CITY OF MORETON BAY

Enquiries: Xavier Dubreuil
Direct 07 5433 2739
Our Ref: DA/2025/0341
Your Ref: 22-000082
Date: 17 April 2025

Lennium Group
c/- Egis Consulting Pty Ltd
PO Box 997
BUDDINA QLD 4575

Dear Applicant,

Re: DEVELOPMENT APPROVAL
Planning Act 2016

Development Application No.:	**DA/2025/0341**
Property Location:	**Park Crabapple Court UPPER CABOOLTURE** **409-423 Caboolture River Road LILYWOOD**
Property Description:	**Lot 12 RP 866105** **Lot 102 SP 292555**
Development Type:	**Operational Work - Development Permit for Roadwork and Stormwater (Lilywood, Stage 5)**

Please be advised that on 16 April 2025 the above development application was approved by Council's Delegate as the Assessment Manager in accordance with section 63 of the *Planning Act 2016* subject to conditions.

The following type of approval has been issued:

- **Development Permit - Operational Works for Roadwork and Stormwater (Lilywood, Stage 5)**

The development allowed by this approval must be carried out in accordance with the attached Decision package.

Attached is an extract from the *Planning Act 2016* which details your appeal rights and the appeal rights of any submitters, if applicable, regarding this decision.

Should you require any further information about this matter, please contact Xavier Dubreuil as referenced above.

Yours faithfully

X. Dubreuil

Xavier Dubreuil
Senior Engineer
Development Services

Enclosures: Attachment 1 - Decision Notice
Attachment 2 - Assessment Manager Conditions
Attachment 3 - Approved Plans / Documents
Attachment 4 - Appeal Rights

ATTACHMENT 1

Decision Notice

Decision Notice

Planning Act 2016, section 63

APPLICATION DETAILS

Application No:	**DA/2025/0341**
Applicant:	**Lennium Group**
Street Address:	**Park Crabapple Court UPPER CABOOLTURE** **409-423 Caboolture River Road LILYWOOD**
Real Property Description:	**Lot 12 RP 866105** **Lot 102 SP 292555**
Planning Scheme:	**Moreton Bay Regional Council Planning Scheme**

APPROVAL DETAILS

Date of Decision: **16 April 2025**

The development application was approved by Council's Delegate as the Assessment Manager subject to conditions (refer Attachment 2).

Application Type	Development Permit	Preliminary Approval
Operational Works for **Roadwork and Stormwater (Lilywood, Stage 5)**	☑	☐

OTHER NECESSARY PERMITS

Not applicable.

In addition to this approval, you may also be required to obtain a water approval from the Northern SEQ Distributor Retailer, trading as Unitywater. To engage a Registered Certifier to lodge your connection application, go to Unitywater's website www.unitywater.com/certifier

CURRENCY PERIOD OF APPROVAL

The currency period stated in section 85 of the *Planning Act 2016* applies to this approval as outlined below:

- Operational Works - 2 years from the date of this approval starts to have effect.

DEEMED APPROVAL

Not applicable.

VARIATION APPROVAL

Not applicable.

INFRASTRUCTURE

Unless otherwise specified, all assessment manager conditions of this development approval relating to the provision of infrastructure are non-trunk infrastructure conditions under Chapter 4, section 145 of the *Planning Act 2016*.

ASSESSMENT MANAGER CONDITIONS

The Conditions relevant to this development approval are listed in Attachment 2 of the Decision package.

APPROVED PLANS / DOCUMENTS

The approved plans and/or documents as listed below for this development approval are included in Attachment 3 of the Decision package.

The approved plans/documents for this development approval are listed below.

Approved Plans and Documents			
Plan / Document Name	**Reference Number**	**Prepared By**	**Dated**
Title Sheet & Locality Plan	22-000082_5 Dwg. 1000 Rev. A	Egis	22/01/2025
Site Setout Plan	22-000082_5 Dwg. 1100 Rev. A	Egis	22/01/2025
Retaining Wall Setout Plan	22-000082_5 Dwg. 1200 Rev. A	Egis	22/01/2025
Retaining Wall Notes and Details	22-000082_5 Dwg. 1201 Rev. A	Egis	22/01/2025
Control Line Setout Plan	22-000082_5 Dwg. 1300 Rev. A	Egis	22/01/2025
Roadworks Layout Plan Sheet 1 of 2	22-000082_5 Dwg. 1310 Rev. A	Egis	22/01/2025
Roadworks Layout Plan Sheet 2 of 2	22-000082_5 Dwg. 1311 Rev. B	Egis	07/03/2025
Road 7 (Pembroke Drive) Longitudinal Section	22-000082_5 Dwg. 1330 Rev. A	Egis	22/01/2025
Road 7 (Pembroke Drive) Cross Sections	22-000082_5 Dwg. 1331 Rev. A	Egis	22/01/2025
Stormwater Layout Plan Sheet 1 of 2	22-000082_5 Dwg. 1400 Rev. A	Egis	22/01/2025
Stormwater Layout Plan Sheet 2 of 2	22-000082_5 Dwg. 1401 Rev. B	Egis	07/03/2025
Stormwater Notes and Details	22-000082_5 Dwg. 1402 Rev. B	Egis	07/03/2025
Stormwater Catchment Plan	22-000082_5 Dwg. 1410 Rev. A	Egis	22/01/2025
Stormwater Longitudinal Sections Sheet 1 of 2	22-000082_5 Dwg. 1420 Rev. B	Egis	07/03/2025
Stormwater Longitudinal Sections Sheet 2 of 2	22-000082_5 Dwg. 1421 Rev. B	Egis	07/03/2025
Stormwater Calculations Table Minor	22-000082_5 Dwg. 1430 Rev. A	Egis	22/01/2025

Approved Plans and Documents			
Plan / Document Name	**Reference Number**	**Prepared By**	**Dated**
Stormwater Calculations Table Major	22-000082_5 Dwg. 1431 Rev. A	Egis	22/01/2025
Stormwater Structure Details	22-000082_5 Dwg. 1440 Rev. A	Egis	22/01/2025
Bio-Basin F3-2 Layout Plan	22-000082_5 Dwg. 1700 Rev. A	Egis	22/01/2025
Bio-Basin F3-2 Setout Plan	22-000082_5 Dwg. 1701 Rev. B	Egis	07/03/2025
Bio-Basin F3-3 Layout Plan	22-000082_5 Dwg. 1702 Rev. B	Egis	07/03/2025
Bio-Basin F3-3 Setout Plan	22-000082_5 Dwg. 1703 Rev. B	Egis	07/03/2025
Bio-Basin Plans and Notes Details	22-000082_5 Dwg. 1704 Rev. B	Egis	07/03/2025

ASSESSMENT BENCHMARKS

The Assessment Benchmarks that applied to the development from the following Categorising Instruments include;

Categorising Instrument (*Planning Regulation 2017*)

State Planning Policy
- *State Planning Policy 2017*, Part E.

Regional Plan
- *South East Queensland Regional Plan 2017 (ShapingSEQ).*

Local Categorising Instrument (Moreton Bay Regional Planning Scheme)

- Works Code
- Reconfiguration a lot (applicable precinct only), and,
- Caboolture West Local Plan Code

Local Categorising Instrument (Variation Approval)

Not applicable.

Local Categorising Instrument (Temporary Local Planning Instrument)

Not applicable.

OTHER RELEVANT ASSESSMENT MATTERS

Not applicable.

REASONS FOR THE DECISION

Not Applicable.

REASONS FOR APPROVAL DESPITE NON-COMPLIANCE WITH ASSESSMENT BENCHMARKS

Not applicable.

REFERRAL AGENCY CONDITIONS

There were no Referral Agencies applicable to this development application.

SUBMISSIONS

Not applicable.

APPEAL RIGHTS

Attachment 4 of the Decision package is an extract from the *Planning Act 2016* which details your appeal rights, and the appeal rights of any submitters, if applicable, regarding this decision.

ATTACHMENT 2

Assessment Manager Conditions of Approval

CONDITION		TIMING
OPERATIONAL WORKS		
DEVELOPMENT ENGINEERING		
1	**Road Classifications for Pavement Design**	
	Design pavement in accordance with the following road classifications: Road 07 - Modified living Residential - 1.2 x 10^5 ESA	Prior to subgrade inspections.
2	**Non-Conforming Designs**	
	Only non-conforming designs listed in this approval have been accepted. All other discrepancies with Council standards shall be redesigned and / or reconstructed as necessary to conform with Council standards at no cost to Council.	At all times during construction and prior to works being accepted Off Maintenance.
3	**Errors and Omissions**	
	Where errors or omissions occur in the design or works do not conform to or meet Council standards then these works shall be rectified to comply with Council standards at no cost to Council. Where drawings contain insufficient detail or do not contain details of works that are either necessary or associated with the development then these works shall be designed and constructed to Council standards. Only the approved plans shall be used for construction. Note: Council reserves the right to amend the approved drawings or request further information should this become necessary.	At all times during construction and prior to works being accepted Off Maintenance.
4	**Works – Applicant's Expense**	
	All works, services, facilities and/or public utility alterations required by or as a consequence of this approval or stated condition/s, whether carried out by the Council or otherwise, shall be at the developer's expense unless otherwise specified or agreed in writing. Replace existing Council infrastructure (including but not limited to street trees and footpaths) to Council's standards.	At all times during construction and prior to works being accepted Off Maintenance.
5	**Works – Connection to existing works**	
	Where existing works, including roads and drainage works, will not link up with and join smoothly to proposed works and are not more than twenty (20) metres from the nearest point of the proposed works the developer shall carry out such works as are necessary to ensure that the incomplete works, including roads and drainage, are constructed to link up with	Prior to works being accepted On Maintenance.

CONDITION		TIMING
	and join smoothly to the works proposed in accordance with Council's standards. These works are to be undertaken at the developer's expense unless otherwise specified or agreed in writing.	
6	**Notification of Finalisation of Works**	
	Notify Council in writing that the development works on site have been finalised.	At the time of completion of construction.
7	**As Constructed Drawings**	
A	Provide, for review and approval, Council with a preliminary set of the surveyor and engineering As Constructed drawings for the approved works and a digital ADAC file. Note: The current design standard and relevant planning scheme policy is MBRC Planning Scheme Policy Operational Works inspection, maintenance and bonding procedures.	Prior to requesting an On Maintenance inspection.
B	Submit 'As Constructed' drawings and digital ADAC file in accordance with Council's Planning Scheme, relevant Planning Scheme Policies and design standards current at the time of development.	Prior to works being accepted On Maintenance.
8	**Works in Existing Roads**	
A	Works carried out in or affecting existing Roads must be undertaken so that these roads are maintained in a safe and useable condition.	At all times.
B	Provide to Council's delegated officer and receive acknowledgement of a Traffic Management Plan, with site specific Guidance Scheme, prepared and signed by an appropriately qualified person and in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) for any works that will affect traffic movements or traffic safety in existing roads. Note: 1. A 'Part Road Closure Application' for Development Works form is to accompany the Traffic Management Plan submission. 2. This submission is required to be made in addition to any Traffic Management Plan which has been submitted and/or approved as part of a Construction Management Plan for the site during the development application process for Material Change	At least five (5) days prior to undertaking the works in or affecting existing roads.

CONDITION		TIMING
	of Use or Reconfiguring a Lot or subsequent non-IDAS applications.	
9	**Information Sign – Works in Existing Roads**	
	A construction advisory road sign must be erected and regularly updated and maintained displaying the developer and contractors details and the expected completion date for works on existing roads. The sign shall be located so as be clearly legible to the public from of minimum 15m distance from the existing road on which the works are to be carried out on.	For the duration of the works from commencement to acceptance of On Maintenance.
10	**Notification to Affected Premises**	
A	Provide Council with a copy of an information kit for 'Notification to Affected Premises' which includes the following: 1. A layout plan of the proposed development showing adjoining lot boundaries, new and existing roads, park and open space, drainage reserves and community purposes lots as applicable; 2. Details of any external works with any changes to existing works highlighted for easy identification; 3. Scheduled start and completion dates; 4. Contact names and phone numbers for the Developer, Supervising Engineer, Consulting Engineer, the Contractor, Wildlife Spotter and who to contact in an emergency; and 5. The site working hours authorised for the site works.	Prior to distribution of information kit to residents.
B	Provide all occupiers of premises adjoining the site, directly opposite the frontage of the site, adjacent to and directly opposite external works and residents/occupiers likely to be directly affected by the works with a copy of the 'Notification to Affected Premises' information kit. Provide Council's delegated officer with a list of premises which the information kit has been delivered to.	Not less than 14 days prior to commencing any construction works.
11	**Information Sign – Development Works**	
	An information sign containing the following details and after hours contact details must be provided at each entrance to the development site: 1. Developer 2. Supervising Consultant/ Engineers / Project Manager	For the duration of the development works from commencement to acceptance On Maintenance by Council.

CONDITION		TIMING
	3. Principal Contractor The sign must be at least 0.9m (W) by 0.6m (H). The sign must be erected and maintained for the duration of the development works.	
12	**Prestart Meeting**	
	Arrange a prestart meeting with Council officers from Development Services section on 3205 0555 or (Email - council@moretonbay.qld.gov.au - Attention - Development Services - Engineering Waraba Construction Team - Referencing DA/2024/2330. The following people will be required to attend the prestart meeting: 1. Developer's Supervising Engineer 2. Contractor's Engineer / Project Manager 3. Contractor's Site Supervisor 4. Fauna Manager (where required).	Not less than 7 days prior to commencing any construction works.
13	**Mandatory Inspections with Council Officers**	
	Submit required documentation for each mandatory inspection in accordance with MBRC Planning Scheme Policy - Operational Works inspection, maintenance and bonding procedures.	Prior to requesting inspection.
	Undertake the following inspections with Council's delegated officer (where applicable to approved works) in accordance with MBRC Planning Scheme Policy - Operational Works inspection, maintenance and bonding procedures:	As prescribed below.
A	Stormwater drainage.	Prior to backfilling stormwater trenches.
B	Subgrade / box inspection.	Prior to placement of structural pavements.
C	Preseal inspection.	Prior to priming and sealing of structural pavements.
D	For concrete slabs and concrete pavements - foundations / subgrade and pre-pour inspections.	Prior to concrete pouring.
E	On maintenance inspection for Council's acceptance of all works.	Prior to works being accepted On Maintenance.
F	Off maintenance inspection of all works. Note: Reinspections attract a fee in accordance with Council's Fee Schedule. The fee must be paid prior to the reinspection.	After maintenance period has elapsed.

CONDITION		TIMING
G	Provide Council's delegated officer with a copy of an Engineers' Certificate Soil tester's reports demonstrating that required compaction standards, finished levels and textures of finish have been obtained in accordance with Council's Planning Scheme Policy - Operational Works inspection, maintenance and bonding procedures.	Prior to proceeding to construction of next layer or surfacing.
14	**Testing Frequency – General**	
A	All testing of the works shall be carried to comply with the minimum testing frequencies given in MBRC Planning Scheme Policy - Operational Works inspection, maintenance and bonding procedures. Note: Council's delegated officer may vary the frequency of testing to suit site conditions but must provide written advice to the supervising engineer prior to commencement of the relevant works.	At all times during construction.
B	Provide a plan identifying locations where testing has occurred.	Prior to works being accepted On Maintenance.
15	**Construction Hours Restrictions**	
	Ensure hours of construction are limited to 0630 to 1830 Monday to Saturday and not at all on Sundays and public holidays. Note: Council's engineer may approve (in writing) work outside the above hours where it can be demonstrated to the satisfaction of Council that the work will not cause unreasonable interference with the amenity of adjoining premise and any person.	At all times.
16	**Construction Nuisance and Annoyance**	
	Ensure construction works do not cause unreasonable interference with the amenity of adjoining premise and any person by reason of noise, vibration, electrical interference, smell, fumes, vapour, steam, soot, ash, dust, silt, wastewater, waste products, grit, oil or otherwise.	At all times.
17	**Construction Site Management**	
	Ensure the construction site is kept in a clean and tidy state.	At all times.
18	**Temporary Sedimentation, Erosion and Runoff Control**	
A	Implement an Erosion and Sediment Control Plan which is prepared by an experienced Certified Professional in Erosion and Sediment Control (CPESC) in accordance with International Erosion Control Association Australasia (IECA) Best Practice and Sediment Control document and MBRC Planning Scheme current at the time of development.	Prior to commencement of works and to be maintained current at all times during construction and until the development is

CONDITION		TIMING
		accepted off-maintenance.
B	The temporary erosion and sediment control measures shall be maintained and be functional until the end of the Maintenance Period for the works or earlier if Council's delegated officer considers they are no longer required. Note: Council's delegated officer may order additional measures to control silt on site at no cost to Council.	At all times during construction.
19	**Haul Routes**	
	Submit and have approved by Council's delegated officer all haul routes for the transport of imported or spoil material and gravel pavement material along Council roads below sub-arterial standard. Note: Refer to MBRC Planning Scheme Values and Constraints Mapping - Road Hierarchy for details on sub-arterial and arterial roads.	Prior to a prestart meeting being held.
20	**Spillage onto Existing Roads**	
	Clean those parts of the access route to the site that are affected by any material dropped, deposited or spilled on the roads as a result of construction processes associated with the site. Note: 1. All materials must be swept up and removed from the roads and not directed into Council's stormwater drainage system. 2. All care must be taken to prevent sediments being deposited on roads.	At all times during construction.
21	**Dust Control – Nuisance and Annoyance**	
	Implement suitable dust control measures. If airborne particles are observed leaving the site, any work is to cease immediately and satisfactory dust suppression is to be implemented. Note: Dust suppression measures must be in place at all times including weekends and public holidays.	At all times prior to works being accepted Off Maintenance.
22	**Earthworks Batters**	
	Where approved drawings do not include specifications for scour and erosion protection apply the following treatments to batter slopes: 1. Slopes of 1:6 or flatter – topsoil and seed	At all times during construction.

CONDITION		TIMING
	2. Slopes between 1:6 and 1:4 – topsoil and turf 3. Slopes of 1:4 or greater – provide treatment recommendation from a qualified geotechnical engineer (R.P.E.Q.) for Council approval prior to undertaking batter works 4. Or as directed by Council. Note: Batters within Open and Civic Spaces are to be treated in accordance with MBRC Planning Scheme Policy Integrated Design - Open and Civil Space Design.	
23	**Road Crossings in Existing Roads**	
	All services crossings under Existing Council Roads are to be tunnel bored unless approved otherwise by Council's delegated officer. Where approval is given for open trenching, the following is to apply: 1. Minor Roads - backfill shall be compacted in layers to 95% standard maximum dry density and topped with 300mm of pavement material and a 50mm AC wearing course. 2. Sub-arterial or Arterial roads - refer to I.P.W.E.A. Standard Drawing RS-170. 3. Verge - Backfill shall be compacted to 90% standard maximum dry density and topped with 75mm of sandy loam. Restoration of any vegetation shall be undertaken to a standard as near as practicable to the pre-construction standard.	At all times during construction.
24	**Site works – Stormwater Runoff Quality**	
	Carry out earthworks in accordance with the State Planning Policy - Water Quality and IECA Best Practice Erosion and Sediment Control document. Note: 1. Soil disturbances of greater than 1.0 hectares will require a site specific Erosion & Sediment Control Plan. 2. Earthworks are to be undertaken to ensure that soil disturbances are staged into manageable areas of not greater than 3.5 hectares.	At all time during construction and until the site is suitably stabilised.
25	**Unsuitable Fill Materials**	

CONDITION		TIMING
	Ensure that all fill material used on the development site is free of unsuitable materials, identified in AS3798 and the following: 1. actual acid sulfate soils and potential acid sulfate soils; 2. organic or putrescible matter; 3. material imported from land which is, or has been, listed on the "Environmental Management Register" under the *Environmental Protection Act 1994*; and 4. building demolition material.	At all times.
26	**Compaction Requirements**	
	All fill material which is intended to be load bearing, or the finished surface level of which is required to remain approximately constant, is selected, placed and compacted to the standard prescribed in Australian Standard AS3798 Guidelines on Earthworks for Commercial and Residential developments.	At all times during construction.
27	**Advisory Sign – Future Road Extension**	
	At the end of each road that is intended to extend with future development an advisory sign shall be supplied and erected to inform residents and the public of the future road extension. The sign shall be worded as follows: "This road may be extended with future development of the adjoining land. For further information refer to Council's Planning Scheme." This sign must be easily read at a distance of 5 metres. The sign shall not be attached to the road end hazard sign above the sign board.	Prior to works being accepted On Maintenance.
28	**Pavement Design**	
A	All road pavements must be designed, constructed and tested in accordance with MBRC Planning Scheme Policy - Integrated Design - Street, Roads and Utilities and standard drawings current at the time of construction. Note: 1. Council requires a primer seal placed under all asphalt surfaces. 2. Increased asphalt surface thicknesses for road thresholds are to be identified in the pavement design.	At all times during construction.

CONDITION		TIMING
B	Submit, for review and approval by Council's delegated officer, a pavement design for all roads. Pavement designs are to include Soil tester's reports.	Prior to subgrade inspection.
29	**Pavement Jointing Detail**	
	Undertake pavement jointing in accordance with I.P.W.E.A.Q. Standard Drawings RS-170.	Prior to works being accepted On Maintenance.
30	**Concrete Footpaths**	
	Construct concrete footpaths and kerb ramps in accordance with I.P.W.E.A. Standard Drawings RS-065 and RS-090.	Prior to works being accepted On Maintenance.
31	**Street Signs**	
	Street signs must be provided in accordance with Council's Standard Drawings and I.P.W.E.A. Standard Drawings. Note: 1. House numbers required for these signs shall be obtained from Council's house numbering officer by contacting Council's Customer Service. 2. The MBRC Logo is not to be put on the sign.	Prior to works being accepted On Maintenance.
32	**Hazard Management**	
A	Undertake the hazard identification and treatment process for any additional, existing or introduced hazards identified onsite by the Consultant or by Council's delegated officer during the construction process. Undertake a review of the identified hazards and provide a copy of the completed Hazard Mitigation Worksheet found in AUSTROADS Guide to Road Design Part 6: Roadside Design, Safety and Barriers Appendix B along with any supporting information.	Prior to works being accepted On Maintenance.
B	Provide, for review and approval by Council's delegated officer, adequate design documentation for the recommended hazard management treatment in accordance with AS3845:1999 and AUSTROADS Guide to Road Design Part 6: Roadside Design, Safety and Barriers.	Prior to construction of any hazard management treatment.
C	Construct approved hazard management treatments in accordance with Council's Planning Scheme, Planning Scheme Policies, standard drawings and any other relevant standards current at the time of development.	Prior to works being accepted On Maintenance.
33	**Stormwater Runoff Control – Batters and Retaining Walls**	

CONDITION		TIMING
	Provide cut-off drains at the top of the batter with turf or rock lined batter drains for all batters and/or retaining walls generally higher than 600mm in height and with a catchment greater than 1000m2. Note: Where these are not detailed on the approved drawings then these works shall be in accordance with Council's current standards.	Prior to works being accepted On Maintenance.
34	**Stormwater Runoff Control – Open Drains**	
	Provide lining with appropriate scour protection to all open drains and bunds in accordance with Council's Planning Scheme, Planning Scheme Policies and standard drawings current at the time of development. Note: Dumped rock is generally not considered as an appropriate solution.	Prior to works being accepted On Maintenance.
35	**Stormwater Pipe Outlets and Culvert Inlets and Outlets**	
	Stabilise all culvert inlets and outlets or stormwater drainage outlets in accordance with industry best practice and the following requirements: 1. Rock gabion baskets/rock mattresses 2. Grouted rock/stone pitching with a properly designed and prepared base and constructed to the following requirements: i. Mortar to be 1 part cement to 3 parts sand (by volume). ii. Open face stone pitching is to be used where the concrete is recessed 50mm behind the stone facing. iii. Select spalls to avoid sharp edges. 3. Other solutions as approved by Council's delegated officer. Note: Dumped rock is generally not considered as an appropriate solution.	At all times.
36	**Stormwater Overland Flow – Site Earthworks**	
	Earthworks must be undertaken on the site so as not to cause nuisance and annoyance to any person or premises. The development must: 1. Allow stormwater overland flow which entered the land prior to the commencement of the earthworks to continue to enter the land; and	At all times during construction.

CONDITION		TIMING
	2. Ensure stormwater overland flow from the development site is not discharged or diverted onto land (other than a road) adjacent to the site in a manner which: i. concentrates the rate of flow at any point along the property boundary; or ii. increases the peak flow rates of stormwater discharged at any point along the property boundary; beyond that which existed prior to commencement of these earthworks.	
37	**CCTV – Stormwater Pipes**	
A	Undertake and provide, to the satisfaction of the Council, a high definition Closed Circuit Television (CCTV) recording of all stormwater pipes, including inter allotment roof water drainage. Recording to be undertaken within one month immediately preceding making a request for On Maintenance inspection and post road pavement construction works. CCTV to clearly display all joints (full surrounds) and any form of damage or defects, including date and time of the recording. The recording is to include a report signed by a suitably qualified Registered Professional Engineer Queensland (RPEQ) stating that the recording has been reviewed and all works are satisfactory. Where defects have been identified, consultant is to provide method of rectification to Council for approval, prior to carrying out any rectification works.	Prior to a request for On Maintenance Inspection
B	Undertake and provide, to the satisfaction of the Council, a high definition Closed Circuit Television (CCTV) recording of all stormwater pipes, including inter allotment roof water drainage. Recording to be undertaken within one month immediately preceding making a request for Off Maintenance inspection. CCTV to clearly display all joints (full surrounds) and any form of damage or defects, including date and time of the recording. The recording is to include a report signed by a suitably qualified Registered Professional Engineer Queensland (RPEQ) stating that the recording has been reviewed and all works are satisfactory. Where defects have been identified, consultant is to provide method of rectification to Council for approval, prior to carrying out any rectification works.	Prior to a request for Off Maintenance inspection.

CONDITION		TIMING
38	**Provision of Kerb Adapters**	
	Provide a minimum of two (2) metal kerb adaptors per lot for lots that drain to the road. Where a lot has side crossfall of up to 1.5%, one (1) kerb adaptor shall be located at each side of the lot. Where a lot has side crossfall of greater than 1.5%, both kerb adaptors shall be located at the low side of the lot. For lots with a concrete footpath at the frontage, the kerb adaptors shall be connected to the front boundary of the lot with Class SN8 uPVC stormwater pipe.	Prior to works being accepted On Maintenance.
39	**Certification – Public Stormwater Management Infrastructure**	
	Provide documentation to Council from a Registered Professional Engineer (RPEQ) specialising in stormwater design certifying that the stormwater management treatment train as approved in the stormwater management plan and design drawings has been constructed in accordance with engineering best practise and is functioning as designed. The certification shall include the completed sign-off forms for bioretention systems prepared by Water by Design in Partnership with Healthy Waterways shall be completed. The sign-off forms are accessible from www.waterbydesign.com.au.	Prior to works being accepted On Maintenance.
40	**Public Bioretention Inspections**	
	Provide Council with notice of the subsoil drains being laid and the filter media being installed. Note: Council's delegated officer may attend the inspection.	Not less than 48 hours prior to subsoil drains being laid and the filter media being installed.
41	**Maintenance Process for Public Bioretention Basin**	
A	The entire bioretention basin shall act as a sediment basin. Note: Council will consider alternative solutions to achieve the desired outcome.	During the build-out phase (80%) or up to a maximum of two (2) years.
B	Submit, for review and approval by Council's delegated officer, a deferred works schedule to cover the cost of basin conversion plus twenty-five percent (25%) and in accordance with the requirements of Council's Planning Scheme Policy - Operational Works inspection, maintenance and bonding procedures. The following works are to be included as a minimum in the deferred works bond schedule: • removal of sacrificial turf and geofabric; and • In-situ hydraulic conductivity testing of filter material in accordance with the "Guidelines for Soil Filter Media	Prior to the bioretention basin area being accepted On Maintenance as a sediment basin.

CONDITION		TIMING
	in Bioretention Systems: (produced by the Faculty for Advanced Water Biofiltration) requirements. • Planting out of the basin in accordance with the approved landscaping drawings.	
C	Construct deferred works and any other works necessary to convert to the basin from sediment basin to a functioning bioretention basin in accordance with Council's Planning Scheme Policy - Operational Works inspection, maintenance and bonding procedures. In-situ hydraulic conductivity testing of filter material is to be provided to Council's delegated officer to demonstrate that area can be planted out. Where in-situ hydraulic conductivity testing shows that the filter material is not acceptable then replacement of the filter material is required in addition to planting out of basin area. Note: Deferred Works for bioretention basin conversion are subject to a separate on maintenance process to the other civil works for the development. The On Maintenance process is to be in accordance with Council's Planning Scheme Policy - Operational Works inspection, maintenance and bonding procedures including on and off maintenance inspections and maintenance period.	Once the contributing catchment achieves eighty percent (80%) build-out or a maximum of 2 years.
42	**Fertilisers for Grassing and Landscape Works**	
	Odorous chemicals, fertilisers, soil conditioners or mulches shall not be used on land development projects. Only a non-odorous, commercially bagged and labelled fertiliser shall be used when seeding grass areas or laying turf. Without limiting the above, Council's delegated officer may approve the use of suitably composed and aged organic material, such as soil conditioners, at the following locations: 1. in isolated locations where existing and proposed houses are considerable distances from the work site; and 2. where, in the officer's opinion, their use would not adversely affect the occupiers of any nearby properties with strong odours or loose material blown from the work site. Council's delegated officer will provide the approval in writing with conditions where odorous fertilisers are approved.	At all times during construction.
43	**Stabilisation of Disturbed Areas**	

CONDITION		**TIMING**
	Ensure that a grass strike rate of at least 80% cover has been attained on all disturbed areas or other approved means of stabilisation of grassed areas have been provided. Note: For residential and rural residential subdivisions, the road reserve between kerb and property line shall be turfed as a condition of completion.	Prior to works being accepted On Maintenance.

ADVICES	
1	**Development Permit**
	This approval shall comply with all the conditions of related approval as stipulated in Council's Decision Notice – Development Permit dated 11 September 2024 referenced as DA/2022/2253. The Applicant needs to be aware that the Currency Period of that Decision Notice may determine the validity period of this Decision Notice.
2	**Extent of Checking by Council**
	This approval shall not be taken to mean that the drawings have been checked in detail and Council accepts no responsibility whatsoever for the survey information, the design, or for the accuracy of any information or detail contained in the approved drawings and specifications.
3	**Aboriginal Cultural Heritage Act**
	The *Aboriginal Cultural Heritage Act 2003* commenced in Queensland on April 16, 2004. Under the Act, indigenous parties are key in assessing cultural heritage significance. The *Aboriginal Cultural Heritage Act 2003* establishes a Duty of Care for indigenous cultural heritage. This applies on all land and water, including freehold land. The Cultural Heritage Duty of Care lies with the person or entity conducting the activity. Penalty provisions apply for failing to fulfil the Cultural Heritage Duty of Care. Those proposing an activity that involves additional surface disturbance beyond that which has already occurred on the proposed site need to be mindful of the Duty of Care requirement. Details of how to fulfil the Duty of Care are outlined in the Duty of Care Guidelines gazetted with the Act. Council strongly advises that you contact the relevant state agency to obtain a copy of the Duty of Care Guidelines and further information on the responsibilities of developer under the terms of the *Aboriginal Cultural Heritage Act 2003*.

ADVICES	
4	**Environmental Protection Act**
	It remains the duty of care of the site owner not to cause Environmental Harm as defined under the *Environmental Protection Act 1994*.
5	**Fill in Proposed Parks**
	Filling is not permitted in proposed parks without prior written approval of Council's Delegated Officer.
6	**Road and Stormwater infrastructure**
	In respect to Road and Stormwater infrastructure, the works shall be designed and constructed in accordance with the relevant Planning scheme codes and policies; The current relevant planning scheme codes and policies are: 1. Works code; 2. Reconfiguring a lot codes; 3. PSP- Integrated Design 4. PSP- Operational Works Inspection, Maintenance and Bonding Procedures. All of which may be downloaded free of charge from Council's website at www.moretonbay.qld.gov.au. The PSP- Operational Works Inspection, Maintenance and Bonding Procedures also contains details of other requirements such as: 1. arrangements for works going On or Off Maintenance; 2. inspection and testing; 3. checklists and certification proforma; 4. bonding procedures. Should further information be required regarding the road and stormwater component of the Operational Works Application, please contact Council's Officer, Xavier Dubreuil on phone (07) 5433 2739.
7	**Acceptance Based on Applicant's Certification**
	Council's acceptance of the above submission is based solely on the applicant's certification that the proposal conforms totally to Council's Planning Scheme, Planning Scheme Policies and standard drawings.
8	**Biosecurity Act 2014 - Fire Ant Control**
	Significant portions of the Moreton Bay are within Fire Ant Biosecurity Zone 2 and must remain vigilant for the presence of fire ants. Under the Biosecurity Act 2014, individuals

ADVICES	
	and businesses are responsible for ensuring that they follow the movement controls for specific organic materials to help prevent the spread of fire ants within South East Queensland's fire ant biosecurity zones. Movement of a fire ant carrier from within the fire ant biosecurity zone may need a biosecurity instrument permit. More information is available on https://www.fireants.org.au/treat/business--and-industry/movement-controls

ATTACHMENT 3

Approved Plans / Documents

LILYWOOD LANDINGS

STAGE 5 - OPERATIONAL WORKS FOR FOREVERLEN PTY LTD

LOCALITY PLAN
N.T.S

CITY OF MORETON BAY
LOT 12 ON RP 866105
AREA OF SITE: 2.040ha
DA 2021/4669

DRAWING INDEX

DWG NO.	DESCRIPTION
	GENERAL
1000	TITLE SHEET & LOCALITY PLAN
	KEY PLAN
1100	SITE LAYOUT PLAN
	RETAINING WALL SETOUT
1200	RETAINING WALL SETOUT PLAN
1201	RETAINING WALL NOTES AND DETAILS
	CONTROL LINE SETOUT
1300	CONTROL LINE SETOUT PLAN
	ROADWORKS LAYOUT PLAN
1310	ROADWORKS LAYOUT PLAN SHEET 1 OF 2
1311	ROADWORKS LAYOUT PLAN SHEET 2 OF 2
	LONGITUDINAL AND CROSS SECTIONS
1330	ROAD 7 (PEMBROKE DRIVE) LONGITUDINAL SECTION
1331	ROAD 7 (PEMBROKE DRIVE) CROSS SECTIONS
	STORMWATER LAYOUT PLANS
1400	STORMWATER LAYOUT PLAN SHEET 1 OF 2
1401	STORMWATER LAYOUT PLAN SHEET 2 OF 2
1402	STORMWATER NOTES AND DETAILS
	STORMWATER CATCHMENT PLAN
1410	STORMWATER CATCHMENT PLAN
	STORMWATER LONGITUDINAL SECTIONS
1420	STORMWATER LONGITUDINAL SECTIONS SHEET 1 OF 2
1421	STORMWATER LONGITUDINAL SECTIONS SHEET 2 OF 2
	STORMWATER CALCULATION TABLES
1430	STORMWATER CALCULATION TABLES MINOR
1431	STORMWATER CALCULATION TABLES MAJOR
	STORMWATER STRUCTURES DETAILS
1440	STORMWATER STRUCTURES DETAILS
	SEWER RETICULATION PLANS
1500	SEWER RETICULATION COVER SHEET
1501	SEWER RETICULATION LAYOUT PLAN
	SEWER LONGITUDINAL SECTIONS
1510	SEWER RETICULATION LONGITUDINAL SECTIONS SHEET 1 OF 2
1511	SEWER RETICULATION LONGITUDINAL SECTIONS SHEET 2 OF 2
	WATER RETICULATION PLANS
1600	WATER RETICULATION COVER SHEET
1601	WATER RETICULATION LAYOUT PLAN
1602	WATER RETICULATION HYDRANT COVERAGE PLAN
1603	WATER RETICULATION DETAILS
	BIO-BASIN PLANS
1700	BIO-BASIN F3-2 LAYOUT PLAN
1701	BIO-BASIN F3-2 SECTION PLAN
1702	BIO-BASIN F3-3 LAYOUT PLAN
1703	BIO-BASIN F3-3 SECTION PLAN
1704	BIO-BASIN PLANS NOTES AND DETAILS

CONSTRUCTION HOLD POINT
PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY LEVELS OF ALL EXISTING CROSSINGS AND CONNECTION POINTS.

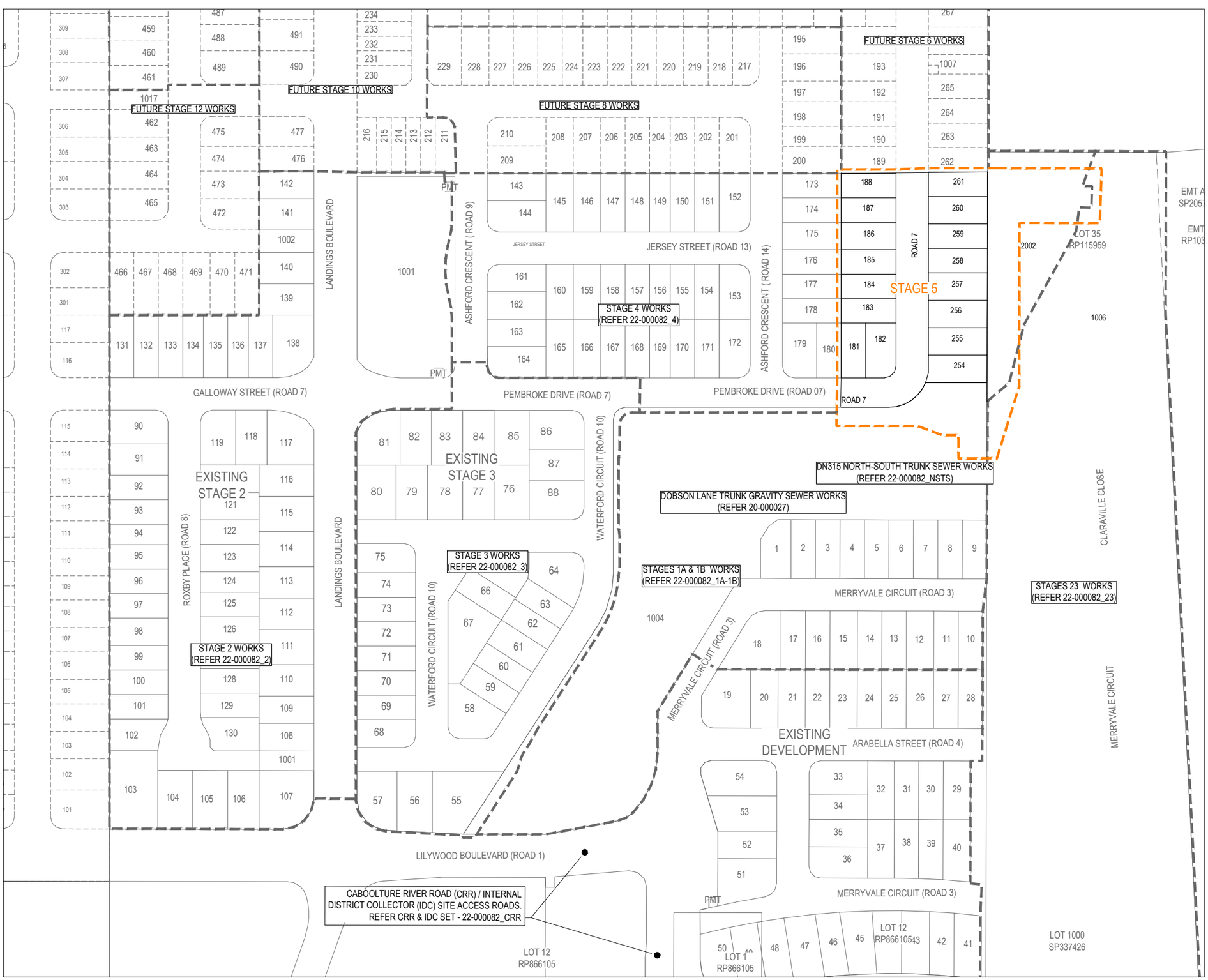
CONSTRUCTION NOTE
THESE DRAWINGS ARE TO BE READ IN CONJUCTION WITH:
- BULK EARTHWORKS SET - 22-000082_EWKS
- STAGE 4 SET - 22-000082_4
- GEOTECHNICAL REPORT
- BAF NORTH-SOUTH TRUNK GRAVITY SEWER SET - 22-000027_NSTS
- LANDSCAPE PLANS (BY AECOM)
- ELECTRICAL / COMMS PLANS (BY CV SERVICES)
- VEGETATION CLEARING & MANAGEMENT PLAN (VCMP) (BY SAUNDERS HAVILL)
- ECOLOGICAL REPORT
- CULTURAL HERITAGE MANAGEMENT PLAN (CHMP)

IMAGINE. CREATE. ACHIEVE. a sustainable future

PROJECT No.:	STAGE:	MILESTONE:	REVISION DATE:	DRAWING No.:	REVISION:
22-000082_5	5	OPW	22.01.25	1000	A

Approved Subject to Conditions of Decision Notice DA/2025/0341

16/04/2025



INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE
1:1000 1:2000 10 0 10 20 30 40 50m A1 A3

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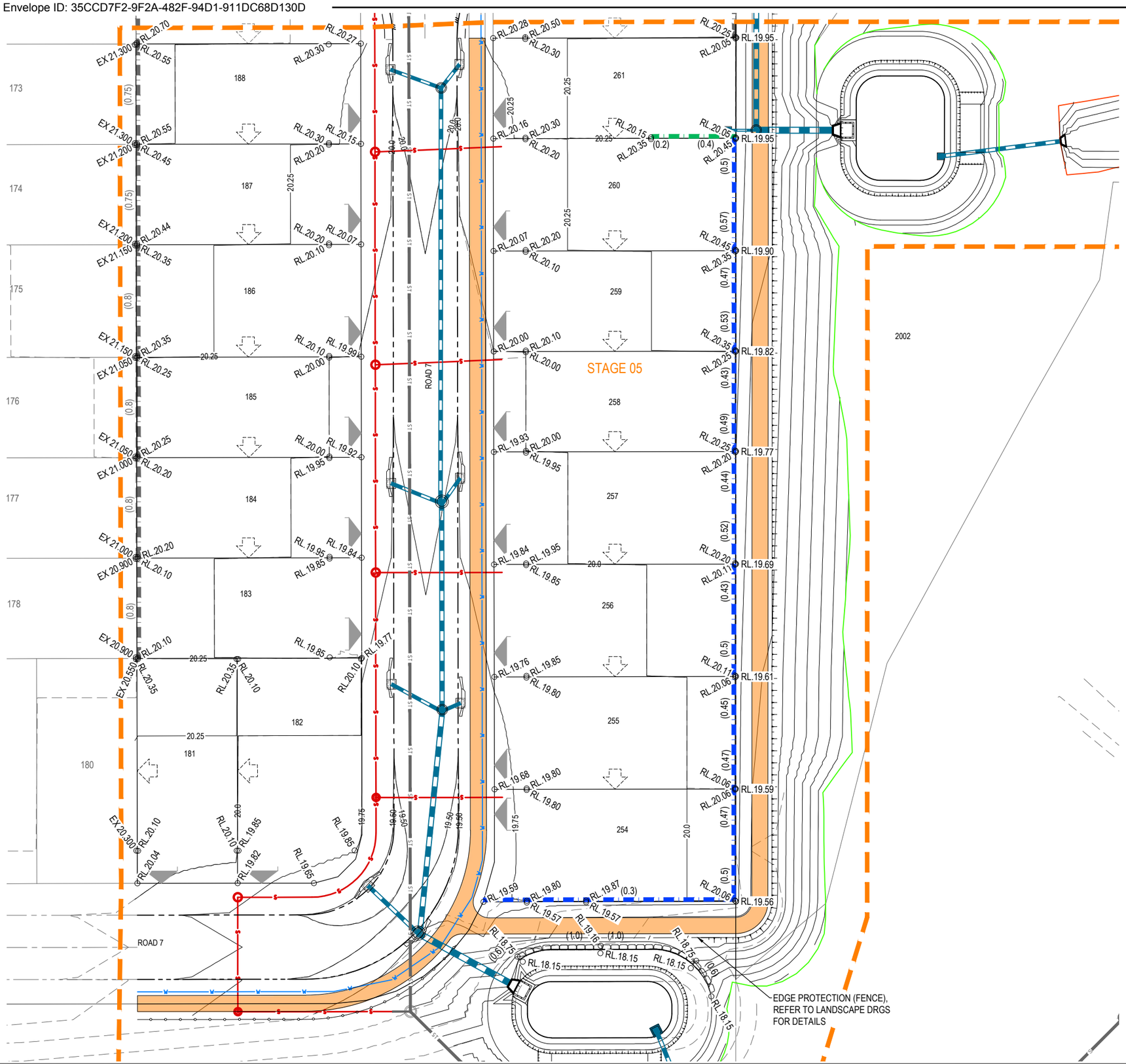
www.egis-group.com

CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS
STAGE 5

DRAWING TITLE: SITE LAYOUT PLAN

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1100	A



N

LEGEND

- STAGE BOUNDARY
- 21.25 — DESIGN SURFACE CONTOUR (0.25m INTERVALS)
- PROPOSED TYPE 1 SLEEPER RETAINING WALL
- PROPOSED TYPE 2 SLEEPER RETAINING WALL
- EXISTING SLEEPER RETAINING WALL
- PROPOSED BOULDER RETAINING WALL
- RL.22.15 — FINISHED SURFACE LEVEL
- (1.35) — WALL HEIGHT (AVERAGE)
- EX.22.15 — EXISTING FINISHED SURFACE LEVEL
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE RETICULATION
- EXISTING TRUNK SEWER
- PROPOSED STORMWATER DRAINAGE
- CONCRETE FOOTPATH
- INDICATIVE DRIVEWAY LOCATIONS
- RECOMMENDED BUILD TO BOUNDARY WALL (B2B)
- OPTIONAL BUILD TO BOUNDARY WALL
- FILL BATTER LINE
- CUT BATTER LINE

NOTE:

1. REFER TO DRG 22-000082_5_1201 FOR STANDARD RETAINING WALL NOTES AND DETAILS.

CAUTION !! UNDERGROUND TELECOMMS CABLES
UNDERGROUND TELECOMMUNICATION CABLES EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING.

CAUTION !! UNDERGROUND GAS MAIN
UNDERGROUND GAS MAIN EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR MAIN LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

CAUTION !! UNDERGROUND ELECTRICAL CABLES
UNDERGROUND ELECTRICITY CABLES EXIST IN THIS VICINITY. CONTACT ENERGEX FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	07.11.24	
AMENDMENTS	A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE: 1:250 / 1:500 — 5 0 5 10m — A1 / A3

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CLIENT: LENNIUM GROUP

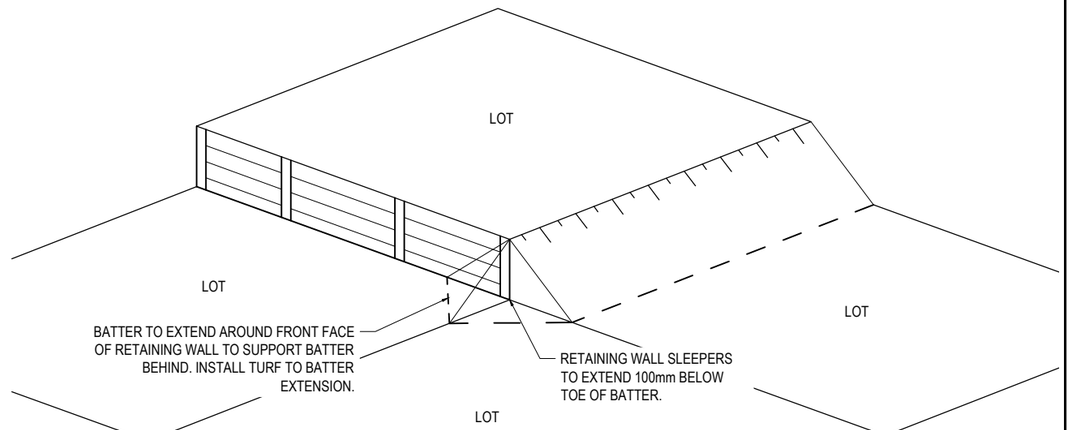
PROJECT: Lilywood LANDINGS — STAGE 5

DRAWING TITLE: RETAINING WALL SETOUT PLAN

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1200	A

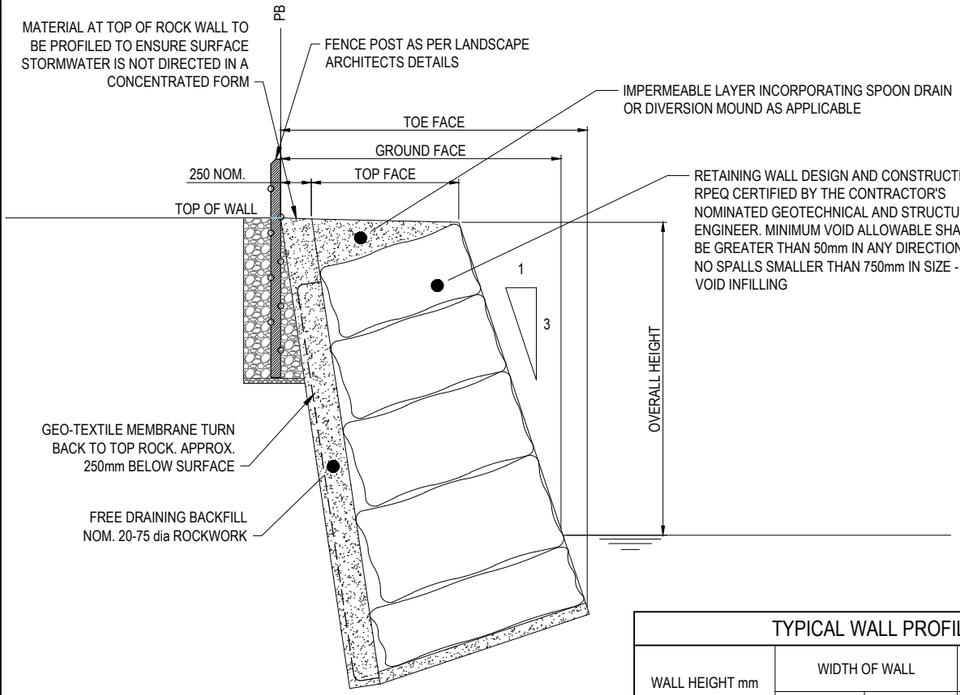
RETAINING WALL DESIGN AND CONSTRUCT NOTES:

1. CONCRETE SLEEPER RETAINING WALL IS A DESIGN AND CONSTRUCT ITEM.
2. CONTRACTOR SHALL ENGAGE A RPEQ STRUCTURAL ENGINEER WITH SUITABLE RETAINING WALL EXPERIENCE.
3. FOLLOWING DESIGN PARAMETERS SHALL BE ADOPTED.
   a) SURCHARGE LOAD 5kPa FOR INTERALLOTMENT WALLS.
   b) SURCHARGE LOAD 20kPa WHERE WALLS ARE SUPPORTING ROADS OR DRIVEWAYS.
   c) ALLOW FOR WIND AND DEAD LOADS FOR SOLID 1.8m HIGH FENCE, OR HIGHER IF SPECIFIED IN THE ACOUSTIC REPORT.
   d) ALLOW FOR MAX 1 IN 4 SLOPE AT TOP AND TOE OF WALLS.
   e) TORSIONALLY RIGID BEAMS SUCH AS UC SECTION SHALL BE SPECIFIED.
   f) DESIGN SHALL ACHIEVE 60 YEAR DESIGN LIFE. OR DESIGN LIFE SPECIFIED BY THE RELEVANT AUTHORITY.
   g) CONTRACTOR SHALL ARRANGE GEOTECHNICAL INVESTIGATION AND STRUCTURAL DESIGN SHALL ALLOW FOR CONDITIONS IDENTIFIED IN INVESTIGATION.
   h) WALL DESIGN SHOULD INCLUDE FOUNDATION LEVELS WITH THEIR LINE OF INFLUENCE CLEAR OF ANY PROPOSED UTILITY SERVICES INSTALLATIONS
4. CONTRACTOR SHALL PROVIDE RPEQ CERTIFIED STRUCTURAL DESIGN PRIOR TO CONSTRUCTION AND FORM 15 CERTIFICATION.
5. CONTRACTOR SHALL ARRANGE FOR RPEQ INSPECTIONS DURING CONSTRUCTION AND PROVIDE RPEQ CERTIFIED FORM 16 PRIOR TO PRACTICAL COMPLETION BEING AWARDED.
6. CONTRACTOR TO CONSIDER NEARBY EXISTING AND PROPOSED SERVICES WITHIN RPEQ DESIGN OF WALLS, AND TO OBTAIN BUILD OVER ASSET APPROVALS WITH THE RELEVANT AUTHORITIES AS REQUIRED BY THE AUTHORITIES' SPECIFICATIONS, PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE BUILD OVER ASSET APPROVALS TO THE SUPERINTENDENT, PRIOR TO CONSTRUCTION.
7. RETAINING WALLS TO BE CONSTRUCTED TO MANUFACTURERS SPECIFICATIONS.
8. PROVIDE APPROVED SAFETY FENCE TO ALL WALLS HIGHER THAN 1.0m.
9. CONTRACTOR TO ENSURE ALL WORKS ADJACENT TO EXISTING RETAINING WALLS IS UNDERTAKEN SO AS NOT TO IMPACT ON THE STRUCTURAL INTEGRITY OF THE EXISTING WALLS. SUBSOIL OUTLETS FOR EXISTING RETAINING WALLS TO BE KEPT FREE DRAINING AT ALL TIMES.
10. WALL ALIGNMENT IS TO BE PEGGED FOR INSPECTION BY SUPERINTENDENT PRIOR TO CONSTRUCTION.
11. WALLS TO BE VERTICAL FACE TYPE TO A MAXIMUM HEIGHT OF 2.0m. TYPE, FINISH AND COLOUR TO BE APPROVED BY SUPERINTENDENT, UNLESS NOTED OTHERWISE.
12. CONTRACTOR IS RESPONSIBLE FOR PROVIDING STRUCTURAL DESIGN, CONSTRUCTION SUPERVISION AND STRUCTURAL CERTIFICATION BY A SUITABLY QUALIFIED AND EXPERIENCED, REGISTERED STRUCTURAL ENGINEER (RPEQ) FOR ALL WALLS 1.0m HIGH OR GREATER.
13. BE LODGED FOR EARTH RETAINING STRUCTURES >1000mm HIGH.
14. ALL WALLS TO BE DESIGNED BASED ON A GEOTECHNICAL ASSESSMENT OF INSITU SOILS BY A SUITABLY QUALIFIED ENGINEER. SHOULD WALLS REQUIRE ADDITIONAL FOOTINGS AND/OR FOUNDATION SUPPORT, THESE ARE TO BE FACTORED INTO THE DESIGN AND THE TENDERED COST OF THE WALLS.
15. PRIVATE WALLS INCLUDING FOOTING TO BE CONTAINED WHOLLY WITHIN PRIVATE PROPERTY AND ARE TO BE FULLY CONTAINED WITHIN THE LOWER LOT UNLESS WALL ABUTS ROAD RESERVE/PARK, IN WHICH CASE THE WALL SHALL BE CONTAINED WHOLLY WITHIN THE PRIVATE PROPERTY.
16. SUBSOIL DRAINAGE BEHIND ALL WALLS TO INCLUDE DISCHARGE PIPE INTO THE NEAREST STORMWATER STRUCTURE (OR DEDICATED KERB ADAPTOR) AND MUST BE FREE DRAINING. ALL WALL DRAINAGE LINES DISCHARGING THROUGH LOTS OR ROAD VERGE TO BE SOLID uPVC (NO SLOTS) AND MUST BE FREE DRAINING.
17. WALLS ARE TO BE CAPABLE OF SUPPORTING TWO STOREY "HEAVY CONSTRUCTION" BUILDINGS.
18. CONTRACTOR TO PROVIDE & MAINTAIN SAFETY FENCE TO ALL WALLS GREATER THAN 1.0m IN HEIGHT.
19. A MINIMUM 600mm CLEARANCE IS TO BE MAINTAINED BETWEEN THE OUTSIDE OF THE BORED PIERS AND THE OUTSIDE OF ANY SEWER MAIN OR ROOFWATER PIPE IN THE VICINITY OF THE RETAINING WALL.
20. RETAINING WALL DESIGN AND CONSTRUCTION TO CONSIDER AND CATER FOR ALL SERVICES LOCATED UNDER, OR IN THE VICINITY OF, THE RETAINING WALL.
21. ALL WALLS TO BE DESIGNED TO ALLOW FOR 1.8m HIGH ENCLOSED FENCE.
22. WHERE APPLICABLE, RETAINING WALL DESIGN AND CONSTRUCTION SHALL MAKE ANY NECESSARY ALLOWANCES TO FACILITATE AND ENABLE FUTURE RETAINING WALL JOINTS/CONNECTIONS/EXTENSIONS.
23. EXTENT OF ALL WALLS TO BE CONFIRMED BY CONTRACTOR WITH SUPERINTENDENT PRIOR TO STARTING CONSTRUCTION.
24. ORANGE MESH SAFETY FENCING TO BE ERECTED ON TOP OF WALL 1.0m HIGH OR GREATER AND MAINTAINED UNTIL OFF-MAINTENANCE.



TYPICAL RETAINING WALL TERMINATION ABUTTING BATTER DETAIL

NOTE
DETAIL TO APPLY TO ALL RETAINING WALL TERMINATIONS ADJACENT TO BATTERS INCLUDING AT VERGES.



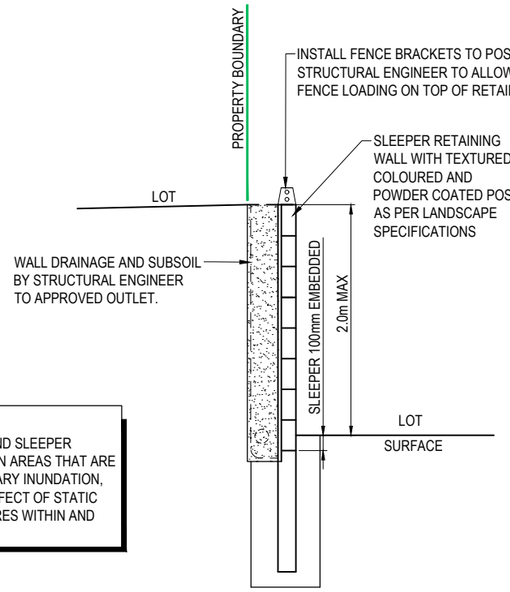
TYPICAL BOULDER RETAINING WALL DETAIL
N.T.S

BOULDER RETAINING WALL NOTE
STEPPED BOULDER RETAINING WALLS TO BE CONSTRUCTED WITH 1.5m HORIZONTAL CLEARANCE BETWEEN THE FRONT AND BACK OF SUBSEQUENT WALLS.

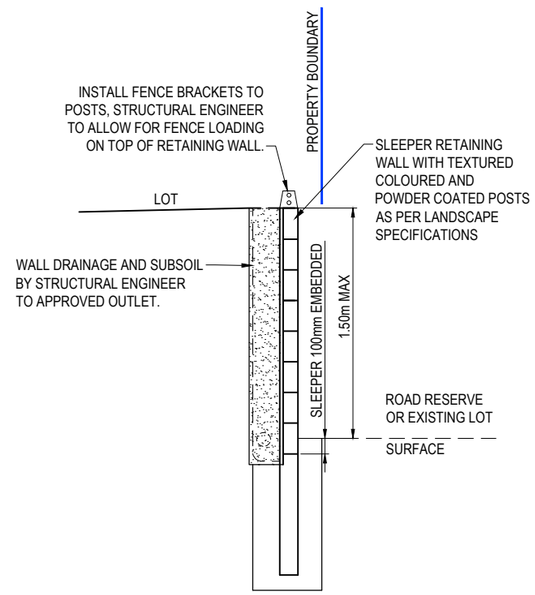
TYPICAL WALL PROFILE

WALL HEIGHT mm	WIDTH OF WALL		WALL EMBEDMENT
	BASE	TOP	FRONT FACE
1000	700	600	300
1500	900	600	400
2000	1200	750	500
2500	1500	750	500
3000	1800	900	750

NOTE
WHERE RETAINING WALLS (BOULDER AND SLEEPER RETAINING WALLS) ARE LOCATED WITHIN AREAS THAT ARE IMPACTED BY PERMANENT OR TEMPORARY INUNDATION, WALLS MUST BE DESIGNED FOR THE EFFECT OF STATIC AND TRANSIENT PORE WATER PRESSURES WITHIN AND EXTERNAL TO THE STRUCTURE.



TYPICAL SINGLE TIER CONCRETE SLEEPER RETAINING WALL AT BDY TYPE 1 (INCLUDING B2B WALLS)
N.T.S



TYPICAL SINGLE TIER CONCRETE SLEEPER RETAINING WALL AT BDY TYPE 2
N.T.S

MINIMUM DESIGN REQUIREMENTS
- SURCHARGE LOADING ON BACKFILL : 5KPa FOR RESIDENTIAL LOTS AND 20KPa FOR ROAD RESERVE.
- POST AND FOOTING DESIGN TO ALLOW FOR MIN. 1.8m HIGH FENCE OR HIGHER IF SPECIFIED IN THE ACOUSTIC REPORT.
- MAX 1V:4H SLOPE BEHIND WALL

NOTES:
1. RETAINING WALLS TO BE CONSTRUCTED TO MANUFACTURERS SPECIFICATIONS.
2. CONTRACTOR TO PROVIDE STRUCTURAL CERTIFICATION FOR RETAINING WALLS DESIGN AND CONSTRUCTION.
3. PROVIDE APPROVED SAFETY FENCE TO ALL WALLS HIGHER THAN 1.0m.
4. ALL RETAINING WALL FOOTINGS TO BE LOCATED A MINIMUM 1.0m HORIZONTALLY CLEAR OF THE ROOFWATER AND SEWER AND BE TAKEN BELOW THE ZONE OF INFLUENCE.

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

AMENDMENTS

STATUS: FOR APPROVAL
APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE

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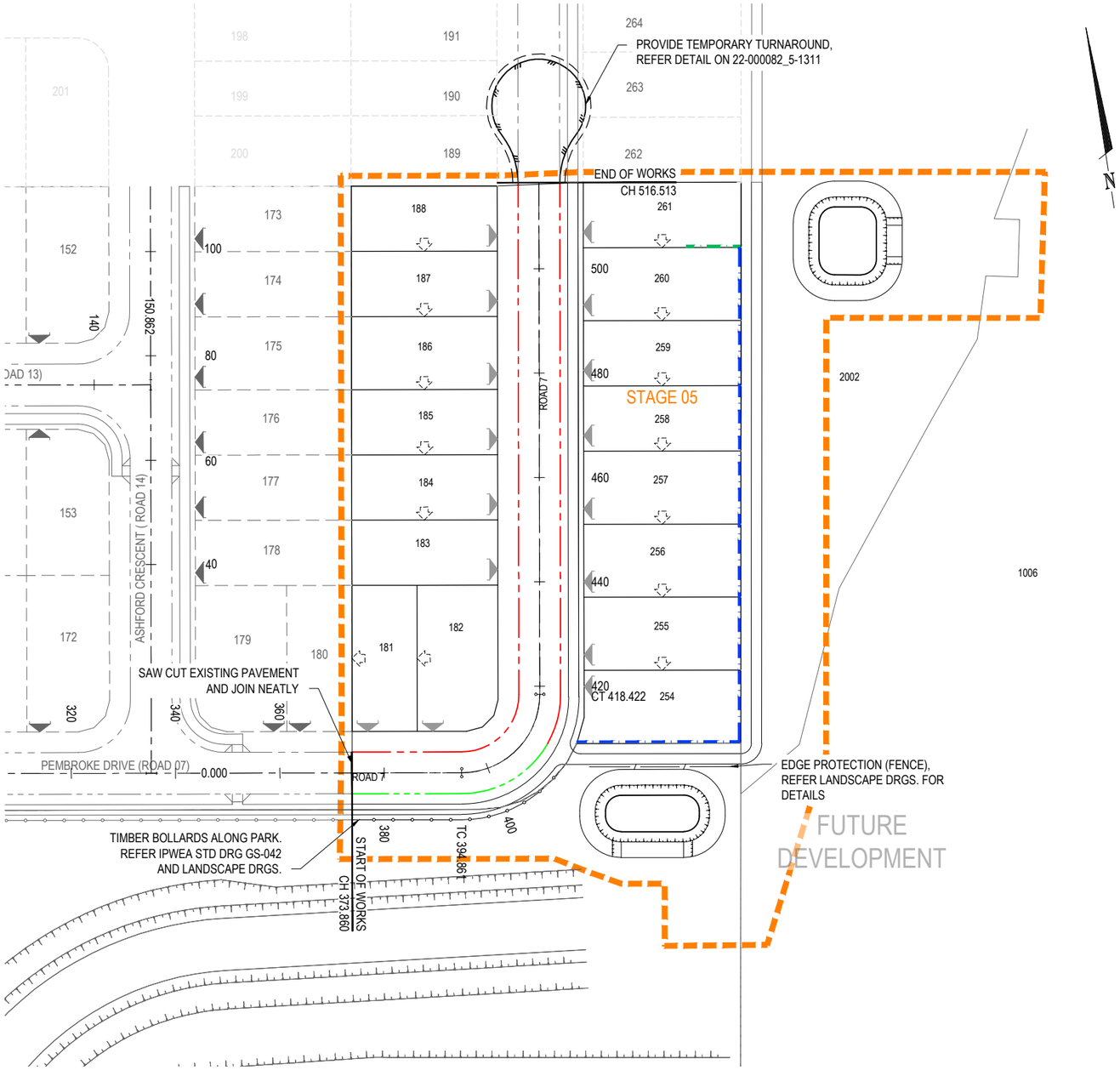
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: RETAINING WALL NOTES AND DETAILS

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1201	A

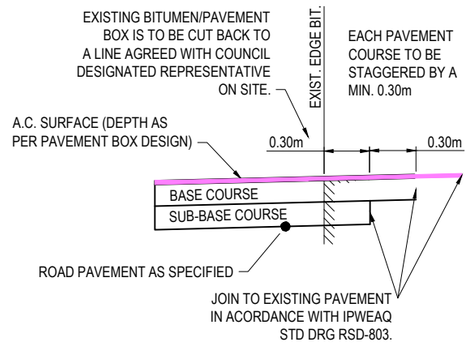


Road 7 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	373.860	91016.159	502254.164	98°49'24.45"			
TC	394.861	91036.911	502250.943	98°49'24.45"			
IP 2	406.641	91051.733	502248.642		R = -15.000	23.562	89°59'55.95"
CT	418.422	91054.034	502263.464	8°49'28.50"			
END	516.513	91069.082	502360.394	8°49'28.50"			

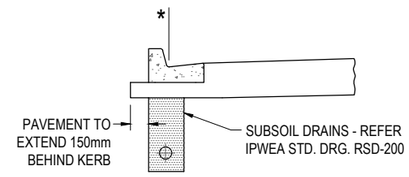
LEGEND

- STAGE BOUNDARY
- CONTROL LINE
- MOUNTABLE KERB & CHANNEL TYPE 'M3'
- BARRIER KERB & CHANNEL TYPE 'B1'
- PROPOSED TYPE 1 SLEEPER RETAINING WALL
- PROPOSED TYPE 2 SLEEPER RETAINING WALL
- INDICATIVE DRIVEWAY LOCATIONS
- BUILD TO BOUNDARY - OPTIONAL
- BUILD TO BOUNDARY - MANDATORY



JOIN TO EXISTING PAVEMENT DETAIL

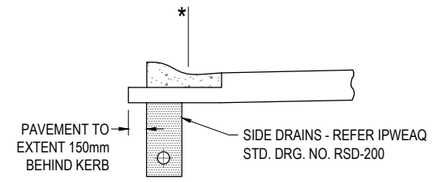
N.T.S.



BARRIER KERB AND CHANNEL TYPE B1 (300mm) IPWEA

SCALE 1 : 25

* NOMINAL KERB LINE



MOUNTABLE KERB AND CHANNEL TYPE M3 IPWEAQ

SCALE 1 : 25

* NOMINAL KERB LINE

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

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APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE: 1:500 / 1:1000 — 10 5 0 10 20m — A1 / A3

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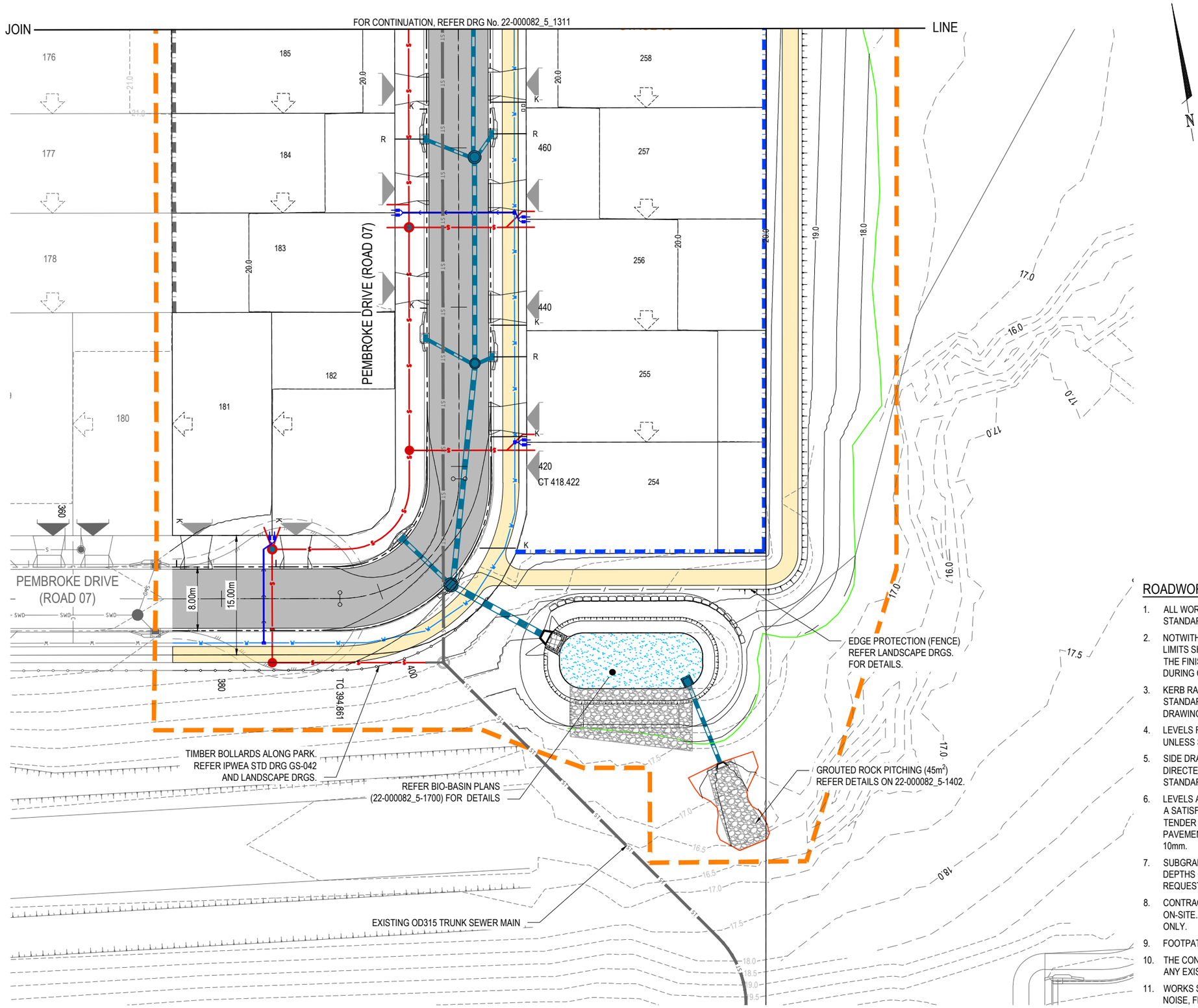
CLIENT: LENNIUM GROUP

PROJECT: Lidywood LANDINGS — STAGE 5

DRAWING TITLE: CONTROL LINE SETOUT PLAN

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1300	A



LEGEND

- STAGE BOUNDARY
- STORMWATER DRAINAGE
- EXISTING STORMWATER DRAINAGE
- MAINTENANCE HOLE
- GULLY PIT
- OUTLET STRUCTURE
- EXISTING STORMWATER STRUCTURE
- CONCRETE FOOTPATH (2m WIDE)
- ASPHALT SURFACING
- MOUNTABLE KERB & CHANNEL TYPE 'M3'
- BARRIER KERB & CHANNEL TYPE 'B1'
- EDGE OF BITUMEN
- EXISTING SURFACE CONTOUR (0.50m INTERVALS)
- DESIGN SURFACE CONTOUR (0.50m INTERVALS)
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- PROPOSED SEWERAGE RETICULATION
- EXISTING SEWERAGE RETICULATION
- EXISTING TRUNK SEWER
- PROPOSED KERB ADAPTER
- PROPOSED KERB ADAPTER + LINE UNDER PATH
- PROPOSED ROOF WATER LINE
- PROPOSED TYPE 1 SLEEPER RETAINING WALL
- PROPOSED TYPE 2 SLEEPER RETAINING WALL
- PROPOSED BOULDER RETAINING WALL
- INDICATIVE DRIVEWAY LOCATION
- BUILD TO BOUNDARY - OPTIONAL
- BUILD TO BOUNDARY - MANDATORY
- FILL BATTER LINE
- CUT BATTER LINE

ROADWORKS NOTES

1. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH CURRENT MORETON BAY REGIONAL COUNCIL STANDARD DRAWINGS AND METHODS.
2. NOTWITHSTANDING THE LIMITS OF CUTTING AND FILLING SHOWN ON THE CROSS SECTIONS, THE ACTUAL LIMITS SHALL BE DETERMINED ON-SITE BY THE SUPERINTENDENT DURING CONSTRUCTION AND SIMILARLY THE FINISHED SURFACE CONTOURS MAY BE ADJUSTED BY WRITTEN DIRECTION OF THE SUPERINTENDENT DURING CONSTRUCTION.
3. KERB RAMPS AS PER CMB STANDARD DRAWING PC-2101. FOOTPATH CONSTRUCTION AS PER IPWEA STANDARD DRAWING PCD-101. RESIDENTIAL DRIVEWAY CROSSOVERS AS PER IPWEA STANDARD DRAWINGS RSD-100 & RSD-101.
4. LEVELS FOR KERB AND CHANNELING CONSTRUCTION ARE AT EQUAL INTERVALS AT LIP OF CHANNEL UNLESS SHOWN OTHERWISE.
5. SIDE DRAINS TO BE CONSTRUCTED UNDER ALL KERBS AND ALL KERB AND CHANNEL AND IN LOCATIONS DIRECTED BY THE SUPERINTENDENT IN ACCORDANCE WITH MORETON BAY REGIONAL COUNCIL STANDARDS.
6. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE A SATISFACTORY CONNECTION AND THE CONTRACTOR SHALL INCLUDE THE COST OF THIS WORK IN THE TENDER PRICE. WHERE NEW WORK JOINS EXISTING, THE WORK SHALL TRANSITION NEATLY WITH THE PAVEMENT SO THAT DEVIATION FROM THE LINE OF A 3.0m STRAIGHT EDGE SHALL BE NO GREATER THAN 10mm.
7. SUBGRADE TEST RESULTS TO BE FORWARDED TO SUPERINTENDENT. FOR DETERMINATION OF BOX DEPTHS PRIOR TO EXCAVATION, TESTS SHALL INCLUDE SOAKED CBR AND/OR OTHER TESTS AS REQUESTED BY THE SUPERINTENDENT.
8. CONTRACTOR TO LIAISE WITH ALL RELEVANT SERVICE AUTHORITIES TO ASCERTAIN SERVICES PRESENT ON-SITE. ANY ALTERATION WORKS TO SERVICES WILL BE CARRIED OUT BY THAT SERVICE AUTHORITY ONLY.
9. FOOTPATHS AND BATTERS TO HAVE MINIMUM OF 75mm TOPSOIL (AND GRASSING IF ORDERED).
10. THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT PRIOR TO COMMENCEMENT OF DEMOLISHING ANY EXISTING STRUCTURES WITHIN THE SITE AREAS.
11. WORKS SHALL BE PROGRAMMED SO AS NOT TO DISTURB NEARBY HOUSEHOLDERS EITHER BY DUST, NOISE, FLOODING OR DISCONNECTION OF SERVICES.
12. ALL CONSTRUCTION ACTIVITIES SHALL COMPLY WITH WORKPLACE HEALTH AND SAFETY REQUIREMENTS.

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
AMENDMENTS A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE: 1:250 / 1:500 — 5 0 5 10m — A1 / A3

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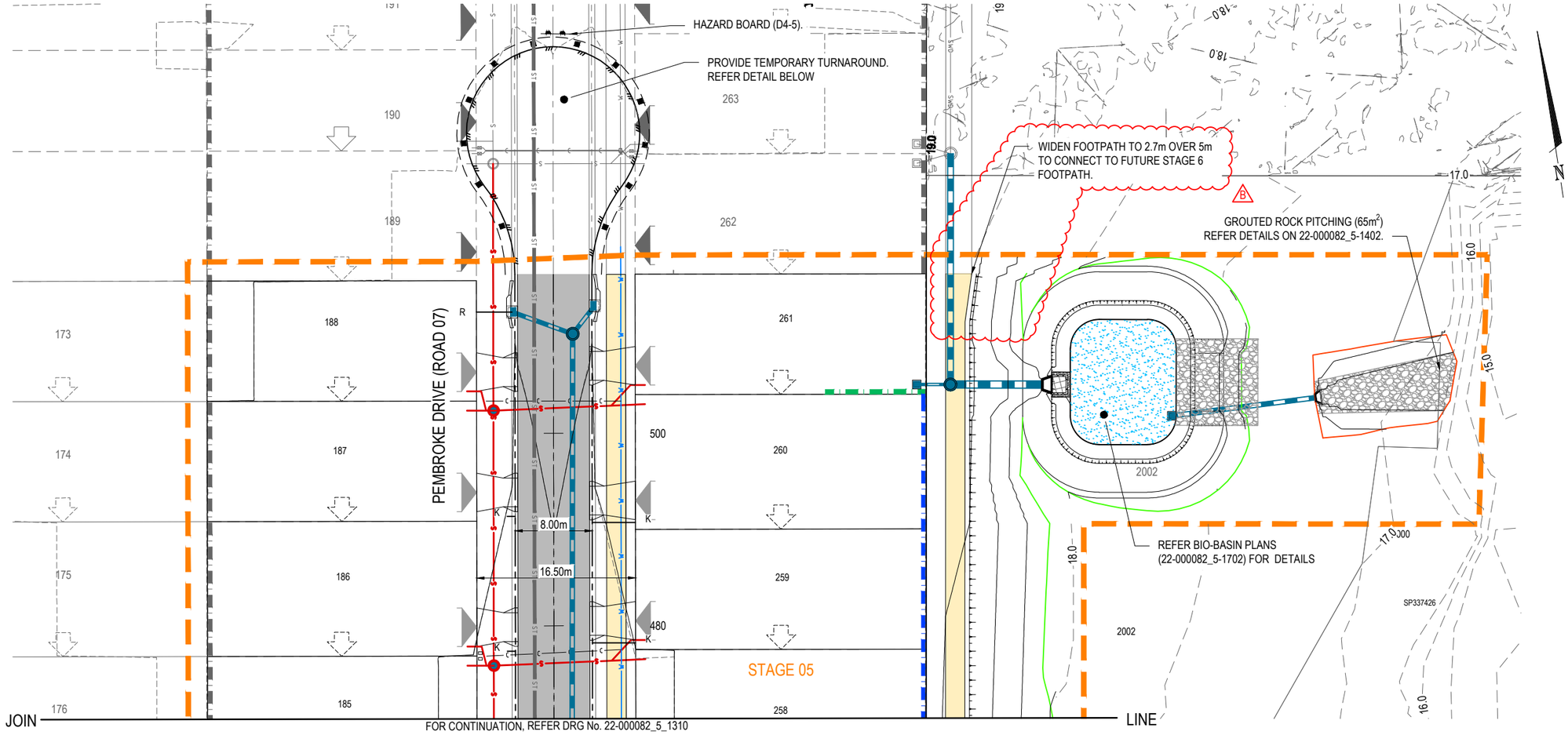
CLIENT: LENNIUM GROUP

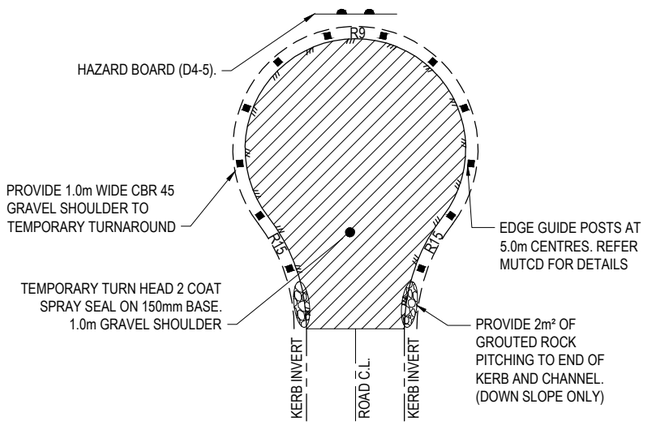
PROJECT: Lilywood LANDINGS — STAGE 5

DRAWING TITLE: ROADWORKS LAYOUT PLAN SHEET 1 OF 2

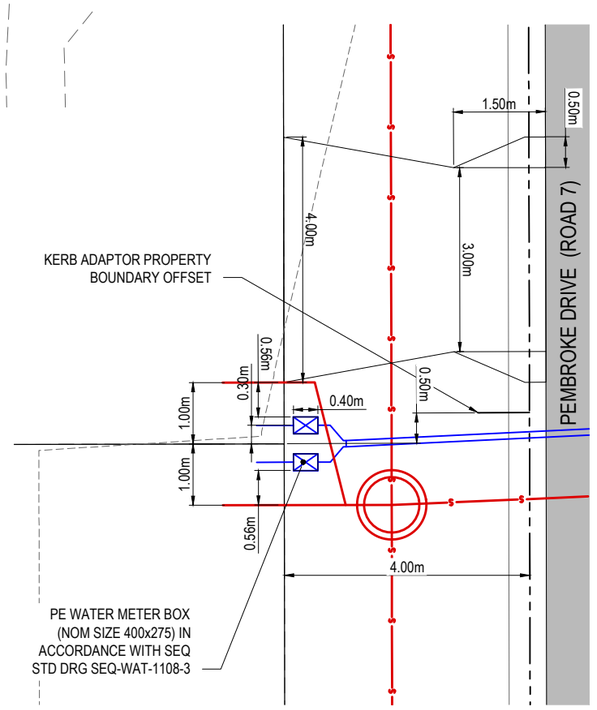
PROJECT No.	DRAWING No.	REVISION
22-000082_5	1310	A

NOTE:
1. REFER DRAWING 22-000082_5_1310 FOR LEGEND AND NOTES.





ROAD 7 - TYPICAL TEMPORARY TURNAROUND AREA DETAIL
SCALE 1:250(A1)
SCALE 1:500(A3)



TYPICAL DRIVEWAY AND LOT SERVICE CONNECTION LAYOUT
SCALE 1:50 (A1)

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
B	AA	RT	AA	RA	07.03.25	FOOTPATH WIDENED AS PER COUNCIL RFI

AMENDMENTS

STATUS: FOR APPROVAL
APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE
1:50 1 0.5 0 1 2m A1
1:100 A3
1:250 5 0 5 10m A1
1:500 A3

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CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: ROADWORKS LAYOUT PLAN SHEET 2 OF 2

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1311	B

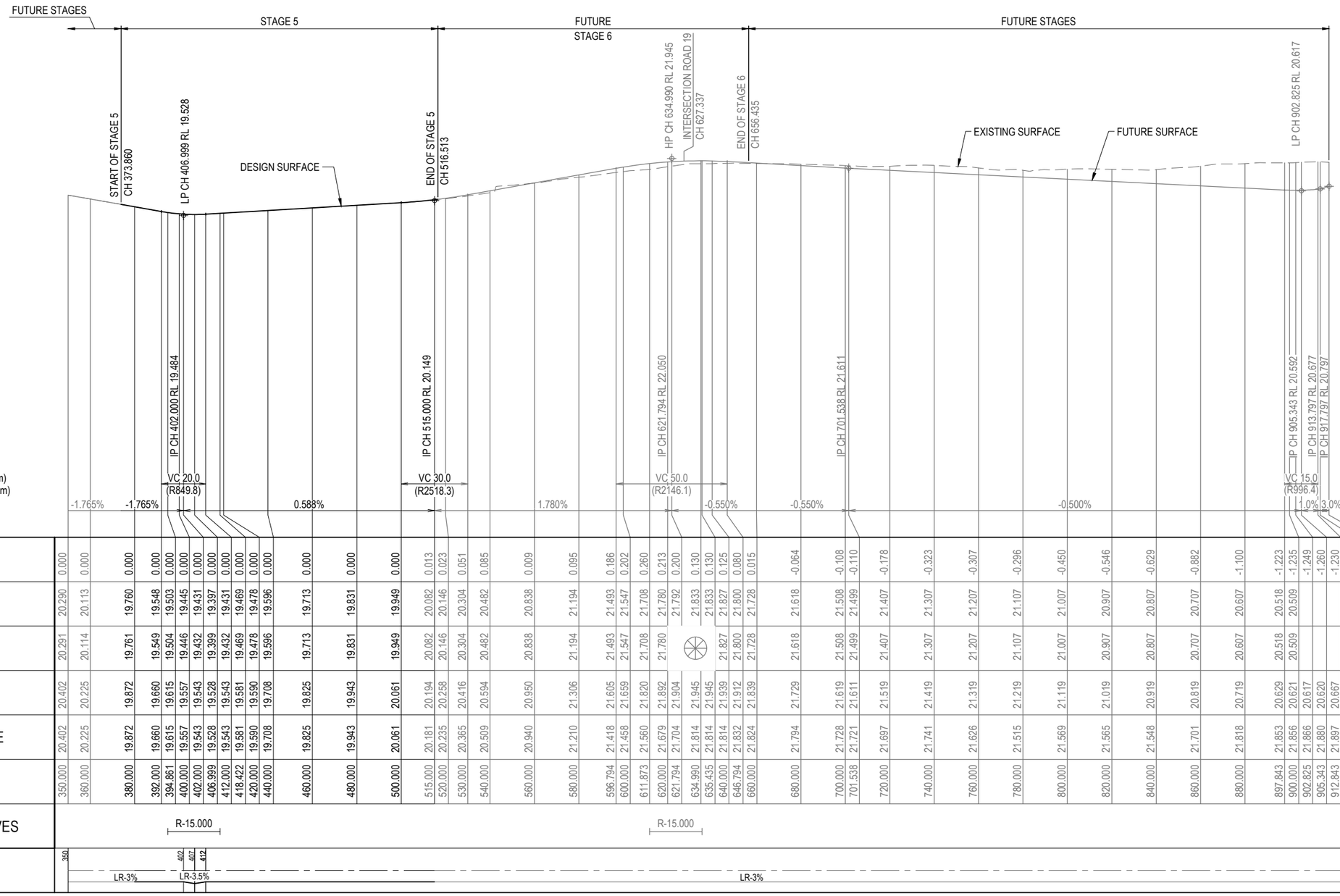
PRELIMINARY ROAD 7 PAVEMENT DESIGN

ROAD	SUBGRADE CBR	TRAFFIC ESA'S	ROAD CLASS	AC SURFACING (mm)	BASE (mm)	SUB-BASE (mm)	LOWER SUB-BASE (mm)	TOTAL BOX (mm)
ROAD 7	3*	1.2 X 10^5	LIVING RESIDENTIAL	25mm BCC TYPE 2	100	100	300	525

* ASSUMED SUBGRADE CBR

NOTE:

1. PRELIMINARY PAVEMENT DESIGNS HAVE BEEN BASED ON AN ASSUMED SUBGRADE CBR. ACTUAL PAVEMENT DESIGNS WILL BE BASED ON TEST RESULTS TAKEN AFTER STRIPPING HAS BEEN COMPLETED.
2. WHEN THE TOTAL PAVEMENT DEPTH (AS DETERMINED BY SUBGRADE TESTS) EXCEEDS THE NORMAL DEPTH, THE PAVEMENT GRAVEL SHALL EXTEND UNDER THE KERB AND CHANNEL TO 150mm BEHIND (TYP).



CHAINAGES	EXISTING SURFACE	DESIGN SURFACE	RHS LIP LEVEL	LHS LIP LEVEL	CUT (-) / FILL
350.000	20.402	20.402	20.291	20.290	0.000
360.000	20.225	20.225	20.114	20.113	0.000
380.000	19.872	19.872	19.761	19.760	0.000
392.000	19.660	19.660	19.549	19.548	0.000
394.861	19.615	19.615	19.504	19.503	0.000
400.000	19.557	19.557	19.446	19.445	0.000
402.000	19.543	19.543	19.432	19.431	0.000
406.999	19.528	19.528	19.399	19.397	0.000
412.000	19.543	19.543	19.432	19.431	0.000
418.422	19.581	19.581	19.469	19.469	0.000
420.000	19.590	19.590	19.478	19.478	0.000
440.000	19.708	19.708	19.596	19.596	0.000
460.000	19.825	19.825	19.713	19.713	0.000
480.000	19.943	19.943	19.831	19.831	0.000
500.000	20.061	20.061	19.949	19.949	0.000
515.000	20.181	20.194	20.082	20.082	0.013
520.000	20.235	20.258	20.146	20.146	0.023
530.000	20.365	20.416	20.304	20.304	0.051
540.000	20.509	20.594	20.482	20.482	0.085
560.000	20.940	20.950	20.838	20.838	0.009
580.000	21.210	21.306	21.194	21.194	0.095
596.794	21.418	21.605	21.493	21.493	0.186
600.000	21.458	21.659	21.547	21.547	0.202
611.873	21.560	21.820	21.708	21.708	0.260
620.000	21.679	21.892	21.780	21.780	0.213
621.794	21.704	21.904		21.792	0.200
634.990	21.814	21.945		21.833	0.130
635.435	21.814	21.945		21.833	0.130
640.000	21.814	21.939	21.827	21.827	0.125
646.794	21.832	21.912	21.800	21.800	0.080
660.000	21.824	21.839	21.728	21.728	0.015
680.000	21.794	21.729	21.618	21.618	-0.064
700.000	21.728	21.619	21.508	21.508	-0.108
701.538	21.721	21.611	21.499	21.499	-0.110
720.000	21.697	21.519	21.407	21.407	-0.178
740.000	21.741	21.419	21.307	21.307	-0.323
760.000	21.626	21.319	21.207	21.207	-0.307
780.000	21.515	21.219	21.107	21.107	-0.296
800.000	21.569	21.119	21.007	21.007	-0.450
820.000	21.565	21.019	20.907	20.907	-0.546
840.000	21.548	20.919	20.807	20.807	-0.629
860.000	21.701	20.819	20.707	20.707	-0.882
880.000	21.818	20.719	20.607	20.607	-1.100
897.843	21.853	20.629	20.518	20.518	-1.223
900.000	21.856	20.621	20.509	20.509	-1.235
902.825	21.866	20.617			-1.249
905.343	21.880	20.620			-1.260
912.843	21.897	20.667			-1.230
913.797	21.894	20.677			-1.217
917.812	21.883				

SUPERELEVATION: 350 | 402 | 407 | 412

LONGITUDINAL SECTION - ROAD 7

HORIZ SCALE: 1000
VERTICAL SCALE: 100

REFER INTERSECTION DETAILS FOR LEVELS

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

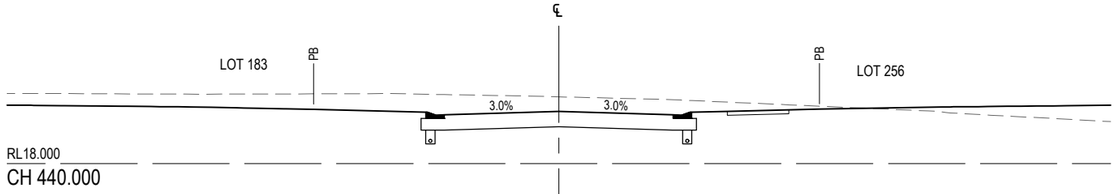
SCALE
1:1000 / 1:2000 10 0 10 20 30 40 50m A1 A3 HORIZONTAL
1:100 / 1:200 2 1 0 2 4m A1 A3 VERTICAL

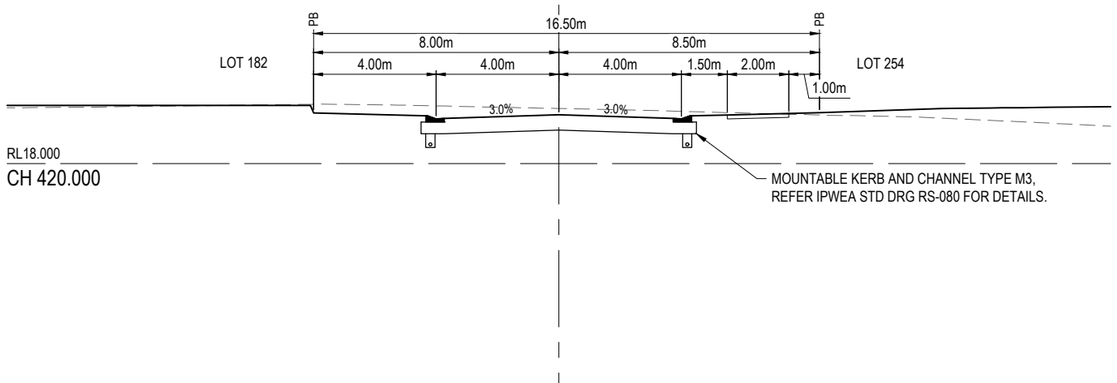
CLIENT: LENNIUM GROUP

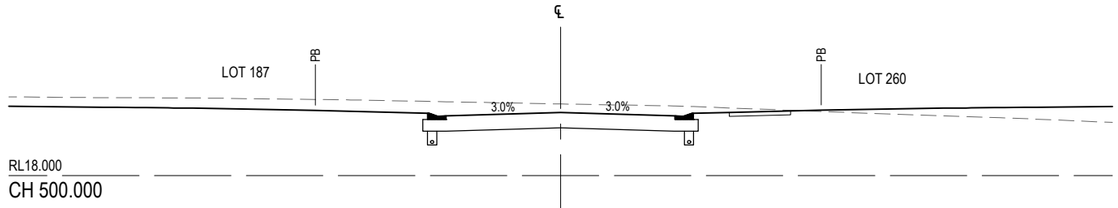
PROJECT: Lilywood LANDINGS STAGE 5

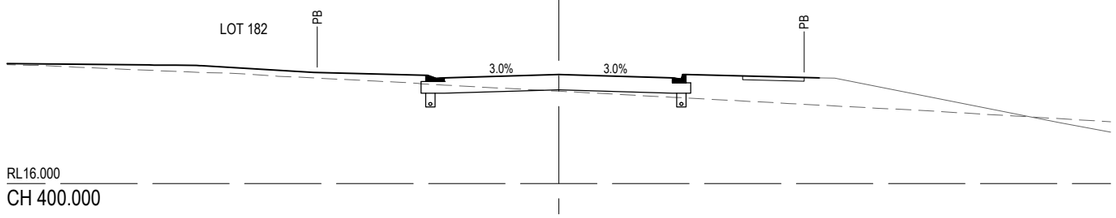
DRAWING TITLE: ROAD 7 (PEMBROKE DRIVE) LONGITUDINAL SECTION

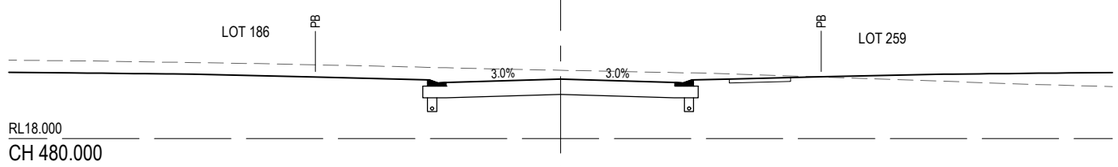
PROJECT No.	DRAWING No.	REVISION
22-000082_5	1330	A

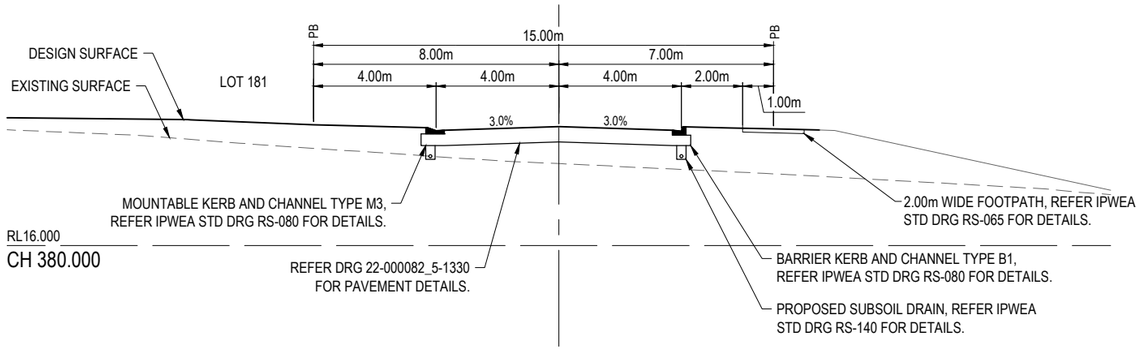


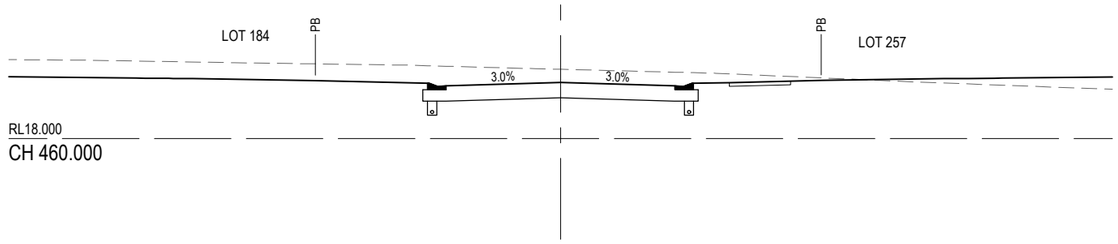












INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
AMENDMENTS A	AA	RT	AA	RA	07.11.24	
	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE: 1:100 / 1:200 — 1 0 1 2 3 4 5m — A1 / A3

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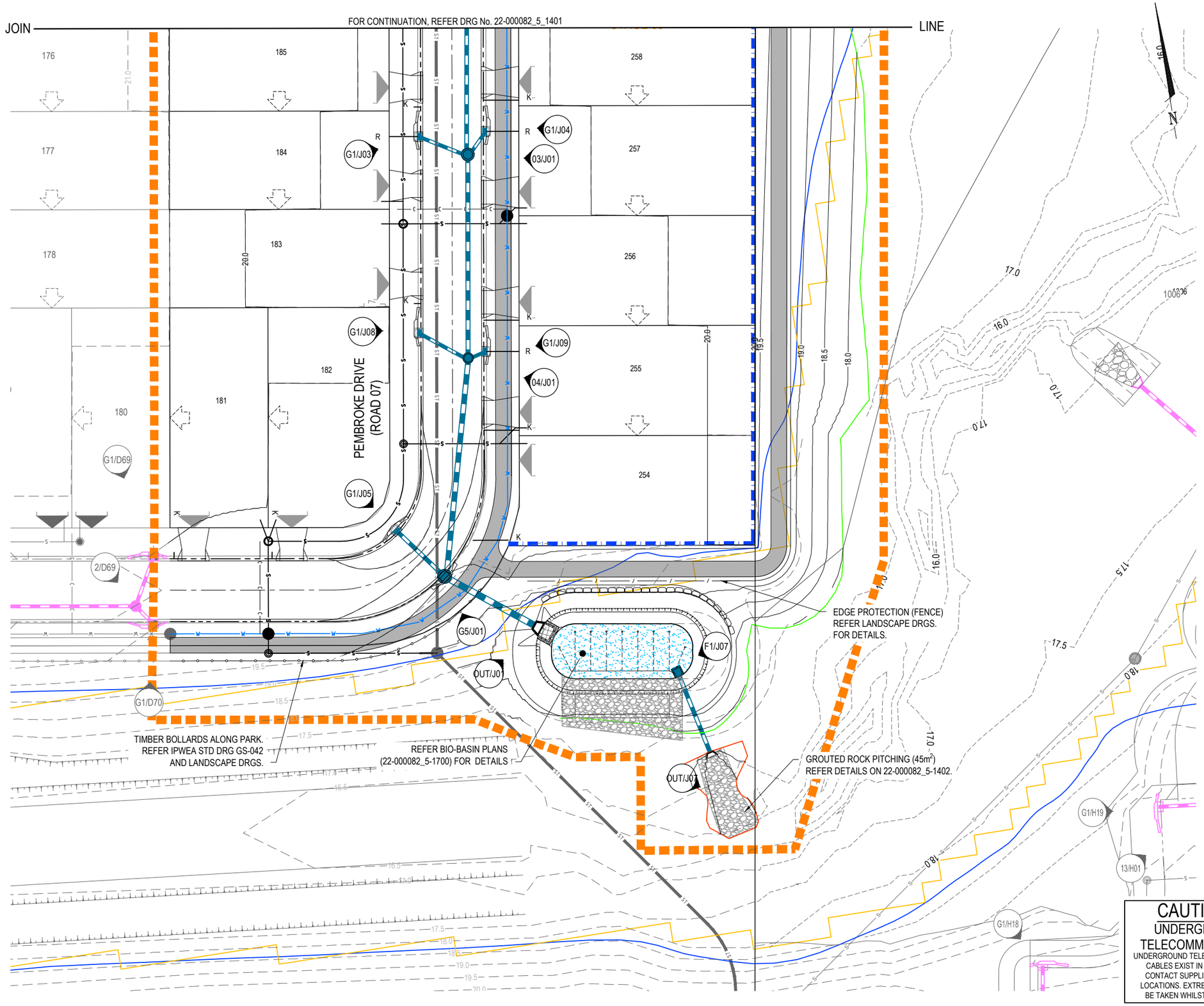
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS
STAGE 5

DRAWING TITLE: ROAD 7 (PEMBROKE DRIVE) CROSS SECTIONS

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1331	A



LEGEND

- STAGE BOUNDARY
- STORMWATER DRAINAGE
- MAINTENANCE HOLE
- GULLY PIT
- OUTLET STRUCTURE
- ROCK SCOUR PROTECTION
- EXISTING SURFACE CONTOUR (0.5m INTERVALS)
- DESIGN SURFACE CONTOUR (0.50m INTERVALS)
- EXISTING STORMWATER DRAINAGE
- EXISTING MAINTENANCE HOLE
- EXISTING GULLY PIT
- EXISTING WATER RECTICULATION
- EXISTING SEWER RETICULATION
- PROPOSED WATER MAIN
- PROPOSED WATER CONDUIT
- PROPOSED SEWERAGE RETICULATION
- PROPOSED TYPE 1 SLEEPER RETAINING WALL
- PROPOSED TYPE 2 SLEEPER RETAINING WALL
- PROPOSED BOULDER RETAINING WALL
- EXISTING RETAINING WALL + ACOUSTIC FENCE
- PROPOSED KERB ADAPTER
- PROPOSED KERB ADAPTER + LINE UNDER PATH
- PROPOSED ROOF WATER LINE
- PROPOSED BATTERS
- FILL BATTER LINE
- CUT BATTER LINE
- CONCRETE FOOTPATH
- INDICATIVE DRIVEWAY LOCATION
- 5% AEP (20YR ARI) FLOOD LEVEL
- 1% AEP (100YR ARI) FLOOD LEVEL
- EXISTING TRUNK SEWER
- BUILD TO BOUNDARY - OPTIONAL
- BUILD TO BOUNDARY - MANDATORY

NOTE:

1. REFER TO DRG 22-000082_5_1402 FOR STORMWATER STANDARD NOTES AND DETAILS.
2. REFER TO DRG 22-000082_5_1410 FOR STORMWATER CATCHMENT PLAN.
3. REFER TO DRGs 22-000082_5_1420-1421 FOR STORMWATER LONGITUDINAL SECTIONS.
4. REFER TO DRGs 22-000082_5_1430-1431 FOR STORMWATER CALCULATION TABLES.

CAUTION !! UNDERGROUND TELECOMMS CABLES
UNDERGROUND TELECOMMUNICATION CABLES EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING.

CAUTION !! UNDERGROUND GAS MAIN
UNDERGROUND GAS MAIN EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR MAIN LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

CAUTION !! UNDERGROUND ELECTRICAL CABLES
UNDERGROUND ELECTRICITY CABLES EXIST IN THIS VICINITY. CONTACT ENERGEX FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE
1:250 1:500 5 0 5 10m A1 A3

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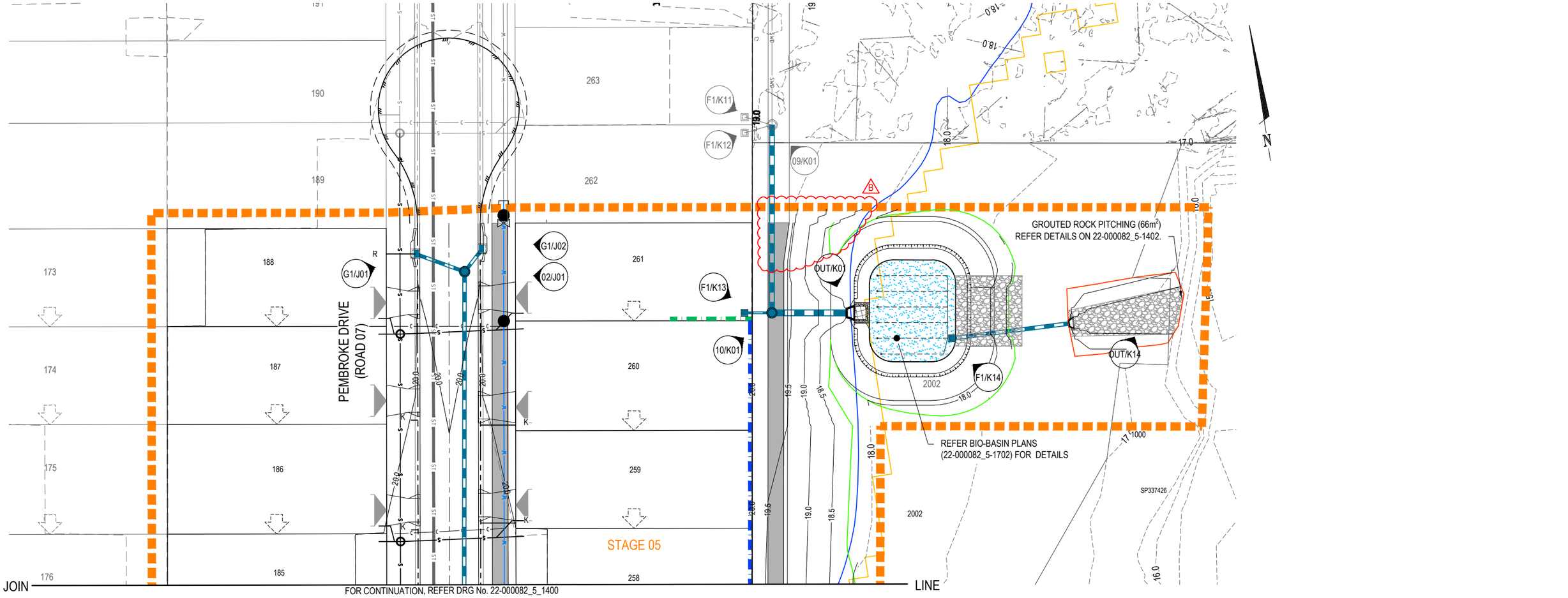
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: STORMWATER LAYOUT PLAN SHEET 1 OF 2

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1400	A

CITY OF MORETON BAY



NOTE:

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2. REFER TO DRG 22-000082_5_1410 FOR STORMWATER CATCHMENT PLAN.
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CAUTION !! UNDERGROUND TELECOMMS CABLES
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CAUTION !! UNDERGROUND GAS MAIN
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INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	07.11.24	
B	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
	AA	RT	AA	RA	07.03.25	FOOTPATH WIDENED AS PER COUNCIL RFI

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE: 1:250 / 1:500 — 5 0 5 10m — A1 / A3

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CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS — STAGE 5

DRAWING TITLE: STORMWATER LAYOUT PLAN SHEET 2 OF 2

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1401	B

STORMWATER DRAINAGE NOTES

1. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH CURRENT M.B.R.C STANDARD DRAWINGS AND METHODS.
2. ALL STORMWATER PIPES UNDER ROADWAYS AND FOOTPATHS SHALL BE RCP CLASS 3 U.N.O.
3. ALL STORMWATER PIPES UP TO AND INCLUDING 600Ø SHALL BE R.R.J. STORMWATER PIPES GREATER THAN 600Ø SHALL BE INTERNAL FLUSH JOINTED WITH PROPRIETARY EXTERNAL BAND.
4. ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
5. CONTRACTOR TO LIAISE WITH ALL RELEVANT SERVICE AUTHORITIES TO ASCERTAIN SERVICES PRESENT ON-SITE. ANY ALTERATION WORKS TO SERVICES WILL BE CARRIED OUT BY THAT SERVICE AUTHORITY ONLY.
6. THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT PRIOR TO COMMENCEMENT OF DEMOLISHING ANY EXISTING STRUCTURES WITHIN THE SITE AREAS.
7. THE STORMWATER PIPE CLASSES HAVE BE DESIGNED FOR SERVICE LOADS ONLY, AND THE CONTRACTOR SHALL ASSESS ANTICIPATED CONSTRUCTION LOADS AND UPGRADE THE PIPE CLASSES IF NECESSARY, IN ACCORDANCE WITH AS3725-2007.
8. RETAINING WALL SUBSOIL DRAINS TO CONNECT TO KERB AND CHANNEL SUBSOIL OR STORMWATER DRAINAGE STRUCTURES.
9. WORKS SHALL BE PROGRAMMED SO AS NOT TO DISTURB NEARBY HOUSEHOLDERS EITHER BY DUST, NOISE, FLOODING OR DISCONNECTION OF SERVICES.
10. ALL CONSTRUCTION ACTIVITIES SHALL COMPLY WITH WORKPLACE HEALTH AND SAFETY REQUIREMENTS.
11. ANTI PONDING GULLIES ARE TO BE SIDE ENTRY TYPE. CHAMBER AND GRATE ONLY TYPE NOT TO BE USED.
12. GULLY PITS IN EXCESS OF 1.5 METRES DEEP ARE TO BE CONSTRUCTED AS A GULLY PIT/ACCESS CHAMBER STRUCTURE.
13. CRACKS IN STORMWATER PIPES WILL NOT BE ACCEPTED.
14. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE A SATISFACTORY CONNECTION AND THE CONTRACTOR SHALL INCLUDE THE COST OF THIS WORK IN THE TENDER PRICE. WHERE NEW WORK JOINS EXISTING, THE WORK SHALL TRANSITION NEATLY WITH THE PAVEMENT SO THAT DEVIATION FROM THE LINE OF A 3.0m STRAIGHT EDGE SHALL BE NO GREATER THAN 10mm.
15. CONDUITS SHALL BE IN ACCORDANCE WITH I.P.W.E.A STD. DRG. RSD-602.
16. ALL EXCAVATION AND FILLING SHALL BE COMPACTED TO THE REQUIREMENTS OF AS3798-2007 IN ACCORDANCE WITH THE LOCAL AUTHORITY REQUIREMENTS.
17. ALL LEVELS ARE IN METRES ABOVE AUSTRALIAN HEIGHTS DATUM (mAHD) UNLESS OTHERWISE SHOWN

KERB ADAPTORS NOTES

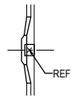
ALL LOTS NOT DRAINING TO A PROPERTY PIT TO HAVE 2 KERB ADAPTORS . KERB ADAPTORS SHOWN ARE INDICATIVE ONLY AND ARE TO BE INSTALLED IN ACCORDANCE WITH IPWEA STD DRG RSD-201.

NOTE:
NOTWITHSTANDING THAT EXISTING SERVICES MAY OR MAY NOT BE SHOWN ON THE JOB DRAWINGS, NO RESPONSIBILITY IS TAKEN BY THE SUPERINTENDENT OR THE PRINCIPAL FOR THIS INFORMATION WHICH HAS BEEN SUPPLIED BY OTHERS. THE DETAILS ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE POSITION OF ANY UNDERGROUND SERVICES IN THIS AREA AND SHALL BE RESPONSIBLE FOR MAKING GOOD ANY DAMAGE THERETO.

SCOUR PROTECTION NOTES:

1. IF ROCK SIZE IS SPECIFIED ON THE PLAN AS D_{50} THIS CORRESPONDS TO A ROCK SIZE WITH A MEDIAN ROCK DIAMETER OF D_{50}. A VARIANCE OF ±30% IS ACCEPTABLE. Eg. IF D_{50} = 600 IS SPECIFIED THEN THE EQUIVALENT ROCK DIAMETER RANGES FROM 420mm TO 780mm.
2. NEITHER BREADTH NOR THICKNESS OF A SINGLE ROCK SHALL BE LESS THAN ONE HALF ITS LENGTH (ie THE ROCK SHALL BE CHUNKY RATHER THAN FLAT).
3. ROCK TYPE - BASALT OR OTHER APPROVED MATERIAL. TO BE CONFIRMED WITH SUPERINTENDENT BEFORE COMMENCING ROCK WORK.
4. ROCKS GREATER THAN D_{50}=450 TO BE PLACED AND INTERLOCKED INTO POSITION AND BUILT UP TO FINAL LEVELS SHOWN, ENSURING COVERAGE OF GEOFABRIC. GAPS BETWEEN THE BOULDERS ARE TO BE FILLED BY DROPPING STONES INTO GAPS AND LOCKING INTO POSITION WITH A CROWBAR.
5. ROCKS LESS THAN & EQUAL TO D_{50}=450 TO BE DUMPED & MOVED INTO POSITION. BUILD UP TO FINAL LEVELS & ENSURING COVERAGE OF GEOFABRIC.

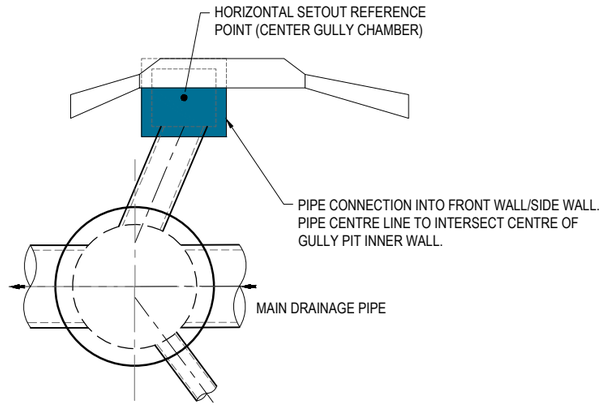
REFERENCE POINT LOCATION FOR DRAINAGE STRUCTURES

STRUCTURE TYPE	HORIZONTAL CONTROL (REFERENCE POINT LOCATION)		VERTICAL CONTROL (REFERENCE LEVEL)
MANHOLE		℄ OF MAIN SHAFT	FINISHED SURFACE LEVEL
GULLY PIT		GEOMETRIC CENTRE OF PIT STRUCTURE	KERB LIP LEVEL
HEADWALL		INTERSECTION OF HEADWALL FACE AND PIPE ℄	INVERT OF HEADWALL

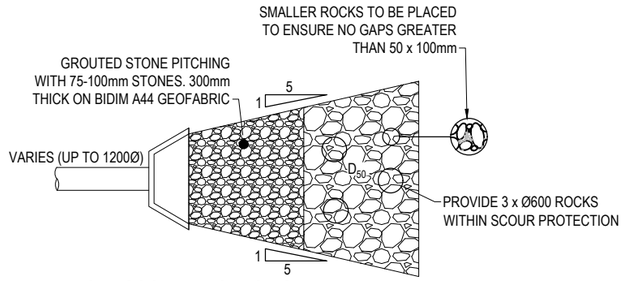
ROCK SCOUR PROTECTION

OUTLET	OUTLET PIPE SIZE	VELOCITY	D_{50}	'L'
OUT/J07	Ø 450	1.38 m/s	300 mm	5.0m
OUT/K14	Ø 450	1.60 m/s	300 mm	5.0m

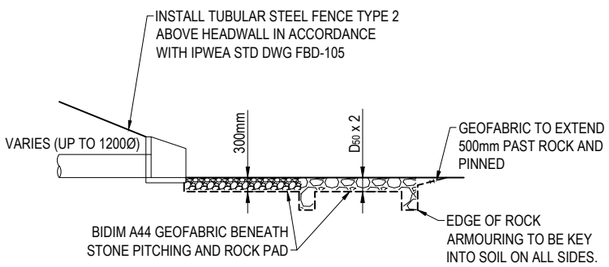
NOTE:
CONTRACTOR TO ENSURE PIPE CONNECTORS TO GULLY PITS ARE NOT CONSTRUCTED INTO THE CORNER OF TWO WALLS.



TYPICAL GULLY PIT PIPE CONNECTION DETAIL
NTS



TYPICAL SCOUR PROTECTION DETAIL PLAN
NTS



TYPICAL SCOUR PROTECTION SECTION
NTS

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
B	AA	RT	AA	RA	07.03.25	STEP IRON NOTE REMOVED AS PER COUNCIL RFI

AMENDMENTS

STATUS: FOR APPROVAL
APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE

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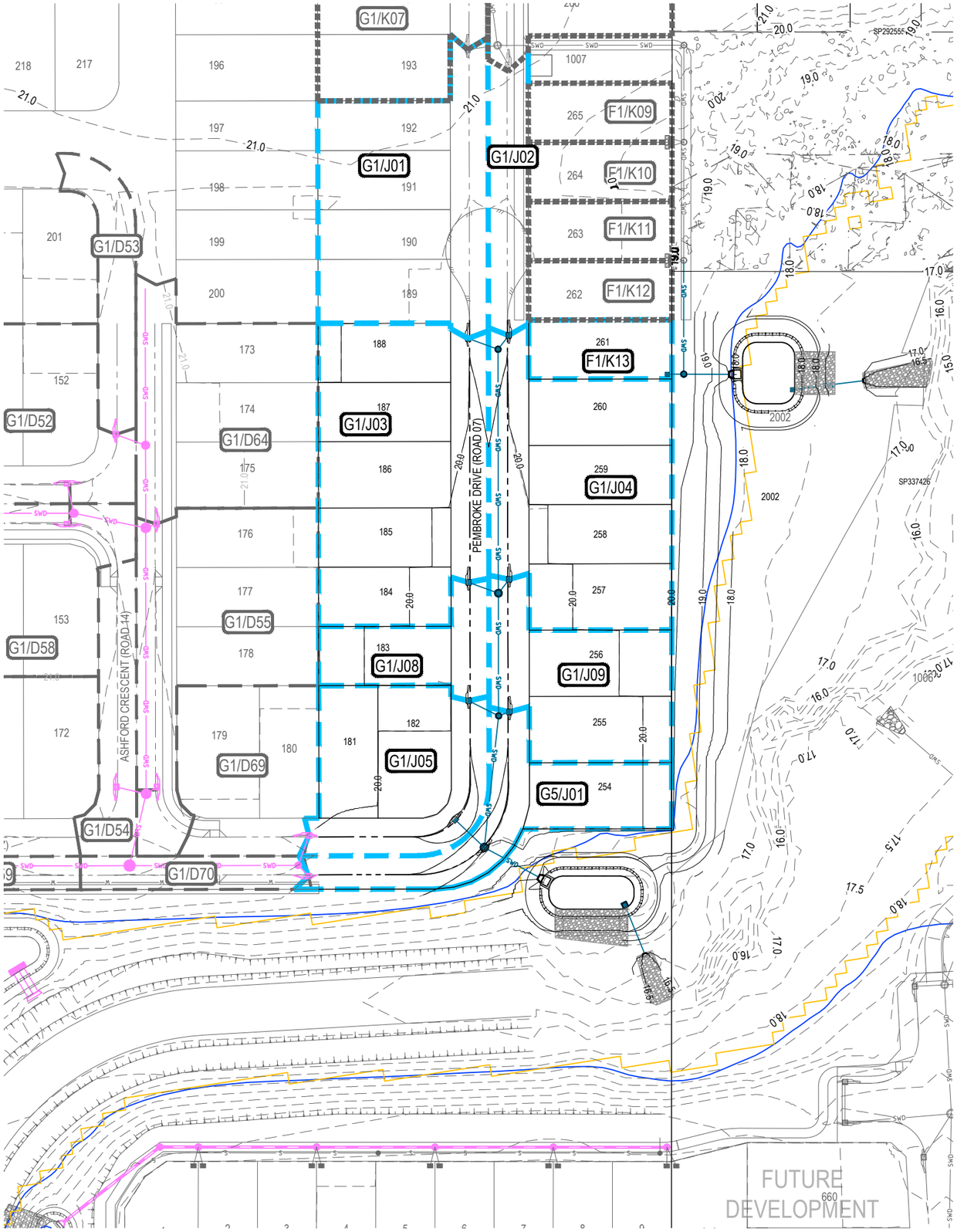
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: STORMWATER NOTES AND DETAILS

PROJECT No. 22-000082_5 | DRAWING No. 1402 | REVISION B



LEGEND

- STAGE BOUNDARY
- STORMWATER DRAINAGE
- MAINTENANCE HOLE
- GULLY PIT
- OUTLET STRUCTURE
- G1/A01 — STORMWATER CATCHMENT NAME
- F1/A03 — EXISTING STORMWATER CATCHMENT NAME
- STORMWATER CATCHMENT BOUNDARY
- EXISTING STORMWATER CATCHMENT BOUNDARY
- FUTURE STORMWATER CATCHMENT BOUNDARY
- 64.0 — DESIGN SURFACE CONTOUR (0.5m INTERVALS)
- 66.0 — EXISTING SURFACE CONTOUR (0.5m INTERVALS)
- EXISTING STORMWATER DRAINAGE
- EXISTING MAINTENANCE HOLE
- EXISTING GULLY PIT

CATCHMENT NAME	CATCHMENT AREA (Ha)
G1/J01	0.1808
G5/J01	0.0985
G1/J02	0.0479
G1/J03	0.2207
G1/J04	0.2042
G1/J05	0.1246
G1/J08	0.0550
G1/J09	0.1081
F1/K13	0.0378

NOTE:

1. REFER TO DRG 22-000082_5_1402 FOR STORMWATER STANDARD NOTES AND DETAILS.
2. REFER TO DRG 22-000082_5_1410 FOR STORMWATER CATCHMENT PLAN.
3. REFER TO DRGs 22-000082_5_1420-1421 FOR STORMWATER LONGITUDINAL SECTIONS.
4. REFER TO DRGs 22-000082_5_1430-1431 FOR STORMWATER CALCULATION TABLES.

CAUTION !! UNDERGROUND TELECOMMS CABLES
UNDERGROUND TELECOMMUNICATION CABLES EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING.

CAUTION !! UNDERGROUND GAS MAIN
UNDERGROUND GAS MAIN EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR MAIN LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

CAUTION !! UNDERGROUND ELECTRICAL CABLES
UNDERGROUND ELECTRICITY CABLES EXIST IN THIS VICINITY. CONTACT ENERGEX FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	07.11.24	ISSUED FOR APPROVAL
AMENDMENTS	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE: 1:500 / 1:1000 — 10 5 0 10 20m — A1 / A3

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CLIENT: LENNIUM GROUP

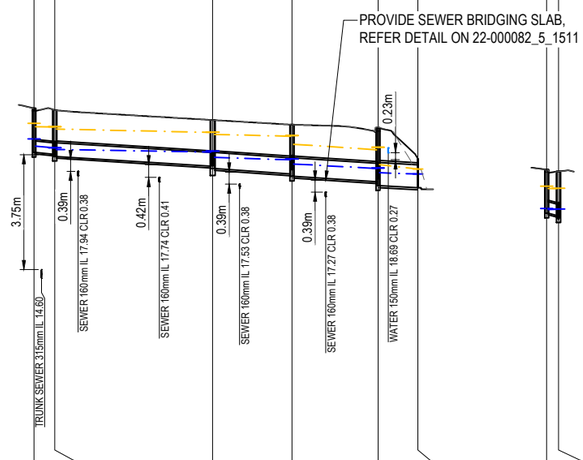
PROJECT: Lilywood LANDINGS — STAGE 5

DRAWING TITLE: STORMWATER CATCHMENT PLAN

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1410	A

CITY OF MORETON BAY

STRUCTURE NAME	G1/J01	02/J01	03/J01	04/J01	G5/J01	OUT/J01	G1/J02	02/J01	G1/J03	03/J01	G1/J04	03/J01	G1/J05	G5/J01	F1/J07	OUT/J07	G1/J08	4/J01	G1/J09	4/J01
STRUCTURE DESCRIPTION	GULLY PIT L.I.L: 2.4m Lintel; MK&C	MANHOLE 1050mm DIA	MANHOLE 1200mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL	MANHOLE 1050mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL	GULLY PIT (SAG) L.I.L: 2.4m Lintel; MK&C MANHOLE 1350mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL	PRECAST HEADWALL	GULLY PIT L.I.L: 2.4m Lintel; MK&C	MANHOLE 1050mm DIA	GULLY PIT L.I.L: 2.4m Lintel; MK&C	MANHOLE 1200mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL	GULLY PIT L.I.L: 2.4m Lintel; MK&C	MANHOLE 1200mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL	GULLY PIT (SAG) L.I.L: 2.4m Lintel; MK&C	GULLY PIT (SAG) L.I.L: 2.4m Lintel; MK&C MANHOLE 1350mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL	FIELD INLET 900x900 RAISED DOME TOP GRATE	PRECAST HEADWALL	GULLY PIT L.I.L: 2.4m Lintel; MK&C	MANHOLE 1050mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL	GULLY PIT L.I.L: 2.4m Lintel; MK&C	MANHOLE 1050mm DIA REFER 22-000082_5-1440 FOR STRUCTURE DETAIL
PIPE SIZE (mm)		375	450	525	600	750		375		375		375		450				375		375
PIPE CLASS		3	3	3	3	3		3		3		3		3				3		3
PIPE GRADE (%)		0.82%	0.62%	0.68%	0.64%	0.54%		1.95%		1.11%		1.92%		1.46%		0.65%		0.73%		1.54%
PIPE SLOPE (1 in X)		122.34	160.94	148.02	155.87	185.54		51.18		89.79		52.04		68.54		154.67		136.98		65.14
FULL PIPE VELOCITY (m/s)		0.72	0.67	1.33	1.32	1.07		0.25		0.89		0.81		0.36		0.66		0.32		0.51
PART FULL VELOCITY (m/s)		1.43	1.39	1.82	1.91	1.92		1.47		1.70		2.03		1.61		1.41		1.11		1.65
DATUM RL	3.0						5.0		3.0		5.0		3.0		3.0		3.0		5.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	19.098 18.895	18.822 18.825	18.780	18.646 18.669	18.514	18.387 18.406	18.293	18.108 18.120	18.008	18.000 18.000	18.000	18.000	18.837 18.821	18.820 18.825	18.780	18.902 18.641	18.646 18.669	18.514	18.870 18.632	18.646 18.669
PIPE FLOW (Cumecs)		0.071	0.091	0.251	0.318	0.401		0.020		0.085		0.080		0.050		0.105		0.026		0.045
PIPE CAPACITY AT GRADE (Cumecs)		0.159	0.225	0.354	0.492	0.818		0.245		0.185		0.243		0.345		0.229		0.150		0.217
DEPTH TO INVERT	1.440	1.438	1.513	1.508	1.583	1.606	1.681	1.761	1.886	0.950 0.950	1.427	1.438 1.513	1.425	1.453 1.583	1.429	1.453 1.583	1.482	1.631 1.886	1.400	0.909 0.910
INVERT LEVEL OF DRAIN	18.700	18.645	18.570	18.250	18.175	18.000	17.925	17.745	17.620	17.550 17.550	18.720	18.645 18.570	18.380	18.305 18.175	18.380	18.305 18.175	18.000	17.875 17.620	16.400	16.330 16.329
DESIGN SURFACE LEVEL	20.140	20.083	19.758	19.606	19.506	18.500	20.147	20.083	19.805	19.758	19.809	19.758	19.482	19.506	17.800	17.239	19.658	19.606	19.644	19.606
SETOUT COORDINATES	E 91064.238 N 502357.204	E 91070.109 N 502353.973	E 91062.209 N 502303.083	E 91058.235 N 502277.485	E 91050.952 N 502250.488	E 91061.257 N 502242.599	E 91072.829 N 502356.518	E 91070.109 N 502353.973	E 91056.337 N 502306.314	E 91062.209 N 502303.083	E 91064.929 N 502305.627	E 91062.209 N 502303.083	E 91045.733 N 502257.279	E 91050.952 N 502250.488	E 91078.467 N 502233.725	E 91080.904 N 502223.178	E 91052.502 N 502281.610	E 91058.235 N 502277.485	E 91060.633 N 502277.959	E 91058.235 N 502277.485
RUNNING CHAINAGE	0.000	6.728 6.728	51.500 58.228	25.904 84.133	28.057 112.190	12.988 125.177	0.000	3.838 3.838	0.000	6.734 6.734	0.000	3.903 3.903	0.000	8.567 8.567	0.000	10.827 10.827	0.000	7.110 7.110	0.000	2.477 2.477
LINE	Line J01						Line J02		Line J03		Line J04		Line J05		Line J07		Line J08		Line J09	



LEGEND

- DESIGN SURFACE
- EXISTING SURFACE
- HYDRAULIC GRADE LINE (10% AEP ARI)
- HYDRAULIC GRADE LINE (1% AEP ARI)

NOTES:

1. NOTWITHSTANDING THE STORMWATER STRUCTURE LEVELS SHOWN, THE COVER OR GRATE LEVEL SHALL SUIT THE FINISHED SURFACE PROFILE.
2. THE PIPE CLASSES HAVE BEEN DESIGNED FOR SERVICE LOADS ONLY. THE CONTRACTOR SHALL ASSESS ANTICIPATED LOADS AND UPGRADE THE PIPE CLASSES IF NECESSARY IN ACCORDANCE WITH AS 3725-2007. CRACKED PIPES WILL NOT BE ACCEPTED.
3. REFER DRG 22-000082_5-1402 FOR STORMWATER NOTES.

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	07.11.24	
AMENDMENTS A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
B	AA	RT	AA	RA	07.03.25	DOME GRATE ADDED TO FIELD INLETS AS PER COUNCIL RFI

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE
1:1000 10 0 10 20 30 40 50m A1
1:2000 HORIZONTAL A3
1:100 2 1 0 2 4m A1
1:200 VERTICAL A3

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CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS SHEET 1 OF 2

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1420	B

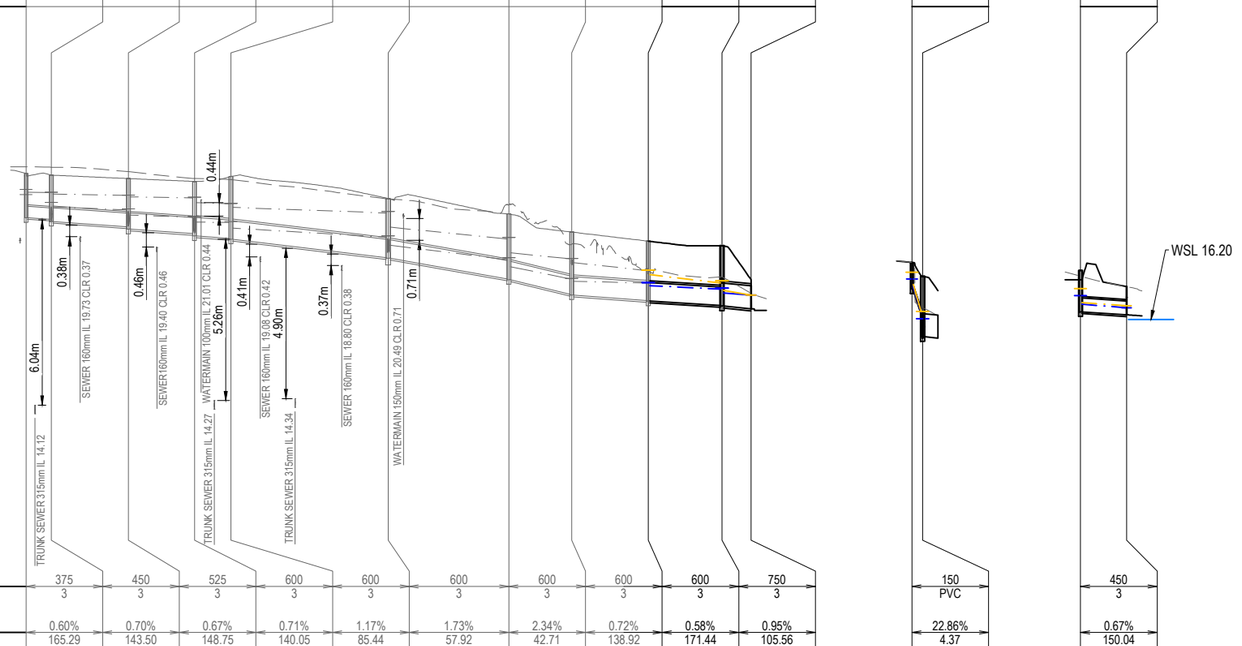
CITY OF MORETON BAY

STRUCTURE NAME	G1/K01	02/K01	03/K01	04/K01	05/K01	06/K01	07/K01	08/K01	09/K01	10/K01	OUT/K01
STRUCTURE DESCRIPTION	GULLY PIT L.I.L: 2.4m Lintel: MK8C	MANHOLE 1050mm DIA	MANHOLE 1050mm DIA	MANHOLE 1050mm DIA	MANHOLE 1050mm DIA	MANHOLE 1200mm DIA	MANHOLE 1050mm DIA	MANHOLE 1050mm DIA	MANHOLE 1050mm DIA	**MANHOLE 1050mm DIA**	PRECAST HEADWALL
PIPE SIZE (mm)		375	450	525	600	600	600	600	600	600	750
PIPE CLASS		3	3	3	3	3	3	3	3	3	3
PIPE GRADE (%)		0.60%	0.70%	0.67%	0.71%	1.17%	1.73%	2.34%	0.72%	0.58%	0.95%
PIPE SLOPE (1 in X)		165.29	143.50	148.75	140.05	85.44	57.92	42.71	138.92	171.44	105.56
FULL PIPE VELOCITY (m/s)		0.86	1.13	1.33	1.26	1.08	1.47	1.46	1.56	1.65	1.08
PART FULL VELOCITY (m/s)		1.33	1.65	1.82	1.98	2.30	2.88	3.22	2.07	1.89	2.37
DATUM RL	4.0										
H.G.L IN PIPE & W.S.E IN STRUCTURE	21.041	20.783 20.792	20.677 20.627	20.482 20.423	20.286 20.316	20.180 19.926	19.623 19.212	18.922 18.538	18.448 18.402	18.305 18.226	18.065 18.000	18.000
PIPE FLOW (Cumecs)		0.084	0.161	0.248	0.306	0.305	0.417	0.414	0.441	0.466	0.477	
PIPE CAPACITY AT GRADE (Cumecs)		0.136	0.238	0.353	0.519	0.665	0.807	0.940	0.521	0.469	1.088	
DEPTH TO INVERT		1.447	1.438	1.513	1.576	1.651	1.696	1.771	2.024	2.044	1.928	1.948	2.126	2.146	2.031	2.051	1.934	1.954	1.947	1.967	0.750	0.750
INVERT LEVEL OF DRAIN		20.520	20.470	20.395	20.220	20.145	20.000	19.925	19.840	19.820	19.220	19.200	18.520	18.500	18.020	18.000	17.820	17.800	17.660	17.640	17.550	17.550
DESIGN SURFACE LEVEL	21.967		21.908		21.796		21.696		21.864		21.148		20.646		20.051		19.754		19.607		18.300	
SETOUT COORDINATES	E 91091.085 N 502530.133		E 91096.511 N 502524.032		E 91092.210 N 502499.289		E 91088.517 N 502478.040		E 91081.200 N 502468.649		E 91079.956 N 502417.400		E 91118.874 N 502411.358		E 91115.695 N 502391.106		E 91111.806 N 502366.405		E 91108.074 N 502342.695		E 91117.458 N 502341.218	
RUNNING CHAINAGE	0.000	8.265	8.265	25.113	33.378	21.568	54.946	11.904	66.851	51.264	118.115	39.384	157.498	20.500	177.998	25.005	203.004	24.002	227.006	9.500	236.506	
LINE										Line K01												

STRUCTURE NAME	F1/K13	10/K01
STRUCTURE DESCRIPTION	FIELD INLET 600x600 FLUSH GRATE	MANHOLE 1050mm DIA
PIPE SIZE (mm)	150	
PIPE CLASS	PVC	
PIPE GRADE (%)	22.86%	
PIPE SLOPE (1 in X)	4.37	
FULL PIPE VELOCITY (m/s)	0.86	
PART FULL VELOCITY (m/s)	3.25	
DATUM RL	5.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	19.518 19.314	18.446 18.226	18.065
PIPE FLOW (Cumecs)	0.015	
PIPE CAPACITY AT GRADE (Cumecs)	0.073	
DEPTH TO INVERT	0.859	1.207	1.967
INVERT LEVEL OF DRAIN	19.200	18.400	17.640
DESIGN SURFACE LEVEL	20.059	19.607	
SETOUT COORDINATES	E 91104.616 N 502343.239	E 91108.074 N 502342.695
RUNNING CHAINAGE	0.000	3.500	3.500
LINE	Line K13	

STRUCTURE NAME	F1/K14	OUT/K14
STRUCTURE DESCRIPTION	FIELD INLET 900x900 RAISED DOME TOP GRATE	PRECAST HEADWALL
PIPE SIZE (mm)	450	
PIPE CLASS	3	
PIPE GRADE (%)	0.67%	
PIPE SLOPE (1 in X)	150.04	
FULL PIPE VELOCITY (m/s)	0.79	
PART FULL VELOCITY (m/s)	1.49	
DATUM RL	3.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	16.981 16.697	16.585 16.585	16.585
PIPE FLOW (Cumecs)	0.125	
PIPE CAPACITY AT GRADE (Cumecs)	0.233	
DEPTH TO INVERT	1.350	0.922	0.922
INVERT LEVEL OF DRAIN	16.450	16.350	16.350
DESIGN SURFACE LEVEL	17.800	17.272	
SETOUT COORDINATES	E 91130.290 N 502335.920	E 91145.283 N 502335.463
RUNNING CHAINAGE	0.000	15.004	15.004
LINE	Line K14	

FUTURE WORKS
STAGE 6 & 7



LEGEND

- DESIGN SURFACE
- EXISTING SURFACE
- HYDRAULIC GRADE LINE (10% AEP ARI)
- HYDRAULIC GRADE LINE (1% AEP ARI)

NOTES:

1. NOTWITHSTANDING THE STORMWATER STRUCTURE LEVELS SHOWN, THE COVER OR GRATE LEVEL SHALL SUIT THE FINISHED SURFACE PROFILE.
2. THE PIPE CLASSES HAVE BEEN DESIGNED FOR SERVICE LOADS ONLY. THE CONTRACTOR SHALL ASSESS ANTICIPATED LOADS AND UPGRADE THE PIPE CLASSES IF NECESSARY IN ACCORDANCE WITH AS 3725-2007. CRACKED PIPES WILL NOT BE ACCEPTED.
3. REFER DRG 22-000082_5-1402 FOR STORMWATER NOTES.

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
B	AA	RT	AA	RA	07.03.25	DOME GRATE ADDED TO FIELD INLETS AS PER COUNCIL RFI

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE
1:1000 10 0 10 20 30 40 50m A1
1:2000 HORIZONTAL A3
1:100 2 1 0 2 4m A1
1:200 VERTICAL A3

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CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS SHEET 2 OF 2

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1421	B

CITY OF MORETON BAY

	LOCATION	CATCHMENT PROPERTIES			FULL AREA RUNOFF					PART AREA RUNOFF					INLET DESIGN										DRAIN DESIGN								HEADLOSSES							PART FULL		DESIGN LEVELS							
		fi	Ci	Cp	tc	I	A	CA	Q	tc	I	A	CA	Q	Qa							Qg	Qb		tc	I	CA	Qp	L	S		Vf	S/Do	Qg/Qo	Du/Do		Vf2/2g	Ku	hu	Kw	hw	Sf	hf	dn	Vn							
DESIGN ARI	STRUCTURE No.	FRACTION IMPERVIOUS	COEFFICIENT OF RUNOFF IMPERVIOUS AREA	COEFFICIENT OF RUNOFF PERVIOUS AREA	TIME OF CONCENTRATION	RAINFALL INTENSITY	SUB-CATCHMENT AREA	EQUIVALENT IMPERVIOUS AREA	SUB-CATCHMENT DISCHARGE	TIME OF CONCENTRATION	RAINFALL INTENSITY	PARTIAL CATCHMENT AREA	EQUIVALENT IMPERVIOUS AREA	SUB-CATCHMENT DISCHARGE	FLOW IN K&C(INC. BYPASS)	FLOW WIDTH	FLOW DEPTH	FLOW DxV	ROAD GRADE AT INLET	ROAD XFALL AT INLET	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE SIZE	FULL PIPE VELOCITY	SUBMERGENCE RATIO	GRATE FLOW RATIO	DIAMETER RATIO	CHART(S) USED	VELOCITY HEAD	U/S HEAD LOSS COEFFICIENT	U/S HEAD LOSS	W.S.E COEFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEAD LOSS	NORMAL DEPTH	NORMAL DEPTH VEL.	PIPE U/S I.L	PIPE D/S I.L	PIPE U/S H.G.L	PIPE D/S H.G.L	W.S.E	GRATE LEVEL	FREEBOARD	STRUCTURE No.
Yrs					min	mm/h	ha	ha	L/s	min	mm/h	ha	ha	L/s	L/s	m	m		%	%		L/s	L/s		min	mm/hr	ha	L/s	m	%	mm	m/s					m	m			m	%	m	m	m/s	m	m	m	m	m	m	
10%	G1/J01	85	0.9	0.64	10	168	0.181	0.155	72	5	207	0.167	0.146	84	72	2.592	0.083	0.06	1.15	3	GULLY MK-S	71	1	G1/J03	10	168	0.155	71	6.728	0.82	375	0.65	1.54	1		G2	0.021	9.48	0.203		0.203	1.09	0.051	0.177	1.4	18.7	18.645	18.895	18.822	19.098	20.055	0.957	G1/J01
10%	02/J01	0																	1	3	MH1050				10.08	168	0.196	91	51.5	0.62	450	0.57	1.1	0	1	T6/T9	0.017	2.42	0.041	2.71	0.046	0.26	0.195	0.2	1.34	18.57	18.25	18.78	18.646	18.825	20.083	1.257	02/J01
10%	03/J01	0																	1	3	MH1200				10.69	164	0.56	251	25.904	0.68	525	1.16	1.3	0	1	T3/T6	0.068	1.92	0.132	2.27	0.155	0.49	0.164	0.327	1.77	18.175	18	18.514	18.387	18.669	19.758	1.089	03/J01
10%	04/J01	0																	1	3	MH1050				10.95	163	0.7	318	28.057	0.64	600	1.12	1.19	0	1	T1/T3	0.065	1.45	0.094	1.75	0.113	0.66	0.18	0.351	1.85	17.925	17.745	18.293	18.108	18.406	19.606	1.2	04/J01
10%	G5/J01	85	0.9	0.64	10	168	0.098	0.084	39	5	207	0.091	0.08	46	39		0.03		0.41	3.44	SAG MK-S	39	0	F1/J07	11.22	162	0.891	401	12.988	0.54	750	0.91	1.15	0.1	1	T6/T9	0.042	2.36	0.099	2.66	0.112	0.06	0.055	0.371	1.84	17.62	17.55	18.008	18	18.12	19.399	1.278	G5/J01
10%	OUT/J01																		1	3	HW outlet																												18	18.5		OUT/J01
10%	G1/J02	85	0.9	0.64	10	168	0.048	0.041	19	5	207	0.044	0.039	22	20	1.561	0.054	0.03	1.17	3	GULLY MK-S	20	0	G1/J04	10	168	0.041	20	3.838	1.95	375	0.18	1.04	1		G2	0.002	9.7	0.016		0.016	0.01	0.029	0.073	1.34	18.72	18.645	18.821	18.82	18.837	20.062	1.224	G1/J02
10%	G1/J03	85	0.9	0.64	10	168	0.221	0.189	88	5	207	0.204	0.179	103	89	3.156	0.098	0.06	0.59	3	GULLY MK-S	85	4	G1/J08	10	168	0.189	85	6.734	1.11	375	0.77	1.7	1		G2	0.03	8.64	0.261		0.261	-0.07	0.017	0.178	1.64	18.38	18.305	18.641	18.646	18.902	19.72	0.818	G1/J03
10%	G1/J04	85	0.9	0.64	10	168	0.204	0.175	82	5	207	0.189	0.165	95	82	3.053	0.096	0.06	0.59	3	GULLY MK-S	80	2	G1/J09	10	168	0.175	80	3.903	1.92	375	0.72	1.64	1		G2	0.027	8.97	0.238		0.238	-0.36	0.009	0.148	1.97	18.38	18.305	18.632	18.646	18.87	19.724	0.854	G1/J04
10%	G1/J05	85	0.9	0.64	10	168	0.125	0.107	50	5	207	0.115	0.101	58	50		0.037		0.83	3.34	SAG MK-S	50	0	G5/J01	10	168	0.107	50	8.567	1.46	450	0.31	1.11	1		G2	0.005	9.7	0.049		0.049	0.53	0.083	0.116	1.54	18	17.875	18.153	18.108	18.201	19.397	1.196	G1/J05
10%	F1/J07	0					0	0	0			0	0	0	105		0.107		0	3	RSIP-9x9	105	0	LOST	1	286	0	105	10.827	0.65	450	0.66	1.48	1		G2	0.022	9.7	0.216		0.216	0.75	0.069	0.214	1.41	16.4	16.33	16.625	16.544	16.841	17.8	0.959	F1/J07
10%	OUT/J07																		1	3	HW outlet																												16.544	17.082		OUT/J07
10%	G1/J08	85	0.9	0.64	10	168	0.055	0.047	22	5	207	0.051	0.045	26	26	1.966	0.065	0.03	0.59	3	GULLY MK-S	26	0	G1/J05	10	168	0.047	26	7.11	0.73	375	0.24	1.07	1		G2	0.003	9.7	0.028		0.028	-0.06	0.009	0.106	1.02	18.24	18.188	18.383	18.387	18.41	19.573	1.163	G1/J08
10%	G1/J09	85	0.9	0.64	10	168	0.108	0.093	43	5	207	0.1	0.087	50	45	2.432	0.078	0.04	0.59	3	GULLY MK-S	45	0	G5/J01	10	168	0.093	45	2.477	1.54	375	0.41	1.22	1		G2	0.009	9.7	0.083		0.083	-0.32	0.02	0.116	1.55	18.225	18.187	18.379	18.387	18.461	19.559	1.097	G1/J09
10%	G1/K01	85	0.9	0.64	10	168	0.22	0.189	88	5	207	0.204	0.178	102	88	3.24	0.101	0.06	0.5	3	GULLY MK-S	84	4	G1/K03	10	168	0.189	84	8.265	0.6	375	0.76	1.69	1		G2	0.03	8.69	0.258		0.258	0.11	0.023	0.213	1.3	20.52	20.47	20.783	20.774	21.041	21.882	0.842	G1/K01
10%	02/K01	0																	1	3	MH1050				10.23	167	0.358	161	25.113	0.7	450	1.01	1.26	0	1	T3/T6	0.052	1.85	0.097	2.21	0.115	0.3	0.131	0.271	1.61	20.395	20.22	20.677	20.602	20.792	21.908	1.116	02/K01
10%	03/K01	0																	1	0.28	MH1050				10.51	165	0.541	248	21.568	0.67	525	1.15	1.28	0	1	T3/T6	0.067	1.79	0.12	2.16	0.145	0.37	0.126	0.325	1.76	20.145	20	20.482	20.403	20.627	21.796	1.17	03/K01
10%	04/K01	0																	1	3	MH1200				10.73	164	0.671	306	11.904	0.71	600	1.08	1.23	0	1	T3/T6	0.06	1.96	0.117	2.3	0.137	-0.09	0.051	0.331	1.91	19.925	19.84	20.286	20.296	20.423	21.696	1.273	04/K01
10%	05/K01	0																	1	2.99	MH1050				10.84	164	0.671	305	51.264	1.17	600	1.08	1.23	0	1	T3/T6	0.059	1.96	0.116	2.29	0.136	0.58	0.388	0.285	2.3	19.82	19.22	20.18	19.884	20.316	21.864	1.548	05/K01
10%	06/K01	0																	1	3	MH1200				11.2	162	0.929	417	39.384	1.73	600	1.47	1.51	0	1	T9/T10	0.111	2.35	0.261	2.74	0.303	1.2	0.558	0.306	2.88	19.2	18.52	19.623	19.15	19.926	21.121	1.195	06/K01
10%	07/K01	0																	1	-1.2	MH1050				11.43	161	0.929	414	20.5	2.34	600	1.46	1.48	0	1	T10	0.109	2.09	0.228	2.66	0.29	1.93	0.455	0.279	3.22	18.5	18.02	18.922	18.526	19.212	20.953	1.741	07/K01
10%	08/K01	0																	1.19	16.67	MH1050				11.54	160	0.994	441	25.005	0.72	600	1.56	1.15	0	1	T1/T3	0.124	0.62	0.078	0.73	0.09	0.24	0.124	0.424	2.07	18	17.82	18.448	18.388	18.538	20.061	1.523	08/K01
10%	09/K01	0																	1.19	16.67	MH1050				11.76	159	1.059	466	24.002	0.58	600	1.65	1.16	0	1	T1/T3	0.139	0.6	0.083	0.69	0.096	0.48	0.128	0.489	1.89	17.8	17.66	18.305	18.191	18.402	19.764	1.363	09/K01
10%	10/K01	0																	0	16.67	MH1050				12	158	1.092	477	9.5	0.95	750	1.08	1.21	0	0.82	T9/T10	0.059	2.11	0.125	2.71	0.161	0.69	0.087	0.348	2.37	17.64	17.55	18.065	18	18.226	19.617	1.39	10/K01
10%	OUT/K01																		1	3	HW outlet																												18	18.3		OUT/K01
10%	G1/K02	85	0.9	0.64	10	168	0.198	0.169	79	5	207	0.183	0.16	92	79	3.111	0.097	0.06	0.5	3	GULLY MK-S	78	1	G1/K04	10	168	0.169	78	15.019	0.47	375	0.71	1.47	1		G1	0.025	7	0.178		0.178	0.14	0.032	0.22	1.15	20.52	20.45	20.794	20.774	20.972	21.931	0.959	G1/K02
10%	G1/K03	85	0.9	0.64	10	168	0.065	0.056	26	5	207	0.06	0.053	30	30	2.14	0.07	0.03	0.5	3	GULLY MK-S	30	0	G1/K05	10	168	0.056	30	5.926	1.82	375	0.27	1.1	1		G2	0.004	9.7	0.036		0.036	-0.1	0.003	0.09	1.47	20.403	20.295	20.597	20.602	20.633	21.736	1.103	G1/K03
10%	G1/K04	85	0.9	0.64	10	168	0.148	0.127	59	5	207	0.137	0.12	69	60	2.804	0.089	0.05	0.5	3	GULLY MK-S	60	0	G1/K06	10	168	0.127	60	2.936	3.65	375	0.55	1.39	1		G2	0.015	9.7	0.147		0.147	-0.75	0.027	0.108	2.3	20.402	20.295	20.58	20.602	20.728	21.736	1.008	G1/K04
10%	G1/K05	85	0.9	0.64	10	168	0.029	0.025	12	5	207	0.027	0.024	14	12		0.009		0.71	2.9	SAG MK-S	12	0	G1/K06	10	168	0.025	12	6.396	3.52	450	0.07	1.01	1		G2	0	9.7	0.003		0.003	-0.16	0.002	0.046	1.37	20.3	20.075	20.393	20.403	20.395	21.643	1.248	G1/K05
10%	G1/K06	85	0.9	0.64	10	168	0.122	0.105	49	5	207	0.113	0.099	57	49		0.036		0.16	3.01	SAG MK-S	49	0	G1/K08	10	168	0.105	49	2.316	7.56	450	0.31	1.1	1		G2	0.005	9.7	0.047		0.047	-0.08	0.046	0.076	2.74	20.25	20.075	20.401	20.403	20.448	21.644	1.196	G1/K06
10%	G1/K07	85	0.9	0.64	10	168	0.121	0.104	48	5	207	0.112	0.098	56	48	2.018	0.067	0.06	1.78	3	GULLY MK-S	48	0	G1/J01	10	168	0.104	48	6.365	4.32	375	0.44	1.25	1		G2	0.01	9.7	0.095		0.095	-0.39	0.026	0.092	2.29	19.7	19.425	19.859	19.884	19.954	21.08	1.126	G1/K07
10%	G1/K08	85	0.9	0.64	10	168	0.181	0.155	72	5	207	0.167	0.146	84	72	2.357	0.076	0.07	1.78	3	GULLY MK-S	71	1	G1/J02	10	168	0.155	71	4.752	4.1	375	0.65	1.54	1		G2	0.021	9.49	0.202		0.202	-0.27	0.008	0.114	2.51	19.62	19.425	19.871	19.884	20.073	21.023	0.95	G1/K08
10%	F1/K09	85	0.9	0.64	10	168	0.038	0.032	15	5	207	0.035	0.031	18	15		0.039		1	-16.67	FSIP-6x6	15	0	F1/K14	10	168	0.032	15	3.651	23.83	150	0.86	2.37	1		G2	0.038	5.46	0.205		0.205	25.7	0.438	0.046	3.3	19.87	19	19.984	19.046	20.189	20.859	0.669	F1/K09
10%	F1/K10	85	0.9	0.64	10	168	0.038	0.032	15	5	207	0.035	0.031	18	15		0.039		1	-16.67	FSIP-6x6	15	0	F1/K14	10	168	0.032	15	3.655	20.52	150	0.86	2.37	1		G2	0.037	5.46	0.205		0.205	22.33	0.373	0.048	3.13	19.75	19	19.864	19.048	20.069	20.659	0.59	F1/K10
10%	F1/K11	85	0.9	0.64	10	168	0.038	0.032	15	5	207	0.035	0.031	18	15		0.039		1	-16.67	FSIP-6x6	15	0	F1/K14	10	168	0.032	15	3.652	21.9	150	0.86	2.36	1		G2	0.037	5.47	0.205		0.205	23.74	0.4	0.047	3.2	19.5	18.7	19.614	18.747	19.819	20.459	0.64	F1/K11
10%	F1/K12	85	0.9	0.64	10	168	0.038	0.032	15	5	207	0.035	0.031	18	15		0.039		1	-16.67	FSIP-6x6	15	0	F1/K14	10	168	0.032	15	3.653	18.07	150	0.86	2.36	1		G2	0.037	5.47	0.205		0.205	19.83	0.325	0.049	2.99	19.36	18.7	19.474	18.749	19.678	20.259	0.58	F1/K12
10%	F1/K13	85	0.9	0.64	10	168	0.038	0.032	15	5	207	0.035	0.031	18	15		0.039		1	-16.67	FSIP-6x6	15	0	LOST	10	168	0.032	15	3.5	22.86	150	0.86	2.36	1		G2	0.037	5.48	0.204		0.204	24.79	0.385	0.046	3.25	19.2	18.4	19.314	18.446	19.518	20.059	0.54	F1/K13
10%	F1/K14	0					0	0	0			0	0	0	125		0.121		0	3	RSIP-9x9	125	0	LOST	1	286	0	125	15.004	0.67	450	0.79	1.63	1		G2	0.032	9	0.284		0.284	0.75	0.099	0.235	1.49	16.45	16.35	16.697	16.585	16.981	17.8	0.819	F1/K14
10%	OUT/K14																		1	3	HW outlet																												16.585	16.918		OUT/K14

STORMWATER DRAINAGE CALCULATIONS - MINOR 10% AEP

STORMWATER DRAINAGE CALCULATIONS - MINOR 10% AEP

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	07.11.24	
AMENDMENTS	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE

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CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: STORMWATER CALCULATION TABLES MINOR

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1430	A

	LOCATION	CATCHMENT PROPERTIES			FULL AREA RUNOFF					PART AREA RUNOFF					INLET DESIGN									DRAIN DESIGN								HEADLOSSES									PART FULL		DESIGN LEVELS								
		fi	Ci	Cp	tc	I	A	CA	Q	tc	I	A	CA	Q	Qa							Qg	Qb		tc	I	CA	Qp	L	S		Vf	S/Do	Qg/Qo	Du/Do		Vf2/2g	Ku	hu	Kw	hw	Sf	hf	dn	Vn									
DESIGN ARI	STRUCTURE No.	FRACTION IMPERVIOUS	COEFFICIENT OF RUNOFF IMPERVIOUS AREA	COEFFICIENT OF RUNOFF PERVIOUS AREA	TIME OF CONCENTRATION	RAINFALL INTENSITY	SUB-CATCHMENT AREA	EQUIVALENT IMPERVIOUS AREA	SUB-CATCHMENT DISCHARGE	TIME OF CONCENTRATION	RAINFALL INTENSITY	PARTIAL CATCHMENT AREA	EQUIVALENT IMPERVIOUS AREA	SUB-CATCHMENT DISCHARGE	FLOW IN K&C(INC. BYPASS)	FLOW WIDTH	FLOW DEPTH	FLOW DxV	ROAD GRADE AT INLET	ROAD XFALL AT INLET	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE SIZE	FULL PIPE VELOCITY	SUBMERGENCE RATIO	GRATE FLOW RATIO	DIAMETER RATIO	CHART(S) USED	VELOCITY HEAD	U/S HEAD LOSS COEFFICIENT	U/S HEAD LOSS	W.S.E COEFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEAD LOSS	NORMAL DEPTH	NORMAL DEPTH VEL.	PIPE U/S I.L	PIPE D/S I.L	PIPE U/S H.G.L	PIPE D/S H.G.L	W.S.E	GRATE LEVEL	FREEBOARD	STRUCTURE No.
Yrs					min	mm/h	ha	ha	L/s	min	mm/h	ha	ha	L/s	L/s	m	m		%	%		L/s	L/s		min	mm/hr	ha	L/s	m	%	mm	m/s					m				m	%	m	m	m/s	m	m	m	m	m	m	m	
1%	G1/J01	85	1	0.77	10	294	0.181	0.174	142	5	370	0.167	0.164	168	273	5.433	0.132	0.13	1.15	3	GULLY MK-S	82	191	G1/J03	10	294	0.174	82	6.728	0.82	375	0.74	2.49	1		G2	0.028	4.95	0.138		0.138	0.22	0.015	0.191	1.45	18.7	18.645	19.495	19.48	19.633	20.055	0.422	G1/J01
1%	02/J01	0																	1	3	MH1050				10.08	293	0.221	124	51.5	0.62	450	0.78	2.05	0	1	T6/T9	0.031	1.95	0.061	2.31	0.072	0.19	0.098	0.239	1.45	18.57	18.25	19.42	19.322	19.492	20.083	0.591	02/J01
1%	03/J01	0																	1	3	MH1200				10.69	288	0.631	209	25.904	0.68	525	0.96	2.2	0	1	T3/T6	0.047	1.51	0.072	1.7	0.081	0.24	0.061	0.29	1.7	18.175	18	19.251	19.19	19.331	19.758	0.427	03/J01
1%	04/J01	0																	1	3	MH1050				10.95	285	0.788	477	28.057	0.64	600	1.69	2.14	0	1	T3/T6	0.145	1.73	0.251	1.87	0.272	0.6	0.169	0.476	1.98	17.925	17.745	18.939	18.77	19.21	19.606	0.396	04/J01
1%	G5/J01	85	1	0.77	10	294	0.098	0.095	78	5	370	0.091	0.089	92	354		0.15		0.41	3.44	SAG MK-S	302	52	F1/J07	11.22	283	1.003	949	12.988	0.54	750	2.15	1.75	0.31	1	T6/T9	0.235	2.02	0.476	2.39	0.561	1.1	0.087	0.75	2.15	17.62	17.55	18.294	18.152	18.855	19.399	0.543	G5/J01
1%	OUT/J01																		1	3	HW outlet																														18.152	18.5		OUT/J01
1%	G1/J02	85	1	0.77	10	294	0.048	0.046	38	5	370	0.044	0.043	45	120	3.12	0.097	0.09	1.17	3	GULLY MK-S	43	77	G1/J04	10	294	0.046	43	3.838	1.95	375	0.39	2.16	1		G2	0.008	6.31	0.049		0.049	0.06	0.002	0.106	1.67	18.72	18.645	19.483	19.48	19.531	20.062	0.53	G1/J02
1%	G1/J03	85	1	0.77	10	294	0.221	0.213	174	5	370	0.204	0.2	206	365	6.446	0.158	0.13	0.59	3	GULLY MK-S	63	303	G1/J08	10	294	0.213	63	6.734	1.11	375	0.57	2.73	1		G2	0.016	4.4	0.072		0.072	0.13	0.009	0.15	1.51	18.38	18.305	19.331	19.322	19.403	19.72	0.317	G1/J03
1%	G1/J04	85	1	0.77	10	294	0.204	0.197	161	5	370	0.189	0.185	190	237	5.92	0.139	0.1	0.59	3	GULLY MK-S	32	205	G1/J09	10	294	0.197	32	3.903	1.92	375	0.29	2.57	1		G2	0.004	4.74	0.021		0.021	0.03	0.001	0.093	1.53	18.38	18.305	19.324	19.322	19.344	19.724	0.379	G1/J04
1%	G1/J05	85	1	0.77	10	294	0.125	0.12	98	5	370	0.115	0.113	116	308		0.11		0.83	3.34	SAG MK-S	182	126	G5/J01	10	294	0.12	182	8.567	1.46	450	1.14	2.51	1		G2	0.067	4.87	0.326		0.326	0.41	0.035	0.233	2.2	18	17.875	18.805	18.77	19.13	19.397	0.267	G1/J05
1%	F1/J07	0					0	0	0			0	0	0	157		0.14		0	3	RSIP-9x9	157	0	LOST	1	506	0	157	10.827	0.65	450	0.99	1.86	1		G2	0.05	7.76	0.387		0.387	0.69	0.07	0.274	1.55	16.4	16.33	16.678	16.604	17.065	17.8	0.735	F1/J07
1%	OUT/J07																		1	3	HW outlet																														16.604	17.082		OUT/J07
1%	G1/J08	85	1	0.77	10	294	0.055	0.053	43	5	370	0.051	0.05	51	346	6.342	0.155	0.13	0.59	3	GULLY MK-S	136	210	G1/J05	10	294	0.053	136	7.11	0.73	375	1.23	3.35	1		G2	0.077	3.42	0.265		0.265	0.6	0.043	0.28	1.54	18.24	18.188	19.232	19.19	19.497	19.573	0.076	G1/J08
1%	G1/J09	85	1	0.77	10	294	0.108	0.104	85	5	370	0.1	0.098	101	290	6.243	0.147	0.11	0.59	3	GULLY MK-S	140	150	G5/J01	10	294	0.104	140	2.477	1.54	375	1.26	3.36	1		G2	0.082	3.42	0.279		0.279	0.63	0.016	0.219	2.09	18.225	18.187	19.205	19.19	19.484	19.559	0.075	G1/J09
1%	G1/K01	85	1	0.77	10	294	0.22	0.212	173	5	370	0.204	0.2	205	173	5.243	0.13	0.08	0.5	3	GULLY MK-S	57	116	G1/K03	10	294	0.212	57	8.265	0.6	375	0.52	2.48	1		G2	0.014	4.97	0.068		0.068	0.11	0.009	0.169	1.18	20.52	20.47	21.384	21.375	21.451	21.882	0.431	G1/K01
1%	02/K01	0																	1	3	MH1050				10.23	292	0.403	116	25.113	0.7	450	0.73	2.19	0	1	T3/T6	0.027	1.56	0.043	1.74	0.048	0.17	0.042	0.222	1.49	20.395	20.22	21.332	21.291	21.38	21.908	0.528	02/K01
1%	03/K01	0																	1	0.28	MH1050				10.51	289	0.609	169	21.568	0.67	525	0.78	2.19	0	1	T3/T6	0.031	1.5	0.047	1.69	0.053	0.15	0.033	0.256	1.61	20.145	20	21.244	21.211	21.297	21.796	0.499	03/K01
1%	04/K01	0																	1	3	MH1200				10.73	287	0.755	367	11.904	0.71	600	1.3	2.18	0	1	T6/T9	0.086	1.88	0.162	2.11	0.182	0.36	0.043	0.373	1.99	19.925	19.84	21.049	21.006	21.231	21.696	0.466	04/K01
1%	05/K01	0																	1	2.99	MH1050				10.84	286	0.755	365	51.264	1.17	600	1.29	2	0	1	T3/T6	0.085	1.77	0.15	1.92	0.163	0.35	0.181	0.317	2.4	19.82	19.22	20.856	20.675	21.019	21.864	0.845	05/K01
1%	06/K01	0																	1	3	MH1200				11.2	283	1.047	611	39.384	1.73	600	2.16	2.54	0	1	T9	0.238	1.95	0.464	2.15	0.51	0.99	0.389	0.39	3.14	19.2	18.52	20.211	19.822	20.721	21.121	0.4	06/K01
1%	07/K01	0																	1	-1.2	MH1050				11.43	281	1.047	604	20.5	2.34	600	2.14	2.3	0	1	T10	0.233	1.9	0.444	2.14	0.5	0.97	0.199	0.35	3.53	18.5	18.02	19.378	19.18	19.878	20.953	1.075	07/K01
1%	08/K01	0																	1.19	16.67	MH1050				11.54	280	1.12	631	25.005	0.72	600	2.23	1.99	0	1	T1/T3	0.254	0.48	0.121	0.52	0.133	1.05	0.264	0.6	2.23	18	17.82	19.058	18.794	19.191	20.061	0.87	08/K01
1%	09/K01	0																	1.19	16.67	MH1050				11.76	278	1.193	653	24.002	0.58	600	2.31	1.68	0	1	T1/T3	0.272	0.49	0.132	0.55	0.149	1.13	0.271	0.6	2.31	17.8	17.66	18.662	18.39	18.811	19.764	0.953	09/K01
1%	10/K01	0																	0	16.67	MH1050				12	276	1.229	666	9.5	0.95	750	1.51	1.42	0	0.82	T9/T10	0.116	2.11	0.245	2.71	0.314	1.53	0.076	0.425	2.58	17.64	17.55	18.146	18	18.46	19.617	1.157	10/K01
1%	OUT/K01																		1	3	HW outlet																														18	18.3		OUT/K01
1%	G1/K02	85	1	0.77	10	294	0.198	0.191	156	5	370	0.183	0.179	184	156	5.153	0.126	0.08	0.5	3	GULLY MK-S	62	94	G1/K04	10	294	0.191	62	15.019	0.47	375	0.56	2.49	1		G1	0.016	3.77	0.06		0.06	0.12	0.019	0.191	1.09	20.52	20.45	21.394	21.375	21.454	21.931	0.477	G1/K02
1%	G1/K03	85	1	0.77	10	294	0.065	0.063	51	5	370	0.06	0.059	61	168	5.141	0.128	0.08	0.5	3	GULLY MK-S	19	148	G1/K05	10	294	0.063	19	5.926	1.82	375	0.18	2.39	1		G2	0.002	5.35	0.008		0.008	0.01	0.001	0.073	1.29	20.403	20.295	21.291	21.291	21.3	21.736	0.436	G1/K03
1%	G1/K04	85	1	0.77	10	294	0.148	0.143	116	5	370	0.137	0.134	138	211	5.861	0.137	0.09	0.5	3	GULLY MK-S	39	172	G1/K06	10	294	0.143	39	2.936	3.65	375	0.35	2.46	1		G2	0.006	5.07	0.032		0.032	0.05	0.001	0.086	2.03	20.402	20.295	21.292	21.291	21.324	21.736	0.411	G1/K04
1%	G1/K05	85	1	0.77	10	294	0.029	0.028	23	5	370	0.027	0.027	27	172		0.11		0.71	2.9	SAG MK-S	55	116	G1/K06	10	294	0.028	55	6.396	3.52	450	0.35	2.12	1		G2	0.006	6.5	0.04		0.04	0.04	0.002	0.098	2.17	20.3	20.075	21.213	21.211	21.253	21.643	0.39	G1/K05
1%	G1/K06	85	1	0.77	10	294	0.122	0.118	96	5	370	0.113	0.111	114	384		0.138		0.16	3.01	SAG MK-S	148	236	G1/K08	10	294	0.118	148	2.316	7.56	450	0.93	2.61	1		G2	0.044	4.66	0.207		0.207	0.27	0.006	0.133	3.79	20.25	20.075	21.217	21.211	21.424	21.644	0.22	G1/K06
1%	G1/K07	85	1	0.77	10	294	0.121	0.117	95	5	370	0.112	0.11	113	275	4.706	0.122	0.15	1.78	3	GULLY MK-S	145	131	G1/J01	10	294	0.117	145	6.365	4.32	375	1.31	3.48	1		G2	0.088	3.28	0.288		0.288	0.68	0.043	0.164	3.11	19.7	19.425	20.718	20.675	21.006	21.08	0.074	G1/K07
1%	G1/K08	85	1	0.77	10	294	0.181	0.175	143	5	370	0.167	0.164	169	198	3.713	0.108	0.12	1.78	3	GULLY MK-S	116	82	G1/J02	10	294	0.175	154	4.752	4.1	375	1.39	3.71	1		G2	0.099	3.03	0.3		0.3	0.77	0.037	0.173	3.1	19.62	19.425	20.711	20.675	21.012	21.023	0.011	G1/K08
1%	F1/K09	85	1	0.77	10	294	0.038	0.037	30	5	370	0.035	0.034	35	30		0.04		1	-16.67	FSIP-6x6	16	14	F1/K14	10	294	0.037	16	3.651	23.83	150	0.91	2.44	1		G2	0.042	5.16	0.216		0.216	22.12	0.825	0.047	3.35	19.87	19	19.987	19.18	20.203	20.859	0.656	F1/K09
1%	F1/K10	85	1	0.77	10	294	0.038	0.037	30	5	370	0.035	0.034	35	30		0.04		1	-16.67	FSIP-6x6	16	14	F1/K14	10	294	0.037	16	3.655	20.52	150	0.91	2.44	1		G2	0.042	5.16	0.216		0.216	18.81	0.705	0.049	3.18	19.75	19	19.867	19.18	20.083	20.659	0.576	F1/K10
1%	F1/K11	85	1	0.77	10	294	0.038	0.037	30	5	370	0.035	0.034	35	30		0.04		1	-16.67	FSIP-6x6	16	14	F1/K14	10	294	0.037	16	3.652	21.9	150	0.91	2.44	1		G2	0.042	5.16	0.216		0.216	22.53	0.787	0.048	3.25	19.5	18.7	19.617	18.794	19.833	20.459	0.626	F1/K11
1%	F1/K12	85	1	0.77	10	294	0.038	0.036	30	5	370	0.035	0.034	35	30		0.04		1	-16.67	FSIP-6x6	16	14	F1/K14	10	294	0.036	16	3.653	18.07	150	0.91	2.44	1		G2	0.042	5.16	0.216		0.216	18.69	0.647	0.051	3.04	19.36	18.7	19.477	18.794	19.693	20.259	0.566	F1/K12
1%	F1/K13	85	1	0.77	10	294	0.038	0.036	30	5	370	0.035	0.034	35	30		0.05		1	-16.67	FSIP-6x6	22	8	LOST	10	294	0.036	22	3.5	22.86	150	1.24	3	1		G2	0.079	3.8	0.3		0.3	25.06	0.302	0.057	3.61	19.2	18.4	19.334	18.457	19.634	20.059	0.425	F1/K13
1%	F1/K14	0					0	0	0			0	0	0	180		0.154		0	3	RSIP-9x9	180	0	LOST	1	506	0	180	15.004	0.67	450	1.13	2.01	1		G2	0.066	6.95	0.456		0.456	0.68	0.1	0.298	1.62	16.45	16.35	16.749	16.648	17.205	17.8	0.595	F1/K14
1%	OUT/K14																		1	3	HW outlet																														16.648	16.918		OUT/K14

STORMWATER DRAINAGE CALCULATIONS - MAJOR 1% AEP

(INCLUDING 20% ABOVE STANDARD 1% AEP INTENTIES FOR CLIMATE CHANGE)

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE

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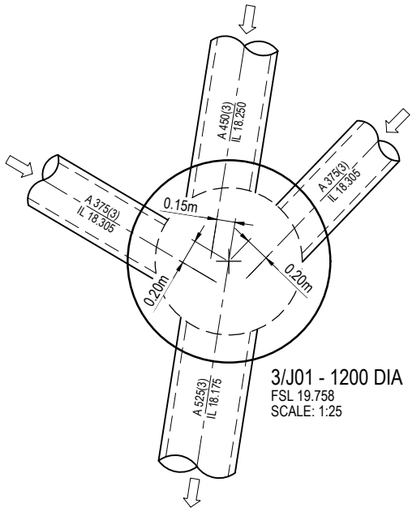
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

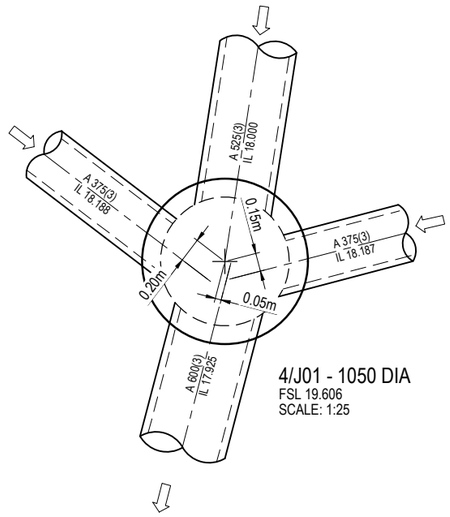
DRAWING TITLE: STORMWATER CALCULATION TABLES MAJOR

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1431	A

CITY OF MORETON BAY



3/J01 - 1200 DIA
FSL 19.758
SCALE: 1:25



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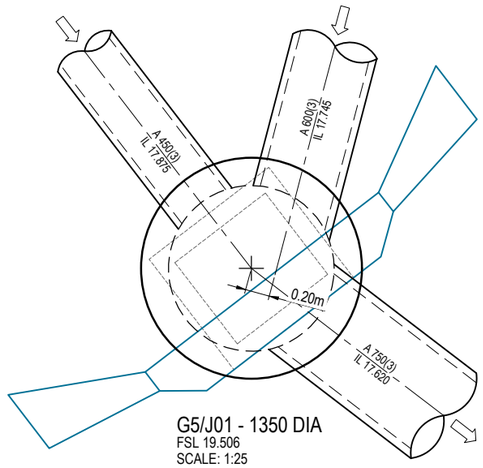

G5/J01 - 1350 DIA
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SCALE: 1:25

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE: 1:20 0.2 0 0.2 0.4 0.6 0.8 1m A1; 1:40 A3

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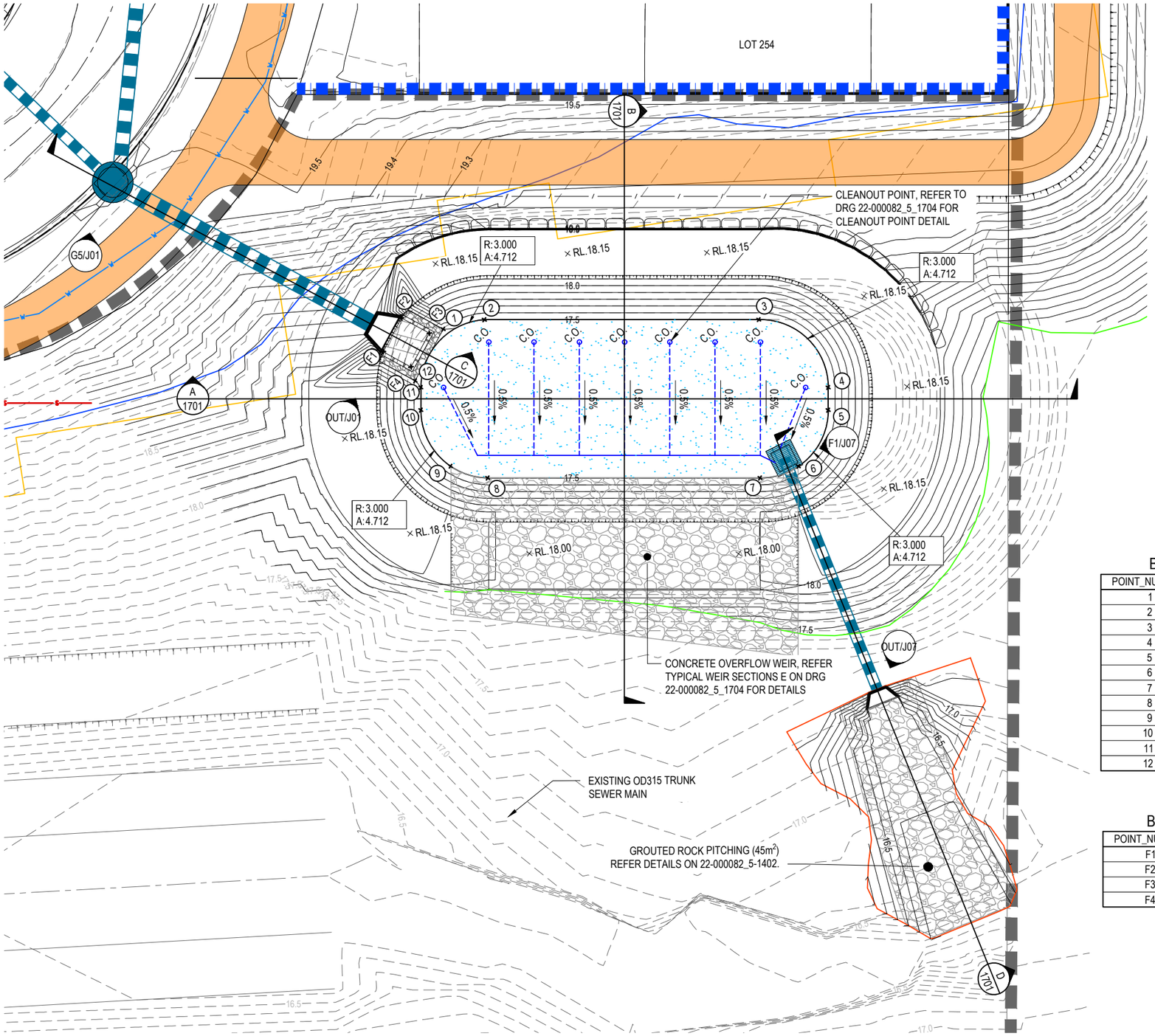
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS
STAGE 5

DRAWING TITLE: STORMWATER STRUCTURE DETAILS

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1440	A



LEGEND

- WORKS BOUNDARY
- STORMWATER DRAINAGE
- MAINTENANCE HOLE
- GULLY PIT
- OUTLET STRUCTURE
- FIELD INLET
- CONCRETE FOOTPATH
- PROPOSED KERB
- 66.0 DESIGN SURFACE CONTOUR (0.10m INTERVALS)
- FUTURE STORMWATER DRAINAGE
- FUTURE STORMWATER STRUCTURE
- PROPOSED TYPE 1 SLEEPER RETAINING WALL
- PROPOSED TYPE 2 SLEEPER RETAINING WALL
- PROPOSED BOULDER RETAINING WALL
- CONCRETE DRIVEWAY
- BIO-BASIN FOREBAY AREA
- BIO-RETENTION BASIN FILTER MEDIA
- SCOUR PROTECTION
- 100Ø SLOTTED AGI DRAIN, 0.5% MIN GRADE TO OUTLET PIT AS SHOWN.
- 150Ø UN-SLOTTED AGI DRAIN, 0.5% MIN GRADE TO OUTLET PIT AS SHOWN.
- C.O. CLEANOUT POINT
- 01 SETOUT POINT
- PROPOSED BATTERS
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE RETICULATION
- ST EXISTING TRUNK SEWER

BIO-BASIN F3-2 SETOUT TABLE

POINT_NUMBER	EASTING	NORTHING	LEVEL
1	91064.390	502241.838	17.500
2	91066.247	502241.970	17.500
3	91078.232	502240.116	17.500
4	91080.804	502236.681	17.500
5	91080.651	502235.693	17.500
6	91078.968	502233.443	17.500
7	91077.215	502233.190	17.500
8	91065.323	502235.037	17.500
9	91063.779	502235.806	17.500
10	91062.864	502238.454	17.500
11	91062.809	502239.773	17.500
12	91063.017	502239.442	17.500

BIO-BASIN F3-2 FOREBAY TABLE

POINT_NUMBER	EASTING	NORTHING	LEVEL
F1	91061.614	502241.255	17.500
F2	91062.647	502242.605	17.500
F3	91063.759	502241.754	17.500
F4	91062.726	502240.404	17.500

BIO-RETENTION BASIN F3-2 DETAILS

PARAMETER	BASIN
FILTER SURFACE AREA (m^2)	116.8
FILTER SURFACE LEVEL (m)	17.50
TEMPORARY PONDING DEPTH (mm)	300
STORAGE VOLUME (m^3)	108.5
TOP OF EMBANKMENT (m)	18.15
EMERGENCY WEIR LEVEL (m)	18.00

NOTE:
REFER 22-000082-5-1704 FOR BIO-FILTRATION BASIN SUBSOIL DETAILS AND NOTES.

CAUTION !! UNDERGROUND TELECOMMS CABLES
UNDERGROUND TELECOMMUNICATION CABLES EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING.

CAUTION !! UNDERGROUND GAS MAIN
UNDERGROUND GAS MAIN EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR MAIN LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

CAUTION !! UNDERGROUND ELECTRICAL CABLES
UNDERGROUND ELECTRICITY CABLES EXIST IN THIS VICINITY. CONTACT ENERGEX FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL

STATUS: FOR APPROVED
APPROVED BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 22.01.25

SCALE: 1:100 / 1:200 — 1 0 1 2 3 4 5m — A1 / A3

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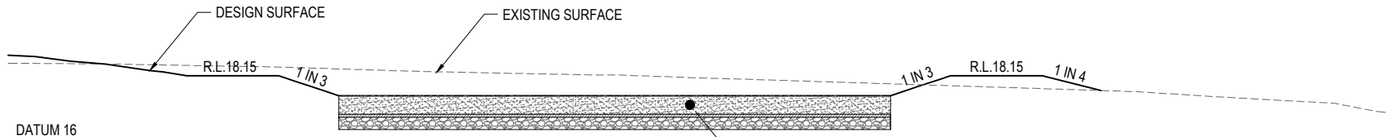
CLIENT: LENNIUM GROUP

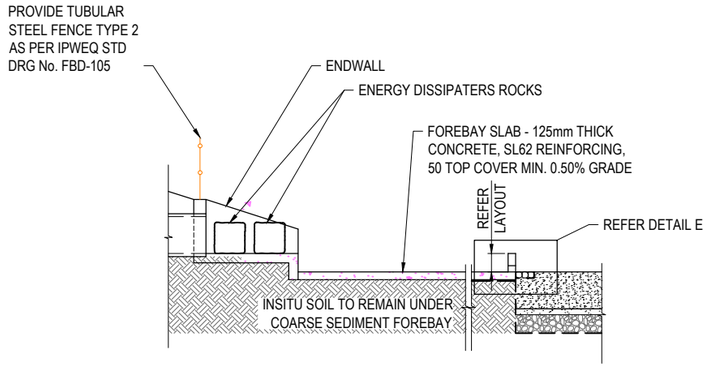
PROJECT: Lidywood LANDINGS STAGE 5

DRAWING TITLE: BIO-BASIN F3-2 LAYOUT PLAN

PROJECT No. 22-000082_5 | DRAWING No. 1700 | REVISION A

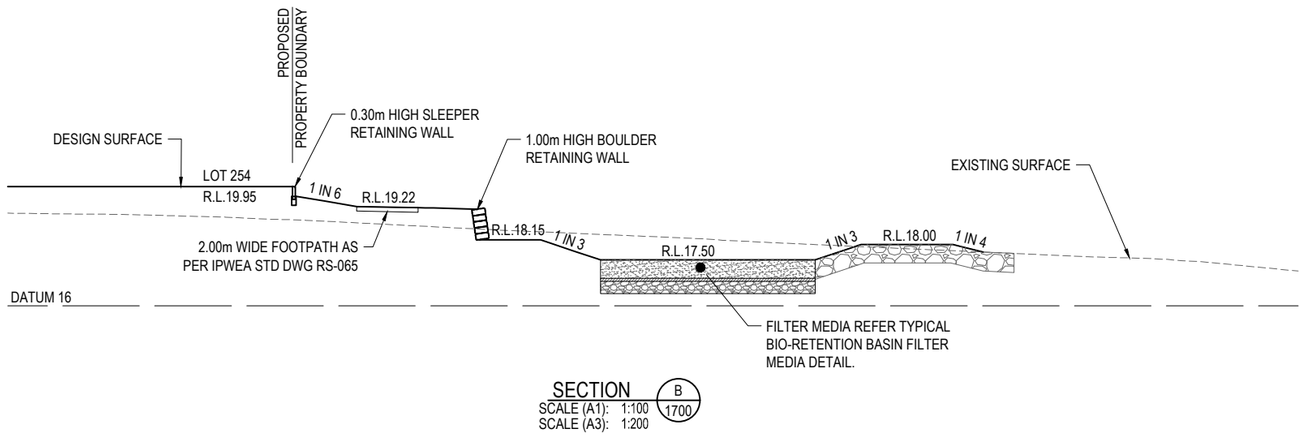


SECTION A
SCALE (A1): 1:100
SCALE (A3): 1:200

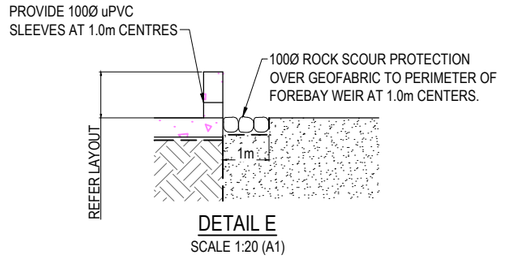


NOTE: LAY GEOFABRIC OVER INSITU SOIL. (EXTEND MINIMUM 300mm UNDER FOREBAY) PIN GEOFABRIC TO INSITU SOIL AND FORM CONCRETE ONTO GEOFABRIC.

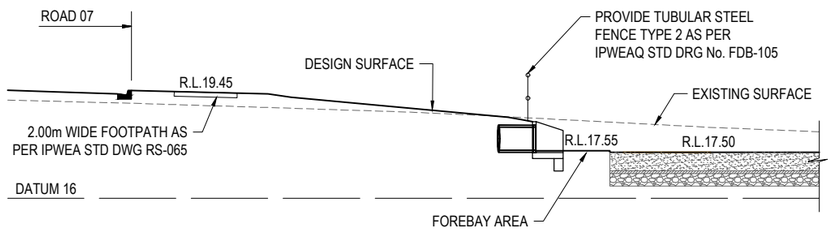
TYPICAL SECTION THROUGH FOREBAY
SCALE 1:50 (A1)



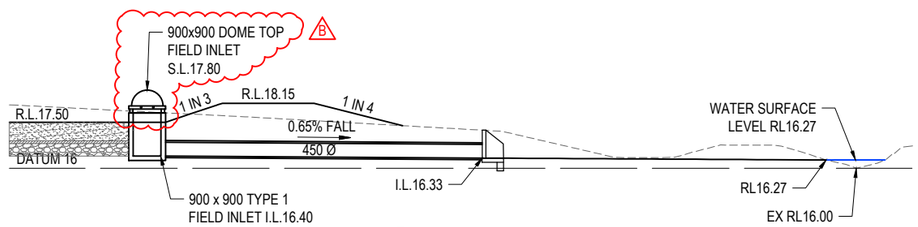
SECTION B
SCALE (A1): 1:100
SCALE (A3): 1:200



DETAIL E
SCALE 1:20 (A1)



SECTION C
SCALE (A1): 1:100
SCALE (A3): 1:200



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INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
B	AA	RT	AA	RA	07.03.25	DOME GRATE ADDED TO FIELD INLETS AS PER COUNCIL RFI

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE
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1:200 A3
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1:40 A3

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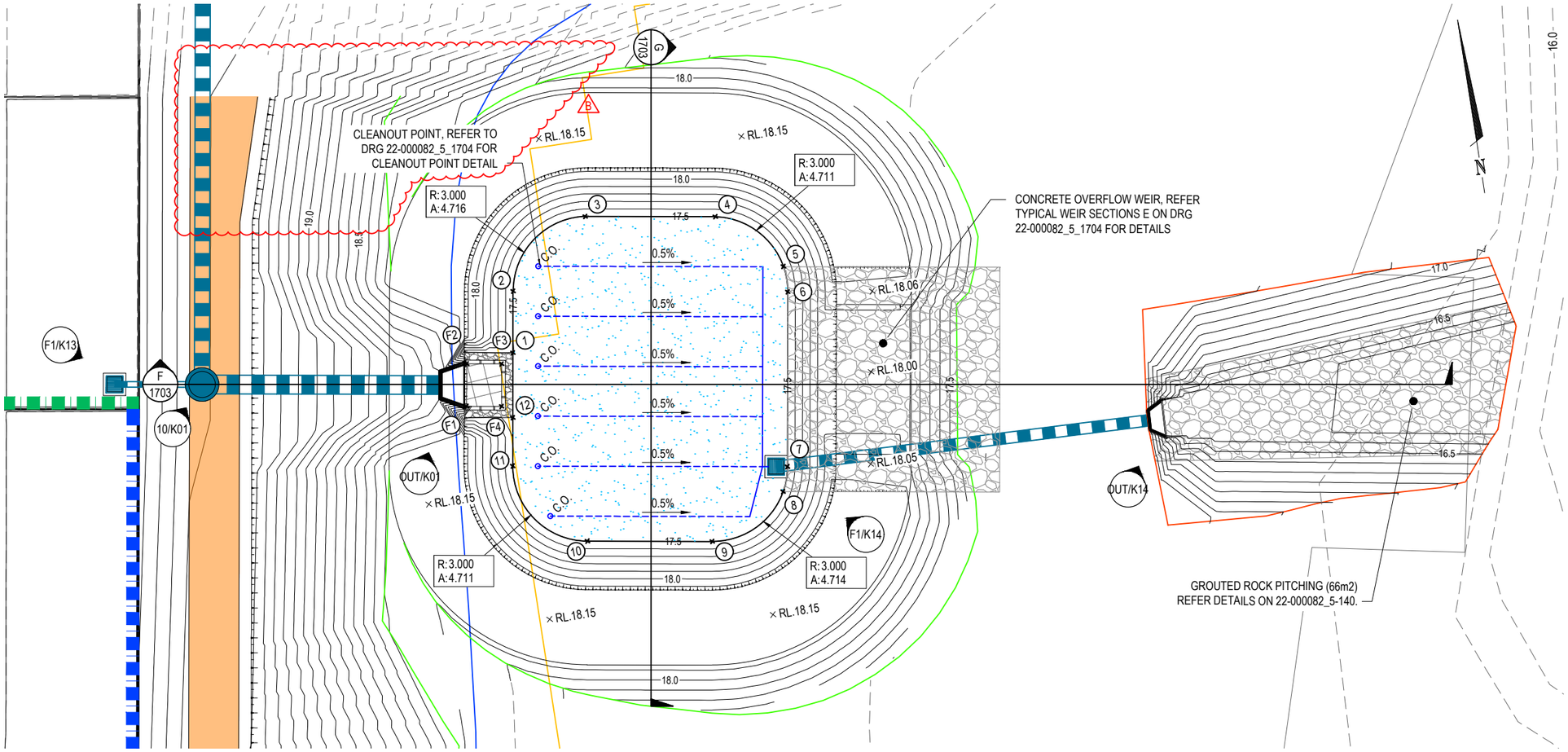
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS
STAGE 5

DRAWING TITLE
BIO-BASIN F3-2
SECTION PLAN

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1701	B



LEGEND

- WORKS BOUNDARY
- STORMWATER DRAINAGE
- MAINTENANCE HOLE
- GULLY PIT
- OUTLET STRUCTURE
- FIELD INLET
- CONCRETE FOOTPATH
- PROPOSED KERB
- 66.0 DESIGN SURFACE CONTOUR (0.10m INTERVALS)
- FUTURE STORMWATER DRAINAGE
- FUTURE STORMWATER STRUCTURE
- PROPOSED TYPE 1 SLEEPER RETAINING WALL
- PROPOSED TYPE 2 SLEEPER RETAINING WALL
- PROPOSED BOULDER RETAINING WALL
- CONCRETE DRIVEWAY
- BIO-BASIN FOREBAY AREA
- BIO-RETENTION BASIN FILTER MEDIA
- SCOUR PROTECTION
- 100Ø SLOTTED AGI DRAIN, 0.5% MIN GRADE TO OUTLET PIT AS SHOWN.
- 150Ø UN-SLOTTED AGI DRAIN, 0.5% MIN GRADE TO OUTLET PIT AS SHOWN.
- C.O. CLEANOUT POINT
- 01 SETOUT POINT
- PROPOSED BATTERS
- PROPOSED WATER MAIN
- PROPOSED SEWERAGE RETICULATION
- EXISTING TRUNK SEWER

BIO-RETENTION BASIN F3-3 DETAILS

PARAMETER	BASIN
FILTER SURFACE AREA (m^2)	134.4
FILTER SURFACE LEVEL (m)	17.50
TEMPORARY PONDING DEPTH (mm)	300
STORAGE VOLUME (m^3)	98.3
TOP OF EMBANKMENT (m)	18.15
EMERGENCY WEIR LEVEL (m)	18.00

NOTE:
REFER 22-000082-5-1704 FOR BIO-FILTRATION BASIN SUBSOIL DETAILS AND NOTES.

BIO-BASIN F3-3 SETOUT TABLE

POINT_NUMBER	EASTING	NORTHING	LEVEL
1	91120.574	502342.043	17.500
2	91120.957	502344.475	17.500
3	91124.269	502346.987	17.500
4	91129.419	502346.177	17.500
5	91131.806	502343.793	17.500
6	91131.823	502342.764	17.500
7	91130.735	502335.850	17.500
8	91130.410	502334.888	17.500
9	91127.303	502333.353	17.500
10	91122.365	502334.133	17.500
11	91119.869	502337.562	17.500
12	91120.170	502339.475	17.500

BIO-BASIN F3-3 FOREBAY TABLE

POINT_NUMBER	EASTING	NORTHING	LEVEL
F1	91118.413	502340.207	17.500
F2	91118.677	502341.886	17.500
F3	91120.060	502341.669	17.500
F4	91119.796	502339.989	17.500

CAUTION !! UNDERGROUND TELECOMMS CABLES
UNDERGROUND TELECOMMUNICATION CABLES EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING.

CAUTION !! UNDERGROUND GAS MAIN
UNDERGROUND GAS MAIN EXIST IN THIS VICINITY. CONTACT SUPPLIER FOR MAIN LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

CAUTION !! UNDERGROUND ELECTRICAL CABLES
UNDERGROUND ELECTRICITY CABLES EXIST IN THIS VICINITY. CONTACT ENERGEX FOR CABLE LOCATIONS. EXTREME CARE MUST BE TAKEN WHILST EXCAVATING

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	07.11.24	
B	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
	AA	RT	AA	RA	07.03.25	FOOTPATH WIDENED AS PER COUNCIL RFI

AMENDMENTS

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE: 1:100 / 1:200 — 1 0 1 2 3 4 5m — A1 / A3

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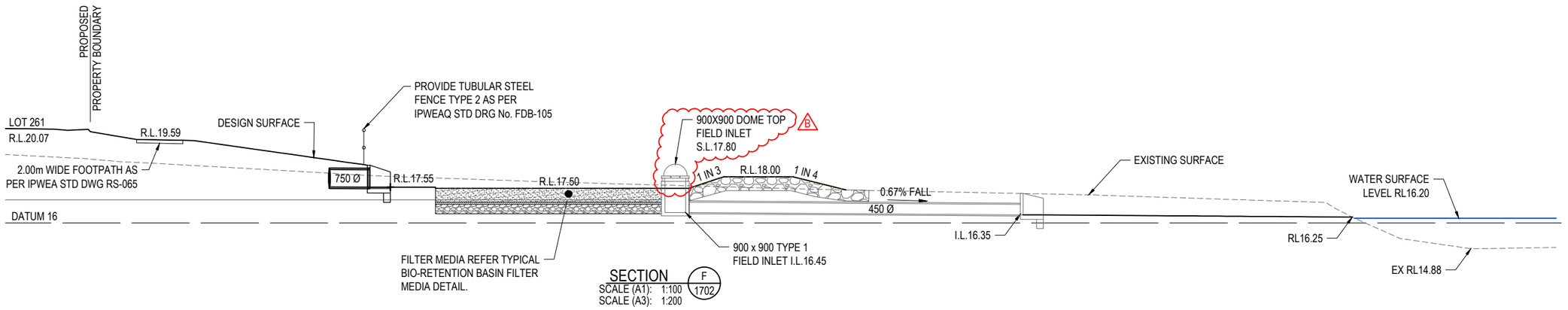
CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: BIO-BASIN F3-3 LAYOUT PLAN

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1702	B

CITY OF MORETON BAY



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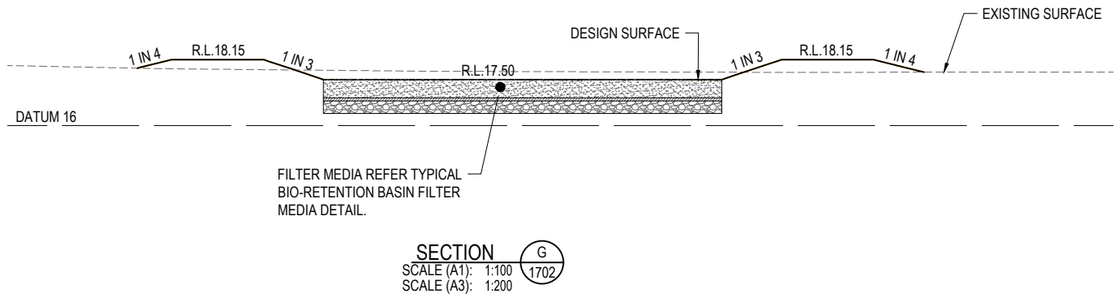

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SCALE (A3): 1:200

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
	AA	RT	AA	RA	07.11.24	
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
B	AA	RT	AA	RA	07.03.25	DOME GRATE ADDED TO FIELD INLETS AS PER COUNCIL RFI

STATUS: FOR APPROVAL
APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE: 1:100 / 1:200 — 1 0 1 2 3 4 5m — A1 / A3

CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS — STAGE 5

DRAWING TITLE: BIO-BASIN F3-3 SECTION PLAN

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1703	B

BIO RETENTION PARTICLE SIZE DISTRIBUTION AND PROPERTIES GUIDE:

(SOURCE:BIOFILTRATION MEDIA GUIDELINES (VERSION 3.01), PREPARED BY THE FACILITY FOR ADVANCING WATER BIOFILTRATION (FAWB), JUNE 2009.)

MATERIAL COMPOSITION RANGE GUIDE:

CLAY AND SILT	<3%	(<0.05mm)
VERY FINE SAND	5-30%	(0.05-0.15mm)
FINE SAND	10-30%	(0.15-0.25mm)
MEDIUM TO COARSE SAND	40-60%	(0.25-1.0mm)
COARSE SAND	7-10%	(1.0-2.0mm)
FINE GRAVEL	<3.0%	(2.0-3.4mm)

IT IS ESSENTIAL THAT THE TOTAL CLAY AND SILT MIX IS LESS THAN 3% (w/w) TO REDUCE THE LIKELIHOOD OF STRUCTURAL COLLAPSE OF SUCH SOILS.

SOIL SPECIFICATIONS:

- TOTAL NITROGEN CONTENT - <1000mg/kg
- ORTHOPHOSPHATE CONTENT - <80mg/kg SOILS WITH TOTAL PHOSPHORUS CONCENTRATIONS >100mg/kg SHOULD BE TESTED FOR POTENTIAL LEACHING. WHERE PLANTS WITH MODERATE PHOSPHORUS SENSITIVITY ARE TO BE USED, TOTAL PHOSPHORUS CONCENTRATIONS SHOULD BE <20mg/kg)
- ORGANIC MATTER CONTENT - AT LEAST 3% (w/w). AN ORGANIC CONTENT LOWER THAN 3% IS LIKELY TO HAVE TOO LOW A WATER HOLDING CAPACITY TO SUPPORT HEALTHY PLANT GROWTH. IN ORDER TO COMPLY WITH BOTH THIS AND THE TOTAL NITROGEN AND ORTHOPHOSPHATE CONTENT REQUIREMENTS, A LOW NUTRIENT ORGANIC MATTER WILL BE REQUIRED.
- pH - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' 5.5-7.5 (pH 1:5 IN WATER)
- ELECTRICAL CONDUCTIVITY - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' <1.2 dS/m.

BIO RETENTION INSTALLATION STANDARD NOTES:

THE PLACEMENT OF DRAINAGE, TRANSITION AND FILTER MEDIA LAYERS MUST BE UNDERTAKEN CAREFULLY TO ENSURE CORRECT DEPTH, SLOPE AND COMPACTION:

DEPTH: FILTER MEDIA SHOULD BE INSTALLED AND COMPACTED IN TWO LIFTS FOR DEPTHS OVER 500mm.

SLOPE: THE TOP SURFACE OF THE DRAINAGE LAYER, TRANSITION LAYER AND FILTER MEDIA LAYER SHOULD BE FLAT. A SPREADER BAR SHOULD LEVEL THE SURFACE OF EACH LAYER.

COMPACTION: THE FILTER MEDIA MUST BE LIGHTLY COMPACTED DURING INSTALLATION TO PREVENT THE MIGRATION OF FINE PARTICLES. THIS CAN BE ACHIEVED WITH A SINGLE PASS OF A LIGHT ROLLER SUCH AS A DRUM LAWN ROLLER. A VIBRATING PLATE CAN ALSO BE USED TO COMPACT SMALL BIO RETENTION SYSTEMS OR 'POZITRACK' BOBCATS CAN BE USED FOR LARGE SYSTEMS. ENSURE ONLY ONE COMPACTING PASS IS MADE OVER THE MEDIA FOR LIGHT COMPACTION.

CONTRACTOR TO ENSURE BIOFILTRATION FILTER MEDIA MEETS THE CRITERIA OUTLINED IN THE MARCH 2008 VERSION OF THE GUIDELINE SPECIFICATION FOR SOIL MEDIA IN BIORETENTION SYSTEMS (VERSION 2.01), FACILITY FOR ADVANCING WATER BIOFILTRATION.

BIO-RETENTION/DETENTION BASINS CONSTRUCTION SEQUENCE AND NOTES:

1. ESTABLISH SEDIMENT AND EROSION CONTROL MEASURES IN CATCHMENT, INCLUDING SILT FENCES, SEEDING OF ALLOTMENTS, & FULL WIDTH VERGE TURFING.
2. SURVEY BASIN LOCATION.
3. INSTALL OVERFLOW PIT AND ENSURE PIT CREST IS AT DESIGN LEVEL. THIS PIT CREST WILL THEN BE USED AS A DATUM FROM WHICH OTHER LEVELS WITHIN THE BASIN WILL BE MEASURED. THE PIT REQUIRES HOLES FOR DRAINAGE PIPE CONNECTIONS WHICH CAN BE DRILLED AT THIS STAGE OR AFTER STEP 5 BELOW.
4. CONSTRUCT KERB TURNOUTS.
5. EXCAVATE SURROUNDING LANDFORM TO DESIGN SUBSOIL LEVEL (ACHIEVING SURROUNDING LEVEL AT THIS STAGE REDUCES THE NEED FOR EARTHWORKS ADJACENT TO THE BASIN AFTER THEY HAVE BEEN CONSTRUCTED).
6. EXCAVATE BASIN TO DESIGN DEPTH ENSURING BASE OF POD HAS MINIMUM 0.25% GRADE TOWARDS PIT. ENSURE BASE OF BASIN IS FREE FROM DEBRIS.

SUPERINTENDENT INSPECTION AND SIGN OFF REQUIRED BEFORE PROCEEDING.

7. LINE SYSTEM WITH GEOFABRIC, AND EXTEND GEOFABRIC A MINIMUM OF 500 MM BEYOND TOP OF EXCAVATION. THESE ARE THE FLAPS REFERRED TO IN ITEM 13 BELOW.
8. PLACE DRAINAGE LAYER (USING CLEAN 5-7mm AGGREGATE) TO DESIGN LEVEL.
9. NOTE THAT CORRECT FUNCTIONING OF THE DRAINAGE PIPES IS CRITICAL TO THE PERFORMANCE OF THE BIORETENTION SYSTEM. INSTALL DRAINAGE LAYER TO UNDERSIDE OF PIPE LEVEL AND PLACE DRAINAGE PIPES. ENSURE PIPES ARE LAID AT MIN 0.5% SLOPE WITH NO LOCALIZED DEPRESSIONS VERIFIED USING LEVEL OR STRING LINE. ALL JOINTS AND JUNCTIONS IN PIPES TO BE SEALED. CONNECT CLEAN OUT POINTS ENSURING TOP OF CLEAN OUT POINTS ARE NOT LESS THAN 50mm BELOW OVERFLOW PIT CREST.

SUPERINTENDENT INSPECTION AND SIGN OFF REQUIRED BEFORE PROCEEDING.

10. COVER DRAINAGE PIPES WITH DRAINAGE MEDIA, ENSURING DESIGN COVER.
11. PLACE TRANSITION LAYER (USING ONLY PRESCRIBED DRAINAGE MATERIAL: 2.0mm SAND) TO DESIGN LEVEL (REFER DRAWINGS).

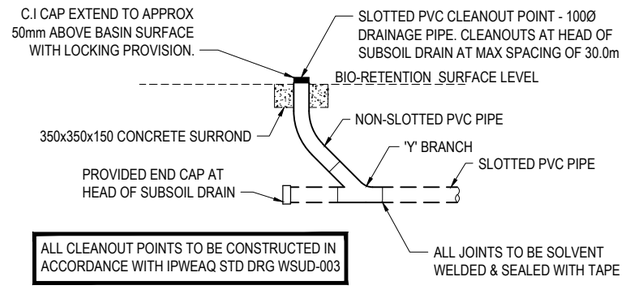
SUPERINTENDENT INSPECTION AND SIGN OFF REQUIRED BEFORE PROCEEDING.

12. PLACE FILTER MEDIA (USING ONLY PRESCRIBED MATERIAL: 0.7mm SAND) TO DESIGN LEVEL (REFER DRAWINGS). SPREAD MATERIAL USING EXCAVATOR BUCKET OR HAND TOOLS TO OBTAIN LIGHT AND EVEN COMPACTION OF FILTER MEDIA. DO NOT DRIVE OVER FILTER MEDIA WITH ANY VEHICLE AS EXCESSIVE COMPACTION CAN IMPEDE DRAINAGE THROUGH THE FILTER MEDIA. FILTER MEDIA SURFACE MUST BE LEVEL (HORIZONTAL) AND FREE FROM LOCAL DEPRESSIONS AND SET AT 100mm BELOW PIT CREST (EXCEPT FOREBAY AREA WHICH IS 200mm). AS SOON AS FILTER MEDIA IS PLACED IT MUST BE IMMEDIATELY COVERED WITH A GEOFABRIC COVER WHICH MUST REMAIN IN PLACE AT ALL TIMES EXCEPT WHEN ACCESS TO FILTER MEDIA IS REQUIRED.THIS PROTECTIVE COVER IS ONLY TO BE REMOVED BY LANDSCAPERS IMMEDIATELY PRIOR TO PLANTING.
13. LAY EXCESS GEOFABRIC FLAPS FROM BASIN OUTWARD ACROSS ADJACENT SUBSOIL AND PLACE LANDSCAPING TOPSOIL ON TOP OF THIS GEOFABRIC AND AROUND BASIN AS PER DESIGNS.
14. INSTALL PROTECTIVE PLYWOOD BARRIERS ENSURING THE CREST IS AT DESIGN LEVEL (MIN 100mm ABOVE ELEVATION OF PIT CREST) AND EXTENDS LATERALLY TO BASIN BATTERS BY 300mm, AND VERTICALLY INTO THE FILTER MEDIA BY 200mm. THIS PLYWOOD BARRIER NEEDS TO REMAIN IN PLACE FOR 12 MONTHS AND PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE MAJORITY FOR THE BASIN AREA. AFTER 12 MONTHS ONCE THE VEGETATION IS ESTABLISHED AND THE ALLOTMENT CONSTRUCTION IS COMPLETE THESE PLYWOOD BARRIERS WILL BE TAKEN OUT AND THE SYSTEM BROUGHT ONLINE.
15. COVER INLET ZONE WITH PROTECTIVE GEOFABRIC ENSURING GEOFABRIC EXTENDS OVER CREST OF PROTECTIVE PLYWOOD BARRIER. COVER GEOFABRIC WITH MIN 50mm TOPSOIL SUITABLE FOR TURF GROWTH. SIMILAR TO THE PLYWOOD BARRIERS, THIS GEOFABRIC IS A TEMPORARY PROTECTIVE MEASURE TO PROTECT THE FILTER MEDIA IN THE INLET ZONE FROM BEING CLOGGED WITH CONSTRUCTION SEDIMENT, AND WILL BE REMOVED AFTER 12 MONTHS.
16. FLUSH DRAINAGE PIPES TO REMOVE ANY INITIAL INGRESS OF MATERIAL AND TO ENSURE ADEQUATE DRAINAGE.

FINAL SUPERINTENDENT INSPECTION AND SIGN OFF

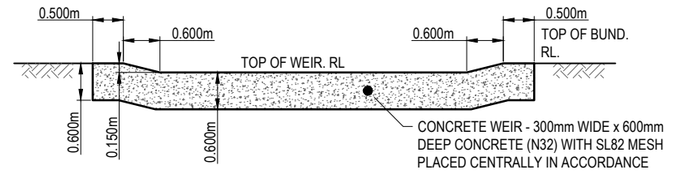
NOTE THAT BETWEEN STEPS 5 – 16 ABOVE THE BASINS WILL BE SUSCEPTIBLE TO STORM DAMAGE. THEREFORE ONCE COMMENCED PODS MUST BE COMPLETED AS SOON AS POSSIBLE TO MINIMISE THE RISK OF STORM DAMAGE.

INSPECTION IS REQUIRED IF RAINFALL EVENT OCCURS BETWEEN CONSTRUCTION STEPS 5 – 16 ABOVE.



CLEANOUT POINT DETAIL

1:20



SECTION H

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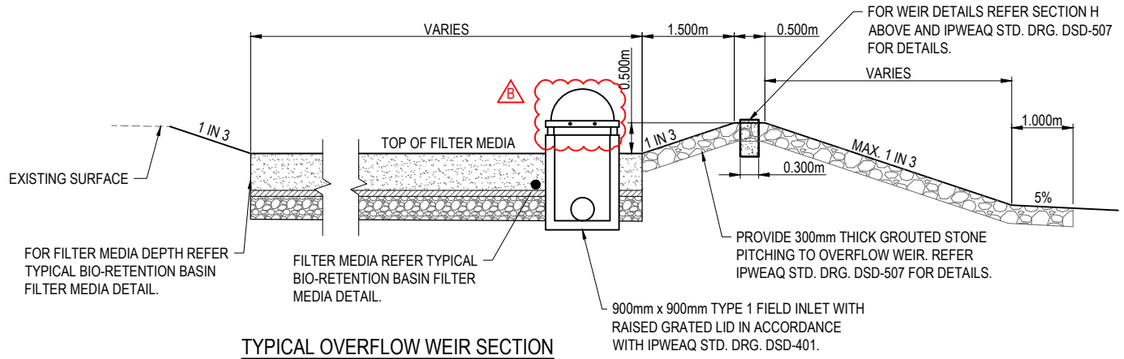
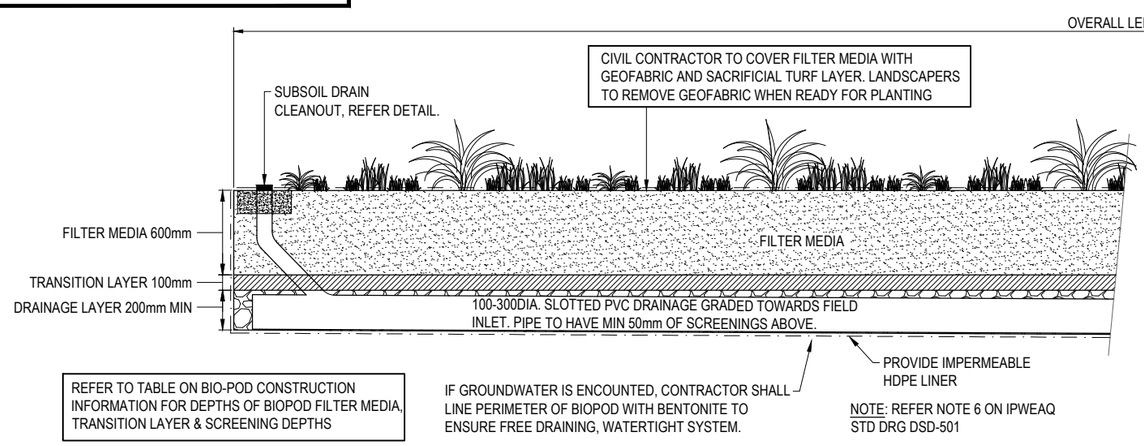
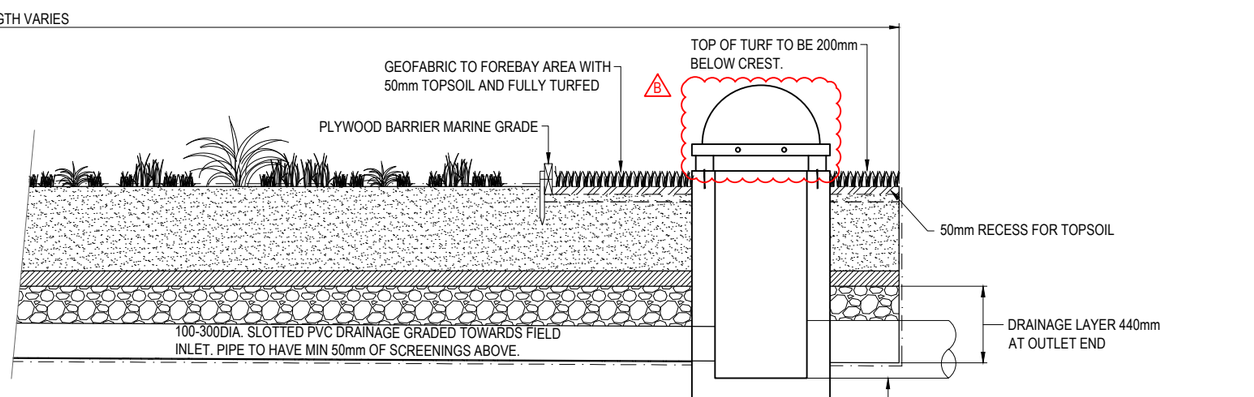
SCALE (A3): 1:100



TYPICAL OVERFLOW WEIR SECTION

1:50





TYPICAL BIO-RETENTION BASIN FILTER MEDIA DETAIL

1:20

INITIAL ISSUE	DES	DRN	CHK	APP	DATE	AMENDMENT DETAILS
A	AA	RT	AA	RA	22.01.25	ISSUED FOR APPROVAL
B	AA	RT	AA	RA	07.03.25	DOME GRATE ADDED TO FIELD INLETS AS PER COUNCIL RFI

STATUS: FOR APPROVAL

APPROVED
BY: RYAN ASHWORTH NO: 19674
SIGN: Ryan Ashworth DATE: 07.03.25

SCALE
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1:100 A3
1:20 0.2 0 0.2 0.4 0.6 0.8 1m A1
1:40 A3

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CLIENT: LENNIUM GROUP

PROJECT: Lilywood LANDINGS STAGE 5

DRAWING TITLE: BIO-BASIN PLANS NOTES AND DETAILS

PROJECT No.	DRAWING No.	REVISION
22-000082_5	1704	B

ATTACHMENT 4

Appeal Rights

Chapter 6 Dispute resolution

Part 1 Appeal rights

229 Appeals to tribunal or P&E Court

(1) Schedule 1 states—

(a) matters that may be appealed to—

(i) either a tribunal or the P&E Court; or

(ii) only a tribunal; or

(iii) only the P&E Court; and

(b) the person—

(i) who may appeal a matter (the ***appellant***); and

(ii) who is a respondent in an appeal of the matter; and

(iii) who is a co-respondent in an appeal of the matter; and

(iv) who may elect to be a co-respondent in an appeal of the matter.

(2) An appellant may start an appeal within the appeal period.

(3) The ***appeal period*** is—

(a) for an appeal by a building advisory agency—10 business days after a decision notice for the decision is given to the agency; or

(b) for an appeal against a deemed refusal—at any time after the deemed refusal happens; or

(c) for an appeal against a decision of the Minister, under chapter 7, part 4, to register premises or to renew the registration of premises—20 business days after a notice is published under section 269(3)(a) or (4); or

(d) for an appeal against an infrastructure charges notice—20 business days after the infrastructure charges notice is given to the person; or

(e) for an appeal about a deemed approval of a development application for which a decision notice has not been given—30 business days after the applicant gives the deemed approval notice to the assessment manager; or

(f) for an appeal relating to the *Plumbing and Drainage Act 2018*—

(i) for an appeal against an enforcement notice given because of a belief mentioned in the *Plumbing and Drainage Act 2018*, section 143(2)(a)(i), (b) or (c)—5 business days after the day the notice is given; or

(ii) for an appeal against a decision of a local government or an inspector to give an action notice under the *Plumbing and Drainage Act 2018*—5 business days after the notice is given; or

(iii) for an appeal against a failure to make a decision about an application or other matter under the *Plumbing and Drainage Act 2018*—at anytime after the period within which the application or matter was required to be decided ends; or

(iv) otherwise—20 business days after the day the notice is given; or

(g) for any other appeal—20 business days after a notice of the decision for the matter, including an enforcement notice, is given to the person.

Note—

See the P&E Court Act for the court's power to extend the appeal period.

(4) Each respondent and co-respondent for an appeal may be heard in the appeal.

(5) If an appeal is only about a referral agency's response, the assessment manager may apply to the tribunal or P&E Court to withdraw from the appeal.

(6) To remove any doubt, it is declared that an appeal against an infrastructure charges notice must not be about—

(a) the adopted charge itself; or

(b) for a decision about an offset or refund—

(i) the establishment cost of trunk infrastructure identified in a LGIP; or

(ii) the cost of infrastructure decided using the method included in the local government's charges resolution.

230 Notice of appeal

(1) An appellant starts an appeal by lodging, with the registrar of the tribunal or P&E Court, a notice of appeal that—

(a) is in the approved form; and

(b) succinctly states the grounds of the appeal.

(2) The notice of appeal must be accompanied by the required fee.

(3) The appellant or, for an appeal to a tribunal, the registrar, must, within the service period, give a copy of the notice of appeal to—

(a) the respondent for the appeal; and

(b) each co-respondent for the appeal; and

(c) for an appeal about a development application under schedule 1, section 1, table 1, item 1—each principal submitter for the application whose submission has not been withdrawn; and

(d) for an appeal about a change application under schedule 1, section 1, table 1, item 2—each principal submitter for the application whose submission has not been withdrawn; and

(e) each person who may elect to be a co-respondent for the appeal other than an eligible submitter for a development application or change application the subject of the appeal; and

(f) for an appeal to the P&E Court—the chief executive; and

(g) for an appeal to a tribunal under another Act—any other person who the registrar considers appropriate.

(4) The ***service period*** is—

(a) if a submitter or advice agency started the appeal in the P&E Court—2 business days after the appeal is started; or

(b) otherwise—10 business days after the appeal is started.

(5) A notice of appeal given to a person who may elect to be a co-respondent must state the effect of subsection (6).

(6) A person elects to be a co-respondent to an appeal by filing a notice of election in the approved form—

(a) if a copy of the notice of appeal is given to the person—within 10 business days after the copy is given to the person; or

(b) otherwise—within 15 business days after the notice of appeal is lodged with the registrar of the tribunal or the P&E Court.

(7) Despite any other Act or rules of court to the contrary, a copy of a notice of appeal may be given to the chief executive by emailing the copy to the chief executive at the email address stated on the department's website for this purpose.

231 Non-appealable decisions and matters

(1) Subject to this chapter, section 316(2), schedule 1 and the P&E Court Act, unless the Supreme Court decides a decision or other matter under this Act is affected by jurisdictional error, the decision or matter is non-appealable.

(2) The *Judicial Review Act 1991*, part 5 applies to the decision or matter to the extent it is affected by jurisdictional error.

(3) A person who, but for subsection (1) could have made an application under the *Judicial Review Act 1991* in relation to the decision or matter, may apply under part 4 of that Act for a statement of reasons in relation to the decision or matter.

(4) In this section—

decision includes—

(a) conduct engaged in for the purpose of making a decision; and

(b) other conduct that relates to the making of a decision; and

(c) the making of a decision or the failure to make a decision; and

(d) a purported decision; and

(e) a deemed refusal.

non-appealable, for a decision or matter, means the decision or matter—

(a) is final and conclusive; and

(b) may not be challenged, appealed against, reviewed, quashed, set aside or called into question in any other way under the *Judicial Review Act 1991* or otherwise, whether by the Supreme Court, another court, any tribunal or another entity; and

(c) is not subject to any declaratory, injunctive or other order of the Supreme Court, another court, any tribunal or another entity on any ground.

232 Rules of the P&E Court

(1) A person who is appealing to the P&E Court must comply with the rules of the court that apply to the appeal.

(2) However, the P&E Court may hear and decide an appeal even if the person has not complied with rules of the P&E Court.