, with many horses travelling to the track from rural properties.</p> <p>States that changing area E to commercial and retail will likely result in busier roads, increased rubbish (as observed with Hungry Jack's), and significantly increased noise from bins being emptied and patrons frequenting nearby businesses, which can be disruptive.</p> <p>Concern is raised about security becoming an issue if E is changed to commercial/retail, as there are believed to be unsavoury individuals who frequently stay around properties along Great Eastern Highway.</p> <p>States that E is not suitable for a shopping centre or supermarket due to the inadequate roads and the difficulty in managing increased traffic and cars.</p> <p>States that there would be no issue with E becoming high-rise residential with basic retail below, as most properties along Hardey Road are placed at the front of the block and privacy is less of an issue. Residential/retail would be considered more appropriate due to the proximity to the track, views, and the location to the city via GE Highway.</p> <p>Suggests an alternative of Precinct E to be utilised for the equine industry, such as additional stabling.</p> <p>States that once E is no longer carparking and the float area is reduced, there is likely to be insufficient parking on race days, as most trainers with external properties will continue to drive their trucks and floats, which will not be on course.</p>	<p>Refer to Movement section of the report.</p> <p>Regarding waste and noise considerations, these will be further considered through the development application process. It is likely that a waste management plan will be required for commercial developments.</p> <p>The connection between commercial/retail development and security issues is unclear. Any antisocial behaviour should be reported to WA Police.</p> <p>Refer to Movement section of the report.</p> <p>Noted. Residential development could be proposed within the 'Mixed Use and 'Commercial' zoned portions of Precinct E.</p> <p>A portion of Precinct E is intended to be used for equine related activities under the master plan.</p> <p>Refer to Movement section of the report.</p>
89	Public Submitter	<p>Neither supports or raises concerns</p> <p>No comment provided.</p>	Noted
90	Public Submitter	<p>Raises concerns</p> <p>Requests the following for consideration:</p> <ul style="list-style-type: none"> • Retain the precious tree canopy cover that currently exists; • The impact on local wildlife, however scarce they may be within and around the precinct, particularly with the potential increase in both human and vehicular traffic; and • The aesthetics of having a tall structure next to the river. States there is no need for an "entry statement" into the City of Belmont, and contrary to opinions accepted in years past, the height and presence of the building will remain forever visible. 	<p>Refer to the Environment section of the Council report.</p> <p>Refer to the Precinct A section of the Council report.</p>
91	Public Submitter	<p>Raises concerns</p> <p>Expresses dissatisfaction with the plan due to the following:</p> <ul style="list-style-type: none"> • Inadequate consideration of race day people movement and parking. 	Refer to Movement section of the Council report.

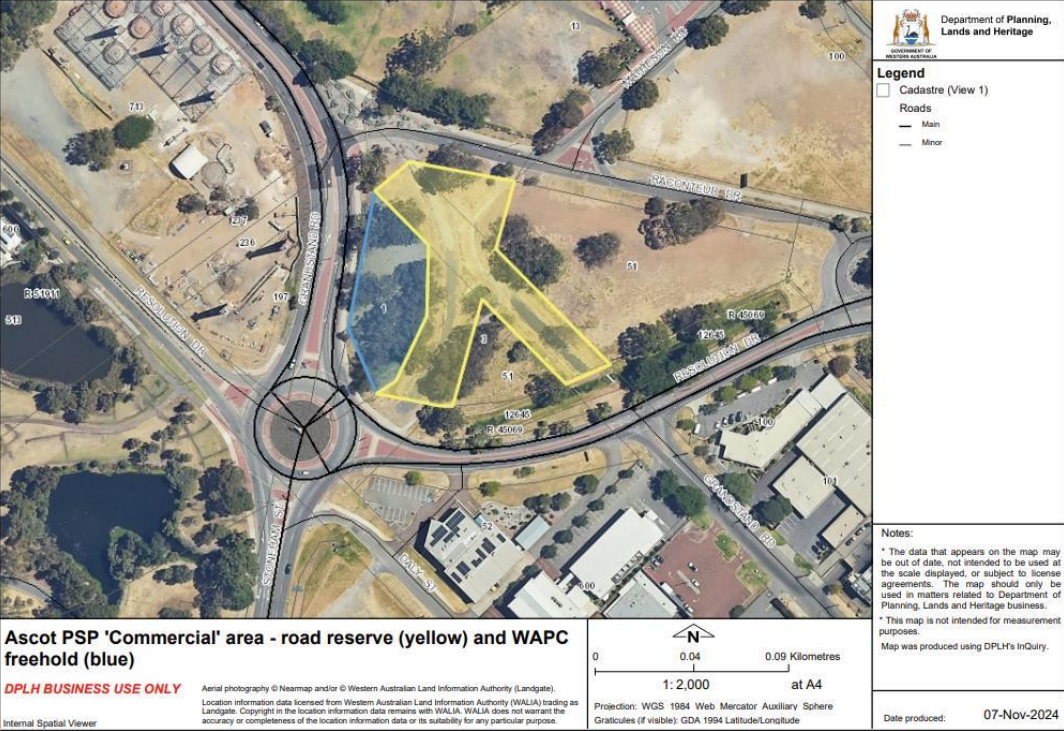
		<ul style="list-style-type: none"> • Inadequate consideration of what is the primary entry to the Ascot Racecourse. • The suggestion of a big box retail west of Great Eastern Highway is absurd considering the current traffic load. • Single storey stables along the east side of the racecourse will restrict view lines. • Reduced parking for trainers on the east side of the course. • Use of Precinct A for retirement towers. 	<p>It is considered that the Precinct Structure Plan makes it clear that the primary entrance will be from Grandstand Road (refer to Figure 16 as an example).</p> <p>A Transport Impact Assessment has been prepared in support of the structure plan. Refer to Movement section of the report for further detail.</p> <p>Stables can currently be proposed and built irrespective of the Structure Plan. It is not considered that views to the river are a relevant planning consideration.</p> <p>This level of detail has been/will be addressed through the development application process. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link:</p> <p>Minute - No 65 - City of Belmont - City of South Perth</p> <p>While specific concerns are not raised by the submitter, it should be noted that all buildings will need to comply with the Building Code of Australia, which includes fire safety and accessibility requirements. Suitable emergency evacuation procedures would need to be established to ensure safety for residents.</p>
92	Public Submitter	<p>Raises concerns</p> <p>States that they moved to Perth after spending several years living on remote cattle stations in northern Australia. Ascot was chosen as the preferred location due to its unique position, proximity to schools and shops, access to the River, presence of gumtrees, and its quiet, private environment.</p> <p>Strongly objects to the draft Ascot Racecourse Precinct Structure Plan, asserting that it would negatively impact the community. Is concerned about the proposed designation of Ennis Place as a stable access road, which is expected to generate significant traffic starting as early as 3:30am. This would include Trainers, Stable Staff, Trackwork Riders, and Jockeys accessing the area, followed by service providers such as Vets, Farriers, Horse Dentists, Horse Chiropractors, Feed Trucks, Manure Trucks, and Horse Floats. Indicates that this activity would continue late into the night, particularly when Horse Floats return from country race meetings, resulting in relentless traffic and constant noise.</p> <p>Highlights environmental concerns, including the loss of mature trees that currently provide habitat for wildlife and contribute to the area's character. States that the</p>	<p>Noted.</p> <p>Access off Ennis Place was considered through the assessment of the recently approved stables complex. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link:</p> <p>Minute - No 65 - City of Belmont - City of South Perth</p> <p>A modification is proposed to the Transport Impact Assessment to identify the possibility of access from this road.</p> <p>Regarding noise, this has been/will be further considered through the development application process. The acoustic study prepared in support of the recently approved stables development find that any noise associated with the proposed stables development is compliant with the Environmental (Noise) Regulations 1997 with mitigation or operational management measures proposed to address specific use of the development.</p> <p>Refer to Environment section of the Council report.</p>


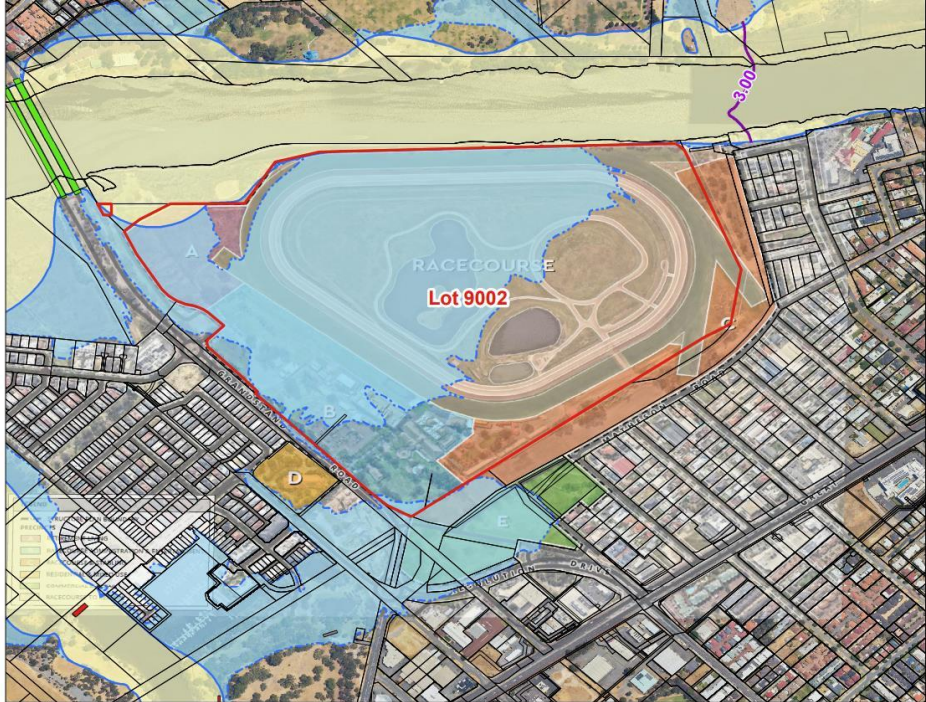
		<p>removal of these trees would increase temperatures and diminish shade over their property.</p> <p>Notes that daily westerly breezes would carry odours from the stables into the surrounding area, exacerbating impacts on local amenity. Additionally, is concerned about pests, including flies, rats, and mice, being attracted to the proposed stabling facilities.</p> <p>Argues that the proposed development would alter the area's aesthetic, replacing greenery with a more industrial character, which is considered incompatible with the neighbourhood. Concludes by urging the City to oppose the plan, stating that the project is not appropriate for the community.</p>	<p>It should be noted that stables can be constructed on the subject land irrespective of the structure plan. However, Future stables will need to be managed in accordance with the City's Consolidated Local Law which requires stables to be kept in a clean and sanitary condition and as far as practicable, free from flies, rats, other vectors of disease and offensive odours.</p> <p>Stables can currently be proposed and built irrespective of the Structure Plan. Aesthetics of any future development have been/will be further considered at development application stage.</p>
93	Public Submitter	<p>Raises concerns</p> <p>Is nine years old and lives on Ennis Place in Ascot.</p> <p>Likes to play soccer, handball, cricket and basketball on the street. States that they won't be able to play safely on the street anymore.</p> <p>Uses the dirt road to walk to school and walk their dogs to the river.</p> <p>Collects red cockatoo feathers and yellow ones from the trees near the backtrack.</p> <p>Can sit on the way and watch fireworks and the sunset going down.</p> <p>Doesn't want to live in Ascot if playing outside isn't possible.</p>	<p>Noted.</p> <p>Access of Ennis Place was considered through the assessment of the recently approved stables complex. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link:</p> <p>Minute - No 65 - City of Belmont - City of South Perth</p> <p>A modification is proposed to the Transport Impact Assessment to identify the possibility of access from this road.</p> <p>Noted. This land is privately owned by the State of Western Australia with no development proposed over it. Access will be from Ennis Place.</p> <p>Noted.</p> <p>Noted.</p> <p>Draft PSP does not prohibit the ability for residents to continue to play outdoors.</p>
94	Public Submitter	<p>Raises concerns</p> <p>Loves living in Ascot with family.</p> <p>Has lots of friends in Ascot who love to come and play because of the open space. States it is so quiet, and cars very rarely come and disturb games.</p> <p>Likes to play basketball, cricket, soccer and football next to the back track. States that this won't be possible when the stables are built.</p> <p>Likes to visit friends houses and doesn't have to worry about traffic and so gets there safely.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted. This land is privately owned by the State of Western Australia with no development proposed over it. Access will be from Ennis Place.</p> <p>Access of Ennis Place was considered through the assessment of the recently approved stables complex. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link:</p>

		Loves to walk to school and ride bikes but will need to be driven to school soon because of the traffic.	Minute - No 65 - City of Belmont - City of South Perth A modification is proposed to the Transport Impact Assessment to identify the possibility of access from this road. The draft PSP does not prohibit the ability for residents to continue walking and cycling within the area.
95	Public Submitter	Raises concerns Loves living in Ascot for the past two years and likes playing cricket, handball, basketball and football in the street and on the side of their house. Asks that the stables are not built. Doesn't want to smell manure in the morning and is concerned that they won't be able to play sport in the street because of all the cars.	Noted. It should be noted that stables can be constructed on the subject land irrespective of the structure plan. However, Future stables will need to be managed in accordance with the City's Consolidated Local Law which requires stables to be kept in a clean and sanitary condition and as far as practicable, free from flies, rats, other vectors of disease and offensive odours. Access of Ennis Place was considered through the assessment of the recently approved stables complex. A copy of the Development Assessment Panel minutes for the recently approved stables can be found via the below link: Minute - No 65 - City of Belmont - City of South Perth A modification is proposed to the Transport Impact Assessment to identify the possibility of access from this road.
96	Public Submitter	Raises concerns States Ennis Place is a beautifully quiet street in Ascot, with only a 30 second walk to the Swan River water edge. Considers this is a great location for family especially recently coming from the outback. Is concerned about safety. Walks to the bus stop everyday on the dirt road and along Ennis Place and Epsom Avenue. Questions how they can take the bus. States that the houses along Ennis Place aren't just houses but are homes that this plan will destroy. Would like her home to remain as it is with trees, the birds, the wildlife, the view, the quiet, the fresh smell, the easy access to the river, the dirt road, and to me the most important the serenity. Submitter won't enjoy living on Ennis Place anymore.	Noted. This land is privately owned by the State of Western Australia. The submitter can use the footpath that exists along Epsom Avenue. Noted. Noted.
97	Public Transport Authority	PTA is supportive of the proposal however have some details they wish to see amended in the final report. 1. The wording on pages 45 and 100 <i>'are served by the 998/999 circle route which has good frequency and provides connectivity through central Perth and</i>	Modifications are proposed to address. Refer to Schedule of modifications.

	PO Box 8125 Perth Business Centre, WA, 6849	<p><i>Bayswater Train Station'</i> can be misleading as these bus routes travel to several nodes and destination attractors across Perth and does not travel directly via Central Perth.</p> <p>2. The existing bus routes on Grandstand road need to remain as embayed bus stops for the 998/999 bus routes. There is potential to introduce additional bus stops on Grandstand Rd north of the roundabout within Precinct A (Retirement Village) subject to pedestrian amenity. Further potential exists along Resolution Dr around precinct E (Commercial and Retail Space). It is requested that Transperth Bus Stop and Infrastructure team be contact for involvement in future plans surrounding potential stop placements to align with the development.</p>	Noted.
98	Water Corporation PO Box 100, LEEDERVILLE WA 6902	<p>Major water and sewer upgrades will be required to service the proposed developments identified in the structure plan. These will be done at the developers cost. The proponent should get in contact with the Water Corporation early to discuss what is needed.</p> <p>There are significant Water Corporation assets located in the "A3" R-AC3 Commercial reserved lot. This includes major water distribution mains that cannot be moved or built on top of and a number of open channel drains. These assets are essential and cannot be moved or built around. Water Corporation objects to the rezoning of this section of the structure plan to commercial.</p> <p>The information provided above is subject to review and may change. If the proposal has not proceeded within the next 6 months, the applicant will need to contact Water Corporation to confirm that this information is still valid.</p>	<p>Noted</p> <p>Refer to Precinct E section of the report.</p> <p>Noted</p>
99	Department of Education	<p>The draft Structure Plan area spans across the student enrolment intake areas of Belmont Primary School and Belmay Primary School. However, amongst the five precincts within the Structure Plan area, Precinct D 'Residential & Mixed Use' which envisions to deliver, in part, approximately 41 residential lots of medium density, falls within the enrolment intake area of Belmont Primary School.</p> <p>As previously highlighted in the Department's response letter on the draft Golden Gateway Local Structure Pan, Belmont Primary School is currently operating within the student accommodation capacity. However, the cumulative increase in dwelling yield in the locality would have an impact on the student enrolment demand and capacity of the subject primary school in the long term.</p> <p>It is worth noting that every new residential development or intensification of residential density create demand for, or on, public schools, with this demand potentially extending beyond the boundaries of a structure plan. Whilst the Department acknowledges the planning merits of infill development, it is critical to balance the residential growth and resultant student population with public school provision in the locality. If there are insufficient provisions of public schools, this will result in significantly overcrowded school sites, insufficient parking for drop-offs and pick-ups, traffic management issues for the local community, and compromised education outcomes for students.</p> <p>Preliminary analysis at this stage indicates that Belmont Primary School would be under student enrolment pressure in the long term. With the school site being restricted in size (1.46 hectares in lieu of a standard 4 ha standalone primary school</p>	<p>Noted</p> <p>Noted</p> <p>Noted</p> <p>Noted</p>

		<p>site), future expansion or augmentation of the school (e.g. off site early childhood facility) may be required in the future to ensure its capability of catering for the long-term student demand in the Ascot-Belmont area.</p> <p>Notwithstanding this, the Department has no in-principle objections to the Structure Plan. The Department will continue to monitor the student enrolment demand as development progresses within the Structure Plan and ensure that the residential growth corresponds accordingly with the provision of public schools in the locality. It is essential that the Department and the City of Belmont collaborate on future school planning within the municipality to adequately provide for the educational needs of the Town in the future.</p>	Noted.
100	<p>Land Use Management – Metro and Peel at the Department of Planning Lands and Heritage</p> <p>Locked Bag 2506, Perth WA 6001</p>	<p>In relation to 'Precinct A' on the PSP, being Lot 9002 on DP 60342:</p> <ul style="list-style-type: none"> Ascot Racecourse is held by the Western Australian Turf Club (WATC) as a conditional freehold tenure. It is a condition that the land is to be used solely for activities relating to the running of a public racecourse under the Land Administration Act 1997 (LAA). However, the land may be used or leased for another purpose with the written permission of the Commissioner of Crown Lands under section 10 of The Western Australian Turf Club Act 1892 (WATC Act). The WATC has the power to lease and deal with real and personal property for the purposes of the club and requires the consent of the Governor given on the recommendation of the Minister for Lands under section 4(2a) of the Western Australian Turf Club (Property) Act 1944 (Property Act). The WATC is also to obtain the Minister for Lands' consent to grant any lease, licence, mortgage, charge, security or other encumbrance under section 75(6) of the LAA. Further investigation and possibly legal advice would be required regarding whether the proposed retirement living/aged care is suitable on the racecourse land that is held in conditional freehold tenure. This would also require consultation with the Department of Local Government, Sport and Cultural Industries, noting that the WATC Act and the Property Act fall under the Racing and Gaming portfolio. <p>In relation to 'Precinct E' on the PSP:</p> <ul style="list-style-type: none"> Portions of 'Precinct E' under a proposed 'Commercial' zoning are currently road reserve (redundant residual alignments of Grandstand Road and Matheson Road) and WAPC freehold Lot 1 on Diagram 55346, as described on the attached map. Notes that Figure 12 on page 88 of the draft PSP flags these different land tenures, in doing so describing the road reserve area as 'proposed road lease' - it would be worth further consideration from Perth Racing on this front, as leases of Crown land can only be considered where the proposed use of the land/purpose of the lease is consistent with that land's purpose (ie. use of road by the public), which would not be the case with the proposed commercial activity. 	<p>Refer to Precinct A section of the report.</p> <p>Refer to Precinct A section of the report.</p> <p>Refer to Precinct A section of the report.</p> <p>Refer to Precinct A section of the report.</p> <p>Noted.</p> <p>Refer to Precinct E section of the report.</p>

		<ul style="list-style-type: none">The WAPC freehold would also need to be resolved in some capacity, however this is outside our remit in Crown Land Management. <div></div> <p>Notes flagging this invitation for comment with the Department's Land Use Planning division, who have deferred comment until later formal assessment of the PSP for WAPC determination.</p>	<p>Refer to Precinct E section of the report.</p> <p>Noted.</p>
101	<p>Department of Water and Environmental Regulation</p> <p>7 Ellam Street, Victoria Park WA 6100</p>	<p>The Department has identified that the proposal has the potential for impact on water values and management. While the Department does not object to the proposal, key issues and recommendations are provided below and these matters should be addressed:</p> <p><u>Local Water Management Strategy</u></p> <p>The Department has assessed the Local Water Management strategy (LWMS) dated July 2024 prepared by Emerge Associates. The Department is satisfied that the document is acceptable for this proposal to proceed to the next stage of planning approval.</p> <p><u>Floodplain Management Advice</u></p> <p>The Department of Water and Environmental Regulation provides advice and recommends guidelines for development on floodplains with the object of minimising flood risk and damage.</p> <p>The Swan and Helena River Flood Study (2018) shows that the lot is affected during major flows with the 1 in 100 (1%) AEP flood level expected to vary from 2.9 m AHD to ~3.0 m AHD as shown in the attached map.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted.</p>

		<p>Our floodplain management strategy for the area is:</p> <ul style="list-style-type: none">Proposed development (i.e. filling, building, etc.) that is located outside of the floodway is considered acceptable with respect to major flooding. However, a minimum habitable floor level of 0.5 m above the adjacent 1% AEP flood level is recommended to ensure adequate flood protection.Proposed development that is located within the floodway (yellow areas on attached plan) and is considered obstructive to major flows is not acceptable as it would increase flood levels upstream. <p>With regard to the proposal, it appears that a small portion of the retirement living (Precinct A) is located within the floodway, and as such any future development would have to comply with floodplain management and meet minimum habitable floor levels.</p> <p>Please note that a failure to properly adhere to these recommendations will result in a greater exposure to risks of flood damage. This advice is related to major flooding only and other planning issues, such as environmental and ecological considerations, may also need to be addressed.</p> <div><div><p>LOCALITY MAP</p><p>LEGEND</p><ul style="list-style-type: none">Lot 9002 Grandstand RdDesignated flood event level contourFloodway limitExtent of 1 in 100 (1%) AEP floodingFloodwayFlood fringe1 in 100 (1%) AEP Bridge statusDryWetNo Data<p>Scale: 1:10,000</p><p>North Arrow</p><p>Details and Projection Information</p><p>Vertical Datum: AHD71 Horizontal Datum: GDA2020 Projection: MGA Zone 50 Software: QGIS</p><p>Project Information</p><p>Client: Bree Lyster Map Author: Ian Caring Hyatt Task ID: B1305 Completion Date: 20/11/2024 Edition: Version 1</p><p>SOURCES</p><p>The Department of Water and Environmental Regulation acknowledges the following datasets and their contributions to the production of this map:</p><p>Reliance - Landgate - 2019 Roads - Landgate - 2019 State Cadastral Database (SCDB) - Landgate - 2019 NewSouthWest State Road Database - Landgate - 2019</p><p>Government of Western Australia Department of Water and Environmental Regulation</p><p>This map is a product of the Department of Water and Environmental Regulation and was produced on 20/11/2024. The map was produced under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. While the Department of Water and Environmental Regulation has made every effort to ensure the accuracy of the data, it does not warrant or accept any liability for any errors or omissions. The map is provided as a guide only and should not be used for any other purpose.</p></div></div>	<p>Part 1 of the precinct structure plan requires a minimum habitable floor level of 0.5m above the 1% AEP flood level.</p> <p>Noted.</p> <p>Noted.</p> <p>Noted.</p>
102	Department of Biodiversity, Conservation and Attractions	<p>The Precinct Structure Plan area sits alongside the Swan River and is partly within the Swan River Trust Development Control Area (DCA). The Precinct Structure Plan includes the following six precincts:</p> <ul style="list-style-type: none">Precinct A – retirement living villagePrecinct B – additional car parking and new buildings for offices/hospitalityPrecinct C – proposed stables, horse float parking and car parking	<p>Noted.</p>

	<p>17 Dick Perry Avenue, Technology Park, Western Precinct, Kensington WA 6151</p>	<ul style="list-style-type: none"> • Precinct D – residential area and childcare centre • Precinct E – equine and jockey services, car parking and potential retail and bulky goods • Racecourse <p>DBCA has reviewed the Precinct Structure Plan Report prepared by Rowe Group, and the supporting documents and reports, including the Environmental Assessment Report (EAR) (Emerge, 2024), the Local Water Management Strategy (Emerge, 2024), and the Landscaping Masterplan Plan (SLR, 2024) and recommends the following matters be addressed prior to approval of the Precinct Structure Plan.</p> <p>Parks and Recreation foreshore areas</p> <p>State Planning Policy 2.10 – Swan Canning River System (Policy 2.10) states that land adjacent to the river should be available for public access, recreation and conservation of the river. River foreshore reserves should be planned with sufficient distance between the waters of the river and development to allow for conservation of the estuarine environment, including riparian vegetation, public access and recreational use of the foreshore and the river, and landscape protection and enhancement.</p> <p>A stretch of foreshore land is currently reserved for parks and recreation (P&R) along the edge of the Swan River (approximately 25 to 40 metres wide), contiguous with the DCA boundary. However, most of the P&R is within Lot 9002 which is owned by Perth Racing and contains the outermost racetrack. The racetrack extends to within 4 to 5 metres of the waters of the Swan River and is delineated with a boundary fence. The result is a 600 metre long, very narrow (~4 metres wide) strip of Crown land which allows for public access, but is inadequate for providing for passive recreation, or for protecting water quality and environmental values. In addition, the limited space available for foreshore and riverbank management has necessitated the construction of a long rock revetment for erosion control, which has further reduced the amenity of the location.</p> <p>The proposal involves a significant intensification of the use of the land surrounding the racecourse, which will result in future increase in population and pressure on local open space and foreshore areas. With the intensification of use, including the introduction of retail, commercial and residential activities, it appropriate for the P&R reservation to be vested transferred to the Crown. This would require rehabilitation of the foreshore to a naturalized, publicly accessible recreation area. Securing a sufficient Crown reserve for the long term is crucial now, as the proposed development of the surrounding land may eliminate the possibility of realigning the racetrack in the future.</p> <p>As such, a Foreshore Management Plan should be prepared to guide the future management of the reserve and to provide for better public access, recreational opportunities and improve the amenity and the interface between the racecourse and the Swan River.</p> <p>Local Water Management Strategy</p> <p>DBCA is particularly interested in the proposed management of stormwater and groundwater associated with the structure plan area for the following reasons:</p> <ul style="list-style-type: none"> • The proximity of the proposed development to the Swan River. • The lack of buffer between the racecourse and the river to assist with the improvement of water quality. 	<p>Refer to Racecourse section of the report.</p> <p>Refer to Racecourse section of the report.</p> <p>Officers are satisfied with the LWMS noting that the Department of Water and Environmental Regulation is the Agency responsible for approving these documents and has advised the following:</p> <p><i>"The Department has assessed the Local Water Management strategy (LWMS) dated July 2024 prepared by Emerge Associates. The Department</i></p>
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		<ul style="list-style-type: none"> • The classification of the racecourse as 'potentially contaminated – investigation required' (discussed in the Environmental Assessment Report) due to high levels of nutrients from the historic and ongoing horse stabling and runoff from animal storage areas on the site. • Existing outflows from the site to the Swan River are not currently monitored for water quality or quantity. • DBCA has received complaints in relation to poor water quality discharging from the site and poor environmental management in general. • The presence of a synthetic racetrack which has the potential to contribute large amounts of microplastics to the groundwater and discharge to the Swan River. <p>The proposed stormwater management outlined in the LWMS relies heavily on the utilisation of the three lakes within the centre of the racecourse, particularly for development within Precincts A, B and C. However, the LWMS has not demonstrated that the existing management of ground and surface water at the site is appropriate. There is insufficient ground and surface water quality monitoring data and no monitoring of the quality, volumes or frequency of water flowing to the river.</p> <p>Therefore, DBCA is not supportive of the proposal to utilise additional volume within the internal lakes unless the following can be demonstrated:</p> <ul style="list-style-type: none"> • Appropriate measures to guarantee that discharge to the River or to ground water from the lakes is of a quality consistent with the objectives of Corporate Policy Statement 49: Planning for Stormwater Management Affecting the Swan Canning Development Control Area and Australian and New Zealand Guidelines for Fresh Water Quality (ANZECC Guidelines) trigger values at 95% species protection. • That the use of the lakes will not result in any increase in volume or frequency of overflow to the river. • Monitoring of surface water is undertaken within the lakes for an expanded list of analytes including turbidity, heavy metals, PAHs, hydrocarbons, pesticides and herbicides and PFAS and the results used to inform an amended LWMS. • A nutrient and irrigation management plan is prepared to demonstrate how the site is managed to minimise nutrient application to the land. <p>Floodway protection The proposed retirement village development (Precinct A) is located partially within the floodway of the Swan River and will require a substantial amount of fill to achieve minimum habitable floor levels to comply with Department of Water and Environmental Regulation policies. DBCA recommends the proposed development be positioned outside of the floodway to reduce the amount of fill required.</p> <p>Setbacks Future development within Precinct A and C will be required to comply with the setback provisions in DBCA Policy No. 48 – Planning for development setback requirements affecting the Swan Canning Development Control Area. Policy 48 indicates that any structures including retaining walls higher than 1 metre abutting the DCA require a minimum setback of 10 metres or 20 per cent of the average depth of the lot. However, where the height, bulk, scale or form, orientation or location of a development is likely to create significant visual impacts within the context of the</p>	<p><i>is satisfied that the document is acceptable for this proposal to proceed to the next stage of planning approval."</i></p> <p>The Structure Plan has been referred to the Department of Water and Environmental Regulation (DWER) for comment. DWER has advised that a small portion of Precinct A is located within the floodway and flood fringe. Any future development would have to comply with floodplain management and meet minimum habitable floor levels. A minimum habitable floor level of 0.5m above the adjacent 1% AEP flood level is recommended to ensure adequate flood protection. The Structure Plan complies with this and requires that all structures are built 0.5m above the flood level.</p> <p>Noted. The draft PSP references that where necessary, setbacks shall be in accordance with DBCA's Policy. It is considered that future development is able to meet the setback requirements. This will be further considered through the development application process.</p>
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		<p>surrounding landscape, an increased setback may be required. In areas where fill is required to achieve compliance with minimal floor levels, DBCA encourages gradual topographic changes between foreshore reserves and adjacent development to preserve the visual amenity and enhance the community's enjoyment of the reserve. Additional information such as finished levels and location and height of any retaining or battering along the DCA will be required as part of a future development application.</p> <p>In addition, in accordance with Liveable Neighbourhoods (WAPC, 2009) and DBCA Policy 42 DBCA recommends the inclusion of a public road, between the private land and the existing or proposed P&R reservation to enable proper access, separation of land uses, improve passive surveillance and public safety, and support appropriate bushfire protection.</p> <p>Protection of vegetation DBCA considers that opportunities for retaining mature vegetation throughout the development area should be further explored in line with the City of Belmont Urban Forest Strategy (City of Belmont, 2014) and Better Urban Forest Planning Guidelines (WAPC, 2023). It is noted that the site contains mature native vegetation including potential black cockatoo nesting trees. This important habitat is to be retained.</p> <p>In its current form the Structure Plan is not supported, however DBCA officers are happy to assist with further information regarding the issues outlined above.</p>	<p>The creation of a public road to form a hard edge to the Parks and Recreation reserve is not considered necessary in this instance. However, the potential for a hard edge through a private road can be further considered at the development application stage for Precinct A.</p> <p>Refer to Environment section of the Council report.</p>
103	<p>Main Roads Western Australia</p> <p>PO Box 6202, East Perth WA 6892</p>	<p>Main Roads provides the following comments regarding the draft precinct structure plan:</p> <p>Vehicle Access Strategy Current "Vehicle Access Strategy" for Great Eastern Highway (GEH) close to the proposed Ascot Racecourse Precinct Structure Plan (PSP) site is to be maintained as per the Plan no. 16339-13 (attached).</p> <p>Bus Priority Lane It is recommended to investigate the feasibility for continuous east-bound bus priority lane along the Great Eastern Highway between Stoneham Street and Resolution Drive as part of the mitigation measures to reduce impacts on bus queue jump lane and existing intersections performance to accommodate future combined growth from the draft Ascot Racecourse PSP and Golden Gateway LSP.</p> <p>Transport Impact Assessment – Further Information Required 'Transport Impact Assessment' prepared by PJA Australia Pty Ltd (version B, dated 8 May 2024) is recommended to be revised addressing the followings:</p> <p>Pedestrian Connectivity</p> <ul style="list-style-type: none"> Section 7.3 of the TIA provided recommendations to improve pedestrian connectivity, however no detailed assessment has been undertaken. Assess and determine necessary upgrades to pedestrian facilities surrounding the Ascot Racecourse and along the Great Eastern Highway (such as Staged Pedestrian Crossings at the signalised intersections which may assist with more efficient green times utilisation to reduce the performance impacts for the GEH intersections). Model alternate pedestrian treatments within SIDRA to evaluate their viability. 	<p>Noted. The Precinct Structure Plan area doesn't impact on the vehicle access strategy.</p> <p>Given Great Eastern Highway is under the care and control of Main Roads Western Australia, it is appropriate for them to undertake these investigations.</p> <p>Refer to Movement section of the report.</p>

	<ul style="list-style-type: none">• Assess geometric requirements, land boundaries, and potential signal modifications.• Detail mechanisms for future delivery of pedestrian facilities is required to inform costings for a development contribution plan. <p>SIDRA Assessment</p> <ul style="list-style-type: none">• Coordinated SIDRA network model is required for the signalised intersections replicating the existing coordinated operation on GEH and to observe any impacts due to scenarios as proposed in the draft Ascot Racecourse PSP and Golden Gateway LSP.• Existing cycle lengths for the GEH signalised intersections is required to be utilised in the SIDRA modelling existing scenarios.• Similar cycle lengths should be used to the Stoneham Street and Resolution Drive intersections with GEH in a coordinated network. <p>It is further advised that Main Roads will require a 30 day review period to assess any revised documentation.</p>	<p>This matter has been addressed in response to MRWA comments on the Golden Gateway Local Structure Plan. In that case, coordination between the two signalised intersection was not done because it makes the models unstable.</p> <p>The PSP does not extend towards Great Eastern Highway and as such, improvements to pedestrian connectivity along Great Eastern Highway are not considered relevant.</p>
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12.2 Proposed Differential Rates 2025-26

Voting Requirement	:	Simple Majority
Subject Index	:	54/004 - Budget Documentation Council
Location/Property Index	:	N/A
Application Index	:	N/A
Disclosure of any Interest	:	Nil
Previous Items	:	N/A
Applicant	:	N/A
Owner	:	N/A
Responsible Division	:	Corporate and Governance

Council role

Executive The substantial direction setting and oversight role of the Council e.g. adopting plans and reports, accepting tenders, directing operations, setting and amending budgets.

Purpose of report

For Council to consider the proposed differential and minimum rates for the 2025-26 rating year for advertising purposes.

Summary and key issues

This report covers the proposed rates in the dollar and minimum payments for the 2025-26 rating period including the objectives and reasons for the City to charge each differential rate.

The City is required to advertise the proposed differential rates, receive feedback from the public and take into consideration the feedback prior to adopting the 2025-26 budget at the 24 June 2025 Ordinary Council Meeting. This report recommends the application of a 3.6% increase, subject to consideration of the Consumer Price Index (CPI) for the March 2025 quarter to be published in April 2025 and any submissions to be received from members of the public.

Officer Recommendation

That Council:

1. Endorse the proposed Statement of Objectives and Reasons for each of the Differential Rates 2025-26 (Attachment 12.2.1).
2. Advertise, in accordance with Section 6.36(1) of the *Local Government Act 1995 (WA)*, its intention to levy the following general rates and minimum payments for Residential, Commercial and Industrial ratepayers rate setting purposes that equate to a 3.6% increase in the total rate levy:

Residential Category	Proposed Cents in the Dollar	Proposed Minimum \$
Residential	6.555800	920
Commercial	7.867000	1,080
Industrial	8.522500	1,100

3. Notes any public submissions received in response to Recommendation 2 above will be presented to Council for consideration and included in the budget adoption process.
4. Offer a 5% discount to ratepayers who pay the full amount owing within 35 days of issuing the rate notice in accordance with Section 6.46 of the *Local Government Act 1995 (WA)*.
5. Continue to rate the payments in lieu of rates received by Council at the Commercial Differential Rate in the dollar on Gross Rental Values.

Location

Not applicable.

Consultation

In accordance with section 6.36 of the *Local Government Act 1995 (WA)*, public comments will be invited through publication of a local public notice, with the consultation period being open for a minimum of 21 days. All submissions received will be submitted to Council for consideration.

According to the regulations gazetted in November 2020 the City is required to advertise the intention to levy differential rates on four media platforms. Once approved by Council, advertising of the City's intention to levy the 2025-26

Differential Rates will be on the following forums which will satisfy the regulation requirements:

1. City's Website
2. The Saturday West newspaper
3. PerthNow Southern newspaper
4. Noticeboard in the City's Ruth Faulkner Library and Civic Centre

The advertising of the City's intention to levy 2025-26 differential rates and the statement of objectives and reasons will commence on 3 May 2025 and will be open for submission for 23 days, closing at 4pm Monday, 26 May 2025.

Strategic Community Plan implications

In accordance with the 2024–2034 Strategic Community Plan:

Key Performance Area: Performance

Outcome: 10. Effective leadership, governance and financial management.

Policy implications

There are no policy implications associated with this report.

Statutory environment

It is a requirement under Section 6.36 of the *Local Government Act 1995 (WA)* that where a Council elects to use differential rates, then it shall advertise its intention to do so, and call for submissions for a period of at least 21 days before any further action occurs. Further, the local government is required to consider any submissions received before imposing the proposed rate or minimum payment with or without modification. This will occur during the budget adoption process.

In accordance with Section 6.35 of the *Local Government Act 1995 (WA)*, a local government may impose a minimum payment and is to ensure the minimum payment is not imposed on more than 50% of properties in a category.

Background

This report outlines the proposed rate in the dollar and minimum rate for the purpose of public advertising.

The process of setting the rates to be charged for 2025-26 is essential prior to budget adoption which is proposed to occur at the 24 June 2025 Ordinary Council Meeting.

The City has three categories of differential rates, namely Residential, Commercial and Industrial. Rates are determined by multiplying the Gross Rental Value (GRV) by the cents in the dollar for each rating category. Landgate sets the GRV and the Council determines the cents in the dollars for each rating category. The cents in the dollar differs for each differential rate.

Report

Statement of Objectives and Reasons for Differential Rates 2025-26

The overall objective of the proposed rates in the 2025-26 Budget is to provide for the net funding requirements of the City's various programs, services and facilities. The statement of objectives and reasons for proposing differential rates for 2025-26 is attached (Attachment 12.2.1).

Draft Rate Setting Statement for 2025-26

The budget rate setting statement (Attachment 12.2.2) is a key document in determining the City's ability to be able to maintain amenities and assets, provide services to the community, deliver projects and key strategies. Total predicted operating expenditure for 2025-26 budget is \$87,820,108 compared to \$84,093,254 for the 2024-25 adopted budget.

Total predicted operating revenue is \$21,589,316 (excluding rates) compared to \$20,304,618 for the 2024-25 adopted budget.

Employee costs are expected to rise in line with the City of Belmont Industrial Agreements and mandatory superannuation payment contribution increase from 11.5% to 12%. Materials and contract expenditure costs are expected to rise in line with the Consumer Price Index (CPI).

Rating Strategy and Methodology

Consistent with the strategy adopted in previous years, the rate setting has been considered in the light of the forecasted Consumer Price Index (CPI) for Perth, with the necessary reasonable increases to offset any budget deficit.

The Australian Bureau of Statistics released the December 2024 CPI, which revealed the Perth Metropolitan annualised ('headline') CPI for the December 2024 quarter was 2.9%.

During the December quarter, households in all states and territories received their second instalment of the Commonwealth Energy Bill Relief Fund (EBRF) rebate. Excluding the rebates, electricity prices would have risen by 0.2% per cent in the December 2024 quarter.

In addition, households in Western Australia received an additional electricity credit from the State Government as part of the 2024-25 cost-of-living budget measures. Excluding this rebate, electricity prices would have risen by an additional 0.5% in the December 2024 quarter.

The cumulative effect of these factors resulted in a real Perth CPI for the December quarter of 3.6% ("underlying" CPI). The March 2025 quarter CPI is due for release in late April. Following the release of the March 2025 indicator and the receipt of public submissions on the 2025-26 Differential Rates, Council may adjust the proposed rate increase.

Based on the reasons above and the current economic climate, the City has based its rates modelling on 3.6%.

Rate Modelling

All GRV property valuations are provided by the independent State Government authority Landgate and the Valuer General of WA. The following rate models utilise the GRVs supplied by Landgate including the annual growth to compare various rating scenarios. The proposed budget has been modelled to establish outcomes against revenue scenarios associated with a 3.6% increase in rates.

Rate Model No 1

Table A below shows the outcome of applying an adjusted rate in the dollar of 3% for each differential rate category. This model produces rate revenue of \$63,906,264 and results in a shortfall of \$240,879 to the proposed budget surplus.

Differential Category	2025-26 Cents in Dollar	2025-26 Minimum \$	Non-Minimum Levies \$	Minimum Levies \$	Total Rates \$
Residential	6.518600	910	24,263,018	1,360,450	25,623,468
Commercial	7.822300	1,080	11,542,098	153,360	11,695,458
Industrial	8.474200	1,100	10,966,123	8,800	10,974,923
Ex-Gratia			15,612,415	0	15,612,415
			62,383,654	1,522,610	63,906,264

Table A: 3% increase in rates

Rate Model No 2

Table B below shows the outcome of applying an adjusted rate in the dollar of 3.6% for each differential rate category. This model produces rate revenue of \$64,277,353 and results in a balanced budget.

Differential Category	2025-26 Cents in Dollar	2025-26 Minimum \$	Non-Minimum Levies \$	Minimum Levies \$	Total Rates \$
Residential	6.329300	920	22,914,521	2,035,960	24,950,481
Commercial	7.595200	1,080	11,207,003	153,360	11,360,363
Industrial	8.228100	1,100	10,647,655	8,800	10,656,455
Ex-Gratia			15,701,631	0	15,701,631
			62,739,793	1,537,560	64,277,353

Table B: 3.6% increase in rates

Rate Model No 3

Table C below shows the outcome of applying current GRVs and an adjusted rate in the dollar of 4% for each differential rate category. This model produces rate revenue of \$64,525,631 and results in an increase to the proposed budget surplus of \$359,971.

Differential Category	2025-26 Cents in Dollar	2025-26 Minimum \$	Non-Minimum Levies \$	Minimum Levies \$	Total Rates \$
Residential	6.353700	920	23,002,858	2,035,960	25,038,818
Commercial	7.624400	1,090	11,250,089	154,780	11,404,869
Industrial	8.259800	1,110	10,688,677	8,880	10,697,557
Ex-Gratia			15,763,304	0	15,763,304
			62,986,571	1,539,060	64,525,631

Table C: 4% increase in rates

Other Considerations

In accordance with the *Local Government Act 1995 (WA)*, a local government can only raise a maximum of 50% of its rate revenue from minimum payments. For the 2025-26 financial year 7.47% of Residential properties, 13.72% of Commercial properties and 1.66% of Industrial properties will be rated on the minimum payment. This equates to 22.84% of all rated properties being charged the minimum payment.

The growth of GRVs is another important factor that is considered when formulating a rating strategy. The following table compares the GRV applicable to 2024-25 and the GRV as supplied by Landgate that are applicable for the 2025-26 financial year. The increase in GRV is due to annual growth also known as interim rating. There has been a relatively minor movement because of slowing growth (1.64% in 2024-25 compared to 1.65% in 2025-26).

Rate Category	GRVs 2024-25	GRVs 2025-26	Increase
Residential	384,886,654	389,800,574	1.28%
Commercial	147,826,197	148,551,736	0.49%
Industrial	129,631,814	129,483,154	-0.11%
	662,344,665	667,835,464	1.65%

Table D: Growth in GRV Rating

The predicted growth in rates revenue from interim rates for 2025-26 is \$316,576. However, this figure is difficult to accurately estimate in the current challenging economic climate. It will however be monitored and updated during the budget review cycles.

Waste Charges

Notwithstanding the recommended 3.6% increase in rates, waste management charges are proposed to increase in 2025-26, resulting in the (base) waste management charge increasing from \$337 to \$360. Waste management charges are a fee for service and aim to cover costs with any surpluses or losses historically offset by transfers through the Waste Management Reserve. The proposed charge reflects the partial offset of increased cost relating to the implementation of Food Organics, Garden Organics (FOGO) utilising the Waste Management Reserve to minimise the impact on ratepayers.

Rate Payments

It is proposed that the five percent (5%) discount for full payment of rates by the due date will continue to apply. At the recommended 3.6% rates increase, this represents a cost of \$2.2M which will result in less rates revenue as the discount is netted off against rates revenue in the operating statement.

Flexibility for other payment options will also continue to apply, namely:

- Pay by instalments (four instalments);
- Pay by direct debits (fortnightly and monthly); and
- Pay by alternative payment arrangements.

Financial Hardship

The Financial Hardship Policy aims to assist ratepayers experiencing hardship by removing administrative costs and penalties for outstanding rates. There were 8 approved applications in 2023-24, and 8 in 2024-25 (up to the 14 March 2025). From 2024-25, as there are no longer administrative charges applicable to instalments, the removal of penalties for outstanding rates is estimated to cost Council less than \$500.

Financial implications

The advertising of the proposed differential and minimum rates is pivotal in the development of the annual budget. The level of rates generated is linked to the delivery of service and level of funding for capital works and debt servicing.

Environmental implications

There are no environmental implications associated with this report.

Social implications

There are no social implications associated with this report.

Attachment details

Attachment No and title	
1.	City of Belmont Objects and Reasons Differential Rates 2025-26 [12.2.1 - 9 pages]
2.	Draft Rate Setting Statement [12.2.2 - 2 pages]



Objects and Reasons for Differential Rates 2025-26



Publication date: [00/00/00]

Introduction

The City prepares a budget each year which must be adopted by Council. The aim of the budget is to provide sufficient funds for the City to provide the services and key infrastructure that the community wants, while ensuring rates offer value-for-money.

It is a requirement of the *Local Government Act 1995 (WA)* that the City must advertise its differential rates in a document called 'Objects & Reasons' (this document), a document that explains what the proposed differential rates are, why different properties are charged different rates and what the proposed rate in the dollar is next year. Below, we also explain how rates are calculated and have provided an overview of the proposed capital works expenditure and some key infrastructure projects.

Proposed Expenditure

Draft Capital Works Budget 2025-26

Please note some projects may be subject to further consultation outcomes or consideration and could change.

Parks & Environment \$5.8M

- Park irrigation renewals
- Playground renewals
- Park furniture renewals

Path Network \$620K

- New footpath installations
- Upgrades to existing paths
- Replacement of damaged sections of footpaths

City Projects \$11.7M

- Beldivere Streetscape Revitalisation
- Wilson Park redevelopment
- Design and planning for other future projects

Roads \$5.7M

- Asphalt overlay program
- Local area traffic management projects
- Design and investigation

Buildings and facilities \$1.6M

- Change room refurbishments
 - Hardy Park
 - Gerry Archer Reserve
 - Centenary Park
 - Miles Park
 - Redcliffe Community Centre
- Refurbishment of Independent Living Units
- Upgrade of basketball rings at Belmont Oasis
- Upgrade of various safety and security systems

Other \$2.9M

- Fleet and plant replacement program
- IT network and hardware
- CCTV network expansion

What are the reasons for the 2025-26 differential rates?

The City has a net funding shortfall in its Operational and Capital budget for 2025-26 of \$62.4m, required to be made up from rates. This funding pays for infrastructure and services like roads, parks, streetscapes, library, museum, leisure centre and events, to name a few. We are proposing increasing rates by 3.6% for 2025-26 to ensure we can deliver these essential services and projects to our community. This increase is in line with Perth CPI as has been the normal practice for the City in prior years.

Rates & Minimum Payments for 2025-26

The table below shows the rate in the dollar which is being proposed to be increased by 3.6%, and the minimum payment required for each rate category in 2025-26.

Rate Category for 2025-26	Cents in the \$	Minimum \$
Residential	6.5558	920
Commercial	7.8670	1,080
Industrial	8.5225	1,100

Key Services being delivered each day

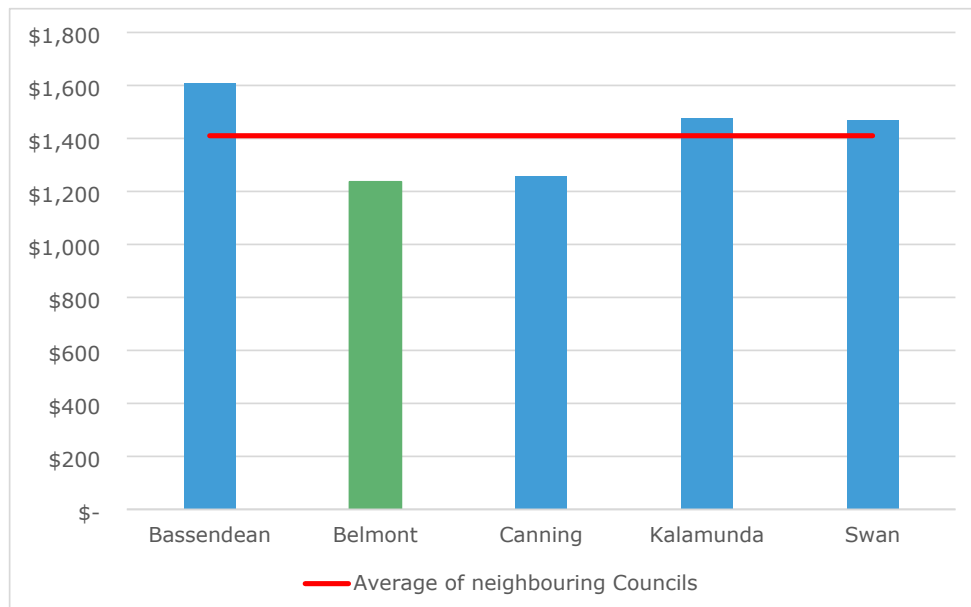
- Waste collection – Food Organics, Garden Organics (FOGO) and on demand bulk bin services
- Library, Museum and Leisure Centre
- Community Watch security patrols
- Free events for our community
- Community Contribution Fund – Grants and donations for local clubs, individuals, incorporated community groups and not-for-profit organisations to provide projects, programs or activities that benefit the Belmont community.

How do we compare with our neighbouring Councils?

The graph below demonstrates how Belmont compares with our neighbouring Councils.

The comparison is based on the 2024-25 financial year and the information is sourced from the annual budgets published by the Councils which includes all residential properties.

Average Residential Rates in 2024-25



Note: Average residential rates have been calculated by dividing the total residential rate income (excluding interim and back rates) by the total number of residential properties.

What is the objective for rates in 2025-26?

In accordance with Sections 6.33 and 6.36 of the *Local Government Act 1995 (WA)* the City is required to publish its Objects and Reasons for implementing differential general rates.

The objective of the proposed rates and charges in the 2025-26 budget is to provide for the net funding shortfall of \$62.3m in Council's Operational and Capital Program for 2025-26.

The table below shows the net funding shortfall of \$62.3m which will be funded via the proposed 3.6% increase in rates for 2025-26.

	Draft Budget 2025-26 \$M
Surplus or deficit at the start of the financial year	0.5
Revenue from operating activities	21.6
(Less) Expenditure from operating activities	(87.8)
Plus Non-cash amounts excluded from operating activities	12.6
(Less) Payments for property, plant and equipment	(4.8)
(Less) Payments for construction of infrastructure	(19.1)
Plus Capital grants, subsidies & contributions	7
Plus Proceeds from disposal of assets	0.7
Plus/(Less) Transfers to/from reserve accounts	7.2
(Less) Repayment of borrowings	(0.7)
(Less) Surplus or deficit at the end of the financial year	0.5
Deficiency to be funded from rates	(62.3)

Who undertakes the GRV valuations?

All GRV property valuations are provided by the independent State Government authority Landgate and the Valuer General of WA. The City pays a fee for this service but has no role in determining the valuation for any property, nor does the City have the ability to appeal a valuation provided by the Valuer General.

Why are there different rates for different properties?

Different properties in Belmont are charged different rates, hence the term 'differential rates'.

Properties are charged differently according to their primary use. The difference is to ensure that a reasonable contribution to the cost of local government services and facilities.

As commercial and industrial sectors generate higher traffic volumes with heavier loads than the residential sector, they should contribute at a higher level for road construction, maintenance and refurbishment. Residential properties typically pay lower rates due to the lower GRV applied and the application of a high GRV concession.

Under the *Local Government Act 1995 (WA)*, Section 6.33 - Differential General Rates, the Council can introduce differential rates as follows:

A local government may impose differential general rates according to any, or a combination, of the following characteristics —

- (a) The purpose for which the land is zoned under a local planning scheme in force under the *Planning and Development Act 2005*;
- (b) The predominant purpose for which the land is held or used as determined by the local government;
- (c) Whether or not the land is vacant land; or
- (d) Any other characteristic or combination of characteristics prescribed.

How are rates calculated?

Council sets the rate in the dollar every year for each rate category. The independent State government authority, the Valuer General of WA sets the Gross Rental Value (GRV) every three years. The GRV is a property's estimated yearly rental income. Your property's GRV is stated on your annual rates notice.

To calculate your annual rates, multiple your GRV by the rate in the dollar and subtract any rate concessions you may receive if eligible.

Rates (\$) = GRV X Rate Category RID – any rate concessions

What are the differential rate categories?

Residential

The objective of the residential rate category is to apply a base differential rate to land used for residential purposes and to act as the City's benchmark differential rate by which all other rated properties are assessed.

This rate assures that all ratepayers make a reasonable contribution towards the ongoing maintenance and provision of works, services and facilities throughout Belmont.

Council is committed to increasing the residential rates base resulting in growth which will evenly distribute the overheads of maintaining the infrastructure of the City. There are

continuing positive signs of redevelopment under the current Local Planning Scheme, and this is envisaged to continue to increase into the foreseeable future.

The proposed rate in the dollar for this category is 6.5558¢ with a minimum payment amount of \$920.

Commercial & Industrial

The location of both the Perth Airport and the Kewdale Freight Terminal has encouraged industry to locate within the City of Belmont. This results in large volumes of heavy traffic within the City and therefore an accelerated deterioration of roads which is a major factor in the differential categories and their respective rates and minimum payments (i.e. with Industrial sectors having a slightly higher rate in the dollar and minimum payment than Commercial sector).

Both the Commercial and Industrial sectors also require greater resourcing and expenditure from Council on services such as Health, Building and Town Planning. The differential rates and minimum payments reflect the levels of costs and resourcing required to service each sector of the community.

Council is also mindful of the employment opportunities generated by both sectors and therefore, keeps the differential as reasonable as possible.

The objective of these differential rate categories is to raise sufficient revenue to offset the costs associated with increased maintenance of infrastructure, particularly transport related infrastructure, and higher levels of services associated with properties in this category.

The proposed rate in the dollar for the commercial category is 7.8670¢ with a minimum payment of \$1,080.

The proposed rate in the dollar for the industrial category is 8.5225¢ with a minimum payment amount of \$1,100.

Council will continue to compare its rates in the dollar and minimum payments with other neighbouring local governments for benchmarking purposes.

Are there other charges?

The Waste Management Service Charge for residential, commercial and industrial properties using the service will be \$360 for 2025-26. This charge reflects the partial offset of the increased cost relating to the implementation of Food Organics, Garden Organics (FOGO) utilising the Waste Management Reserve to minimise the impact on ratepayers.

The Swimming Pool Levy for 2025-26 will increase to \$33 per swimming pool. This charge is calculated on a full cost recovery basis. All funds raised by the levy will go towards the inspection of both existing and new swimming pools in Belmont as required by legislation.

Although not a Council related charge, the City collects the Emergency Services Levy (ESL) on behalf of the Department of Fire & Emergency Services (DFES) via the annual rates notice. At the time of preparing this document, DFES had not yet indicated their intentions in relation to ESL charges for 2025-26.

Payment options

Payment options include payment in full within 35 days from the date of issue as shown on your rate notice or payment over four instalments.

SmoothRates continues to be shown as a payment option on your rate notice. The payment amounts specified will allow payment over approximately a 10 month period where there are no arrears on the account and payments are made by direct debit either fortnightly or monthly. SmoothRates are offered with no administration or instalment interest charges applied. Further information is provided with your rate notice.

The City also provides the opportunity for ratepayers to make approved alternative payment arrangements for outstanding amounts. This option attracts a once off administration fee of \$20 (registered pensioners & seniors are exempt from this fee).

The City is one of only a few councils to offer a discount where payment is made in full by the due date. This 5% discount applies to the rates portion of your account.

Interest is levied on Council imposed rates and charges where payment in full or instalment payments are not received within their respective due dates. The penalty rate will increase to 11% in accordance with the *Local Government Act 1995 (WA)*.

Submissions

Section 6.36 (3)(b)(ii) of the *Local Government Act 1995 (WA)* requires Council to invite submissions from electors and ratepayers in respect of the rates and minimum payments proposed for the differential general rating categories.

All submissions are required to be made by 4pm on Monday, 26 May 2025.

A report will be prepared on submissions, if any, and present to the Council Meeting on Tuesday, 24 June 2025.

Enquiries by telephone to 08 9477 7222 or email rates@belmont.wa.gov.au

City of Belmont

Draft Rate Setting Statement for Annual Budget

Budget: 26CLBUD, Actual: 25CLACT

**Draft Budget
25/26**

OPERATING ACTIVITIES

Revenue from operating activities

Grants, subsidies and contributions	2,408,129
Fees and charges	11,451,293
Interest revenue	6,989,213
Other revenue	706,669
Profit on asset disposals	34,012
	21,589,316

Expenditure from operating activities

Employee costs	(31,701,346)
Materials and contracts	(38,060,017)
Utility charges	(2,472,879)
Depreciation	(12,617,330)
Finance Costs	(493,216)
Insurance	(978,881)
Other expenditure	(1,496,440)
Loss on asset disposals	0
	(87,820,108)

Non-cash amounts excluded from operating activities	12,583,318
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Amount attributable to operating activities	(53,647,475)
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INVESTING ACTIVITIES

Inflows from investing activities

Capital grants, subsidies and contributions	7,041,351
Proceeds from disposal of assets	661,492

Outflows from investing activities

Purchase of property, plant and equipment	(4,786,016)
Payments for construction of infrastructure	(19,051,574)

Attachment 12.2.2 Draft Rate Setting Statement

	Draft Budget 25/26
Amount attributable to investing activities	(16,134,747)
FINANCING ACTIVITIES	
Inflows from financing activities	
Transfers from reserve accounts	16,539,964
Outflows from financing activities	
Repayment of borrowings	(666,573)
Payments for principal portion of lease facilities	(80,905)
Transfers to reserve accounts	(9,367,022)
Amount attributable to financing activities	6,425,464
MOVEMENT IN SURPLUS OR DEFICIT	
Surplus or deficit at the start of the financial year	500,000
Amount attributable to operating activities	(53,647,475)
Amount attributable to investing activities	(16,134,747)
Amount attributable to financing activities	6,425,464
Surplus or deficit at the end of the financial year	500,000
Amount required to be raised from Rates	(62,356,758)

12.3 Request for Rate Exemption - Reformed Evangelical Church of Indonesia Inc - 138 Abernethy Road, Belmont

Voting Requirement	: Simple Majority
Subject Index	: 98/008 Rate Exemption
Location/Property Index	: 138 Abernethy Road, Belmont, 6104
Application Index	: N/A
Disclosure of any Interest	: Nil
Previous Items	: N/A
Applicant	: Reformed Evangelical Church of Indonesia Inc
Owner	: Reformed Evangelical Church of Indonesia Inc
Responsible Division	: Corporate and Governance

Council role

Quasi-Judicial

When Council determines an application/matter that directly affect a person's right and interests. The judicial character arises from the obligation to abide by the principles of natural justice. Examples of quasi-judicial authority include local planning applications, building licences, applications for other permits/licences (eg under Health Act, Dog Act or Local Laws) and other decisions that may be appealable to the State Administrative Tribunal.

Purpose of report

To consider a request for rate exemption for 138 Abernethy Road, Belmont.

Summary and key issues

The Reformed Evangelical Church of Indonesia Inc (The Church) has made an objection under Section 6.26 and Section 6.53 of the *Local Government Act 1995 (WA)* and have provided documentation to support their claim.

Officer Recommendation

That Council endorses the rate exemption for the property known as 138 Abernethy Road, Belmont under section 6.26 (2)(d) and Section 6.53 of the *Local Government Act 1995 (WA)* effective from 6 February 2025.

Location

Lot 136 on Plan 2582 known as 138 Abernethy Road, Belmont.



Consultation

There has been no specific consultation undertaken in respect to this matter.

Strategic Community Plan implications

In accordance with the 2024–2034 Strategic Community Plan:

Key Performance Area: Performance

Outcome: 10. Effective leadership, governance and financial management.

Policy implications

There are no policy implications associated with this report.

Statutory environment

The relevant sections of the *Local Government Act 1995 (WA)* that apply are:

'6.26. Rateable land

- (1) Except as provided in this section all land within a district is rateable land.
- (2) The following land is not rateable land — ...
 - (d) land used or held exclusively by a religious body as a place of public worship or in relation to that worship, a place of residence of a minister of religion, a convent, nunnery or monastery, or occupied exclusively by a religious brotherhood or sisterhood; and ..'

'6.53. Land becoming or ceasing to be rateable land

Where during a financial year —

- (a) land that was not rateable becomes rateable land; or
 - (b) rateable land becomes land that is not liable to rates,
- the owner of that land —
- (c) is liable for rates proportionate to the portion of the year during which the land is rateable land; or
 - (d) is entitled to a refund of an amount proportionate to the portion of the year during which the land is not rateable land,
- as the case requires.'

'6.76. Grounds of objection

- (1) A person may, in accordance with this section, object to the rate record of a local government on the ground —
 - (a) that there is an error in the rate record —
 - (i) with respect to the identity of the owner or occupier of any land; or
 - (ii) on the basis that the land or part of the land is not rateable land; or
 - (b) if the local government imposes a differential general rate, that the characteristics of the land recorded in the rate record as the

basis for imposing that rate should be deleted and other characteristics substituted.

- (2) An objection under subsection (1) is to —
- (a) be made to the local government in writing within 42 days of the service of a rate notice under section 6.41; and
 - (b) identify the relevant land; and
 - (c) set out fully and in detail the grounds of objection.
- (3) An objection under subsection (1) may be made by the person named in the rate record as the owner of land or by the agent or attorney of that person.'

Background

The Church purchased the property in May 2023 to be used for church services and associated activities. Approval for a change of use to a Place of Worship was approved on 18 September 2023 and church services commenced on 6 February 2025.

According to the Rules of Association, the objects of the Association are to establish The Church in Western Australia.

The Church holds prayer meetings and Bible study, choir practice, youth fellowship classes and Sunday services. The property also includes a church office for the Pastor and a voluntary administration staff member which operates Monday to Friday.

Report

The Church provided a letter requesting rate exemption under section 6.26(2)(d) of the *Local Government Act 1995 (WA)* and have supplied the following supporting documentation:

- The Rates and Charitable Land Use Exemptions Application has been completed. This document was created jointly by the WA Rates Officers Association and the Western Australian Local Government Association to ensure consistency with exemption requests.
- Statutory Declaration confirming the use of the property.
- Rules of Association.
- Notice of Endorsement for Charity Tax Concessions with the Australian Taxation Office.

- Copy of the Certificate of registration under the Australian Charities and Not-for-profits Commission (ACNC).

The documentation has been reviewed by Officers and development approval has been granted for the property to be used as a place of worship.

Financial implications

The property is currently rated as Commercial with a Gross Rental Valuation (GRV) of \$171,080. The 2024-25 rates levied are \$12,968.72.

However, with the exemption requested date of effect as 6 February 2025, the loss of revenue for the 2024-25 financial year would be \$5,151.95.

The Emergency Services Levy is still applicable to the property and is required to be paid in full and the payment forwarded to the Department of Fire and Emergency Services as per the current legislative requirements.

Waste management charges will continue to apply to the property with the proposed exemption.

Environmental implications

There are no environmental implications associated with this report.

Social implications

- Ensure that the community has access to the services and facilities it needs
- Support community groups

Attachment details

Attachment No and title
Nil.

12.4 Request for Rate Exemption - St John Ambulance Western Australia Ltd - 8 Cowcher Place, Belmont

Voting Requirement	: Simple Majority
Subject Index	: 98/008 Rate Exemption
Location/Property Index	: 8 Cowcher Place, Belmont
Application Index	: N/A
Disclosure of any Interest	: Nil
Previous Items	: N/A
Applicant	: St John Ambulance Western Australia Ltd
Owner	: St John Ambulance Western Australia Ltd
Responsible Division	: Corporate and Governance

Council role

Quasi-Judicial

When Council determines an application/matter that directly affect a person's right and interests. The judicial character arises from the obligation to abide by the principles of natural justice. Examples of quasi-judicial authority include local planning applications, building licences, applications for other permits/licences (eg under Health Act, Dog Act or Local Laws) and other decisions that may be appealable to the State Administrative Tribunal.

Purpose of report

To consider a request for rate exemption for St John Ambulance Western Australia Ltd (St John).

Summary and key issues

St John has made an objection under Section 6.26 and Section 6.53 of the *Local Government Act 1995 (WA)* and have provided documentation to support their claim as the services form part of their charitable organisation.

Officer Recommendation

That Council endorses the rate exemption for the property known as 8 Cowcher Place, Belmont under section 6.26 (2)(g) and Section 6.53 of the *Local Government Act 1995 (WA)* effective from 10 October 2024.

Location

Lot 6 on Diagram 75378 known at 8 Cowcher Place, Belmont



Consultation

There has been no specific consultation undertaken in respect to this matter.

Strategic Community Plan implications

In accordance with the 2024–2034 Strategic Community Plan:

Key Performance Area: Performance

Outcome: 10. Effective leadership, governance and financial management.

Policy implications

There are no policy implications associated with this report.

Statutory environment

The relevant sections of the *Local Government Act 1995 (WA)* that apply are:

'6.26. Rateable land

- (1) Except as provided in this section all land within a district is rateable land.
- (2) The following land is not rateable land — ..
 - (g) land used exclusively for charitable purposes;'

'6.53. Land becoming or ceasing to be rateable land

Where during a financial year —

- (a) land that was not rateable becomes rateable land; or
 - (b) rateable land becomes land that is not liable to rates,
the owner of that land —
 - (c) is liable for rates proportionate to the portion of the year during which the land is rateable land; or
 - (d) is entitled to a refund of an amount proportionate to the portion of the year during which the land is not rateable land,
- as the case requires.'

'6.76. Grounds of objection

- (1) A person may, in accordance with this section, object to the rate record of a local government on the ground —
 - (a) that there is an error in the rate record —
 - (i) with respect to the identity of the owner or occupier of any land; or
 - (ii) on the basis that the land or part of the land is not rateable land; or
 - (b) if the local government imposes a differential general rate, that the characteristics of the land recorded in the rate record as the basis for imposing that rate should be deleted and other characteristics substituted.
- (2) An objection under subsection (1) is to —
 - (a) be made to the local government in writing within 42 days of the service of a rate notice under section 6.41; and
 - (b) identify the relevant land; and
 - (c) set out fully and in detail the grounds of objection.

- (3) An objection under subsection (1) may be made by the person named in the rate record as the owner of land or by the agent or attorney of that person.'

Background

Part of the Objects and Purposes of the Order under their Constitution is to

- Provide a paramedic and volunteer ambulance service throughout the state;
- Provide a first aid training and first aid skills maintenance service for individuals and organisations throughout the state;
- To assist in the response of any major disaster within the State;
- To train volunteer personnel in first aid and nursing and equip them to carry out these functions at public duties anywhere and at any time within the State.

Report

St John have provided a letter requesting rate exemption under section 6.26(2)(g) of the *Local Government Act 1995 (WA)* and have supplied the following supporting documentation:

- The Rates and Charitable Land Use Exemptions Application has been completed. This document was created jointly by the WA Rates Officers Association and the Western Australian Local Government Association to ensure consistency with exemption requests.
- Statutory Declaration confirming the use of the property.
- Their Constitution.
- Notice of Endorsement for Charity Tax Concessions with the Australian Taxation Office.
- Copy of the Certificate of registration under the Australian Charities and Not-for-profits Commission (ACNC).

St John own the following properties that have approved rate exemptions - 5 Cowcher Place, Belmont; 526 Abernethy Road, Kewdale; 7 Hehir Street, Belmont and 203-209 Great Eastern Highway, Belmont.

St John also own 191 Great Eastern Highway, Belmont and are currently liaising with the City for approval to build a three storey office and training centre.

8 Cowcher Place is zoned Mixed Business and planning approval was granted in November 2023 for a change of use to Transport Depot (Ambulance Hub).

This site is for the Emergency Ambulance Depot Hub.

This consists of -

Emergency ambulance depot

- Operates 24 hours, 7 days per week
- Staffed with paramedics
- Garage facilities for ambulance and patient transfer vehicles
- Storage and supply centre for ambulance stock
- Fatigue management and health and wellbeing.

Patient Transport

- Operates from 7.00am – 1.00pm 7 days per week
- Staffed by ambulance transport officers
- Garage facilities for patient transfer vehicles
- Provides non-emergency transport services to patients to and from care facilities, hospitals and other transport service.

Administration and Management Support

- Operates during normal business hours and additional as required.
- Provides ongoing administration and managerial support to Paramedics and ambulance transport officers.

Financial implications

The property is currently rated as Commercial with a Gross Rental Valuation (GRV) of \$258,208 which levied an amount of \$19,573.46 for the 2024-25 financial year.

With the exemption requested date of effect as 10 October 2024, the loss of revenue for the 2024-25 financial year would be \$14,157.24.

The Emergency Services Levy is still applicable to the property and is required to be paid in full and the payment forwarded to the Department of Fire and Emergency Services as per the current legislative requirements.

As per the adopted 2024-25 budget, Commercial rated properties that do not use the City's waste services are charged the environmental contribution levy of \$118.50 in lieu of the full service commercial/industrial fee. This charge will continue to be applicable if the exemption is approved.

Environmental implications

There are no environmental implications associated with this report.

Social implications

Ensure that the community has access to the services and facilities it needs.

Attachment details

Attachment No and title
Nil.

12.5 City of Belmont Responses to DLGSC Consultation - CEO KPIs and Online Registers

Voting Requirement	:	Simple Majority
Subject Index	:	39/002 DLGSC
Location/Property Index	:	N/A
Application Index	:	N/A
Disclosure of any Interest	:	Nil
Previous Items	:	N/A
Applicant	:	N/A
Owner	:	N/A
Responsible Division	:	Corporate and Governance

Council role

Advocacy	When Council advocates on its own behalf or on behalf of its community to another level of government/body/agency.
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Purpose of report

The Department of Local Government, Sport and Cultural Industries (DLGSC) has invited submissions from local authorities in response to the DLGSC consultation paper on the draft Local Government Regulations Amendment Regulations 2024 and the proposed changes to the Chief Executive Officer's (CEO's) Key Performance Indicators (KPIs) and Online Registers. Council endorsement of the City's submission is requested.

Summary and key issues

As part of the State's Local Government Reform processes, the DLGSC is inviting responses from local governments and the wider community to a consultation paper regarding proposed amendments to the *Local Government (Administration) Regulations 1996 (WA)* (the Regulations). DLGSC has circulated proposed amendments to the Regulations throughout the State.

Officer Recommendation

That Council endorse the City of Belmont's submission to the Department of Local Government, Sport and Cultural Industries in response to the Department's consultation paper on the draft Local Government Regulations Amendment Regulations 2024 and the proposed changes to the Chief Executive Officer's (CEO's) Key Performance Indicators (KPIs) and Online Registers (Attachment 12.5.1).

Location

Not applicable.

Consultation

There has been no specific consultation undertaken in respect to this matter.

Strategic Community Plan implications

In accordance with the 2024–2034 Strategic Community Plan:

Key Performance Area: Performance

Outcome: 10. Effective leadership, governance and financial management.

Policy implications

There are no policy implications associated with this report.

Statutory environment

The *Local Government Act 1995 (WA)* and the *Local Government Amendment Act 2023* (2023 Amendment Act).

Background

The DLGSC has invited local governments to consider proposed regulations regarding the implementation of key reforms set out in the 2023 Amendment Act and provide feedback prior to 8 May 2025.

Report

The 2023 Amendment Act was passed by Parliament in May 2023. It introduced several key reforms, particularly relating to local government elections.

The 2023 Amendment Act also included the following changes which are yet to commence:

- Requirements for local government CEO's performance criteria and performance reviews to be published.
- A requirement for local governments to publish and maintain registers on their website.

These proposed changes to the Local Government Act are set out as follows:

5.39AA Publication of information relating to CEO's performance

- (1) A local government must publish the following in accordance with regulations —
 - (a) the performance criteria specified in the CEO's contract of employment under section 5.39(3)(b);
 - (b) a copy of any statement under section 5.38(4) relating to a review of the CEO's performance;
 - (c) a copy of any statement of the CEO under section 5.38(5) responding to a statement under section 5.38(4).
- (2) The Departmental CEO may, if satisfied that it is in the public interest to do so, direct that specified information be excluded from anything published under subsection (1).

5.96B Registers

- (1) Regulations may require the CEO to keep a register containing prescribed information relating to a prescribed matter.
- (2) Without limiting subsection (1), the matters that may be prescribed for the purposes of that subsection include the following —
 - (a) leases of land for which the local government is the lessor or lessee;
 - (b) grants of money made by the local government;
 - (c) contracts for goods or services entered into by the local government;
 - (d) matters relating to a function of the local government under the Planning and Development Act 2005.
- (3) A register must be in the form that is prescribed (if any).
- (4) A register must be updated from time to time in accordance with regulations.

(5) The CEO must publish a register (as updated from time to time) on the local government's official website.

The WA Government has drafted the *Local Government Regulations Amendment Regulations 2024 (WA)* which will enable these reforms to commence.

The DLGSC consultation process invited local authorities to make submissions on the proposed changes, being the publication of CEO performance indicators and registers. Following consultation with key internal stakeholders, the City has attached proposed responses to the consultation (refer Attachment 12.5.1).

Financial implications

There are no financial implications evident at this time.

Environmental implications

There are no environmental implications associated with this report.

Social implications

There are no social implications associated with this report.

Attachment details

Attachment No and title
1. DLGSC Consultation Feedback CEO KPIs Registers [12.5.1 - 31 pages]

DLGSC Consultation - CEO KPIs and Online Registers

The Local Government Amendment Act 2023 (2023 Amendment Act) was passed by Parliament in May 2023. It implemented several key reforms, particularly relating to local government elections. The 2023 Amendment Act also brought about the following changes which are yet to commence:

- Requirements for local government CEO's performance criteria and performance reviews to be published.
- A requirement for local governments to publish and maintain registers on their website.

In order to implement these reforms, the WA Government has drafted the [Local Government Regulations Amendment Regulations 2024](#) (LGRAR 2024) which will implement these reforms. These draft regulations are now available for public comment. An [explanatory paper](#) sets out what these regulations will require and intend to achieve.

The Department of Local Government, Sport and Cultural Industries (DLGSC) invites local governments, council members, CEOs, local government employees and members of the community to consider the proposed regulations and provide feedback. The feedback received will inform the finalisation of draft regulations and the practical measures to implement and enforce the legislative requirements.

This document has been created to provide Officers with an opportunity to include their feedback to these proposed regulation amendments (set out in the documents linked above). Please read the linked documents in conjunction with providing your feedback. Thank you.

CEO Employment Standards

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
Day after publication	<p>In regulation 3(1) insert in alphabetical order:</p> <p><i>adopted standards</i>, in relation to a local government, means —</p> <p>(a) the standards adopted by the local government under section 5.39B; or</p> <p>(b) if the local government has not adopted standards under section 5.39B — the standards taken under section 5.39B(5) to be the local government’s adopted standards;</p>	4	The City of Belmont supports this change.
1 July 2025	<p>Regulation 18AA inserted</p> <p>After regulation 18A insert:</p> <p>18AA. Summary of CEO’s performance review (Act s. 5.38(4)(c))</p> <p>(1) In this regulation —</p> <p><i>target</i>, in relation to a performance criterion, means the target contained in the performance criterion in accordance with the local government’s adopted standards.</p>	5	The City of Belmont supports this change.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p><i>Note for this definition: See clause 15A of the model standards in Schedule 2 of these regulations (introduced by regulation 18FA).</i></p> <p>(2) This regulation applies for the purposes of section 5.38(4)(c).</p> <p>(3) A statement must, for each performance criterion against which the CEO's performance was reviewed, state the following (to the extent not stated under section 5.38(4)(a) or (b)) –</p> <p>(a) the target that had to be achieved for the performance criterion to be met;</p> <p>(b) whichever of the following applies –</p> <p>(i) the target was achieved;</p> <p>(ii) the target was not achieved;</p> <p>(iii) no determination could be made as to whether the target was achieved;</p> <p>(c) if the target was not achieved – whether this was substantially because of circumstances beyond the CEO's control and, if so, the circumstances;</p> <p>(d) if no determination could be made as to whether the target was achieved – the reasons why this was the case.</p> <p>(4) A statement must state whichever of the following applies –</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<ul style="list-style-type: none"> (a) all targets for all performance criteria against which the CEO's performance was reviewed were achieved; (b) 50% or more, but not all, of those targets were achieved; (c) less than 50% of those targets were achieved. <p>(5) A target must be disregarded for the purposes of subregulation (4) if any of the following applies —</p> <ul style="list-style-type: none"> (a) the target was not achieved substantially because of circumstances beyond the CEO's control; (b) no determination could be made as to whether the target was achieved; (c) the target relates to a performance criterion that is the subject of a direction of the Departmental CEO under section 5.39AA(2) or regulation 18FAA(7). 		
1 July 2025	<p>Regulation 18FAA inserted</p> <p>After regulation 18F insert:</p> <p>18FAA Publication of information relating to CEO's performance (Act s. 5.39AA(1) and 5.96A(1)(i))</p> <p>(1) In this regulation, references to the minutes of the meeting of the council are to —</p>	6	<p>Reg 18FAA: The City of Belmont does not support this change. Information pertaining to the CEO's performance should be kept confidential.</p> <p>In addition, the City of Belmont notes a conflict here with section 5.23 of the Act and questions how this requirement aligns with section 5.23 of the Act which enables matters affecting an employee to be dealt with by Council in closed session, noting</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(a) subject to paragraph (b), the confirmed minutes;</p> <p>(b) until the confirmed minutes are published on the local government's official website, the unconfirmed minutes.</p> <p>Notes for this subregulation:</p> <ol style="list-style-type: none"> Confirmed minutes are required to be published on the local government's official website under section 5.96A(1)(f). Unconfirmed minutes are required to be published on the local government's official website under regulation 13. <p>(2) For the purposes of section 5.39AA(1)(a), the performance criteria must be published on the local government's official website alongside the minutes of the meeting of the council at which the CEO's contract of employment is approved.</p> <p>(3) The copies of the statements referred to in section 5.39AA(1)(b) and (c) must be published on the local government's official website alongside the minutes of the meeting of the council at which the CEO's performance review is conducted.</p> <p>(4) For the purposes of subregulation (3), if a statement has not been prepared by the time the minutes are published, the statement must be published alongside the minutes as soon as practicable after the statement is prepared.</p> <p>(5) Subregulation (6) applies, subject to subregulation (7), to a performance criterion, other than one specified in the CEO's contract of employment</p>		that other employees' employment matters are not made publicly available.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>under section 5.39(3)(b), that is to be met by the CEO as agreed by the local government and the CEO under the local government's adopted standards.</p> <p>Note for this subregulation: See clause 16(1) of the model standards in Schedule 2 of these regulations (introduced by regulation 18FA)</p> <p>(6) For the purposes of section 5.96A(1)(i), the performance criterion must be published on the local government's official website alongside the minutes of the meeting of the council at which the local government agreed to the performance criterion.</p> <p>(7) The Departmental CEO may, if satisfied that it is in the public interest to do so, direct that a performance criterion is not to be published under subregulation (6).</p>		
1 January 2025	<p>Regulation 18FAB and 18FAC inserted</p> <p>After Regulation 18FA insert:</p> <p>(1) In this regulation and regulation 18FAC — <i>independent person</i>, in relation to a selection panel established by a local government, means a person other than the following —</p>	7	Regs 18FAB and 18FAC: The City of Belmont supports this change.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(a) a member of the council of the local government or of any other local government;</p> <p>(b) an employee of the local government;</p> <p>(c) a human resources consultant engaged by the local government;</p> <p><i>independent persons panel</i> means the panel that the Departmental CEO must establish under subregulation (2)(a);</p> <p><i>selection panel</i> means a selection panel that a local government must establish under its adopted standards to conduct the recruitment and selection process for the employment of a person in the position of CEO.</p> <p>Note for this definition: See clause 8 of the model standards in Schedule 2 of these regulations (introduced by regulation 18FA).</p> <p>(2) The Departmental CEO –</p> <p>(a) must establish a panel of persons to serve as independent persons on selection panels that local governments establish on or after 1 July 2025; and</p> <p>(b) for the purposes of paragraph (a) –</p> <p>(i) must, from time to time, appoint persons to the independent persons panel for periods, and otherwise on</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>terms and conditions, determined by the Departmental CEO; and</p> <p>(ii) without limiting subparagraph (i), may require a person, as a condition of their appointment to the independent persons panel, to provide the Departmental CEO with a written undertaking relating to how the person will conduct themselves.</p> <p>Example for this subregulation: For the purposes of paragraph (b)(ii), a written undertaking could relate to how the person will avoid, or otherwise deal with, conflicts of interest or potential conflicts of interest.</p> <p>(3) If a local government is establishing a selection panel, it is for the local government (and not the Departmental CEO) to select and appoint 1 or more members of the independent persons panel to serve as an independent person on the selection panel (subject to subregulation (4) and regulation 18FAC).</p> <p>(4) A member of the independent persons panel must not serve, or continue to serve, on a selection panel in contravention of the terms and conditions of their appointment to the independent persons panel (including any undertaking provided by the member as referred to in subregulation (2)(b)(ii)).</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(5) A local government must give written notice to the Departmental CEO of the following as soon as practicable after it occurs —</p> <ul style="list-style-type: none"> (a) the appointment by the local government to a selection panel of a member of the independent persons panel (including the member's name); (b) the resignation or removal from a selection panel established by the local government of a member of the independent persons panel (including the member's name). <p>(6) A member of the independent persons panel who is appointed to a selection panel is entitled to be paid fees and reimbursed expenses in accordance with subregulation (7).</p> <p>(7) Section 5.100 applies to the member as if —</p> <ul style="list-style-type: none"> (a) the selection panel were a committee of the council; and (b) the member were a member of that committee who is neither a council member nor an employee. <p>(8) The Departmental CEO must publish a list of the membership of the independent persons panel on the Department's website and update the list from time to time as necessary.</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>18FAC. Disqualifying interests (Act s. 5.39A(4 and (5))</p> <p>(1) For the purposes of this regulation, a member of the independent persons panel has a disqualifying interest in relation to a selection panel if either or both of the following apply —</p> <p>(a) it is reasonable to expect that, if the recruitment and selection process has a particular outcome, that outcome will result, directly or indirectly, in a financial gain, loss, benefit or detriment to —</p> <p>(i) the member; or</p> <p>(ii) a person with whom the member is closely associated (as determined in accordance with section 5.62(1)(a) to (e) and (f) as if the member were a relevant person);</p> <p>(b) the member has an interest (whether arising from kinship, friendship or membership of an association or otherwise) that could, or could reasonably be perceived to, affect adversely the impartiality of the member as a member of the selection panel.</p> <p>(2) A member of the independent person's panel must not serve, or continue to serve, on a selection panel if the member is aware, or becomes aware, that they have a disqualifying interest.</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>Penalty for this subregulation: a fine of \$5,000.</p> <p>(3) If a member of the independent persons panel who is a member of a selection panel becomes aware that they have a disqualifying interest, they must disclose the nature of the disqualifying interest to each of the following as soon as possible —</p> <p>(a) The Departmental CEO;</p> <p>(b) The chair of the selection panel or, if the member is the chair, the mayor or president.</p> <p>Penalty for this subregulation: a fine of \$5,000.</p>		
Day after publication	<p>Regulation 18FB amended</p> <p>(1) Delete regulation 18FB(1).</p> <p>(2) In regulation 18FB(2):</p> <p>(a) In paragraph (b) delete “employment.” And insert:</p> <p>employment; and</p> <p>(b) After paragraph (b) insert:</p> <p>(c) regulation 18FBA does not apply.</p>	8	The City of Belmont supports this change.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
Day after publication	<p>Regulation 18FBA inserted</p> <p>After regulation 18FB insert:</p> <p>18FBA. Certification of compliance with adopted standards for renewal of CEO's contract of employment (Act s. 5.39B(7))</p> <p>(1) This regulation applies if –</p> <ul style="list-style-type: none"> (a) A local government renews the contract of employment of the CEO of the local government; and (b) The local government's adopted standards in relation to the recruitment of CEOs apply to the renewal. <p>Note for this subregulation: See clauses 4(2)(b) and 13 of the model standards in Schedule 2 of these regulations (introduced by regulation 18FA).</p> <p>(2) As soon as practicable after the contract is renewed, the local government must, by resolution*, certify that the renewal was in accordance with the local government's adopted standards in relation to the recruitment of CEOs.</p> <p>*Absolute majority required.</p> <p>(3) The local government must give a copy of the resolution to the Departmental CEO within 14 days</p>	9	The City of Belmont supports this change.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	after the resolution is passed by the local government.		
Day after publication	Regulation 18FC amended Delete regulation 18FC(1).	10	The City of Belmont supports this change.
1 July 2025	Schedule 2 clause 8 amended (1) In Schedule 2 clause 8(1) in the definition of independent person delete paragraph (a) and insert: (a) A member of the council of the local government or of any other local government; (2) In Schedule 2 clause 8(3)(a) delete "council members" and insert: Members of the council of the local government (3) After Schedule 2 clause 8(3) insert: (4) An independent person on the selection panel must be a member of the independent persons panel established under the Local Government (Administration) Regulations 1996 regulation 18FAB. (5) An independent person on the selection panel must be replaced if the independent person	11	The City of Belmont supports this change.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	makes a disclosure under the Local Government (Administration) Regulations 1996 regulation 18FAC(3)(b).		
Day after publication	<p>Schedule 2 clause 13 replaced</p> <p>Delete Schedule 2 clause 13 and insert:</p> <p>13. Recruitment to be undertaken on expiry of certain CEO contracts</p> <p>(1) In this clause – commencement day means the day on which the <i>Local Government Regulations Amendment Regulations 2024</i> regulation 12 comes into operation.</p> <p>(2) This clause applies if, upon the expiry of the contract of employment (the current contract) of the person (the incumbent CEO) who holds the position of CEO –</p> <p>(a) the incumbent CEO will have held the position for a period of 10 or more consecutive years, whether that period commenced before, on or after commencement day; and</p> <p>(b) a period of 10 or more consecutive years will have elapsed since a recruitment and selection process for the position was carried out, whether that process was carried out</p>	12	<p>The City of Belmont does not support this change.</p> <p>The current process in the Act allows for the Council to advertise or extend the CEO's contract based on performance. This should remain in place.</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>before, on or after commencement day.</p> <p>(3) The current contract must not be varied so as to extend its term.</p> <p>(4) The current contract must not be renewed unless –</p> <p>(a) the incumbent CEO will have held the position for a period of 10 or more consecutive years, whether that period commenced before, on or after commencement day; and</p> <p>(b) a period of 10 or more consecutive years will have elapsed since a recruitment and selection process for the position was carried out, whether that process was carried out before, on or after commencement day.</p>		
1 July 2025	<p>Schedule 2 clause 15A inserted</p> <p>After Schedule 2 clause 15 insert:</p> <p>15A. Contents of performance criteria</p> <p>(1) This clause applies to contractual performance criteria and additional performance criteria.</p>	13	<p>Reg 15A: The City of Belmont supports this change subject to the removal of all examples for subclause 15A(2).</p> <p>The examples provided are unrealistic and potentially misleading given their inclusion in this (subordinate) legislation. The fact of these instances being set out in the Regulations suggests some weight or reference is to be given to them. This</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(2) A performance criterion must contain the following information —</p> <ul style="list-style-type: none"> (a) the aspect of the CEO's role to which the performance criterion applies; (b) the indicator to be used to assess the CEO's performance against the performance criterion; (c) the target to be achieved in order for the performance criterion to be met; (d) the evidence to be used for determining whether the target is achieved. <p>Examples for this subclause:</p> <ol style="list-style-type: none"> 1. For the purposes of paragraph (a), the CEO's management of the provision of services by the local government. 2. For the purposes of paragraph (b), satisfaction of persons to whom services are provided by the local government. 3. For the purposes of paragraph (c), at least 90% of persons to whom services are provided by the local government are satisfied with the services. 4. For the purposes of paragraph (d), results of surveys completed by a representative sample of persons to whom services are provided by the local government. 		could result in some misguided outcomes in the application of the Regulations.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
Day after publication	<p>Schedule 2 clause 25 inserted</p> <p>After Schedule 2 clause 24 insert:</p> <p>25. Probationary period</p> <p>Clauses 21(2) and 22 do not apply to the termination of the employment of a CEO if –</p> <ul style="list-style-type: none"> (a) before becoming CEO, the CEO was never an employee of the local government; and (b) the CEO's contract of employment provides – <ul style="list-style-type: none"> (i) for a probationary period; and (ii) for the review by the local government of the CEO's performance during the probationary period with a view to determining whether the CEO's employment should continue after the probationary period; and (iii) for the local government to have the option of terminating the CEO's employment during the probationary period after reviewing the CEO's performance as referred to in subparagraph (ii); <p>and</p> <ul style="list-style-type: none"> (c) the local government terminates the employment of the CEO during the probationary period – 	14	<p>Reg 25: The City of Belmont does not support this change.</p> <p>The fact of whether a CEO was employed in a previous local authority should not be relevant. A CEO should be afforded procedural fairness during any probationary period. Recommend clauses 21 and 22 remain and clause 25 be excluded.</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<ul style="list-style-type: none"> (i) after reviewing the CEO's performance as referred to in paragraph (b)(ii); and (ii) otherwise in accordance with the contract of employment. 		

Division 2 – Registers

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
1 January 2025	<p>Part 7A inserted</p> <p>After regulation 29D insert:</p> <p style="padding-left: 40px;">Part 7A – Registers (Act s. 5.96B)</p> <p>29E. Preliminary</p> <ul style="list-style-type: none"> (1) This Part requires the CEO to keep registers for the purposes of section 5.96B(1). (2) The CEO must keep each register on and from 1 July 2025. (3) Initially, the information contained in a register must be up-to-date as at the beginning of 1 July 2025. (4) The CEO must then update the register at intervals of no more than 3 months. 	16	<p>In principle, the City of Belmont supports the introduction of Division 2 - Registers subject to comments below:</p> <p>Comment 1 Reg 29E (4): this provision should be changed to be a requirement to update at intervals of no more than 12 months.</p> <p>This would ensure alignment with other statutory reporting requirements, such as the annual Compliance return.</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>29F. Leases of land</p> <p>(1) In this regulation — <i>lease</i> means a lease, licence or agreement under which a person has a right to occupy or use land over a period —</p> <p>(a) whether the occupation or use of the land is on an exclusive basis or otherwise; and</p> <p>(b) whether the occupation or use of the land is continuous over the period or otherwise; and</p> <p>(c) whether the period is a fixed period or otherwise;</p> <p>Notes for this definition:</p> <ol style="list-style-type: none"> 1. A person's right to occupy or use land under a lease, licence or agreement may, in some situations, derive from a provision of a written law (for example, the Residential Tenancies Act 1987 section 76C). 2. For the purposes of paragraph (c), the period may, from time to time after the beginning of the lease, licence or agreement, be extended or change in nature (for example, from a fixed period to an indefinite period). <p>Examples for this definition:</p> <ol style="list-style-type: none"> 1. For the purposes of paragraph (a), the person's right to occupy or use the land may be — <ol style="list-style-type: none"> (a) to occupy or use the land to the exclusion of all other persons; or (b) to share in the occupation or use of the land with other persons. 		<p>Comment 2 Reg 29F: The City of Belmont does not support this change.</p> <p>The Name Exemption as provided in the Amended Regulations is not wide enough as the Name Exemption does not extend to other lease / licence agreements that the City may have with individuals for residential premises which are not Residential Tenancy Leases.</p> <p>For example, leases under the <i>Retirement Village Act</i> ("Retirement Village Leases") and leases under the <i>Residential Parks (Long-Stay Tenants) Act</i> ("Residential Parks Leases"), related to residential premises of individuals, are not afforded the Name Exemption as they are not Residential Tenancy Leases.</p> <p>As the same duty of care and PRIS Act obligation concerns would arguably apply to Retirement Village Leases and Residential Park Leases, the Name Exemption must apply to all leases that relate to residential premises where the other party are individuals, whether they are Residential Tenancy Leases or not.</p> <p>The Name Exemption alone may not be sufficient to protect the privacy of the</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>2. For the purposes of paragraph (b), the person's right to occupy or use the land may be —</p> <p>(a) to occupy or use the land continuously over a period of 1 year; or</p> <p>(b) to occupy or use the land for 20 hours per week over a period of 1 year.</p> <p>3. For the purposes of paragraph (c), the period may be —</p> <p>(a) a fixed period of 1 year with no option to extend the fixed period; or</p> <p>(b) a fixed period of 1 year with an option to extend the fixed period on 1 or more occasions; or</p> <p>(c) an indefinite period that may be terminated by a party to the lease, licence or agreement giving notice to the other party.</p> <p>lease period, in relation to a lease, means the period over which the land may be occupied or used;</p> <p>rent includes the following —</p> <p>(a) a fee or charge payable for the occupation or use of land;</p> <p>(b) any other type of amount that is in the nature of rent;</p> <p>residential tenancy agreement has the meaning given in the Residential Tenancies Act 1987 section 3;</p> <p>retail shop lease has the meaning given in the Commercial Tenancy (Retail Shops) Agreements Act 1985 section 3(1);</p> <p>unclassified lease means a lease that is neither a residential tenancy agreement nor a retail shop lease.</p>		<p>tenants of residential properties as the address of the property and tenure start and end dates which are proposed to be included in the Lease Register may also breach privacy requirements and potentially disclose a duty of care concern for the local authority.</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(2) The CEO must keep a register containing the information required by subregulation (3) in relation to each lease to which the local government is a party —</p> <p>(a) whether the lease is made before, on or after 1 July 2025; but</p> <p>(b) subject to subregulation (4).</p> <p>(3) The required information is as follows –</p> <p>(a) whether the lease is a residential tenancy agreement, a retail shop lease or an unclassified lease;</p> <p>(b) the role of the local government under the lease;</p> <p>Examples for this paragraph:</p> <ol style="list-style-type: none"> 1. Lessor or licensor. 2. Lessee or licensee. <p>(c) if the lease is a retail shop lease or an unclassified lease — the name of each party to the lease other than the local government;</p> <p>(d) the following —</p> <ol style="list-style-type: none"> (i) if the land has an address – the address; (ii) otherwise – the location of the land by reference to the number of the relevant deposited plan and 		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>the number of the relevant lot shown on that plan;</p> <p>(e) a summary of the purposes for which the land may be occupied or used;</p> <p>(f) a description of the lease period, including the following —</p> <p>(i) the first date of the lease period;</p> <p>(ii) the last date of the lease period as at the beginning of the lease (if that date is fixed);</p> <p>(iii) the current last date of the lease period (if that date is fixed);</p> <p>(iv) If the current last date of the lease period is not fixed – the circumstances in which the lease period will end;</p> <p>(v) A summary of any extensions or changes in nature to the lease period that occur after the beginning of the lease;</p> <p>(g) details of the rent payable under the lease to or by the local government.</p> <p>Examples for this paragraph:</p> <ol style="list-style-type: none"> \$10 000 per annum. \$1 000 per month. \$100 per hour. A one-off amount of \$1 000. <p>(4) Subregulation (2) does not apply to a lease if any of the following applies —</p> <p>(a) the right to occupy or use the land no longer subsists;</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(b) the lease period, as at the beginning of the lease, is a fixed period of less than 1 month and there is no option under the lease to extend the fixed period to or beyond 1 month;</p> <p>Example for this paragraph: The land may be occupied or used only for 6 hours on a particular day for a one-off event.</p> <p>(c) the land may be occupied or used only for the purpose of accessing or egressing other land.</p> <p>29G. Grants and sponsorships</p> <p>(1) In this regulation –</p> <p><i>final report date</i>, in relation to a grant or sponsorship, means the latest date by which the recipient of the grant or sponsorship must, under the terms of the grant or sponsorship, make a report to the local government covering 1 or more of the following –</p> <ul style="list-style-type: none"> (a) the way in which the grant or sponsorship has been applied; (b) the outcomes achieved by the application of the grant or sponsorship; (c) the recipient's compliance with the terms of the grant or sponsorship; (d) any other matter about which the recipient is required to report to the local government under the terms of the grant or sponsorship; 		<p>Reg 29G: The City of Belmont supports this change.</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>grant means a grant of a monetary or non-monetary kind; sponsorship means a sponsorship of a monetary or non-monetary kind; value, in relation to a grant or sponsorship, means its monetary amount or, if it is of a non-monetary kind, its equivalent monetary amount.</p> <p>(2)The CEO must keep a register containing the information required by subregulation (3) in relation to each grant or sponsorship made by the local government —</p> <p>(a) whether the grant or sponsorship is made before, on or after 1 July 2025; but</p> <p>(b) subject to subregulation (4).</p> <p>(3)The required information is as follows –</p> <p>(a) the date on which the grant or sponsorship is made;</p> <p>(b) a summary of the purpose for which the grant or sponsorship is made;</p> <p>(c) the name of the recipient;</p> <p>(d) the value;</p> <p>(e) the final report date (if any);</p> <p>(f) if the final report date (if any) has passed – whether the recipient has made all reports to the local government that the recipient is required to make under the terms of the grant or sponsorship.</p> <p>(4)Subregulation (2) does not apply to a grant or sponsorship if any of the following applies –</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(a) the grant or sponsorship is made on a day before 1 July 2025 and the period of 5 years beginning on that day has expired;</p> <p>(b) if there is a final report date — the period of 5 years beginning on the final report date has expired;</p> <p>(c) the value is less than \$500.</p> <p>(5) For the purposes of subregulation (4)(c), the value includes the value of any other grant or sponsorship that is made, or that is to be made, by the local government to the same recipient for the same purpose or a purpose that is substantially the same.</p> <p>29H. Development contributions</p> <p>(1) In this regulation –</p> <p>authorised purposes, in relation to a development contribution, means the purposes for which the development contribution, including any interest earned, must or may be applied by the local government;</p> <p>contributor, in relation to a development contribution, means the person from whom the development contribution is received.</p> <p>development –</p> <p>(a) has the meaning given in the <i>Planning and Development Act 2005</i> section 4(1); and</p> <p>(b) includes development (as defined in paragraph (a)) that is proposed;</p>		<p>Reg 29H: The City of Belmont does not support this change.</p> <p>The requirement to establish a Development Contributions Register duplicates several existing regulatory obligations in the State planning framework.</p> <p>Local governments are already required to track and report development contributions through:</p> <ul style="list-style-type: none"> State Planning Policy 3.6 – Infrastructure Contributions. This already sets out a robust framework for reporting and review on Development Contribution Plans.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>development contribution means money received by the local government under the <i>Planning and Development Act 2005</i> (including a local planning scheme) in connection with development or a subdivision —</p> <p>(a) as a contribution towards the provision of infrastructure or facilities by the local government; or</p> <p>(b) in lieu of compliance with a requirement imposed under the <i>Planning and Development Act 2005</i> (including a local planning scheme);</p> <p>exhausted – see subregulation (5);</p> <p>interest earned, in relation to a development contribution, means any interest earned from the investment of the development contribution, or any portion of it, by the local government;</p> <p>subdivision –</p> <p>(a) means any action referred to in the <i>Planning and Development Act 2005</i> section 135(1)(a), (b) or (c); and</p> <p>(b) includes a subdivision (as defined in paragraph (a)) that is proposed.</p> <p>(2) The CEO must keep a register containing the information required by subregulation (3) in relation to each development contribution received by the local government —</p>		<ul style="list-style-type: none"> Section 154 of the <i>Planning and Development Act 2005</i> sets out requirements for the receipt and expenditure of cash-in-lieu for public open space. While it does not mandate a formal register, the WAPC's Position Statement recommends local governments maintain clear records of contributions, including the amount received, landholding, and the date of receipt. It is also noted that to spend cash-in-lieu funds, the City needs to first request Minister of Planning approval. Rather than duplicating reporting through Regulation 29H, if it is to be pursued, it would be more appropriate to formalise these record keeping requirements within the <i>Planning and Development Act 2005</i> itself. Cash in lieu contributions for parking are already subject to financial management and reporting requirements under both the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> and WAPC's Payment in Lieu of Parking

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(a) whether the development contribution is received before, on or after 1 July 2025; but</p> <p>(b) subject to subregulation (4).</p> <p>(3) The required information is as follows –</p> <ul style="list-style-type: none"> (a) the name of the contributor; (b) the address, or other description of the location, of the development or subdivision in connection with which the development contribution is received; (c) a summary of the authorised purposes; (d) the amount of the development contribution; (e) the date on which the development contribution is received; (f) the date (if any) by which the development contribution, including any interest earned, must be fully applied by the local government for authorised purposes; (g) the amount of interest earned; (h) each item of infrastructure and each facility in respect of which the development contribution, including any interest earned, is applied; (i) for each item of infrastructure and each facility referred to in paragraph (h) – <ul style="list-style-type: none"> (i) the amount expended by the local government towards its provision; and (ii) the proportion of that amount that comes from the application of the development contribution, including any interest earned. 		<p>guidelines. These set out detailed provisions to track, manage, and report on these contributions.</p> <p>Overall, additional reporting is not considered necessary. If further reporting is to be pursued, given that the head of power for all these contributions falls under the <i>Planning and Development Act 2005</i>, it would be more appropriate to consolidate reporting requirements within that Act rather than adding a separate compliance layer under Regulation 29H.</p>

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>(4) Subregulation (3) does not apply to a development contribution if —</p> <p>(a) the development contribution is exhausted; and</p> <p>(b) the period of 5 years beginning on the day on which the development contribution became exhausted has expired.</p> <p>(5) For the purposes of subregulation (4), a development contribution is exhausted if any of the following applies —</p> <p>(a) the development contribution, including any interest earned, has been fully applied by the local government for authorised purposes;</p> <p>(b) the development contribution, including any interest earned, has been fully paid back to the contributor by the local government;</p> <p>(c) the development contribution, including any interest earned —</p> <p>(i) has been partly applied by the local government for authorised purposes; and</p> <p>(ii) to the extent not applied by the local government for authorised purposes, has been paid back to the contributor by the local government.</p>		

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<p>29I. Contracts for goods and services</p> <p>(1) The CEO must keep a register containing the information required by subregulation (2) in relation to each contract made by the local government for another person (the supplier) to supply goods or services —</p> <p>(a) whether the contract is made before, on or after 1 July 2025; but</p> <p>(b) subject to subregulation (3).</p> <p>(2) The required information is as follows —</p> <p>(a) the name of the supplier;</p> <p>(b) whether tenders were publicly invited for the contract and, if they were not, a summary of the method by which the supplier was chosen;</p> <p>(c) the date on which the contract is made;</p> <p>(d) a summary of the goods or services;</p> <p>(e) if the goods or services are to be supplied over a fixed period —</p> <p>(i) the fixed period as at the beginning of the contract; and</p> <p>(ii) if the fixed period is extended on 1 or more occasions – the fixed period as extended;</p> <p>(f) if the contract is varied on 1 or more occasions – a summary of each variation;</p> <p>(g) the following –</p>		29I – The City of Belmont supports this change.

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
	<ul style="list-style-type: none"> (i) the amount of consideration under the contract that the local government has paid; (ii) the amount, or expected amount, of consideration under the contract that the local government is still to pay; (iii) the sum of the amounts referred to in subparagraphs (i) and (ii). <p>(3) Subregulation (1) does not apply to a contract if either of the following applies —</p> <ul style="list-style-type: none"> (a) the sum referred to in subregulation (2)(g)(iii) is less than \$50,000; (b) no further goods or services are to be supplied under the contract. <p>(4) For the purposes of subregulation (3)(a), the sum includes the equivalent sum for any other contract made by the local government with the same supplier —</p> <ul style="list-style-type: none"> (a) that is for the same purpose or a purpose that is substantially the same; and (b) to which subregulation (3)(b) does not apply. 		

Part 3 – Local Government (Functions and General) Regulations 1996 amended

Commencement	Proposed Amendment	Reg No. (LGRAR 2024)	Feedback
1 January 2025	<p>Regulation 35B amended</p> <p>(1) In regulation 35B delete “The” and insert:</p> <p>(1) The</p> <p>(2) At the end of regulation 35B insert:</p> <p>(2) The Departmental CEO’s functions under the <i>Local Government (Administration) Regulations 1996</i> regulation 18FAB are delegable functions.</p>	18	Reg 35B: The City of Belmont supports this change.

12.6 Accounts for Payment March 2025

Voting Requirement	:	Simple Majority
Subject Index	:	54/007 - Creditors Payment Authorisations
Location/Property Index	:	N/A
Application Index	:	N/A
Disclosure of any Interest	:	Nil
Previous Items	:	N/A
Applicant	:	N/A
Owner	:	N/A
Responsible Division	:	Corporate and Governance

Council role

Executive The substantial direction setting and oversight role of the Council e.g. adopting plans and reports, accepting tenders, directing operations, setting and amending budgets.

Purpose of report

To present to Council the list of expenditure paid for the period 1 March 2025 to 22 March 2025 under delegated authority.

Summary and key issues

A list of payments is presented to the Council each month for confirmation and endorsement in accordance with the *Local Government (Financial Management) Regulations 1996 (WA)*.

Due to timelines associated with the agenda preparation process for the earlier April meeting of Council, payments for the period 1 March 2025 to 22 March 2025. March 2025 only are presented rather than the full month as is usual practice. Payments made for the period 23 March 2025 to 31 March 2025 will be included in the report presented to the next ordinary meeting of Council in May 2025.

Officer Recommendation

That the Authorised Payment Listing for 1 March 2025 to 22 March 2025 as provided under Attachment 12.6.1 be received.

Location

Not applicable.

Consultation

There has been no specific consultation undertaken in respect to this matter.

Strategic Community Plan implications

In accordance with the 2024–2034 Strategic Community Plan:

Key Performance Area: Performance

Outcome: 10. Effective leadership, governance and financial management.

Outcome: 11. A happy, well informed and engaged community.

Policy implications

There are no policy implications associated with this report.

Statutory environment

Regulation 13(1) of the *Local Government (Financial Management) Regulations 1996 (WA)* states:

“If the local government has delegated to the CEO the exercise of its power to make payments from the municipal fund or the trust fund, a list of accounts paid by the CEO is to be prepared each month showing for each account paid since the last such list was prepared:

- (a) the payee's name;
- (b) the amount of the payment;
- (c) the date of the payment; and
- (d) sufficient information to identify the transaction.”

(3) A list prepared under sub regulation (1) is to be presented to Council at the next ordinary meeting of Council after the list is prepared; and recorded in the minutes of that meeting.

Regulation 13A of the *Local Government (Financial Management) Regulations 1996 (WA)* effective from 1 September 2023 states:

- (1) If a local government has authorised an employee to use a credit, debit or other purchasing card, a list of payments made using the card must be prepared each month showing the following for each payment made since the last such list was prepared —
 - (a) the payee's name;
 - (b) the amount of the payment;
 - (c) the date of the payment;
 - (d) sufficient information to identify the payment.
- (2) A list prepared under subregulation (1) must be —
 - (a) presented to the council at the next ordinary meeting of the council after the list is prepared; and
 - (b) recorded in the minutes of that meeting.

Background

Council has delegated to the Chief Executive Officer under Delegation 1.1.18 to make payment from the Municipal and Trust Fund account. In accordance with Regulation 13(1) of the *Local Government (Financial Management) Regulations 1996 (WA)*, where this power has been delegated, a list of payments each month is to be compiled and presented to Council.

Report

The following summary of payments are recommended for confirmation and endorsement.

Payment type	Payment reference	\$
Municipal Fund Cheques	Nil	-
Municipal Fund EFTs	EF095003 - EF095238	1,611,809.15
Municipal Fund Payroll	March 2025	1,447,047.38
Trust Fund EFT	EF095002, EF095081- EF095082	28,491.35
Total Payments for March 2025		3,087,347.88

A copy of the Authorised Payment Listing is included as Attachment 12.6.1.

Financial implications

All expenditure included in the Payment Listing is in accordance with Council's Annual budget.

Environmental implications

There are no environmental implications associated with this report.

Social implications

There are no social implications associated with this report.

Attachment details

Attachment No and title
1. March 2025 payments [12.6.1 - 4 pages]

Attachment 12.6.1 March 2025 payments



			City of Belmont		
			Accounts for Payment - 01/03/2025 to 22/03/2025		Compiled : 25/03/25 09:04
Pmnt Ref	Date	CR Code	Supplier	Pmnt Amnt	Description
Contractors					
EF095007	07/03/25	00221	John Hughes Group	940.00	Plant Parts & Repairs
EF095009	07/03/25	00295	Capital Recycling	924.00	Rubbish Removals
EF095012	07/03/25	00608	Programmed Skilled Workforce Ltd	2,288.97	Labour/Personnel Hire
EF095013	07/03/25	00699	Marketforce Pty Ltd	236.50	Advertising & Printing
EF095017	07/03/25	00988	Reece Australia Pty Ltd	6,231.87	Plumbing Maintenance/Supplies
EF095023	07/03/25	01507	The Pressure King	550.00	Graffiti Removal - Rivervale Community Centre
EF095024	07/03/25	01712	Donegan Enterprises Pty Ltd	6,669.85	Various Parks Repairs and Maintenance
EF095025	07/03/25	01772	Data3 Limited	52,899.35	Computer Software Maintenance - Subscriptions
EF095026	07/03/25	01831	Mow Master Turf Equipment	92.00	Plant Parts & Repairs
EF095028	07/03/25	02387	Triton Electrical Contractors Pty Ltd	374.00	Electrical Contractor - COB
EF095029	07/03/25	02425	Prestige Alarms	1,287.00	Security Services
EF095030	07/03/25	02958	Yoshino Sushi	154.88	Catering/Catering Supplies
EF095032	07/03/25	03504	Classic Tree Services	247.50	Tree Pruning Within CoB
EF095033	07/03/25	03537	Mackay Urban Design	480.00	Professional Fees - Design Review
EF095035	07/03/25	03593	Philip Swain	1,220.00	Labour/Personnel Hire
EF095038	07/03/25	03941	Metro Bee Services	165.00	Bee Removal
EF095039	07/03/25	04391	Lifeskills Australia	1,045.00	Professional Fees - Analysis
EF095040	07/03/25	05016	Cyclus Pty Ltd	448.80	Labour/Personnel Hire
EF095043	07/03/25	05283	IRP Pty Ltd	6,149.33	Labour/Personnel Hire
EF095044	07/03/25	05339	Elliotts Filtration Pty Ltd	2,765.40	Reticulation Parts & Repairs
EF095045	07/03/25	05427	Horizon West Landscape & Irrigation Pty Ltd	45,031.25	Gardening Maintenance - Various Locations
EF095046	07/03/25	05623	Tree Planting and Watering - Baroness Holdings	63,343.28	Street Tree Watering Services for CoB
EF095047	07/03/25	05782	Jane Wetherall	600.00	Professional Fees - Design Review Panel
EF095048	07/03/25	05819	Ritz Drycleaners	327.55	Cleaning Services
EF095051	07/03/25	06130	Amalgam Recruitment	1,252.68	Labour/Personnel Hire
EF095052	07/03/25	06203	Ngala Boodja Aboriginal Land Care	4,563.88	Maintenance of Natural Areas COB
EF095053	07/03/25	06303	Event Bike Rack Hire	892.00	Plant/Equipment Hire - Kidz Fest
EF095055	07/03/25	06458	ES2 Pty Ltd	18,871.88	Computer Software Maintenance - Servers Defenders & Firewall
EF095056	07/03/25	06468	Perth Bouncy Castle Hire	537.90	Plant/Equipment Hire - Wiggles & Giggles
EF095057	07/03/25	06492	CM Building Certification	11,000.00	Professional Fees - Building Survey
EF095058	07/03/25	06528	Diplomatik Pty Ltd	1,887.08	Professional Fees - Recruitment Services
EF095059	07/03/25	06698	Live History	420.00	Music/Entertainment Expenses - History Show
EF095061	07/03/25	06751	HFM Asset Management	2,051.10	Building Maintenance - Licence Fee
EF095062	07/03/25	06795	AMPAC Debt Recovery(WA) Pty Ltd	66.00	Professional Fees - Debt Collection
EF095063	07/03/25	06875	Jimbu4J	396.00	Catering/Catering Supplies
EF095064	07/03/25	06928	Integrity Staffing	4,749.29	Labour/Personnel Hire
EF095065	07/03/25	06956	Beach Break Van	1,515.00	Catering/Catering Supplies - Wilson Park Zone Ceremony
EF095066	07/03/25	06959	Elite Compliance Pty Ltd	715.00	Professional Fees - Pool Barrier Inspection
EF095083	14/03/25	00118	Australia Post	7,165.57	Postage
EF095086	14/03/25	00394	Child & Adolescent Health Service - Dept of Health WA	721.86	Immunisation Expenses - February 2025
EF095090	14/03/25	00815	New Town Toyota	547.50	Plant Parts & Repairs
EF095092	14/03/25	00917	Positive Auto Electronics	1,456.15	Plant Parts & Repairs
EF095094	14/03/25	01186	Zircodata Pty Ltd	1,912.52	Records Storage
EF095099	14/03/25	01358	Kevrek Australia Pty Ltd	352.00	Plant Parts & Repairs
EF095102	14/03/25	01499	Porter Consulting Engineers	15,950.00	Professional Fees - Design Services COB
EF095104	14/03/25	02172	Miss Maud	38.25	Catering
EF095106	14/03/25	02216	Western Australia Police	36.00	Volunteer National Police Check
EF095107	14/03/25	02302	PVA (WA) - T/as Egan National Valuers (WA)	5,500.00	Valuation Expense
EF095108	14/03/25	02393	Zipform Pty Ltd	6,231.96	Postage - Rates Notices
EF095109	14/03/25	02424	Neylor	341.00	Window Treatments - Hub
EF095110	14/03/25	02627	Dunbar Services WA Pty Ltd	311.30	Cleaning Services
EF095112	14/03/25	02711	CPG Research and Advisory Pty Ltd	1,558.33	Advisory Fees - March 2025
EF095113	14/03/25	02779	Natural Area Holdings Pty Ltd	6,342.16	Gardening Maintenance - Watering
EF095114	14/03/25	03361	All Fence U Rent Pty Ltd	7,213.13	Fencing
EF095115	14/03/25	03419	Gott Health	550.00	Community Exercise Classes
EF095118	14/03/25	03543	Labyrinth Constructions	3,764.20	Building Construction - Freshwater Walkway Repairs
EF095119	14/03/25	03824	Konica Minolta	2,037.32	Photocopy Expenses
EF095122	14/03/25	04524	Moore Australia WA Pty Ltd	1,045.00	Rates Comparison Report
EF095123	14/03/25	04742	Oliver's Reupholstery Service	1,962.40	Office Equipment Maintenance
EF095124	14/03/25	04794	Stiles Electrical Services Pty Ltd	16,632.00	Electrical Contractor - Miles Park Sports Lighting Upgrade
EF095125	14/03/25	05190	Mark Foote	1,298.00	Building Maintenance - COB
EF095126	14/03/25	05283	IRP Pty Ltd	16,542.13	Labour/Personnel Hire
EF095127	14/03/25	05892	Frontline Interiors	3,524.40	Building Maintenance - Library
EF095128	14/03/25	05944	Delron Cleaning Pty Ltd - Ventia	118.89	Cleaning Services
EF095129	14/03/25	05950	Commercial and Industrial Mowing - DJ and TM Luckin	3,432.00	Gardening Maintenance - Various Locations
EF095130	14/03/25	06094	Boyan Electrical Services	1,388.48	Electrical Contractor
EF095131	14/03/25	06130	Amalgam Recruitment	4,431.36	Labour/Personnel Hire
EF095133	14/03/25	06335	Hatch Pty Ltd	35,200.00	Professional Fees - Great Eastern Hwy Corridor
EF095134	14/03/25	06345	SoCo Studios - Travis Hayto Photography	1,155.00	Photography/Framing Expenses
EF095137	14/03/25	06492	CM Building Certification	11,000.00	Professional Fees - Building Survey
EF095138	14/03/25	06592	Grosvenor Engineering Group	1,908.03	Electrical Contractor - COB
EF095139	14/03/25	06608	Robert Walters Pty Ltd	3,392.40	Labour/Personnel Hire
EF095140	14/03/25	06698	Live History	840.00	Music/Entertainment Expenses - History Show
EF095141	14/03/25	06731	Market Creations Agency Pty Ltd	1,375.00	Professional Fees - Marketing
EF095142	14/03/25	06754	Doon Raj P/L - T/as Belmont (WA) Carpet Court	500.00	Building Maintenance - COB
EF095143	14/03/25	06771	Kamalika Andrews - The Nappy Guru	450.00	Community Nutrition Classes - Cloth Nappy Workshop
EF095144	14/03/25	06773	Evolve Talent	6,169.45	Labour/Personnel Hire
EF095145	14/03/25	06782	Museo Curatorial	800.00	Library - Entertainment Expense - Workshop
EF095146	14/03/25	06884	McLeods Lawyers	6,281.77	Legal Expenses

Attachment 12.6.1 March 2025 payments

Pmnt_Ref	Date	CR_Code	Supplier	Pmnt_Amnt	Description
EF095147	14/03/25	06889	PTG Consulting Pty Ltd	27,452.48	Survey Expenses
EF095148	14/03/25	06900	AMS Installation & Maintenance Solutions	1,049.40	Airconditioning/Refrigeration Maintenance - COB
EF095150	14/03/25	06992	Malena Kitchen (WA)	368.00	Catering/Catering Supplies
EF095151	14/03/25	07005	Verdex Equipment	1,892.34	Heavy Duty Steel Platform Trolley
EF095152	14/03/25	07006	Moorditj Mida Moort	3,000.00	Music - Entertainment Expense - Welcome to Country
EF095154	14/03/25	07017	Abundant Laughter - Janet Whitfield	600.00	Community Exercise Classes - Yoga Workshop
EF095156	14/03/25	07019	NRJobs Pty Ltd	165.00	Advertising
EF095172	21/03/25	00230	Jackson McDonald	5,746.95	Legal Expenses
EF095174	21/03/25	00496	Garrards Pty Ltd	11,401.78	Pest Control
EF095175	21/03/25	00608	Programmed Skilled Workforce Ltd	2,861.21	Labour/Personnel Hire
EF095178	21/03/25	00815	New Town Toyota	1,609.00	Plant Parts & Repairs
EF095179	21/03/25	00988	Reece Australia Pty Ltd	1,084.81	Plumbing Maintenance/Supplies
EF095180	21/03/25	01138	E & M J Rosher Pty Ltd	596.70	Plant Parts & Repairs
EF095183	21/03/25	01318	Flexi Staff Group Pty Ltd	601.01	Labour/Personnel Hire
EF095185	21/03/25	01713	M P Rogers and Associates	4,421.13	Professional Fees - Garvey Park Foreshore
EF095186	21/03/25	01721	Fulton Hogan Industries	308,012.16	Road Building Contractor - Asphalt
EF095187	21/03/25	01772	Data3 Limited	11.11	Computer Software Maintenance
EF095190	21/03/25	02393	Zipform Pty Ltd	4,121.55	Postage - Rates Notices
EF095191	21/03/25	02411	Allsports Linemarking	4,235.00	Line Marking
EF095192	21/03/25	02627	Dunbar Services WA Pty Ltd	453.20	Cleaning Services
EF095193	21/03/25	02672	Ruah Community Services	18,523.31	Provision of Preventive Domestic Violence Service - February 2025
EF095194	21/03/25	02958	Yoshino Sushi	419.54	Catering/Catering Supplies
EF095196	21/03/25	03446	Hi - Tech Auto Electrics	920.00	Plant Parts & Repairs
EF095197	21/03/25	03504	Classic Tree Services	5,959.80	Tree Pruning Within CoB
EF095198	21/03/25	03567	Gardner Autos Pty Ltd t/as Gardner Isuzu	1,802.00	Plant Parts & Repairs
EF095200	21/03/25	03881	Caricature Wizard - Henry Lam	520.00	Music/Entertainment Expenses
EF095202	21/03/25	04120	Randstad Pty Ltd	10,565.21	Labour/Personnel Hire
EF095205	21/03/25	04677	3 Monkeys Audiovisual	17,504.49	Plant/Equipment Hire - Kewdale Room AV
EF095207	21/03/25	05181	Aloft Hotel Perth	2,400.00	Catering - Adachi Farewell Luncheon Deposit
EF095208	21/03/25	05190	Mark Foote	14,767.50	Building Maintenance - COB
EF095210	21/03/25	05336	West - Sure Group Pty Ltd	521.46	Cash Transit Service - February 2025
EF095211	21/03/25	05493	Dapth	1,952.50	Computer Software Maintenance - Website Support Service
EF095212	21/03/25	05838	Petstock Pty Ltd	31.50	Animal Supplies
EF095213	21/03/25	05939	Tomato & Basil Pizzeria	1,028.50	Catering - Epsom Sounds
EF095214	21/03/25	06094	Boyan Electrical Services	160.88	Electrical Contractor
EF095215	21/03/25	06121	Moodjar Consultancy	2,915.00	Music/Entertainment Expenses - Welcome to Country
EF095216	21/03/25	06188	Cannington Retravision	94.60	Electrical Goods
EF095217	21/03/25	06203	Ngala Boodja Aboriginal Land Care	1,054.88	Maintenance of Natural Areas COB
EF095219	21/03/25	06345	SoCo Studios - Travis Hayto Photography	2,227.50	Photography/Framing Expenses
EF095220	21/03/25	06368	Grandstand Agency	2,750.00	Music/Entertainment Expenses - Community Event
EF095221	21/03/25	06414	Complete Glass & Glazing Services	1,089.00	Building Maintenance - Civic Centre
EF095224	21/03/25	06528	Diplomatik Pty Ltd	3,027.33	Professional Fees - Recruitment Services
EF095225	21/03/25	06592	Grosvenor Engineering Group	425.01	Electrical Contractor - COB
EF095226	21/03/25	06773	Evolve Talent	3,380.52	Labour/Personnel Hire
EF095227	21/03/25	06795	AMPAC Debt Recovery(WA) Pty Ltd	1,614.55	Professional Fees - Debt Collection
EF095229	21/03/25	06815	Deborah Anne Eldridge	500.00	Music/Entertainment Expenses - Aboriginal Culture Presentation
EF095230	21/03/25	06875	Jimbu4J	5,181.00	Catering/Catering Supplies
EF095231	21/03/25	06892	Joseph - Kirirangi Jinan Dodd	900.00	Epsom Park Local - Music in the Park
EF095232	21/03/25	06928	Integrity Staffing	2,777.86	Labour/Personnel Hire
EF095233	21/03/25	06929	Brett David Investments T/A Successful Projects	6,945.95	Professional Fees - Engineering - Ornamental Lake Renewal
EF095236	21/03/25	07043	Kinglarp Pty Ltd T/A The Pressure King	2,238.50	Graffiti Removal - Various Location
Contractors Total				918,746.12	
Councillor Payments					
EF095015	07/03/25	00919	Janet Powell	3,148.17	Councillor Sitting Fee
EF095021	07/03/25	01369	Phillip Marks	3,148.17	Councillor Sitting Fee
EF095027	07/03/25	02145	Robert Rossi	12,668.92	Councillor Sitting Fee
EF095037	07/03/25	03916	Bernard Ryan	3,148.17	Councillor Sitting Fee
EF095041	07/03/25	05084	Jenny Davis	3,148.17	Councillor Sitting Fee
EF095042	07/03/25	05085	George Sekulla	3,148.17	Councillor Sitting Fee
EF095049	07/03/25	05828	Deborah Sessions	5,171.40	Councillor Sitting Fee
EF095060	07/03/25	06704	Christopher John Kulczycki	3,148.17	Councillor Sitting Fee
EF095067	07/03/25	06968	Jarrod Harris	3,148.17	Councillor Sitting Fee
EF095189	21/03/25	02145	Robert Rossi	6.50	Parking
EF095206	21/03/25	05084	Jenny Davis	26.27	Taxi Fares
Councillor Payments Total				39,910.28	
Credit Card 2310					
EF095168	20/03/25	03526	IIA Australia	2,995.00	Registration - Conference
EF095168	20/03/25	03526	Work Health & Safety	891.00	Training
EF095168	20/03/25	03526	Google G Suite	11.09	Subscription
EF095168	20/03/25	03526	Coles	220.00	Gift Card - as per Employee Policy
EF095168	20/03/25	03526	Winner Circle	5.99	Stationery
Credit Card 2310 Total				4,123.08	
Credit Card 4739					
EF095170	20/03/25	06409	ASIC	20.00	Company Searches
EF095170	20/03/25	06409	ASIC	120.00	Company Searches
EF095170	20/03/25	06409	News Pty Ltd	28.00	Subscription
EF095170	20/03/25	06409	Dan Murphy	261.05	Beverages
EF095170	20/03/25	06409	Chat GPT	32.86	Subscription
EF095170	20/03/25	06409	Chat GPT	32.86	Subscription
EF095170	20/03/25	06409	Google G Suite	11.09	Subscription
EF095170	20/03/25	06409	Fairfax	340.00	Subscription
Credit Card 4739 Total				845.86	
Credit Card 7563					
EF095171	20/03/25	06834	Raine Square	13.16	Parking

Attachment 12.6.1 March 2025 payments

Pmnt_Ref	Date	CR_Code	Supplier	Pmnt_Amnt	Description
EF095171	20/03/25	06834	CPP Convention Centre	7.07	Parking
EF095171	20/03/25	06834	Qantas	1,536.00	Accommodation - Conference
EF095171	20/03/25	06834	Qantas	752.80	Flight - Conference
Credit Card 7563 Total				2,309.03	
Credit Card 8380					
EF095169	20/03/25	06342	Meet The Media	330.00	Training
EF095169	20/03/25	06342	Nosh Gourmet	354.00	Catering - Race Day
EF095169	20/03/25	06342	Sue Lewis	950.00	Catering - Race Day
EF095169	20/03/25	06342	Campaign Monitor	1,680.80	Subscription
EF095169	20/03/25	06342	Adobe System	39.59	Subscription
EF095169	20/03/25	06342	Microsoft	2,210.57	Subscription
EF095169	20/03/25	06342	Google Play	41.08	Subscription
EF095169	20/03/25	06342	Twilio	33.59	Subscription
EF095169	20/03/25	06342	Facebook	975.63	Advertising
Credit Card 8380 Total				6,615.26	
Fuels and Utilities					
EF095005	07/03/25	00042	Alinta Energy	1,323.85	Light, Power, Gas
EF095019	07/03/25	01252	Water Corporation	34,591.84	Water, Annual & Excess
EF095020	07/03/25	01274	Synergy	109,360.53	Light, Power, Gas
EF095034	07/03/25	03592	Steven Harling	76.66	Parking
EF095097	14/03/25	01252	Water Corporation	880.03	Water, Annual & Excess
EF095098	14/03/25	01274	Synergy	69,785.39	Light, Power, Gas
EF095111	14/03/25	02631	Ampol - Caltex	30,542.37	Fuel, Oil, Additives
EF095136	14/03/25	06424	Telstra Limited	3,938.90	Phone/Internet expenses
EF095181	21/03/25	01252	Water Corporation	780.50	Water, Annual & Excess
EF095182	21/03/25	01274	Synergy	11,516.69	Light, Power, Gas
EF095222	21/03/25	06424	Telstra Limited	19,594.23	Phone/Internet expenses
Fuels and Utilities Total				282,390.99	
Materials					
EF095004	07/03/25	00009	Cafe Corporate	125.40	Groceries
EF095008	07/03/25	00231	Bunnings Group Ltd	95.03	Hardware
EF095010	07/03/25	00317	Coles Supermarkets Aust Pty Ltd	285.93	Groceries
EF095011	07/03/25	00414	Dulux Australia	5,702.33	Paint & Accessories
EF095014	07/03/25	00778	Modern Teaching Aids Pty Ltd	54.89	Stationery
EF095018	07/03/25	01206	Access Icon Pty Ltd t/a Cascada	8,431.50	Concrete Products - COB
EF095022	07/03/25	01398	Winc Australia Pty Ltd	302.59	Stationery & Printing
EF095031	07/03/25	03431	Shop for Shops Pty Ltd	147.00	Craft/Display Materials
EF095036	07/03/25	03856	SEM Distribution - newspaper delivery	112.20	Publications/Newspapers
EF095050	07/03/25	05966	Light Application Pty Ltd	5,550.93	Lights & Light Fittings - Hub
EF095054	07/03/25	06457	Wall Art Australia Pty Ltd	1,152.59	Signs - Library Book Shelves
EF095068	07/03/25	07025	Eduka Solutions Pty Ltd	627.00	Computer Software - Subscription
EF095084	14/03/25	00233	Bunzl Limited	30.80	Cleaning Products
EF095085	14/03/25	00317	Coles Supermarkets Aust Pty Ltd	118.50	Groceries
EF095088	14/03/25	00664	Kmart Australia Limited	158.25	Stationery & Printing
EF095089	14/03/25	00778	Modern Teaching Aids Pty Ltd	88.88	Stationery - Library
EF095091	14/03/25	00832	Officeworks	195.00	Stationery & Printing
EF095093	14/03/25	01073	Spotlight Pty Ltd	481.60	Craft/Display Materials
EF095100	14/03/25	01398	Winc Australia Pty Ltd	159.78	Stationery & Printing
EF095103	14/03/25	01906	Frazzcon Enterprises	999.16	Street & Parking Sign Maintenance - February 2025
EF095105	14/03/25	02201	Neverfail Springwater Limited	47.10	Beverages
EF095116	14/03/25	03430	Fire Rescue Safety Australia	272.63	Safety Clothing/Equipment
EF095120	14/03/25	03856	SEM Distribution - newspaper delivery	194.90	Publications/Newspapers
EF095121	14/03/25	04394	JB Hi - Fi Belmont Forum - Library purchases	474.68	Books/CDs/DVDs
EF095135	14/03/25	06346	Southern Chronicles	440.00	Publications/Newspapers
EF095153	14/03/25	07015	Supagas Pty Ltd	71.03	Welding Equipment/Supplies
EF095155	14/03/25	07018	Mercury Creative T/A Branded Whiteboards	888.80	Stationery
EF095173	21/03/25	00317	Coles Supermarkets Aust Pty Ltd	804.24	Groceries
EF095184	21/03/25	01398	Winc Australia Pty Ltd	60.97	Stationery & Printing
EF095188	21/03/25	02139	Ulverscroft Large Print Books Ltd	522.64	Books/CDs/DVDs
EF095199	21/03/25	03660	Safe T Card Australia Pty Ltd	107.80	Safety Clothing/Equipment
EF095201	21/03/25	04053	Totally Workwear TWW	188.86	Safety Clothing/Equipment
EF095203	21/03/25	04491	Woolworths Group - Functions/Catering only	393.99	Groceries
EF095204	21/03/25	04537	Cameron Aitkenhead t/as Head Office Studio	1,650.00	Books/CDs/DVDs - Interactive Projection Design
EF095218	21/03/25	06234	Brandworx Australia	1,099.91	Uniforms
EF095228	21/03/25	06800	The Alivish Family Trust T/as Fruit Break	2,468.50	Groceries
Materials Total				34,505.41	
Other					
EF095006	07/03/25	00140	Australian Library & Information Association	400.00	Registration Fee - Conference
EF095069	07/03/25	07034	Shane Blanchard	87.00	Staff Reimbursement - Working with Children
EF095073	07/03/25	99998	Complete Approvals	147.00	Application Fee Refund
EF095074	07/03/25	99998	Nicole Hall	92.25	Cloth Nappy Rebate
EF095075	07/03/25	99998	Robert Stirling	1,075.81	DDIA Refund
EF095076	07/03/25	99998	Luke A Spadano	450.00	Sports Donation
EF095077	07/03/25	99998	Michael S Clements	436.69	Rates Refund
EF095078	07/03/25	99998	Liam Highton Shirt	100.00	Application Fee Refund
EF095079	07/03/25	99998	Catherine Dagostino	1,416.50	DDIA Refund
EF095095	14/03/25	01190	Town of Victoria Park	4,990.00	Garden Supplies - Cockitrough (Bird Waterer)
EF095117	14/03/25	03453	Clare Bridges	579.22	Staff Reimbursement - Expenses & Parking
EF095157	14/03/25	07024	Reach Publication Pty Ltd	169.00	Subscription
EF095158	14/03/25	07041	Dave Fahy	159.99	Staff Reimbursement - Materials
EF095162	14/03/25	99998	Bullaburra (WA)	3,200.00	Rates Refund
EF095163	14/03/25	99998	Alaskaray	1,984.32	Rates Refund
EF095164	14/03/25	99998	Sudha Catherine Arathoon	22.91	DDIA Refund
EF095165	14/03/25	99998	SIMONE HUGHES & GARY SPOUGE	1,397.61	Rates Refund

Attachment 12.6.1 March 2025 payments

Pmnt_Ref	Date	CR_Code	Supplier	Pmnt_Amnt	Description
EF095166	14/03/25	99998	Michelle Ellinor O'Driscoll	171.03	Neighbour Grant
EF095167	20/03/25	01236	Department of Fire and Emergency Services	244,579.65	Emergency Services Levy - February 2025
EF095176	21/03/25	00793	LGIS Insurance Broking - JLT	21,309.47	Insurance Premiums
EF095177	21/03/25	00795	LGISWA	13,441.95	Insurance Premiums
EF095195	21/03/25	03071	Department of Transport - Vehicle Owner Searches	489.10	Vehicle Ownership Searches
EF095209	21/03/25	05254	Optus Stadium	1,644.00	Catering - COB Luncheon
EF095237	21/03/25	99998	Jaquar Construction	2,417.77	Application Fee Refund
EF095238	21/03/25	99998	Veronica M Antulov	600.00	Performer - Loft Clearance
Other Total				301,361.27	
Property, Plant & Equipment					
EF095101	14/03/25	01428	Innova Group Pty Ltd - Mity Lite Tables	6,314.00	Office Furniture - Trestle Table
EF095132	14/03/25	06332	New Eagle International Pty Ltd T/A UMart	129.35	Computer Hardware
Property, Plant & Equipment Total				6,443.35	
Salaries/Wages					
EF095003	05/03/25	99971	SuperChoice	163,006.95	Superannuation Contribution
WG05	06/03/25	COB	City of Belmont Payroll	165,360.45	Salaries/Wages
EF095070	07/03/25	99952	Child Support Agency	1,192.67	Salaries/Wages
EF095071	07/03/25	99954	City of Belmont Social Club	425.00	Salaries/Wages
EF095072	07/03/25	99962	LGRCEU - WA Shire Councils Union	132.00	Salaries/Wages
WG0703	07/03/25	COB	City of Belmont Payroll	4,230.36	Salaries/Wages
EF095080	12/03/25	99971	SuperChoice	167,838.03	Superannuation Contribution
WG1203	13/03/25	COB	City of Belmont Payroll	778,768.47	Salaries/Wages
EF095159	14/03/25	99952	Child Support Agency	768.13	Salaries/Wages
EF095160	14/03/25	99954	City of Belmont Social Club	420.00	Salaries/Wages
EF095161	14/03/25	99962	LGRCEU - WA Shire Councils Union	132.00	Salaries/Wages
WA200325	20/03/25	COB	City of Belmont Payroll	164,773.32	Salaries/Wages
Salaries/Wages Total				1,447,047.38	
Training and Conferences					
EF095016	07/03/25	00953	Planning Institute of Australia Limited	150.00	Training - Workshop
EF095087	14/03/25	00602	Local Government Professionals Australia WA	3,450.00	Conference Expenses
EF095096	14/03/25	01240	WA Local Government Association	2,873.50	Training
EF095149	14/03/25	06923	Rachael Robertson	2,200.00	Training - Library - Keynote Presentation
EF095223	21/03/25	06517	Clarity Communications	2,750.00	Training
EF095234	21/03/25	07008	Kaizen K9	1,650.00	Seminar - Managing & Handling Dangerous Dogs
EF095235	21/03/25	07016	Olivia Brown - Safeguard Training Australia	1,485.00	Training
Training and Conferences Total				14,558.50	
MUNI Total				3,058,856.53	
Trust Funds					
EF095002	04/03/25	164040	Department of Planning DAP fees	11,544.00	Department of Planning DAP fees
EF095081	13/03/25	150748	Building and Construction Industry Training Fund	1,391.75	Building and Construction Industry Training Fund
EF095082	13/03/25	154102	Building and Energy - Building Services Levy	15,555.60	Building and Energy - Building Services Levy
Trust Funds Total				28,491.35	
TRUST Total				28,491.35	
Grand Total				3,087,347.88	
				3,087,347.88	
				Breakdown - Cheques :	
				EFT :	
				3,087,347.88	

13 Reports by the Chief Executive Officer

13.1 Request for leave of absence

13.2 Notice of motion

Nil.

14 Matters for which the meeting may be closed

14.1 City of Belmont and Belmont Senior Citizens Club Incorporated Bus Agreement

This report is included in the Ordinary Council Meeting – Confidential Matters Agenda in accordance with Section 5.23(2) of the *Local Government Act 1995* (WA), which permits the meeting to be closed to the public for business relating to the following:

Section 5.23(2)(c) a contract entered into, or which may be entered into, by the local government and which relates to a matter to be discussed at the meeting;

15 Closure