



CIVIL ENGINEERING REPORT
DEVELOPMENT APPLICATION
- STAGE 1 EARLY WORKS ▲

191 MILLER ROAD,
CHESTER HILL

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1 INTRODUCTION

1.1 Introduction

LogiSPACE proposes to develop a 6.47 Ha site at 191 Miller Road, Chester Hill NSW 2162, as a warehouse and office facility.

The proposed development over the site is for two single-level warehouse buildings comprising of 6 tenancies including ancillary offices, loading docks and hardstand areas. The proposed development is intended to be structured across two stages.

Stage 1 Early Works, DA 01: Remediation and early works (including earthworks and flooding management works)

The works in this stage, include, but are not limited to:

- Site establishment
- Demolition of existing structures
- Remediation of the site in accordance with Remediation Action Plan
- Site preparation and earthworks
- Flood management/mitigation works
- Tree and vegetation removal

Concept Civil Engineering plans have been prepared by Costin Roe Consulting, to demonstrate the intended flood management works and level changes, as well as the intended building layout.

This early works civil engineering report has been prepared to support the Stage 1 early works component of the proposed development application for the site.

Stage 2 Works, DA 02: Construction and operation of warehousing on the site, with associated works

The works in this stage, include, but are not limited to:

- Construction of 2 warehouse buildings comprising of 6 tenancies including ancillary offices, loading docks and hardstand areas
- Other associated works including landscaping, car parking, stormwater drainage, overland flow paths, and other general site improvements.
- Amendment of the crossover for light and heavy vehicle access is proposed from Miller Road

A separate civil engineering report has been prepared by Costin Roe Consulting to support the DA submission of stage 2 works on the site. Refer report **14242.05-04.rpt** prepared by Costin Roe Consulting.

1.2 Scope

Costin Roe Consulting Pty Ltd has been engaged by LogiSPACE to prepare this Engineering Report in support of the proposed Development Application for the Stage 1 Early works on the site.

This report provides a summary of the design principles and planning objectives for the following civil engineering components of the project:

- Earthworks & Retaining Walls;
- Stormwater Management;
- Flooding/ Overland Flow; and
- Erosion Control.

The engineering objectives for the development are to create a site which, based on the proposed architectural layout, responds to the topography and site constraints and to provide an appropriate and economical stormwater management system which incorporates best practice in water sensitive urban design and is consistent with the requirements of council's water quality objectives.

A set of drawings have been prepared to show the proposed bulk earthworks levels, retaining walls, stormwater drainage and sediment erosion controls for the development. These drawings are conceptual only and subject to change during detail design.

1.3 Authority Jurisdiction

A set of drawings have been prepared to show the proposed finished levels, retaining walls, stormwater drainage and water quality requirements for the development. These drawings are conceptual only and subject to change during detail design.

1.4 Location

The property is located within the City of Canterbury-Bankstown (CCB) local government area (LGA), as shown in Figure 2.1.



Figure 1.1 – Site Location and Aerial Imagery (Source: SIX Maps)

1.5 Existing Site

The Site is located at 191 Miller Road, Chester Hill and is legally described as Lot 82 DP 1282378 (see Figures 1 and 2). The subject site is an irregular shaped allotment, with a total area of approximately 6.46 Ha. The subject site is bordered by Miller Road to the west, the T3/ Main Southern Railway Line to the north and industrial warehouses to the east and south. Furthermore, there is a Sydney Water open concrete channel (an urbanised subcatchment of Georges River) approximately 150 metres to the south-west of the site that captures upstream flows from the 'Villawood drain catchment'. The site is accessed from Miller Road frontage. The subject site currently comprises of multiple warehouses, office buildings and storage yards. While the site consists of mostly impervious area, there is a grassed area in the centre and the north-western boundary of the site.

Land uses surrounding the Site includes:

- **North:** To the north of the subject site is the T3/Main Southern railway line, which is an essential residential and freight train.
- **South:** To the south of the site there is a recently constructed warehousing facility at No. 149 Orchard Road, with existing industrial land uses located beyond.

- **East:** To the east of the site is the Orchard Industrial Estate, which fronts Orchard Road and includes various retailers and industrial units.
- **West:** The western boundary of the site adjoins Miller Road. On the opposite side of Miller Road is a recently constructed warehousing facility for transport and distribution at 1 Monier Square.

1.6 Proposed Development

The proposed development application is for works to the existing property in the form of earthworks, retaining walls and flooding management works to create a pad for future industrial development. The expected development will be for two warehouse buildings comprising 6 tenancies including ancillary offices, loading docks and hardstand areas. The indicative layout, prepared by Pace Architects, for the site has been shown on Figure 2.2. below.

The works in this stage, include, but are not limited to:

- Site establishment
- Demolition of existing structures
- Remediation of the site in accordance with Remediation Action Plan
- Site preparation and earthworks
- Flood management/mitigation works
- Tree and vegetation removal

The layout of the proposal prepared by Pace Architects is shown in **Figure 2.2**.

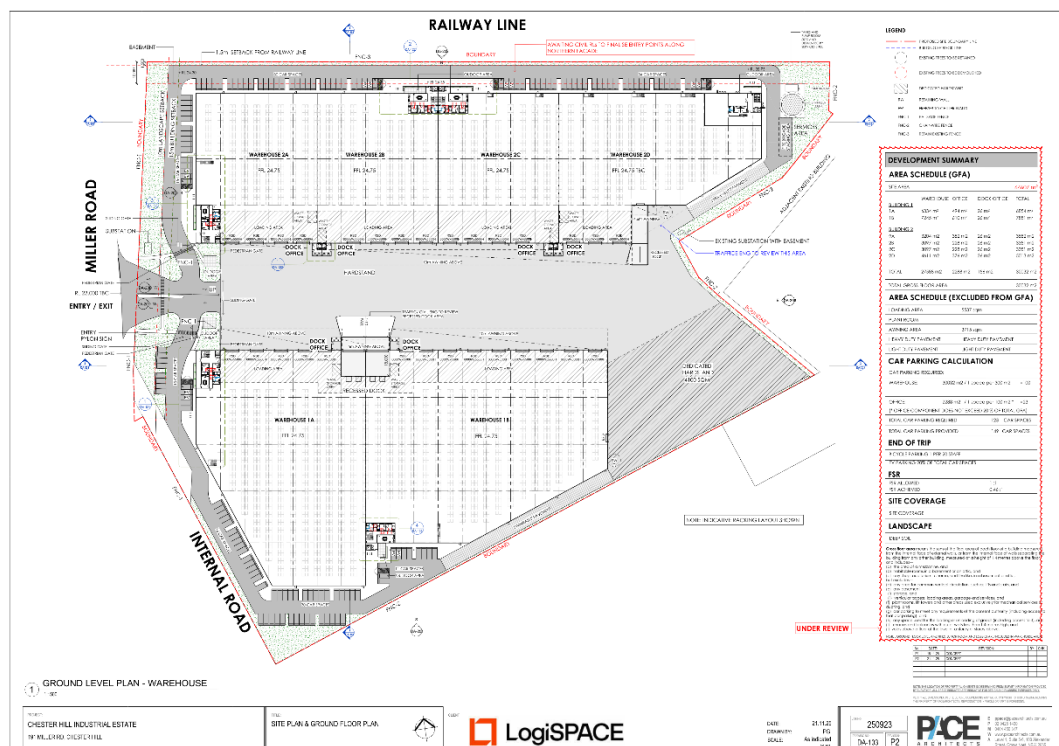


Figure 1.2 - Proposed Development – Ground Floor Plan

2 SITE WORKS

2.1 Bulk Earthworks

Bulk earthworks will be required for the development to provide two flat building pads with level of RL 24.45m AHD for future industrial development, facilitate site access and to drain the stormwater system via gravity.

Retaining walls are to be constructed on the site to incorporate two single flat pads.

An earthworks and volume estimate assessment has been completed for the development site based on the proposed development layout and an averaged pavement thickness of 300mm throughout the development.

The earthworks volume estimates are as follows:

Item	Volume (m ³)
Cut	- 11,480 m ³
Fill	+ 51,655 m ³
Detailed Excavation	- 9,540 m ³
Contaminated Stockpile	- 28,105 m ³
Retaining wall backfill	- 4,510 m ³
Difference	-1,980 m ³

The existing surface levels and the proposed bulk earthworks levels are as shown on drawing Co14242.05-EW300 of Appendix A.

The final levels over the site will be subject to detailed earthworks modelling and volume assessments.

The “detailed excavation allowance” included above is an estimate of the spoil that could be generated during construction. This value is noted to vary depending on the building and site-specific requirements, and the amount of services. The value is an estimate only which requires confirmation and allowance by the builder or contractor. Further, noting that this spoil allowance would be generated during the works, any allowances for borrow pits or extra over work prior to that spoil generation occurring needs to be accounted for by the builder.

Soil Erosion and Sediment Control measures including sedimentation basins will also be provided during the construction works in accordance with the approved drawings and the Soil and Water Management Plan in Section 7 of this report. Minor changes will be made to suit the current layout and site requirements.

2.2 Retaining Walls

The civil engineering objective is to minimise the use of retaining walls while working within the constraints of the masterplan layout, allowable grading to suit industrial development, and the use of batters in landscaped areas where feasible.

Retaining walls will be required along the southeast to southwest boundary to accommodate level differences with neighbouring properties and to preserve existing trees on the eastern portions of the site.

The locations and indicative heights of the retaining wall 1 is shown on drawing CO14242.05-EW600.

2.3 Embankment Stability

To assist in maintaining embankment stability permanent batter slopes will be no steeper than the limits set by the geotechnical engineer. Temporary batters will be no steeper than 2 horizontal to 1 vertical.

Permanent batters will be adequately vegetated or turfed which will assist in maintaining embankment stability. These will typically be no steeper than 2.5 horizontal to 1 vertical in clay or engineered fill.

Stability of batters and reinstatement of vegetation shall be in accordance with the submitted drawings and the Soil and Water Management Plan in Section 7 of this report.

2.4 Supervision of Earthworks

All geotechnical testing and inspections performed during the earthworks operations will be undertaken to Level 1 geotechnical control, in accordance with AS3798-1996.

3 STORMWATER MANAGEMENT

3.1 Site Drainage

3.1.1 Existing Site Drainage

Currently, the overland flow behaviour on the site sheet-flows from the northeast toward the southwest. The three warehouses and offices on site have an existing pit and pipe stormwater conveyance system that collects stormwater and discharges it to an existing 450 mm pipe at the southwestern boundary, which ultimately discharges into the council drainage pit on Miller Road.

3.1.2 Proposed Site Drainage

As per general engineering practice and the guidelines of Council, the proposed stormwater drainage system for the development will comprise a minor and major system to safely and efficiently convey collected stormwater run-off from the development to the legal point of discharge.

The minor system is to consist of a piped drainage system which has been designed to accommodate the 1 in 20-year ARI storm event (Q20). This results in the piped system being able to convey all stormwater runoff up to and including the Q20 event. The major system will be designed to cater for storms up to and including the 1 in 100-year ARI storm event (Q100). The major system will employ the use of defined overland flow paths, such as roads and open channels, to safely convey excess run-off from the site.

The design of the stormwater system for this site will be based on relevant national design guidelines, Australian Standard Codes of Practice, the standards of CCB and accepted engineering practice. Runoff from buildings will generally be designed in accordance with AS 3500.3 National Plumbing and Drainage Code Part 3 – Stormwater Drainage. Overall site runoff and stormwater management will generally be designed in accordance with the Institution of Engineers, Australia publication “Australian Rainfall and Runoff” (2019 Edition), Volumes 1 and 2 (AR&R).

Water quality and re-use are to be considered in the design to ensure that any increase in the detrimental effects of pollution is mitigated, Council Water Quality Objectives are met and that the demand on potable water resources is reduced.

The legal point of discharge is a point specified by Council where stormwater from a property can be discharged. The legal point of discharge is usually Council's Stormwater infrastructure (where available), the street kerb and channel for smaller developments or downstream receiving waters like an existing stream or gully, lake, pond or waterbody. Legal discharge for this site is via the existing Council drainage system in the west of the site.

With reference to the drawings in **Appendix A**, the drainage system proposed can be described as follows:

- In-ground piped drainage stub designed to convey the 5% AEP flow (1 in 20yr ARI);
- Site discharge via the existing council pipe at the southwest of the site;
- A Flood Conveyance Structure is to be implemented to manage mainstream floodwater encroachment on the site.

Reference to drawing **CO14242.05-EW400** shows the proposed drainage layout including the stormwater management measures which include water quantity management.

3.2 External Catchments and Flooding

The proposed development site is affected by mainstream flooding from the nearby Villawood Drain catchment, as per the information provided within the Canterbury Council Stormwater System Report (SSR).

As per the SSR provided by council, the flood planning level adopted for the development of this site is RL 21.0 mAHD. The minimum freeboard requirements as per Canterbury Bankstown City Council's Engineering Guide for Development is 500mm to the FFL of a building. The proposed floor level for the building is RL 24.75 mAHD, providing a 3.75 metre freeboard to the flood planning level.

A 2D hydraulic assessment utilising TUFLOW was conducted by Costin Roe Consulting. Refer to the CRC flood assessment and results as well as **Section 4** of this report for further discussion on flood behaviour. The results of the study show that the proposed flood management strategy is effective at attenuating stormwater flows up to the 1% AEP storm event.

Significant flood storages are included in the design as part of the flood management solution for the development.

Given there is no increase in local runoff, and the outcomes of the flooding assessment completed by CRC shows there are no adverse impacts associated with the development, there are no proposed water quantity measures, or OSD proposed for the development.

The existing discharge location is proposed to be utilised at the southwestern side of the Site. Refer drawings in **Appendix A** for discharge location and details.

4 FLOODING AND OVERLAND FLOW

4.1 Introduction

A review of overland flow and flooding in relation to the proposed development has been completed.

Our review and assessment of the overland flow and mainstream flooding of the site is based on the detailed survey, the proposed development footprint, flood modelling results and the documented flood behaviour included in the Stormwater System Report (WP-SIANOL-1067/2025 dated 05 June 2025) provided by Canterbury Bankstown City Council - refer to **Appendix D**. The basis of the provided stormwater system report is stormwater catchment flooding from Villawood Drain Work-As-Executed Study (Civil Design, 2009)

An overland flow assessment was undertaken utilising two-dimensional flood modelling software (TUFLOW). The assessment of the overland flow path considered both the existing and proposed conditions in the results and it's afflux. The following sections of the report describe the catchment description, flood description and proposed flood management.

Detailed technical information pertaining to the TUFLOW modelling and results completed by our office is included in **Appendix E**.

We have included the following items as part of our review:

- Stormwater System Report (WP-SIANOL-1067/2025 dated 05 June 2025) provided by Canterbury Bankstown City Council (**Appendix D**)
- Review of Councils Floodplain Management Policy in relation to the development including review of potential impacts of the development on existing flooding, and potential impacts on the development from flooding.

4.2 Canterbury-Bankstown Council Stormwater System Report (WP-SIANOL-1067/2025 dated 05 June 2025)

Extracts from a flood study of the Villawood catchment was provided by Canterbury-Bankstown Council. The study involved a hydrological and hydraulic assessment of the catchment at a regional level.

Excerpts of the flooding associated with the 1% AEP storm event from the report are provided in **Figures 4.1, 4.2, and 4.3** below.

Discussion on flood behaviour is made in **Section 4.3**. Noting the above information formed the basis of CRC flood model and reporting.

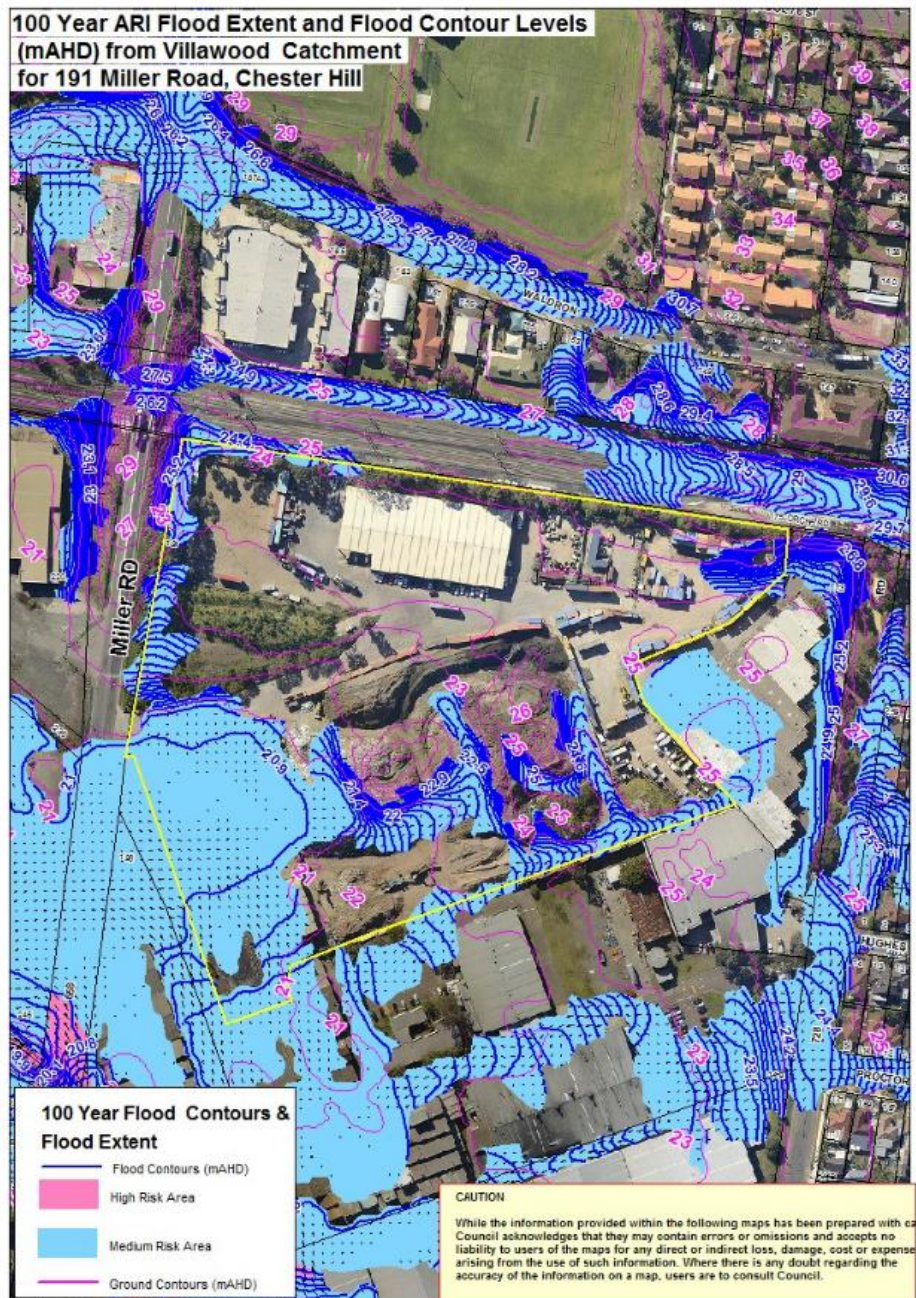


Figure 4.1. CCB Stormwater System Report G – 100-year ARI Pre-development Flood Extent

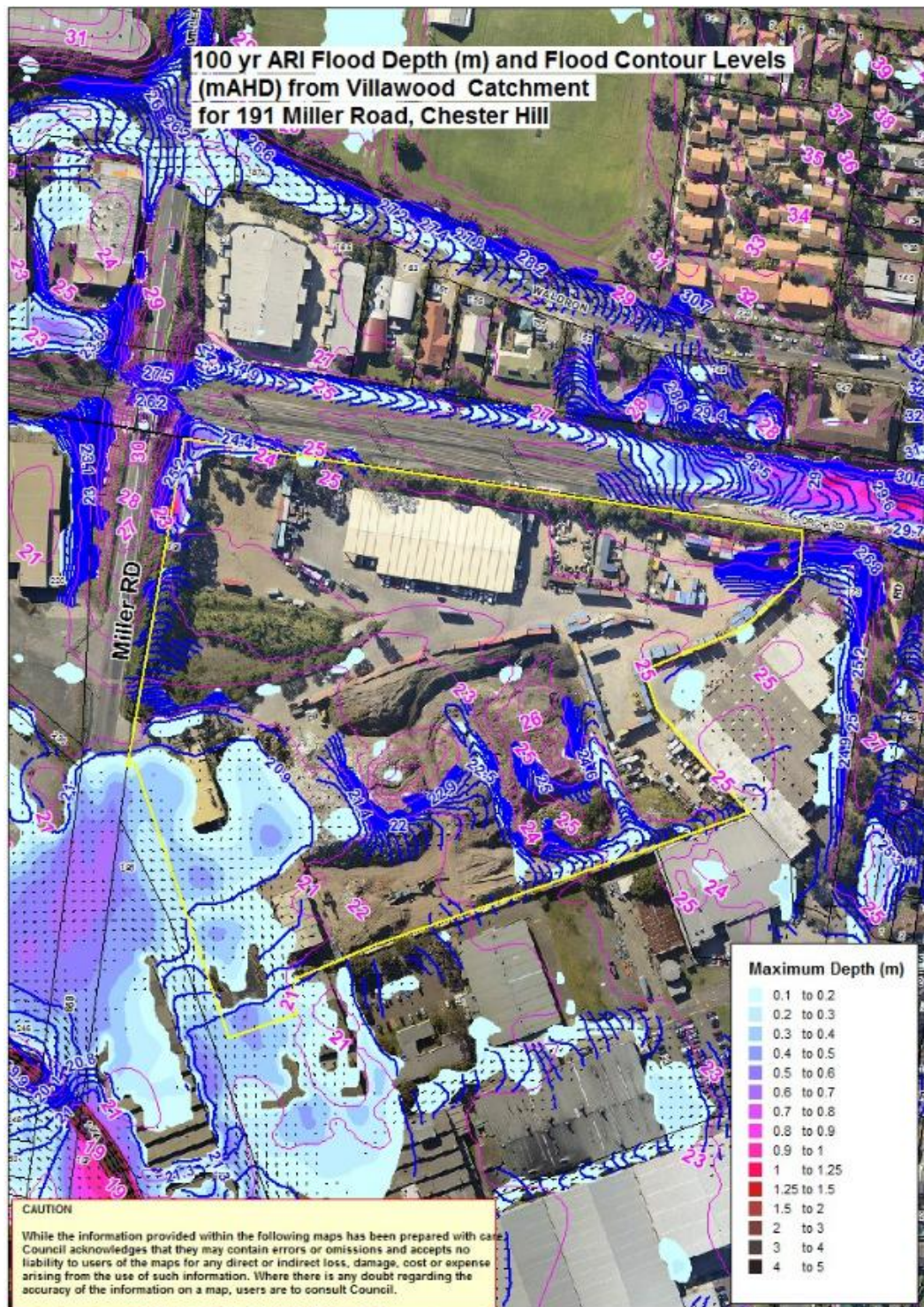


Figure 4.2 – CCB Stormwater System Report G – 100-year ARI Pre-Development Flood Depths and Levels

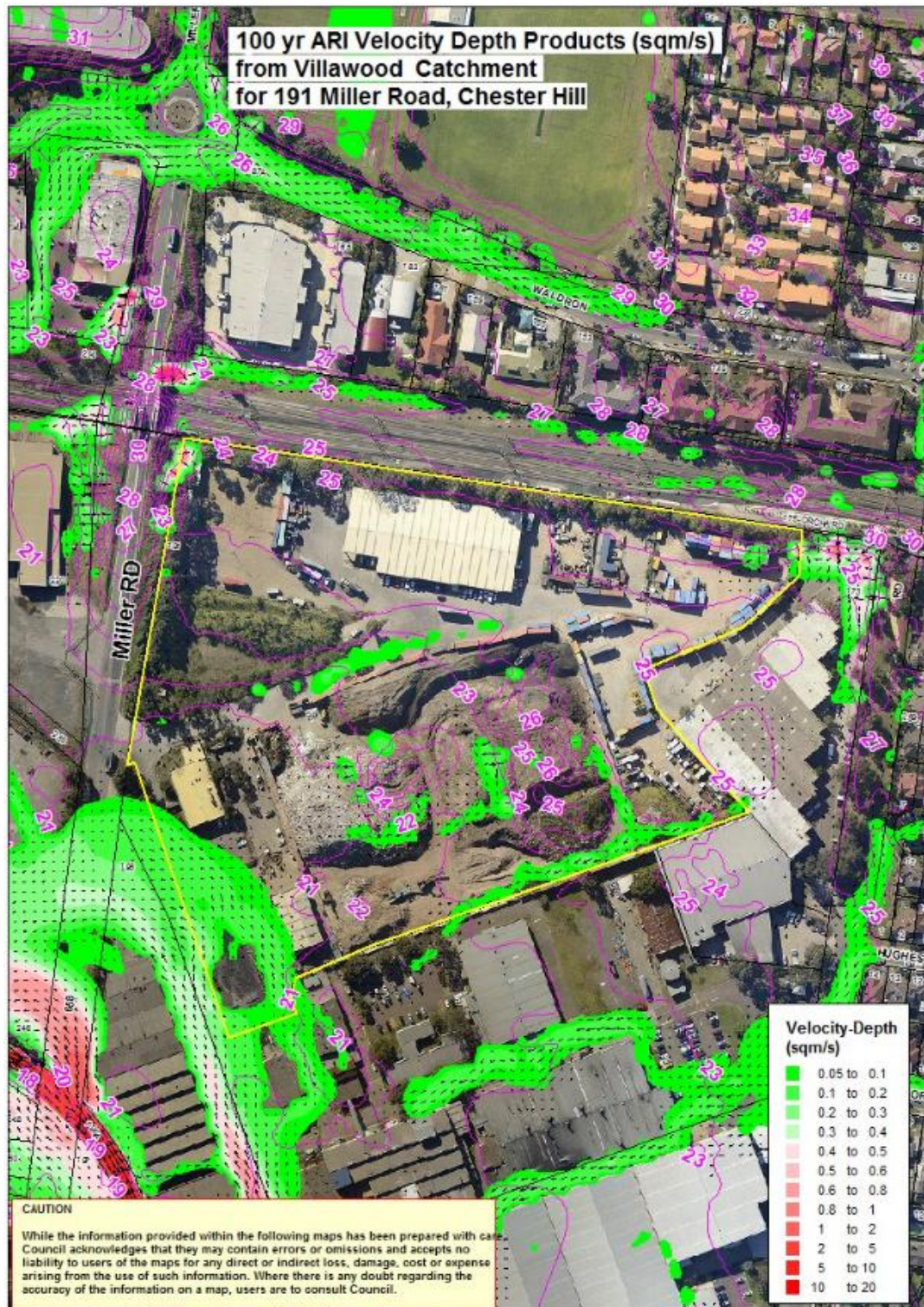


Figure 4.3 - CCB Stormwater System Report G – 100-year ARI Pre-Development Flood Velocity

4.3 Existing Overland Flow and Flood Behaviour

Council's flood assessment confirms that the site is subject to mainstream flooding during the local 1% AEP event, occurring within a variable-width Sydney Water drainage easement located approximately 150 metres west of the site. As shown in **Figure 4.1**, flood depths on the site reach up to 0.5 m in the 1% AEP storm. The site is also impacted by the Probable Maximum Flood (PMF), which, according to Council's SSR, ranges from RL 21.30 m to RL 27.30 m AHD.

As seen in **Figure 4.2**, flood water around the site is generally within a peak depth range of 0 - 0.2m, with deeper peak depths of around 0.4 – 0.5m along the western boundary drying the 1% AEP event. **Figure 4.3** shows peak flow velocities on site to generally be 0.05 to 0.1m/s and increasing along the western boundary.

Given the above, the site is shown to be impacted by flooding during the 1% AEP and in more intense storm events. Additional modelling has been conducted by CRC, to determine the effect of the proposed development on the existing flood behaviour.

Further investigations by CRC indicate that the site is not affected by overland flow from Orchard Road. The CRC pre and post development outcomes for the 1% AEP are included as **Figures 4.4** to **4.9**.

4.4 Costin Roe Consulting Modelling

4.4.1 Introduction

A detailed site specific TUFLOW model of the 1% AEP pre and post development conditions has been completed by Costin Roe Consulting (CRC) based on flood modelling completed by GRC Hydro for the adjacent development at 149 Orchard Road, Chester Hill. The GRC Hydro flood model was developed through modifications of Council's TUFLOW model (Villawood Drains Works-As-Executed Study, 2008). CRC's flood model incorporates topographic and drainage data for the proposed development into GRC Hydro's flood model. Reference should be made to GRC Hydro's flood modelling report for technical parameters and details. Refer to **Appendix H** for the 1% AEP pre-development and post-development flood maps.

The flood model has been calibrated against the Council flood model. It should be noted that minor variations are expected as noted in the GRC Hydro flooding report for the pre-development scenario. In addition, minor variations are expected due to factors such as adjustment of modelling surfaces.

4.4.2 Pre-Development 1% AEP

Figure 4.4 shows pre-developed 1% AEP output for flood depths and levels. **Figure 4.5** shows velocity and **Figure 4.6** show true hazard categorisation for overland flow behaviour. It is noted that the TUFLOW model is generally consistent with CCB's flood modelling.

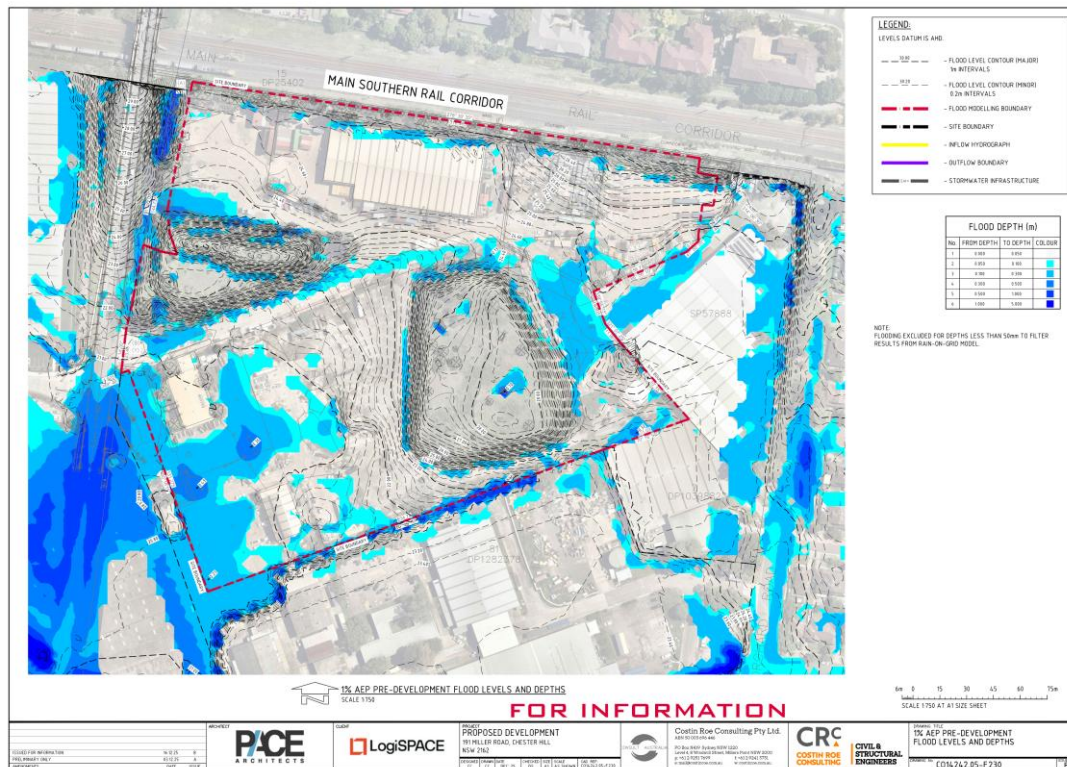


Figure 4.4 – 1% Pre-Development Flood Depths and Levels

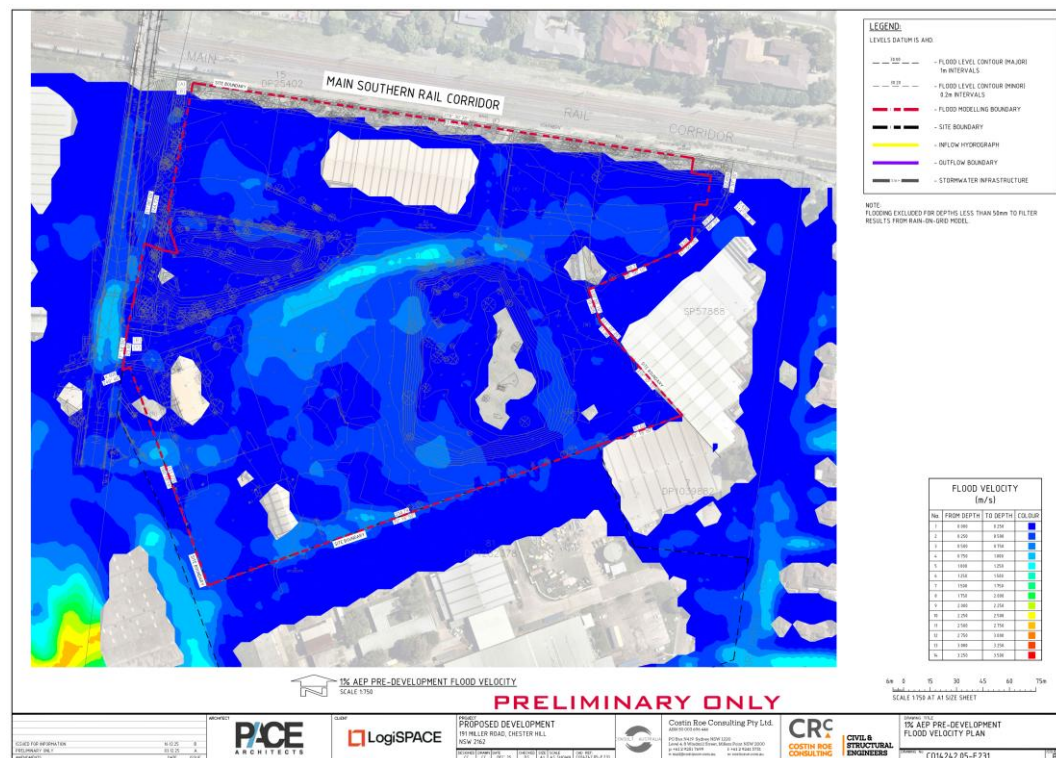


Figure 4.5 – 1% Pre-Development Flood Velocity

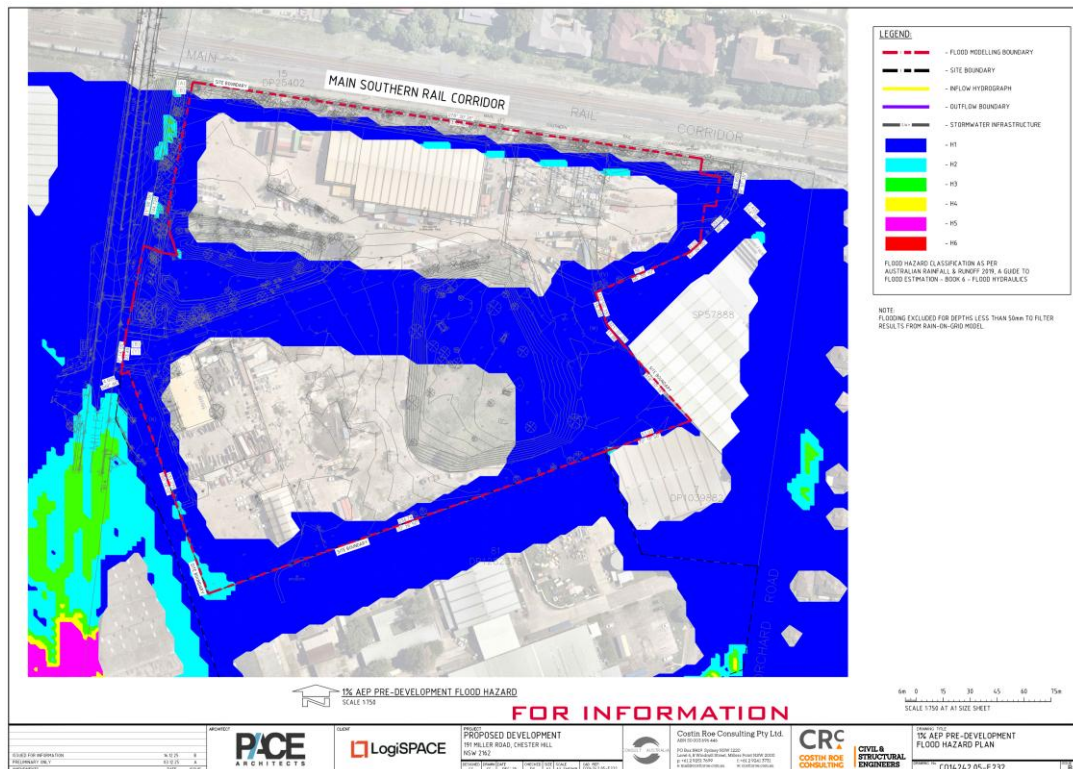


Figure 4.6 – 1% Pre-Development Flood Hazard

4.4.3 Post-Development 1% AEP

Figure 4.7 shows the post-developed 1% AEP output for depth and levels. Figure 4.8 shows velocity and Figure 4.9 show true hazard categorization.

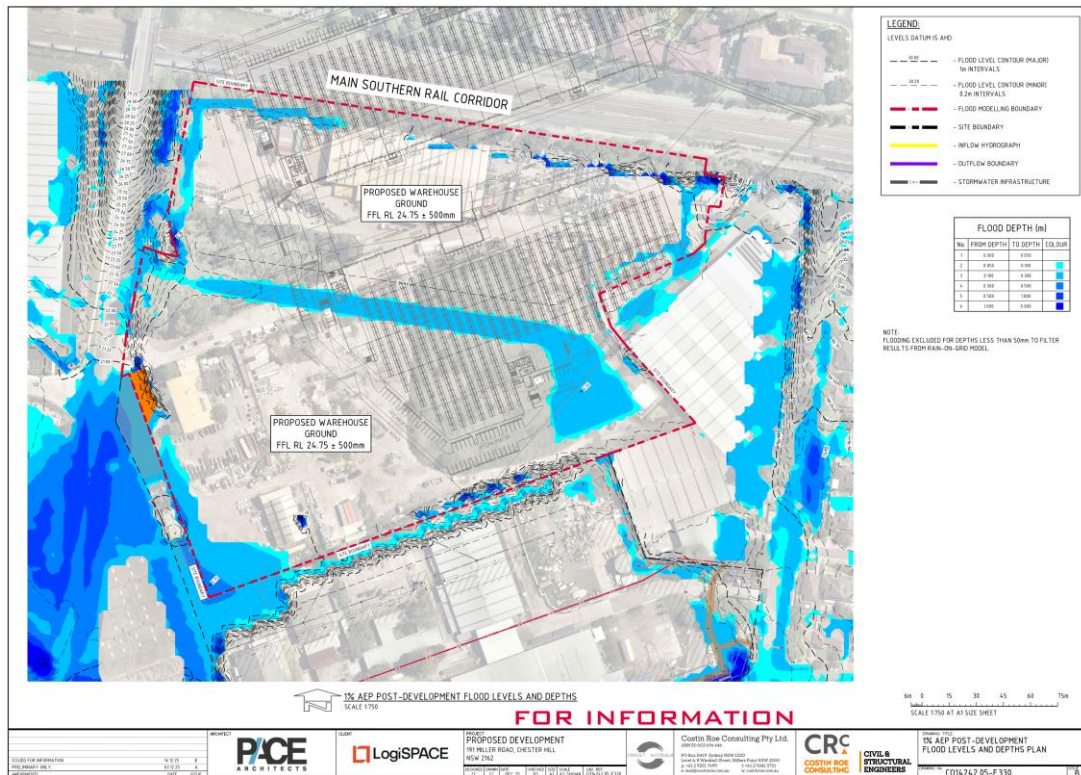


Figure 4.7 – Post-Development 1% AEP Flood Depths and Levels

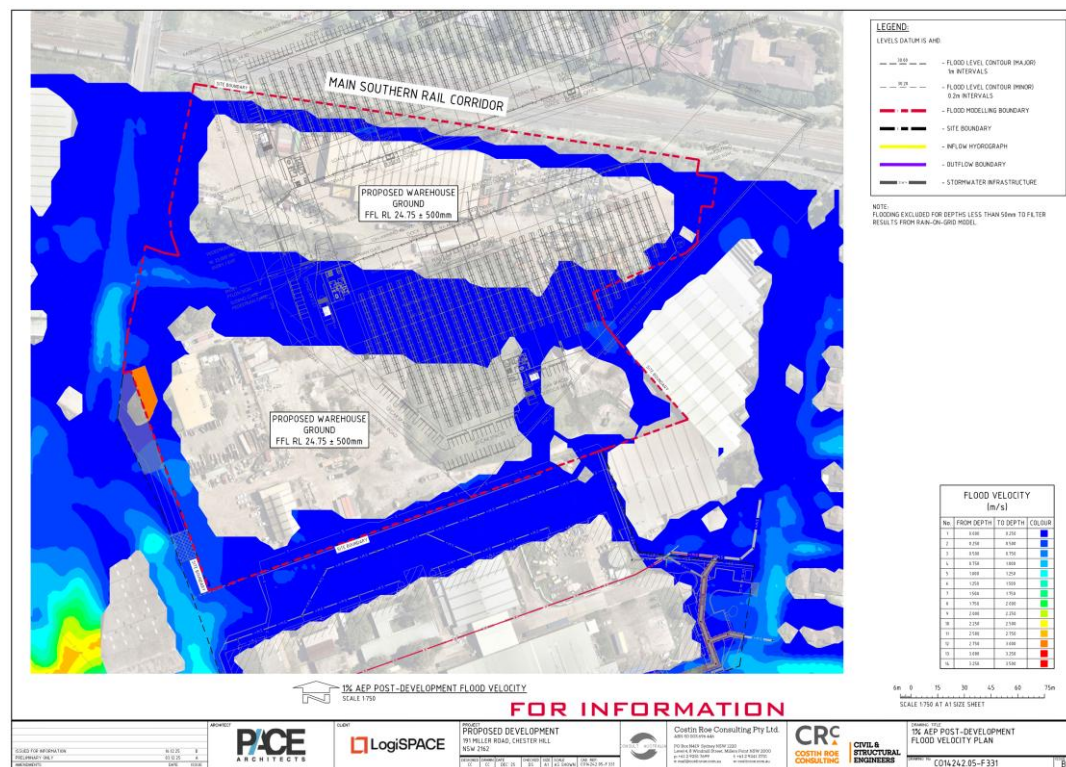


Figure 4.8 – Post-Development 1% AEP Flood Velocity

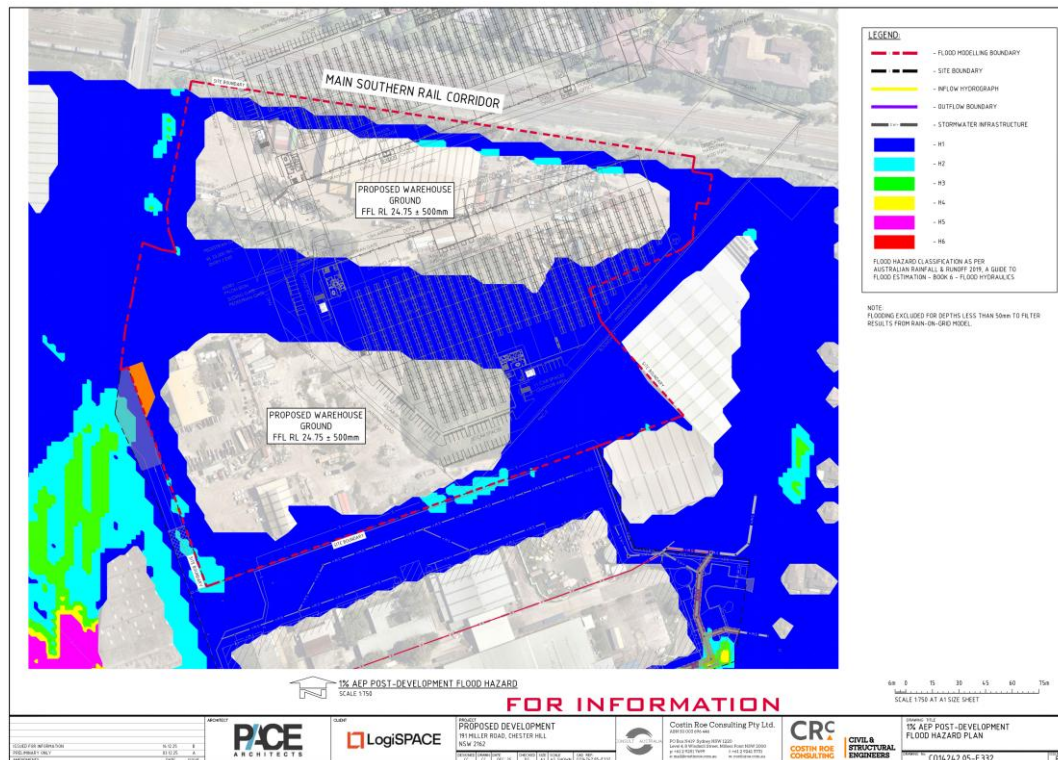


Figure 4.9 – Post Development 1% AEP Flood Hazard

4.4.4 1% AEP Comparison

Figure 4.10 shows the 1% AEP flood level afflux (flood level difference) and Figure 4.11 shows the 1% AEP velocity afflux, associated with the development.

The output of the 1% storm event shows that:

- There is no upstream afflux to flood levels of the flow paths which enter the site;
- Flows within the site area are able to be conveyed to Miller Road via the proposed flood conveyance structure southwest of the site;
- No changes to the flood hazard categorisation upstream or adjacent of the proposed development
- Minor afflux is experienced around site ramps. We note that this is likely a function of the flood modelling software and has no impacts upstream or downstream of the site.

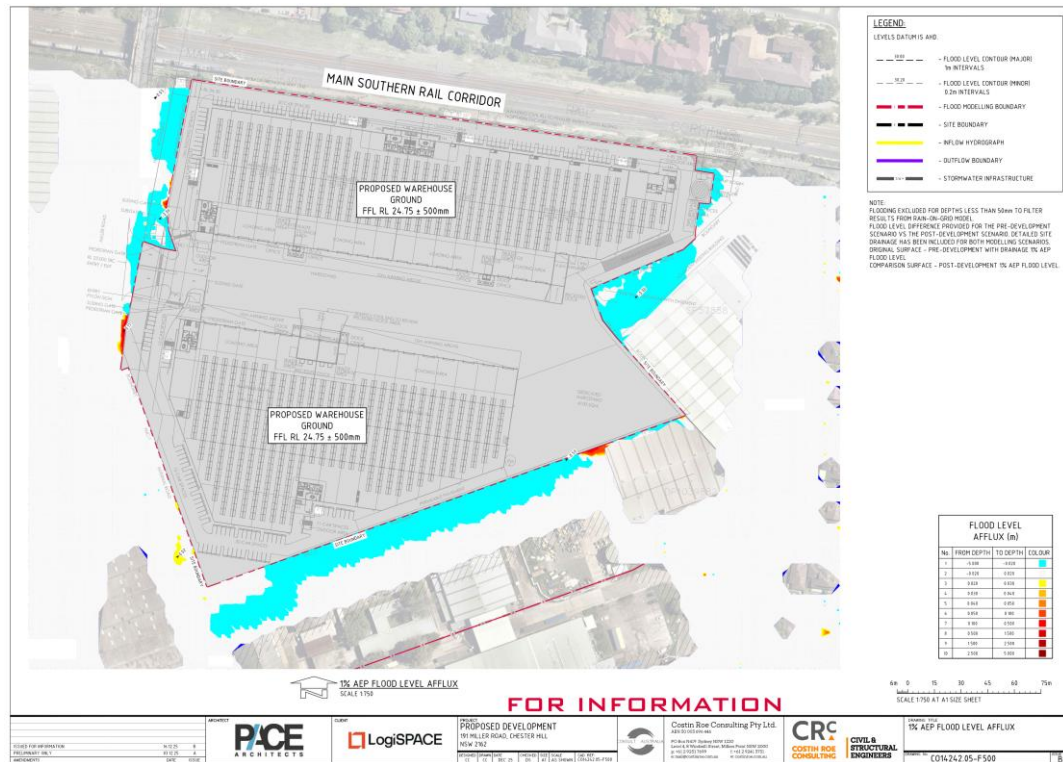


Figure 4.10 – 1% AEP Flood Level Afflux

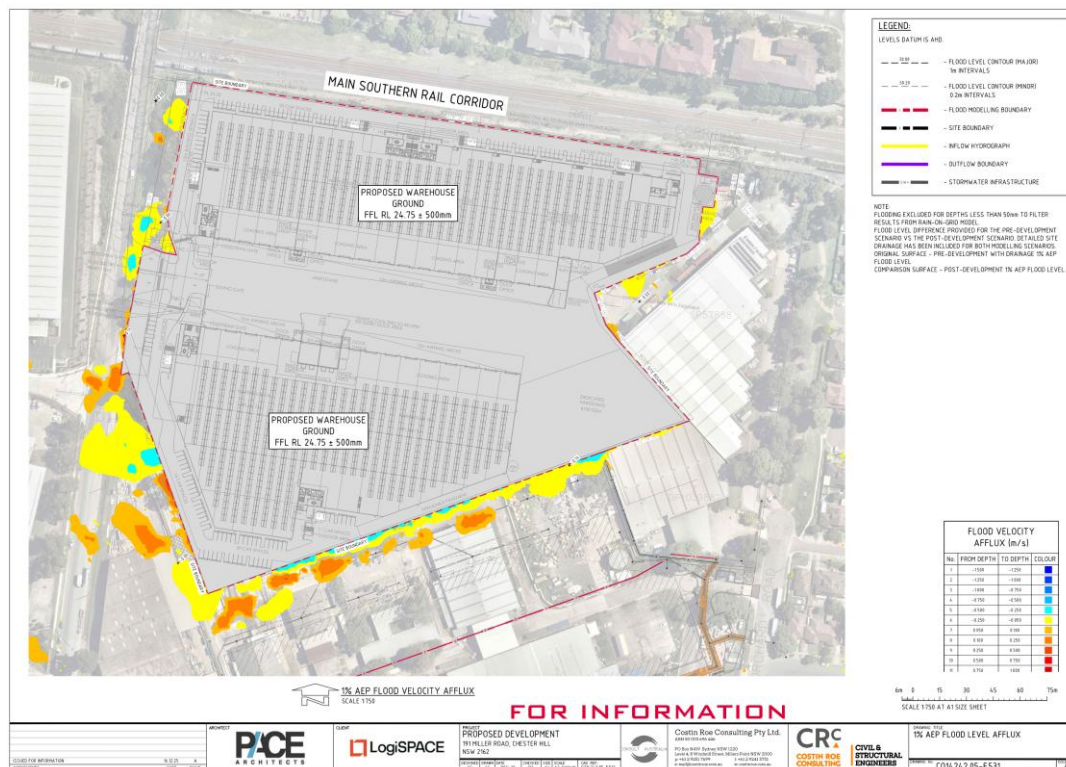


Figure 4.11 – 1% AEP Flood Velocity Afflux

4.5 Floodplain Management Considerations

4.5.1 Flood Planning Level

The introduction of a Flood Planning Level (FPL) is an important flood risk management measure. FPLs are derived from a combination of a designated flood event, which can either be a historic flood or a design flood of a certain recurrence interval, plus a nominated freeboard depth.

The *NSW Flood Risk Management Manual, 2023* recommends that the FPL generally be based on the 100-year ARI event. It suggests that, whilst this event can be varied, it should only be done in exceptional circumstances. It is considered appropriate to adopt the 1% AEP event for the proposed industrial development.

The freeboard component of an FPL is the difference between the flood level that the level is based upon and the FPL itself. Freeboard is designed to provide reasonable certainty that the reduced risk exposure provided by the chosen FPL is warranted, taking into account factors such as:

- Uncertainties in the estimate of flood levels;
- Differences in water levels across the floodplain;
- Wave action resulting from wind and vehicular/marine traffic during the flood event;
- Changes in rainfall patterns due to climate change;
- The cumulative effect of subsequent infill development on existing zoned land.

The *Flood Risk Management Manual* recommends a freeboard of 0.5m for most new industrial developments and it is considered appropriate that this recommended freeboard be adopted for the proposed development.

The FPL defined in the *Flood Risk Management Manual* is noted to be consistent with that of City of Canterbury Bankstown Council.

The nominal FPL for this site is RL 21.50m AHD. We note the proposed building level is RL 24.75m AHD and the lowest level on the site is noted to be RL 22.30m AHD at the access/egress way to Miller Road. All habitable building levels on the site are noted to be at least 500mm above the FPL.

4.5.2 Hydraulic and Hazard Categorisation

Floodwaters can vary significantly, both in time and place across the floodplain. They can flow fast and deep at some locations and slow and shallow at other locations. This can result in large variations to the personal danger and physical property damage resulting from the flood.

The Flood Risk Management Manual recognises three hydraulic categories of flood prone land, these being floodway, flood storage and flood fringe. These are then further separated into two hazard categories, high hazard and low hazard.

Floodways

Floodways are those areas where a significant volume of water flows during floods and are often aligned with natural channels. They are areas that, even if only partially blocked, would cause a significant redistribution of flood flow, which could adversely affect other areas. They can also be areas with deeper and higher velocity flow.

Flood Storage

Flood storage areas are the parts of the floodplain that provide temporary storage for floodwaters during the passage of a flood. If a reduction in the flood storage area is experienced due to the filling of land or construction of a levee bank, it can result in adverse effects on the flood levels and peak flow rates in other areas.

Flood Fringe

Flood fringe areas are the remaining area of land affected by flooding. The development of flood fringe land does not generally have any major impact on the pattern of flood flows and/or levels.

The preparation of a flood study is almost always required in the determination of hydraulic categories. This is so that peak depths, velocities and the extent of flooding can be determined across the catchment.

Hazard Categories

Flood hazard categories are broken down into high and low hazard for each hydraulic category. High hazard areas are defined as those where there is a possible danger to personal safety and the potential for significant structural damage. Able-bodied adults would have difficulty in wading to safety. With low hazard areas, should it be necessary, a truck could evacuate people and their possessions, and able-bodied adults would have little difficulty in wading to safety.

Flood hazard criteria within the site has been defined as H1.

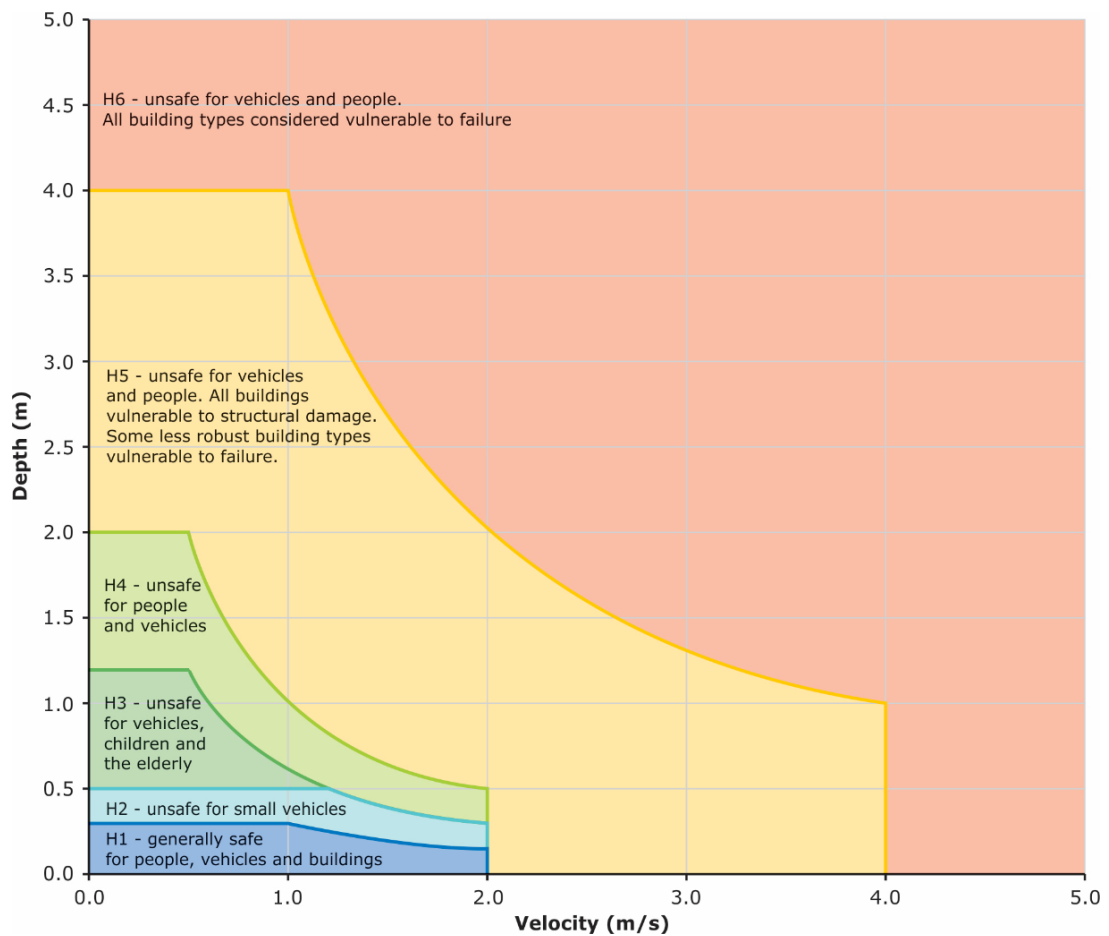


Figure 4.2 - Combined Flood Hazard Curves (Smith et al., 2014)

Table 6.7.3. Combined Hazard Curves - Vulnerability Thresholds (Smith et al., 2014)

Hazard Vulnerability Classification	Description
H1	Generally safe for vehicles, people and buildings.
H2	Unsafe for small vehicles.
H3	Unsafe for vehicles, children and the elderly.
H4	Unsafe for vehicles and people.
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure.
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.

Table 6.7.4. Combined Hazard Curves - Vulnerability Thresholds Classification Limits (Smith et al., 2014)

Hazard Vulnerability Classification	Classification Limit (D and V in combination)	Limiting Still Water Depth (D)	Limiting Velocity (V)
H1	$D \cdot V \leq 0.3$	0.3	2.0
H2	$D \cdot V \leq 0.6$	0.5	2.0
H3	$D \cdot V \leq 0.6$	1.2	2.0
H4	$D \cdot V \leq 1.0$	2.0	2.0
H5	$D \cdot V \leq 4.0$	4.0	4.0
H6	$D \cdot V > 4.0$	-	-

Figure 4.3 - Adopted Hazard Criteria and Provisional Flood Hazard Chart (Australian Rainfall and Runoff 2019)

4.5.3 Flood Damages

Damage caused by floods is generally categorised as either tangible or intangible. Tangible damages are financial in nature and can be readily measured in monetary terms. They include direct damages such as damage or loss caused by floodwaters wetting goods and property, and indirect damages such as lost wages incurred during cleanup periods after the flood event. Intangible damage includes emotional stress and even mental and physical illness caused by the flood. It is difficult, if not impossible to quantify intangible damages in financial terms.

From a flood planning perspective, it is important to consider the following direct damage categories:

- Contents Damage – refers to damage to the contents of buildings, including carpets and furniture etc.;
- Structural Damage – refers to damage to the structural fabric of buildings, such as foundations, walls floors, windows, and built-in fittings; and
- External Damage – includes damage to all items external to buildings, including cars, landscaping etc.

As there is no way to prevent a flood from occurring, and it is unrealistic to exclude all development within flood-prone areas, the intent of establishing a FPL is to minimise the risk of direct damage when a flood occurs. By minimising the direct damage, there is a carry-on effect, whereby other associated indirect tangible damages and intangible damages are also minimised.

4.5.4 Emergency Response Planning

Flood Emergency Management planning refers to the preparation of a formal community-based plan of action to deal with the threat, onset and aftermath of flooding. It involves planning for an event equal to, or greater than the event used to derive the FPL.

The plan of actions should include an on-site response plan that address what measures should be undertaken once the threat of a flood is determined to be imminent.

A flood evacuation strategy should also be included so that all persons within the precinct are familiar with the processes required if a flood occurs, and the trigger warning systems available to enable safe evacuation of the site. The two main types of responses to a flood emergency are to either:

- **Evacuate** to an area above the reach of floodwaters in the PMF. The NSW SES lists this as a preferred flood response given the risks of evacuating are considered acceptable. An evacuation strategy should be considered through the life of the project as part of the ongoing review of flood responses. Flood warning systems, signage and exits should be provisioned for safe egress and orderly evacuation without increased reliance upon the SES or other authorised emergency services personnel.
- **Shelter in Place** within the site and wait until floodwaters have receded and the emergency has passed. Shelter in Place may be considered an alternative to evacuation only if the risks of evacuating are higher than the risks of sheltering on site. SIP requires flood-free access to a shelter above the PMF level, which is available on the proposed development. These shelters would be protected

from the weather, have sufficient floor area for all people likely to be on site at any one time, and would be structurally stable in a PMF.

The review of flood conditions shows that safe access (Hazard Categorisation <H1) would be available along the Miller Road entrance during the 1% AEP flood event with sufficient early warning and safe area of refuge is available within the building at the mezzanine level.

4.5.5 Evacuation

For all floods both evacuation and SIP are considered as possible flood emergency response strategies for the development. The preferred emergency response strategy for this project is for early evacuation. The evacuation strategy would need to be developed in consultation with the SES and City of Canterbury Bankstown Council.

The flood warning alerts would be applied to suitable evacuation triggers, based on the developed warning alerts, in an overall detailed flood emergency response as part of the post approval documentation review and updates. It is anticipated that with sufficient warning systems, an appropriate flood emergency evacuation response could be developed for the site to enable safe evacuation from the site during pluvial flooding events.

4.5.6 Shelter in Place

In the absence of more developed flood warning systems, shelter in place shall be provisioned as part of the development. The warehouses and the first floor offices would provide sufficient clearance to the PMF storm for sufficient shelter opportunities. The mezzanine offices are set at RL 28.75, providing sufficient clearance above the maximum PMF level of RL 27.30.

All tenancies will be able to safely seek refuge on the site should visual indicators of flooding be evident. Appropriate flood preparedness training is proposed for all users of the site to ensure occupant safety in all severe weather scenarios.

The proponent will work with future tenants to adopt the appropriate measures to make these shelter opportunities available.

4.5.7 Emergency Response Planning Conclusion

The above provides a summary of the flood emergency response analysis (for evacuation and SIP) that was undertaken as part of this WCMS to identify the most suitable response strategy and management actions.

In summary, the review of the flood modelling and council information for the site shows that the proposed development is affected by flash flooding between Holloway Street and Baker Street. The flood modelling has confirmed that the hazard categorization of proposed evacuation routes and egress/ingress locations are < H1 categorization. As such both evacuation and SIP are both suitable strategies as flood emergency response during pluvial flooding in a PMF event.

Further development of the emergency response planning is proposed to be made as part of the detailed design.

4.6 Confirmation of Floodplain Management Requirements & Development Strategy

Part B12 Flood Risk Management of Council's DCP provides relevant policy requirements relating to development in and around identified flood affected development sites.

The intent of the document is to ensure that new developments do not experience undue flood risk and that existing development is not adversely flood affected through increased damage or hazard as a result of new development.

The flood planning level (FPL) for business/ industrial to be at or above the 1% AEP (1 in 100-year ARI) flood level plus 0.5m freeboard as noted in Section 7.4.1. The flood level shown in Figure 7.1 is approximately 21.0m at the site boundary, The FPL for the building is noted to be RL 21.50m.

We note the proposed building level is RL 24.75m AHD which is compliant with the Council FPL requirements.

Additionally, the proposed flood management strategy involves capturing a significant portion of the upstream catchment at the site boundary and conveying it through an under croft channel around the building footprint. Flood modelling completed for the site confirms that this strategy is effective at keeping flood levels below the proposed floor level of any habitable development on the site.

The PMF or extreme event provides an upper limit of flooding and associated consequences for the problem being investigated. It is used for emergency response planning purposes to address the safety of people. The site is affected by the PMF event.

Overall flood risk for the development and from the development is considered low to negligible. The FFL of the warehouse is proposed to be constructed above the council's specified flood planning level. Additionally, floodwater management solutions have been implemented to provide adequate refuge for land users during an extreme flood event. Therefore, the development meets current council flood policy.

4.7 Flood Assessment Conclusion

A review of available flood study extracts and Costin Roe Consulting's flood modelling and report has been made to confirm and summarise flood behaviour in relation to the proposed development.

Review of the available information including Council's adopted flood study and the modelling and reporting by CRC shows the site is affected by mainstream flooding during the 1% AEP flood event.

The proposed building FFL is set above the flood planning level specified by City of Canterbury-Bankstown, and safe refuge is available on site for users during an extreme flood event.

The PMF or extreme event provides and upper limit of flooding and associated consequences for the problem being investigated. It is used for emergency response planning purposes to address the safety of people. The site is affected by the PMF event, reaching a maximum water level of RL 27.30m AHD. Costin Roe's RUFLOW modelling confirms during a PMF event, all proposed evacuation routes will have <H1 categorization.

Provision for flood water management has also been implemented to provide adequate refuge for land users during an extreme flood event.

Based on the assessment and management strategy proposed the development and management strategy proposed, the development meets current council flood policy and shows acceptable impacts in relation to flooding and flood safety.

5 EROSION & SEDIMENT CONTROL PLANS

5.1 Soil and Water Management General

Section 1 provides a summary of the construction works for the Proposal. While all construction activities have the potential to impact on water quality, the key activities are:

- Erosion and sediment control installation.
- Grading of existing earthworks to suit building layout, drainage layout and pavements.
- Stormwater and drainage works.
- Service installation works.
- Building construction works.

Without any mitigation measures and during typical construction activities, site runoff would be expected to convey a significant sediment load. A *Soil and Water Management Plan* (SWMP) and *Erosion and Sediment Control Plan* (ESCP), or equivalent, would be implemented for the construction of the Proposal. The SWMP and ESCPs would be developed in accordance with the principles and requirements of:

- Best Practice Erosion and Sediment Control document International Erosion Control Association (ICEA) Australasia – “The White Book”.
- Managing Urban Stormwater – Soils & Construction Volume 1 (‘Blue Book’)(Landcom, 2004).

In accordance with the principles included in the *White Book* and the *Blue Book*, a number of controls have been incorporated into a preliminary ESCP (refer to accompanying Drawings in Appendix A) and draft SWMP in Appendix B.

The sections below outline the proposed controls for management of erosion and sedimentation during construction of the Proposal noting that a final SWMP and ESCP would form part of the Construction Environmental Management Plan (CEMP) for the project.

5.2 Typical Management Measures

Sediment Basins

Sediment basins have been sized and located to ensure sediment concentrations in site runoff are within acceptable limits as defined in the Blue Book. Preliminary basin sizes have been calculated in accordance with the ICEA White Book and are based traditional batch type sediment basins.

Traditional batch type sediment basins are typically wet basins which have a limited capacity based on a 5-day 85th percentile rainfall event (for this area approximately 32mm of rainfall). These basins are pumped out following a rainfall event, and settling within the basin, when suspended solids concentrations of less than 50 mg/L have been achieved. During prolonged periods of rainfall these types of basins regularly overtop with sediment laden water and as such are not able to meet the MRP DCP construction water quality requirements.

Sediment Fences

Sediment fences are located around the perimeter of the site to ensure no untreated runoff leaves the site. They have also been located around the existing drainage channels to minimise sediment migration into waterways and sediment basins.

Stabilised Site Access

For the proposal, stabilised site access is proposed at one location at the entry to the works area. This will limit the risk of sediment being transported onto surrounding public roads.

5.3 Other Management Measures

Other management measures that will be employed are expected to include:

- Minimising the extent of disturbed areas across the site at any one time.
- Progressive stabilisation of disturbed areas or previously completed earthworks to suit the proposal once trimming works are complete.
- Regular monitoring and implementation of remedial works to maintain the efficiency of all controls.

It is noted that the controls included in the preliminary ESCP are expected to be reviewed and updated as the design, staging and construction methodology is further developed for the Proposal.

6 CONCLUSION

This Civil Engineering Details Report has been prepared to support the Development Application for the Stage 1 Early Works at 191 Miller Road, Chester Hill NSW 2162.

A civil engineering strategy for the earthworks and retaining walls have been developed which provides a best practice solution within the constraints of the existing landform. This allows for a flat pad to facilitate future industrial development of the land.

During the construction phase, a Sediment and Erosion Control Plan will be in place to ensure the downstream drainage system and receiving waters are protected from sediment laden runoff.

The detail contained in this report provides sufficient information to show council that legal points of discharge and a suitable stormwater management strategy is available for the development, and the requirements associated with this strategy. It is recommended the management strategies in this report be approved and incorporated into the future detailed design.

7 REFERENCES

- Development Control Plan 2021, Canterbury-Bankstown
- Stormwater System Report WP-SIAONL-1067/2025 – 191 Miller Road, Chester Hill, 2162 (City of Canterbury-Bankstown)
- NSW Government (2005). Floodplain Development Manual.
- Managing Urban Stormwater: Harvesting and Reuse – 2006 (NSW DEC);
- Managing Urban Stormwater: Source Control – 1998 (NSW EPA);
- Managing Urban Stormwater: Treatment Techniques – 1997 (NSW EPA);
- Landcom (2004). Managing Urban Stormwater – Soils and Construction – 4th Edition.

8 APPENDICES

APPENDIX A
DRAWINGS BY COSTIN ROE CONSULTING

PROPOSED LOGISPACE, CHESTER HILL

191 MILLER RD, CHESTER HILL NSW 2162

CIVIL EARLY WORKS PACKAGE FOR DEVELOPMENT APPLICATION

DRAWING LIST

GENERAL

DRAWING NO.	DRAWING TITLE
C014242.05-EW100	DRAWING LIST AND LOCALITY PLAN
C014242.05-EW150	EXISTING SERVICES PLAN
C014242.05-EW200	EROSION AND SEDIMENT CONTROL PLAN
C014242.05-EW251	EROSION AND SEDIMENT CONTROL DETAILS - SHEET 1
C014242.05-EW252	EROSION AND SEDIMENT CONTROL DETAILS - SHEET 2
C014242.05-EW300	BULK EARTHWORKS PLAN
C014242.05-EW310	CUT/ FILL PLAN
C014242.05-EW351	BULK EARTHWORKS SECTIONS - SHEET 1
C014242.05-EW352	BULK EARTHWORKS SECTIONS - SHEET 2
C014242.05-EW353	BULK EARTHWORKS SECTIONS - SHEET 3
C014242.05-EW400	STORMWATER DRAINAGE PLAN
C014242.05-EW451	STORMWATER DRAINAGE DETAILS - SHEET 1
C014242.05-EW600	RETAINING WALL SETOUT PLAN
C014242.05-EW610	RETAINING WALL ELEVATIONS
C014242.05-EW640	TYPICAL DETAILS - SHEET 1
C014242.05-EW641	TYPICAL DETAILS - SHEET 2
C014242.05-EW642	TYPICAL DETAILS - SHEET 3
C014242.05-EW650	RETAINING WALL DETAILS

GENERAL NOTES:

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
- ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL SETOUT. REFER TO THE ARCHITECT'S DRAWINGS FOR ALL DIMENSIONAL SETOUT INFORMATION.
- DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE PROGRESS OF THE JOB.

ELECTRONIC INFORMATION NOTES:

- THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
- THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
- THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
- THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.

EXISTING SERVICES NOTES:

- DURING THE EXECUTION OF WORKS, THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF EXISTING SERVICES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED TO THE EXISTING SERVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE RELEVANT SERVICE AUTHORITY, AT NO COST TO THE PRINCIPAL.
- WHERE IT IS NECESSARY TO REMOVE, DIVERT OR CUT INTO ANY EXISTING SERVICE, THE CONTRACTOR SHALL GIVE AT LEAST THREE (3) DAYS NOTICE OF ITS REQUIREMENTS TO THE SUPERINTENDENT, WHO WILL ADVISE WHAT ARRANGEMENTS SHOULD BE MADE FOR THE ALTERATION OF SUCH EXISTING WORKS.
- EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA. THE ACCURACY IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO COMMENCING WORK. ALL CLEARANCES AND APPROVALS SHALL ALSO BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY PRIOR TO THE COMMENCEMENT OF WORK.
- ALL NEW AND EXHUMED SERVICES THAT CROSS EXISTING AND FUTURE ROADS/PAVEMENTS WITHIN THE SITE SHALL BE BACKFILLED WITH DOB20 MATERIAL TO SUBGRADE LEVEL AND COMPACTED TO 98% STANDARD DENSITY RATIO. SUBJECT TO PRIOR APPROVAL FROM RELEVANT AUTHORITY.
- ON COMPLETION OF SERVICES INSTALLATION, ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AREAS, GRASSED AREAS AND ROAD PAVEMENTS. CARE TO BE TAKEN WHEN EXCAVATING NEAR UTILITY SERVICES. NO MECHANICAL EXCAVATION TO BE UNDERTAKEN OVER SERVICES. LIAISE WITH RELEVANT AUTHORITY.
- THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY THE WORKS WITHIN THE CONTRACT AREA AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT. ALL TO REGULATORY AUTHORITY STANDARDS AND APPROVAL.
- THE CONTRACTOR IS TO MAINTAIN EXISTING STORMWATER DRAINAGE FLOWS THROUGH THE ROADS AT ALL TIMES. MAKE DUE ALLOWANCE FOR ALL SUCH FLOWS AT ALL TIMES.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL OBTAIN THE SUPERINTENDENT'S APPROVAL OF THE PROGRAM FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
- CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES AS REQUIRED TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
- INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE OR DAMAGE TO THE ADJACENT RESIDENCES. CONTRACTOR TO GAIN APPROVAL OF THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
- THE CONTRACTOR SHALL UNDERTAKE A DIAL BEFORE YOU DIG (DBYD 1100) SERVICES SEARCH BEFORE THE COMMENCEMENT OF ANY WORKS.



FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION			12.12.25			B			ARCHITECT			CLIENT			PROJECT			Costin Roe Consulting Pty Ltd.			DRAWING TITLE		
ISSUED FOR INFORMATION			05.12.25			A			PACE			LogiSPACE			PROPOSED DEVELOPMENT			PO Box N419 Sydney NSW 1220			DRAWING LIST & LOCALITY PLAN		
AMENDMENTS			DATE			ISSUE			ARCHITECTS			LogiSPACE			191 MILLER ROAD, CHESTER HILL, NSW 2162			Level 4, 8 Windmill Street, Millers Point NSW 2000			C014242.05-EW100		
																		p: +61 2 9251 7699			C014242.05-EW100		
																		e: mail@costinroe.com.au			B		
																		f: +61 2 9241 3731					
																		w: costinroe.com.au					



- # LEGEND
- | | | | |
|---|-------------------|---|------------------------|
|  | RAINAGE GULLY PIT |  | GAS MAIN |
|  | RAINAGE MANHOLE |  | GAS METER |
|  | ELEC FUSE BOX |  | GAS VALVE |
|  | ELEC GARDEN LIGHT |  | SEWER LAMPHOLE |
|  | ELEC GREEN PILLAR |  | SEWER MANHOLE |
|  | ELEC LIGHT POLE |  | SEWER VENT PIPE |
|  | ELEC POLE & LIGHT |  | OPTICAL FIBRE MARKER |
|  | ELEC POWER POLE |  | OPTICAL FIBRE PIT |
|  | ELEC SINGLE PIT |  | TELECOM DIST PILLAR |
|  | ELEC STAY POLE |  | TELECOM POLE |
|  | ELEC TWIN PIT |  | TELECOM SINGLE PIT |
|  | FUEL PID |  | TELECOM TWIN PIT |
|  | WATER AIR VALVE |  | TRAF JUNCTION BOX |
|  | WATER HYDRANT |  | TRAFFIC LIGHT |
|  | WATER METER |  | TRAFFIC SIGN |
|  | WATER PUMP |  | TRAF SIGNAL CONTROLLER |
|  | WATER STOP VALVE | | |
|  | WATER TAP | | |
- RAINAGE PIPE U/G

RAIN

ELECT. CABLE A/G

ELECT. TRACED QUALITY - B

ELEC. TRACED QUALITY - C

TELSTRA CABLE

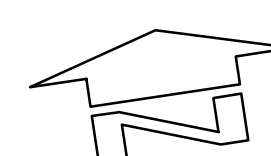
WATER POTABLE QUALITY - B

WATER POTABLE QUALITY - C

SEWER

5m 0 10 20 30 40 50m
SCALE 1:500 AT B1 SIZE SHEET

FOR INFORMATION



EXISTING SERVICES PLAN



PROJECT
PROPOSED DEVELOPMENT
191 MILLER ROAD, CHESTER HILL, NSW 2162



Costin Roe Consulting Pty Ltd.

PO Box N419 Sydney NSW 1220
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p: +61 2 9251 7699 f: +61 2 9241 3731
e: mail@costinroe.com.au w: costinroe.com.au



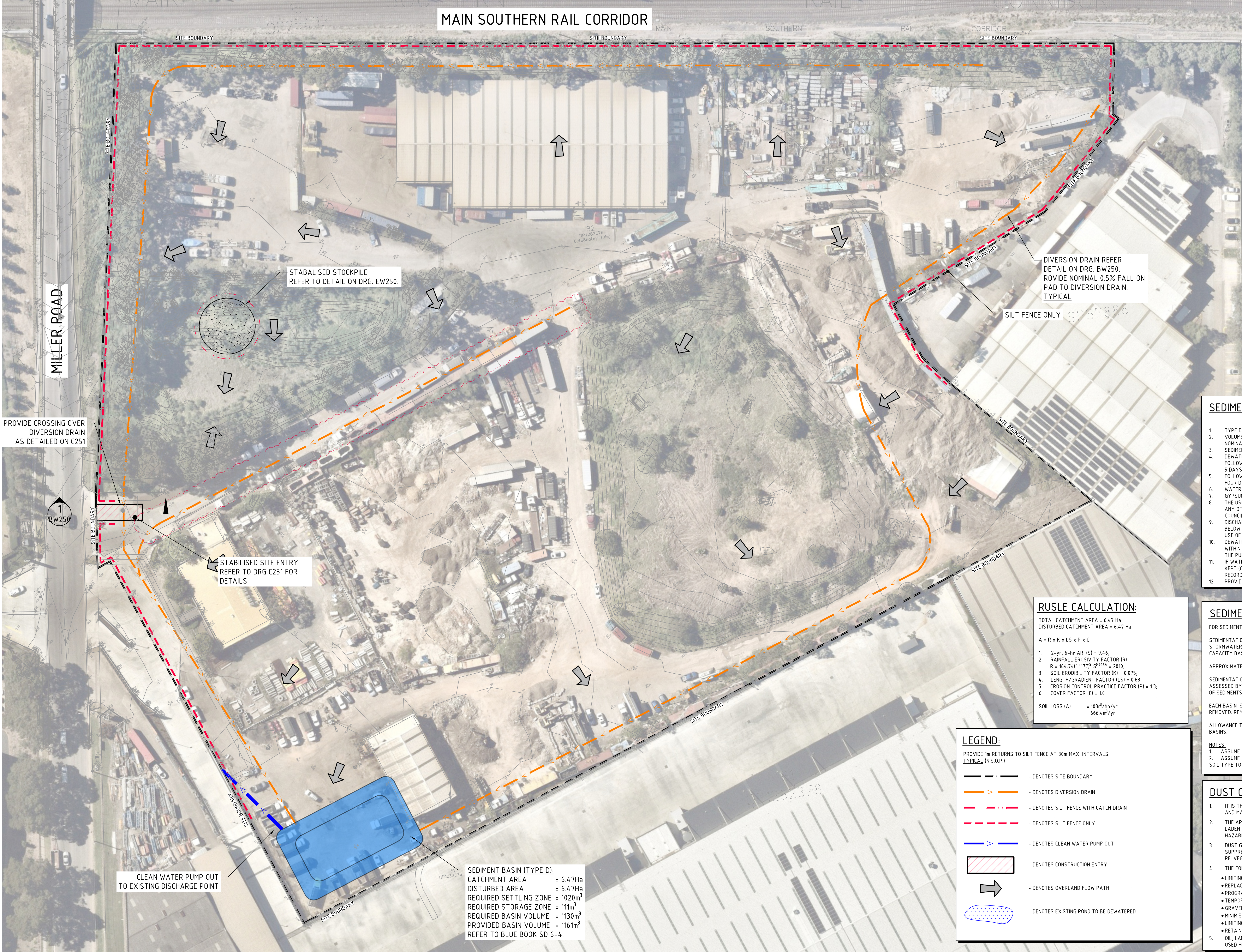
**CIVIL &
STRUCTURAL
ENGINEERS**

DRAWING TITLE
EXISTING SERVICES PLAN

DRAWING No C014242.05-EW150

ISSU

[illegible]



EROSION CONTROL NOTES:

- ALL CONTROL WORK INCLUDING DIVERSION BANKS AND CATCH DRAINS, V-DRAINS AND SILT FENCES SHALL BE COMPLETED DIRECTLY FOLLOWING THE COMPLETION OF THE EARTHWORKS.
- SILT FENCES AND SILT FENCE RETURNS SHALL BE ERECTED CONVEX TO THE CONTOUR OF POND WATER.
 - HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
 - ALL TEMPORARY EARTH BERMS, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
 - CLEAR WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM.
 - THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ON GOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
 - ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING, TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION.
 - ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE END OF THE DEFECTS LIABILITY PERIOD.
 - ALL EARTHWORKS AREAS SHALL BE ROLLED ON A REGULAR BASIS TO SEAL THE EARTHWORKS.
 - ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S EARTHWORKS. THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200mm.
 - ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
 - AFTER REVEGETATION OF THE SITE IS COMPLETE AND THE SITE IS STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SILT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.
 - ALL TOPSOIL STOCKPILES ARE TO BE SUITABLY COVERED TO THE SATISFACTION OF THE SITE MANAGER TO PREVENT WIND AND WATER EROSION.
 - ANY AREA THAT IS NOT APPROVED BY THE CONTRACT ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED AND SIGN POSTED, FENCED OFF OR OTHERWISE APPROPRIATELY PROTECTED AGAINST ANY SUCH DISTURBANCE.
 - ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS APPROVED FOR SUCH USE BY THE SITE MANAGER. A 6m BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH. ALL STOCKPILES SHALL BE ADEQUATELY PROTECTED FROM EROSION AND CONTAMINATION OF THE SURROUNDING AREA BY USE OF THE MEASURES APPROVED IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
 - ACCESS AND EXIT AREAS SHALL INCLUDE SHAKE-DOWN OR OTHER METHODS APPROVED BY THE SITE MANAGER FOR THE REMOVAL OF SOIL MATERIALS FROM MOTOR VEHICLES.
 - THE CONTRACTOR IS TO ENSURE RUNOFF FROM ALL AREAS WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION, INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF POLLUTANTS BEFORE IT IS EITHER DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
 - THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROWNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SWMP.

SEDIMENT CONTROL BASIN NOTES:

- TYPE D BASIN IS REQUIRED.
- VOLUME OF THE BASINS SHALL BE AS NOMINATED ON DRAWING. NOMINAL POND LOCATIONS AND NOMINAL DIMENSIONS.
- SEDIMENT BUILD UP TO NOT EXCEED 33% TOTAL CAPACITY OF BASIN.
- DEWATERING OF BASIN TO BE PERFORMED TO THE BOTTOM OF THE SEDIMENT SETTLING ZONE FOLLOWING ACHIEVEMENT OF WQD'S. MANAGEMENT OF DOSAGE AND DISCHARGE TO BE ACHIEVED WITHIN 5 DAYS OF THE INITIAL RAINFALL EVENT.
- FOLLOWING DEWATERING PER NOTE 4, WATER LEVEL TO BE MAINTAINED AT 20% CAPACITY AFTER A FOUR DAY SETTLING PERIOD FOLLOWING A STORM EVENT.
- WATER TO BE DOSED WITH GYPSUM TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS AS REQUIRED.
- GYPSUM DOSAGE RATE TO BE APPLIED AT APPROX. 32kg PER 100 CUBIC METRE OF COLLECTED RUNOFF.
- THE USE OF ALUM (OR ANY OTHER ALTERNATIVE) AS A FLOCCULANT IS NOT RECOMMENDED. ALUM OR ANY OTHER FLOCCULANT IS TO BE USED ONLY FOLLOWING CONSULTATION WITH AND ACCEPTANCE FROM COUNCIL ESC OFFICERS.
- DISCHARGE FROM POND IS PERMISSIBLE WHEN THE WATER PH IS 6.5-8.5 AND IS CLARIFIED TO AT OR BELOW A TSS OF 50mg/L. CLARIFICATION WOULD GENERALLY BE ACHIEVED IN 36-72 HOURS WITH THE USE OF GYPSUM. CORRELATION TESTS MUST BE UNDERTAKEN ON SITE, TO ENSURE THIS IS ACHIEVED.
- DEWATERING SHALL BE DONE IN SUCH A MANNER AS TO REMOVE THE CLEAN WATER BEING WATER WITHIN THE ADOPTED CRITERIA WITHOUT REMOVING OR DISTURBING THE SEDIMENT THAT HAS SETTLED. THE PUMP INTAKE PIPE IS NOT TO REST ON THE SETTLED SEDIMENT LAYER.
- IF WATER EXCEEDS TSS OF 50mg/L DURING DEWATERING, PUMPING IS TO CEASE. RECORDS ARE TO BE KEPT (ON-SITE AT ALL TIMES) OF ALL MEASUREMENT PRIOR TO, DURING AND AFTER DISCHARGE. RECORDS TO BE MADE AVAILABLE TO COUNCIL OFFICERS UPON REQUEST.
- PROVIDE SECURITY FENCE TO BASIN FOR SAFETY.

SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C014242.04-BW250 & BW251.

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK'.
CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY (315mm).

APPROXIMATE AREA OF DISTURBED SITE = 6.47Ha

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

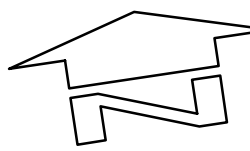
EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:
1. ASSUME TYPE D SOIL (CLAY/SILT CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)
SOIL TYPE TO BE ASSESSED BY A GEOTECHNICAL ENGINEER

DUST CONTROL NOTES:

- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE DUST CONTROL MEASURES ARE APPLIED AND MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN.
- THE APPLICATION OF LIQUID BASED DUST SUPPRESSION MEASURES MUST BE SUCH THAT SEDIMENT LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD. (EG USING HAY BALES)
- DUST GENERATION ASSOCIATED WITH WIND EROSION TO BE CONTROLLED USING WATER TRUCKS, DUST SUPPRESSING FOG, MIST GENERATORS, SEALANT PLACED OVER THE SOIL, SURFACE ROUGHENING OR RE-VEGETATION.
- THE FOLLOWING ACTIVITIES SHALL BE ADOPTED, IF NECESSARY, TO MANAGE DUST CONTROL ON SITE:
 - LIMITING THE AREA OF SOIL DISTURBANCE AT ANY GIVEN TIME
 - REPLACING TOPSOIL AFTER COMPLETION OF EARTHWORKS.
 - PROGRAMMING WORK TO MINIMISE THE LIFE OF STOCKPILES.
 - TEMPORARILY STABILISING LONG-TERM STOCKPILES.
 - GRAVELLING UNSEALED ACCESS AND HAUL ROADS.
 - MINIMISING TRAFFIC MOVEMENT ON EXPOSED SURFACES.
 - LIMITING VEHICULAR TRAFFIC TO 15km/h.
 - RETAINING EXISTING VEGETATION AS WIND BREAKS.
- OIL, LANDFILL GAS CONDENSATE OR ANY CONTAMINATED LEACHATE OR STORMWATER IS NOT TO BE USED FOR DUST SUPPRESSION.



EROSION & SEDIMENT CONTROL PLAN

SCALE 1:500

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	12.12.25	B
ISSUED FOR INFORMATION	05.12.25	A
AMENDMENTS	DATE	ISSUE

ARCHITECT	CLIENT
PACE ARCHITECTS	LogiSPACE

CUSTOMER

 **LogiSPACE**

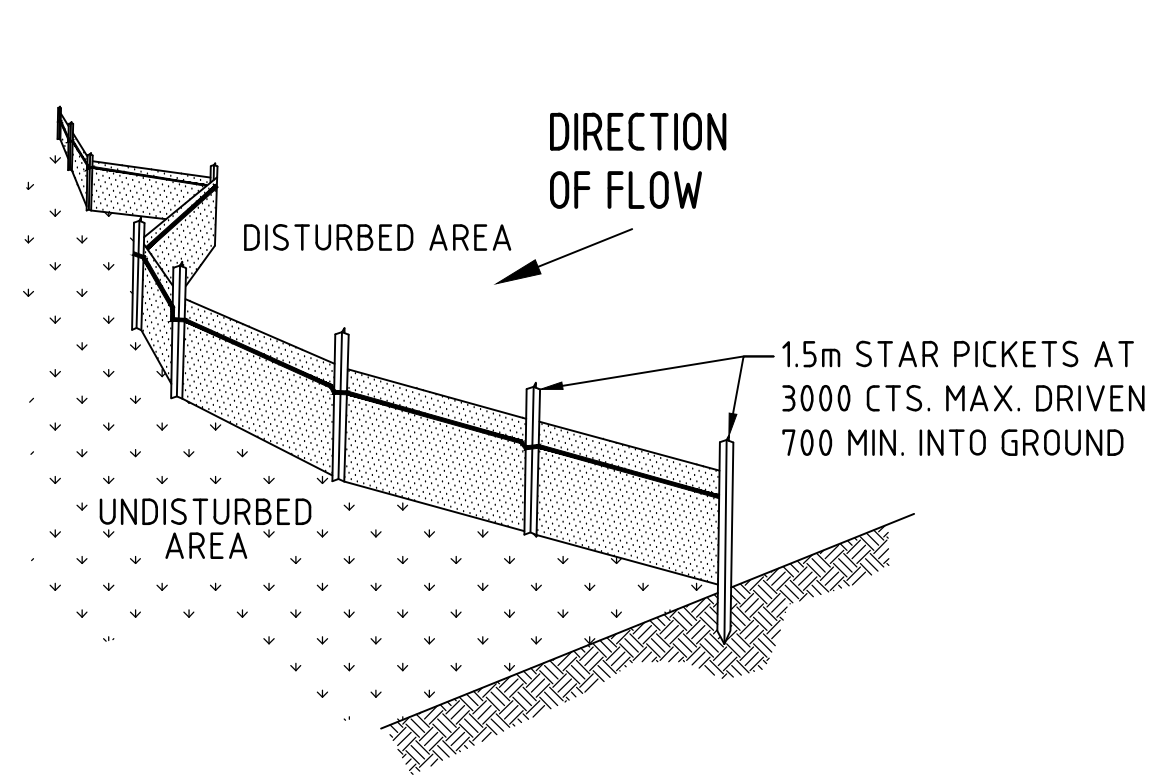
PROJECT
PROPOSED DEVELOPMENT
191 MILLER ROAD, CHESTER HILL, NSW 2162

DESIGNED AH	DRAWN GP	DATE NOV '25	CHECKED DS	SIZE B1	SCALE AS SHOWN	CAD REF: C014242.05-EW200
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CONSULT AUSTRALIA	Costin Roe Consulting Pty Ltd. ABN 50 003 696 446
PO Box N419 Sydney NSW 1220	Level 4, 8 Windmill Street, Millers Point NSW 2000
p: +61 2 9251 7699	f: +61 2 9241 3731
e: mail@costinroe.com.au	w: costinroe.com.au

CRC COSTIN ROE CONSULTING	CIVIL & STRUCTURAL ENGINEERS
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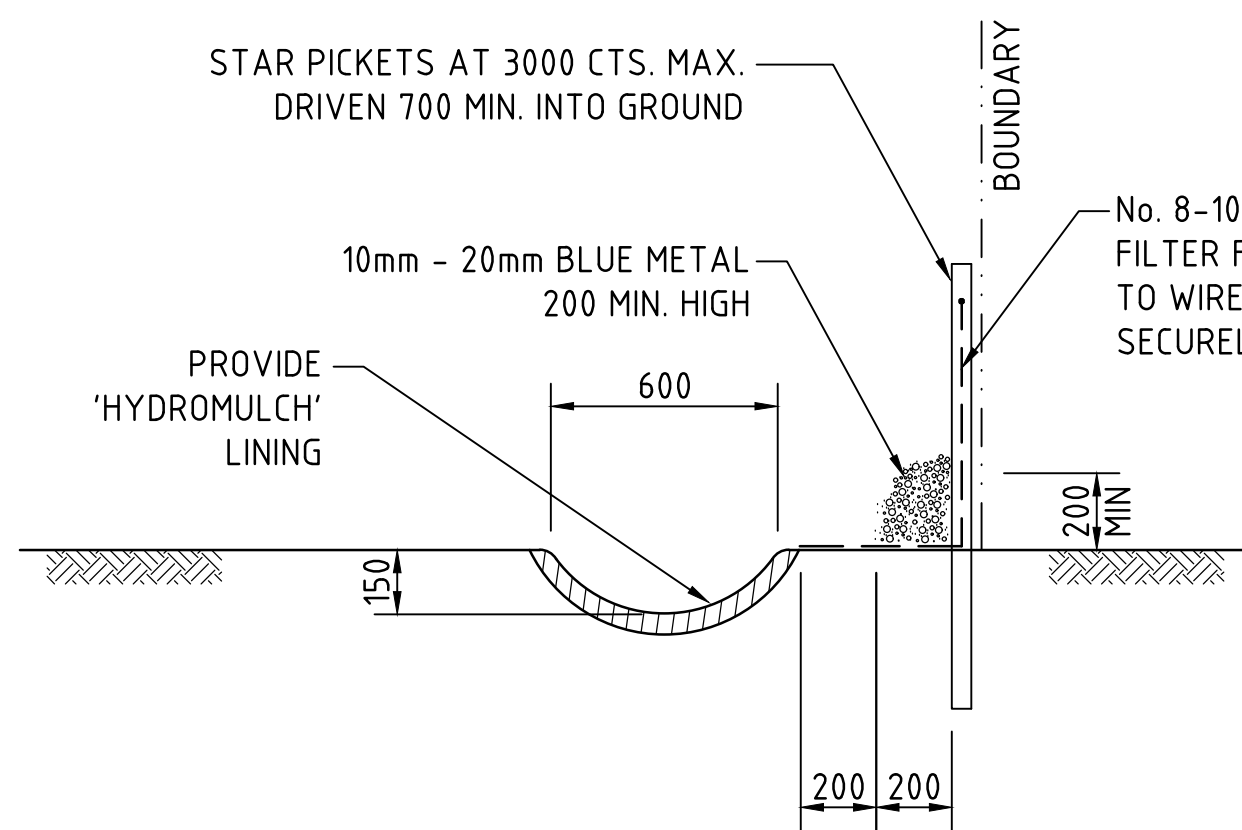
DRAWING TITLE	EROSION & SEDIMENT CONTROL PLAN
DRAWING NO	C014242.05-EW200
ISSUE	B



TYPICAL SILT FENCE DETAIL

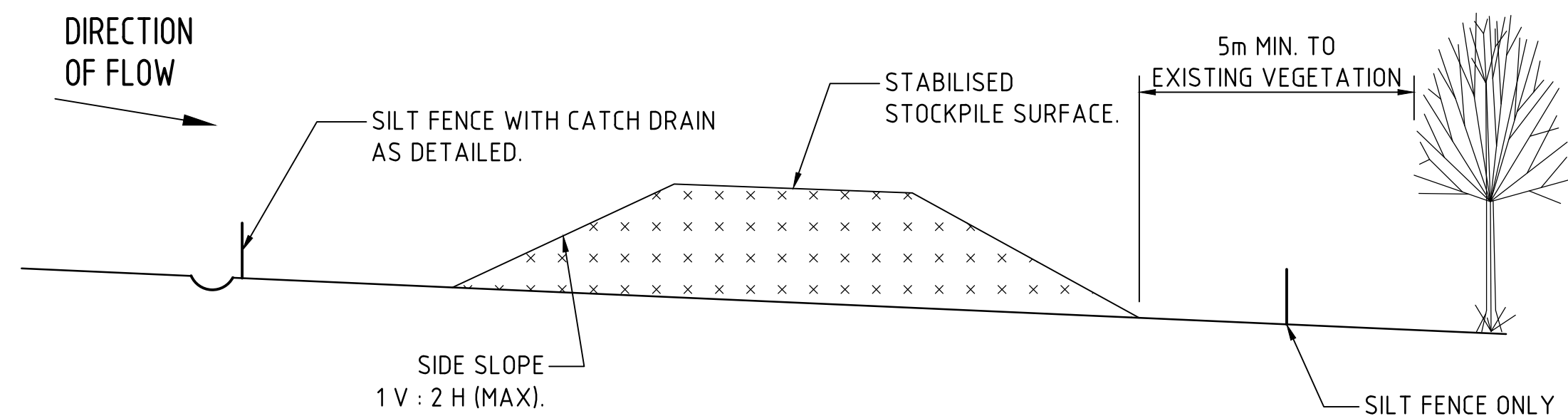
N.T.S

NOTE: PROVIDE 1m RETURNS AT 30m INTERVALS. TYPICAL



TYPICAL OPEN DRAIN & SILT FENCE

SCALE 1:20

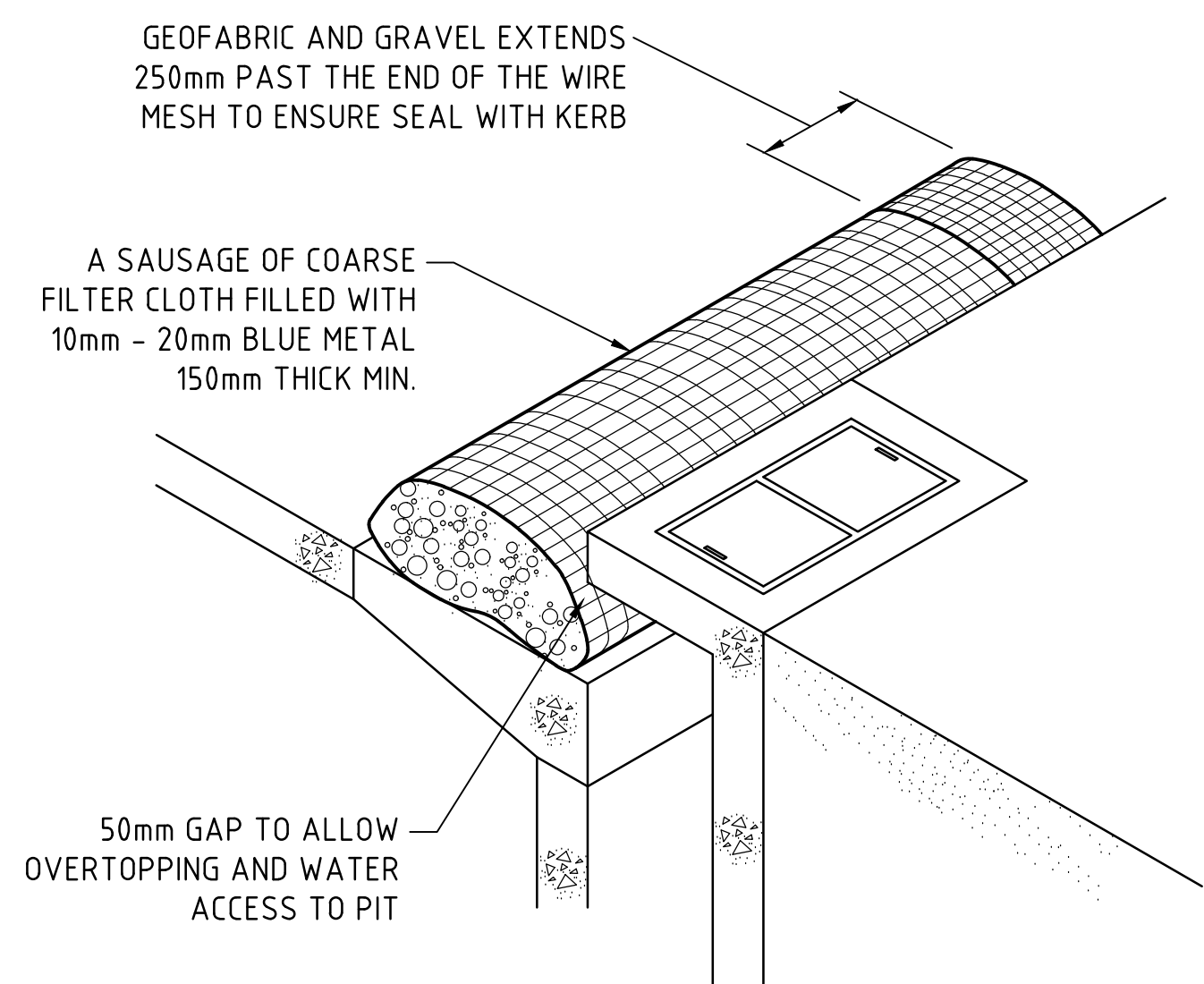


TYPICAL STOCKPILE DETAIL

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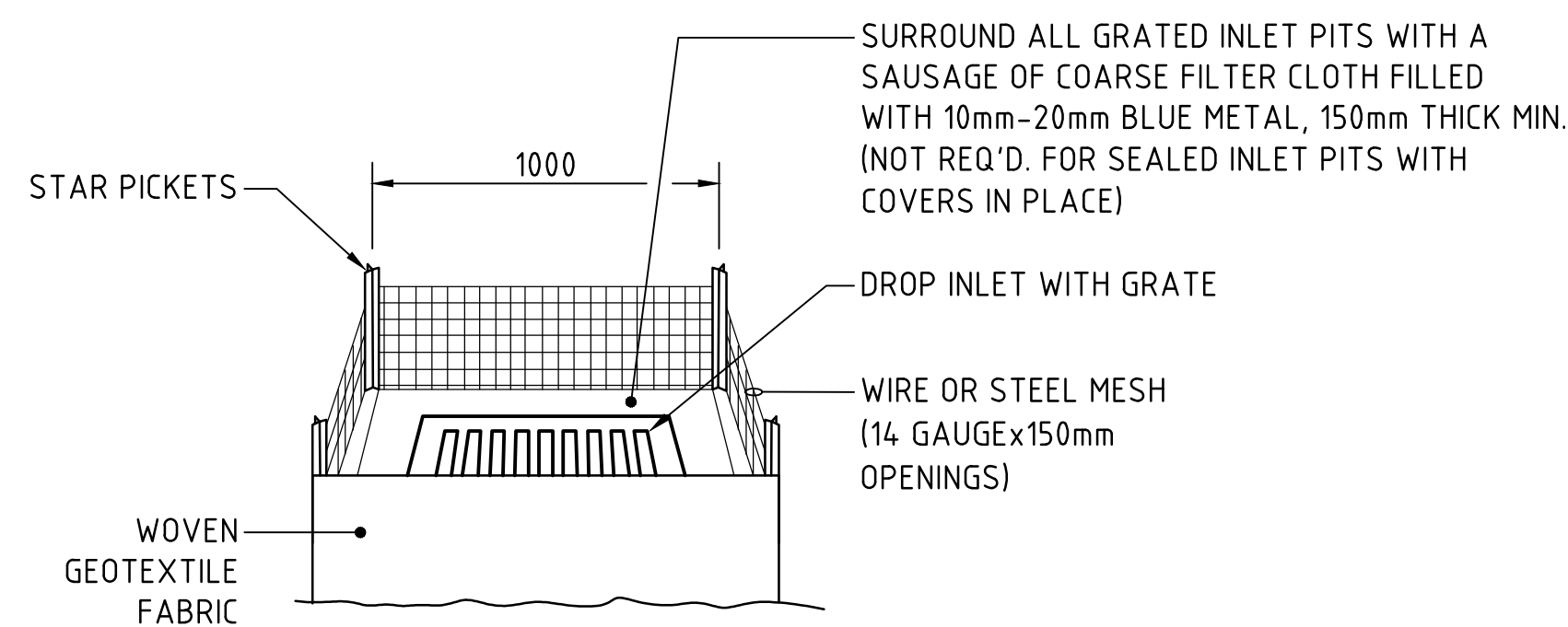
STOCKPILE NOTES

1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1 V: 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/Ha.
5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.



KERB INLET CONTROL

N.T.S

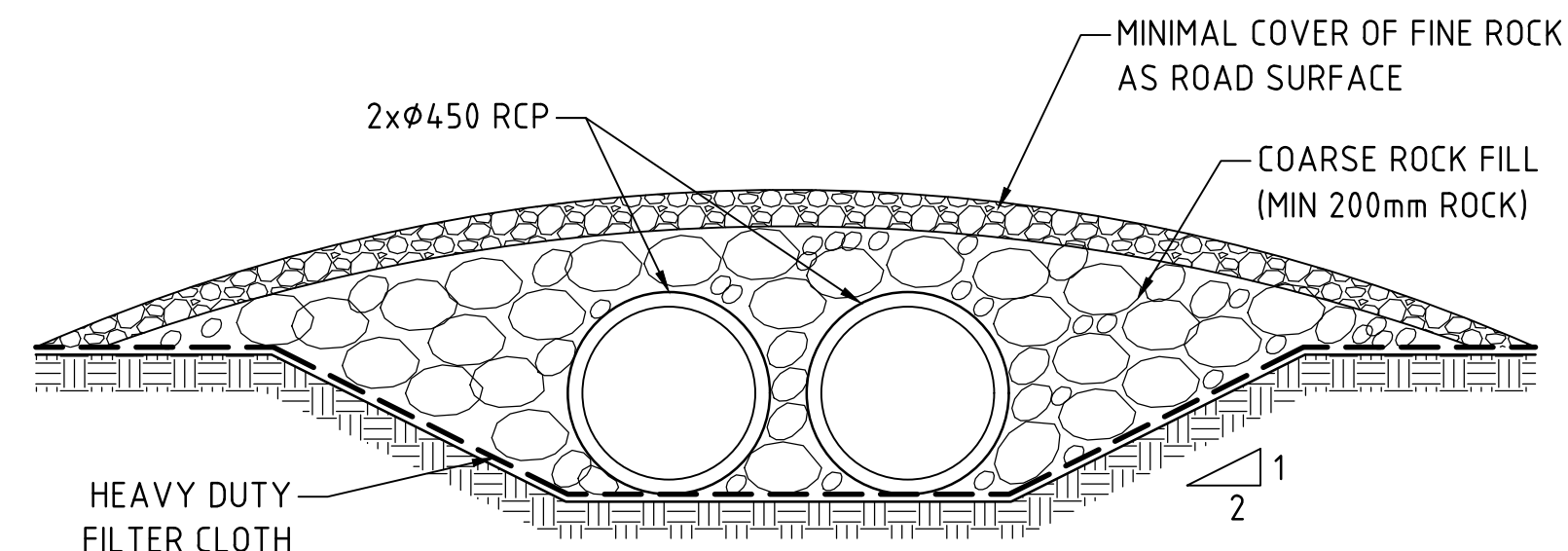


GRADED INLET PIT FILTER DETAIL

N.T.S

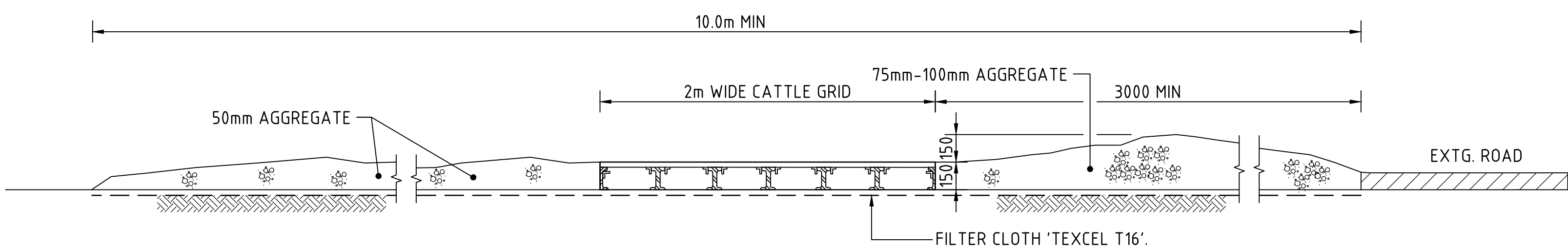
NOTE :

ADOPT ABOVE DETAILS AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE & TO PITS ON THE ROAD ADJACENT TO SITE BOUNDARY.

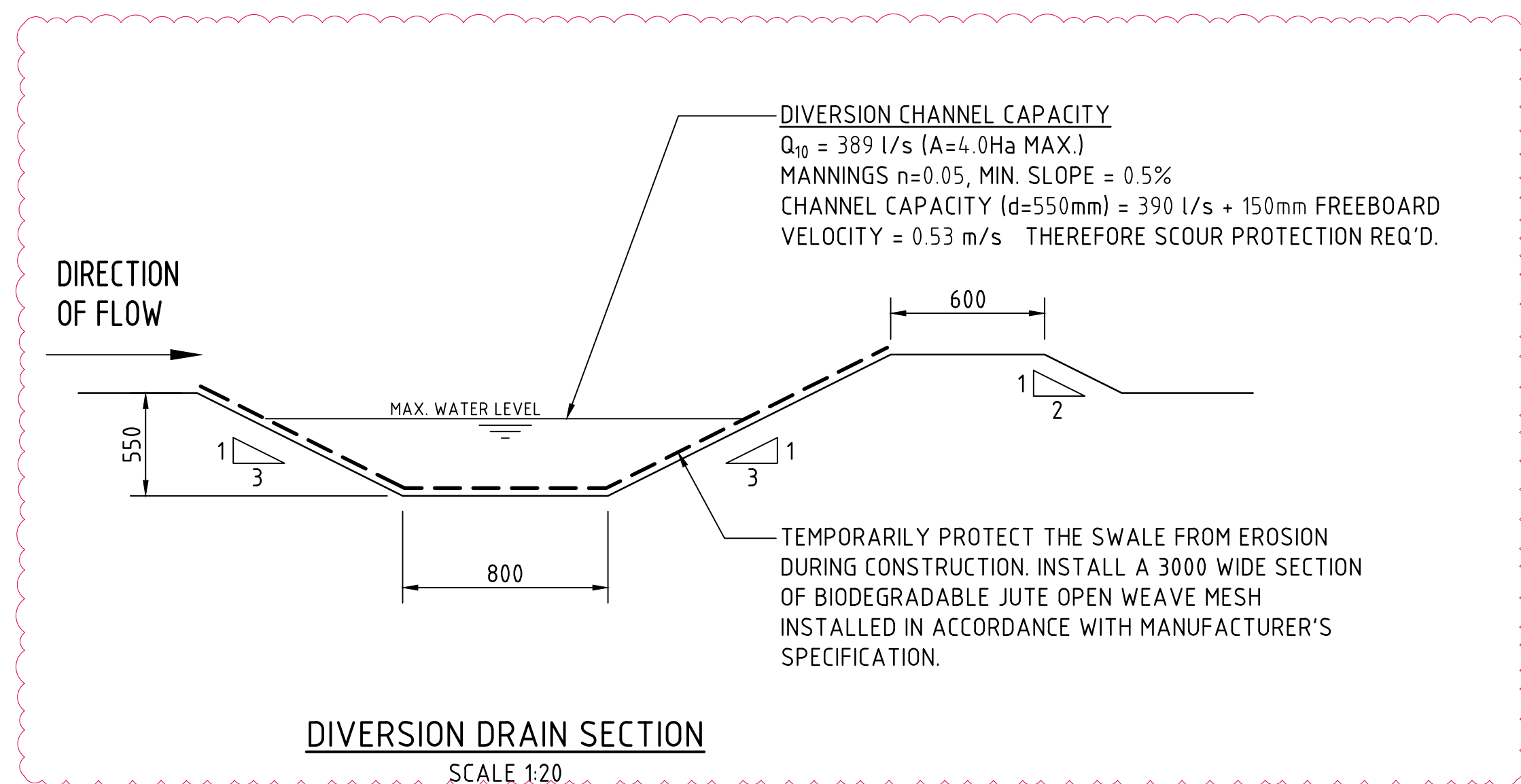


TYPICAL CROSSING OVER DIVERSION CHANNEL

SCALE 1:20



SECTION 1:20 1 : STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'



DIVERSION DRAIN SECTION

SCALE 1:20

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT B1 SIZE SHEET

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	12.12.25	B			
ISSUED FOR INFORMATION	05.12.25	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE



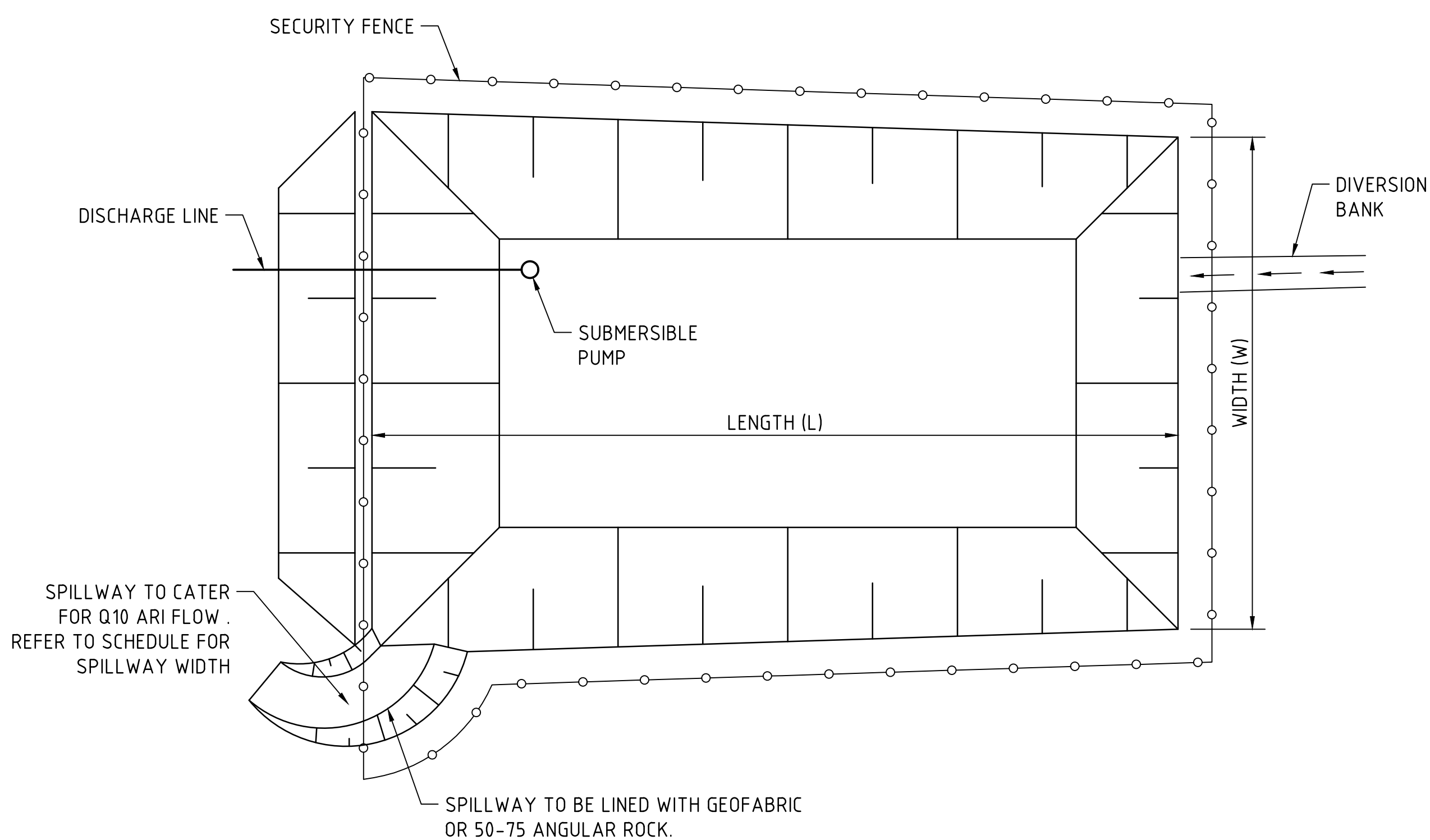
PROJECT	PROPOSED DEVELOPMENT
	191 MILLER ROAD, CHESTER HILL, NSW 2162
DESIGNED	AH
DRAWN	QP
DATE	NOV '25
CHECKED	DS
SIZE	B1
SCALE	AS SHOWN
CAD REF:	C014242.05-EW250



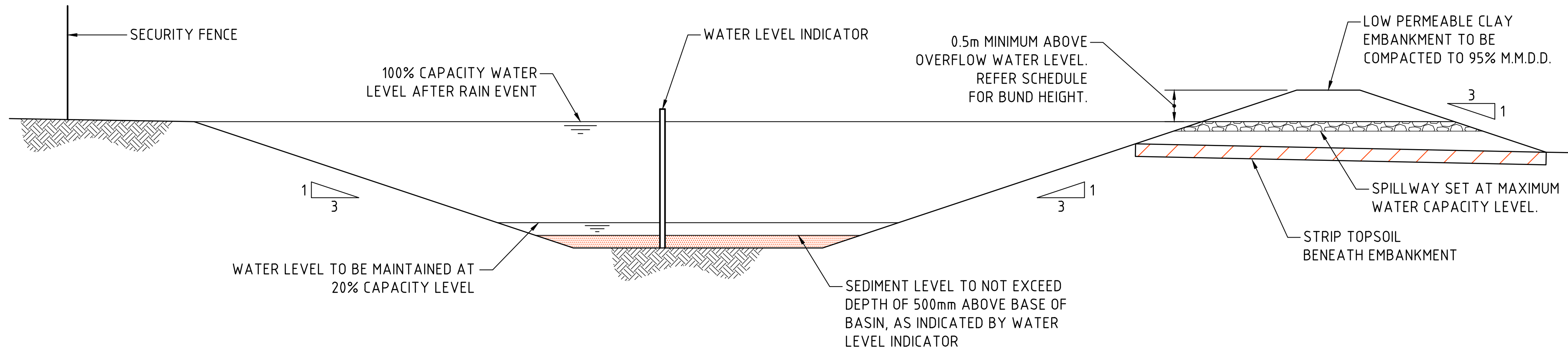
Costin Roe Consulting Pty Ltd.
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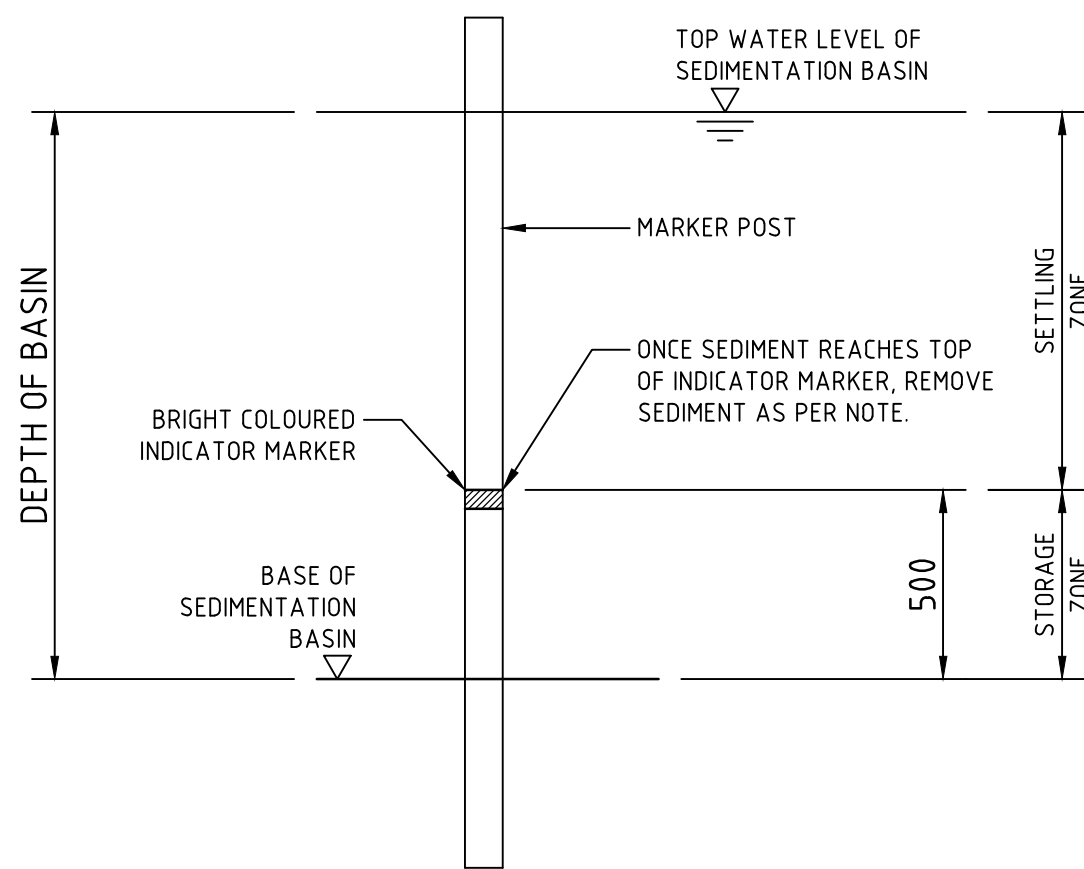
DRAWING TITLE	EROSION SEDIMENT CONTROL DETAILS
	SHEET 1
DRAWING No	C014242.05-EW250
ISSUE	B



TYPICAL SEDIMENT CONTROL POND PLAN
SCALE 1:250



TYPICAL SEDIMENT CONTROL BASIN SECTION
SCALE 1:50



SEDIMENT STORAGE MARKER
SCALE 1:20

SPILLWAY DETAIL & SCHEDULE					
CATCHMENT (Ha)	FLOW (m³/s)	WIDTH (mm)	FLOW DEPTH (mm)	ROCK SIZE (mm)	BUND HEIGHT ABOVE SPILLWAY (mm)
0.20	0.14	1000	200	-	600
0.5	0.2	2000	200	-	600
1	0.3	2000	200	-	700
2	0.6	4000	200	-	700
5	1.4	5000	300	200	800
10	2.8	8000	350	200	850

FOR DEVELOPMENT APPLICATION

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT B1 SIZE SHEET

ISSUED FOR DEVELOPMENT APPLICATION	12.12.25	B			
ISSUED FOR INFORMATION	05.12.25	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE



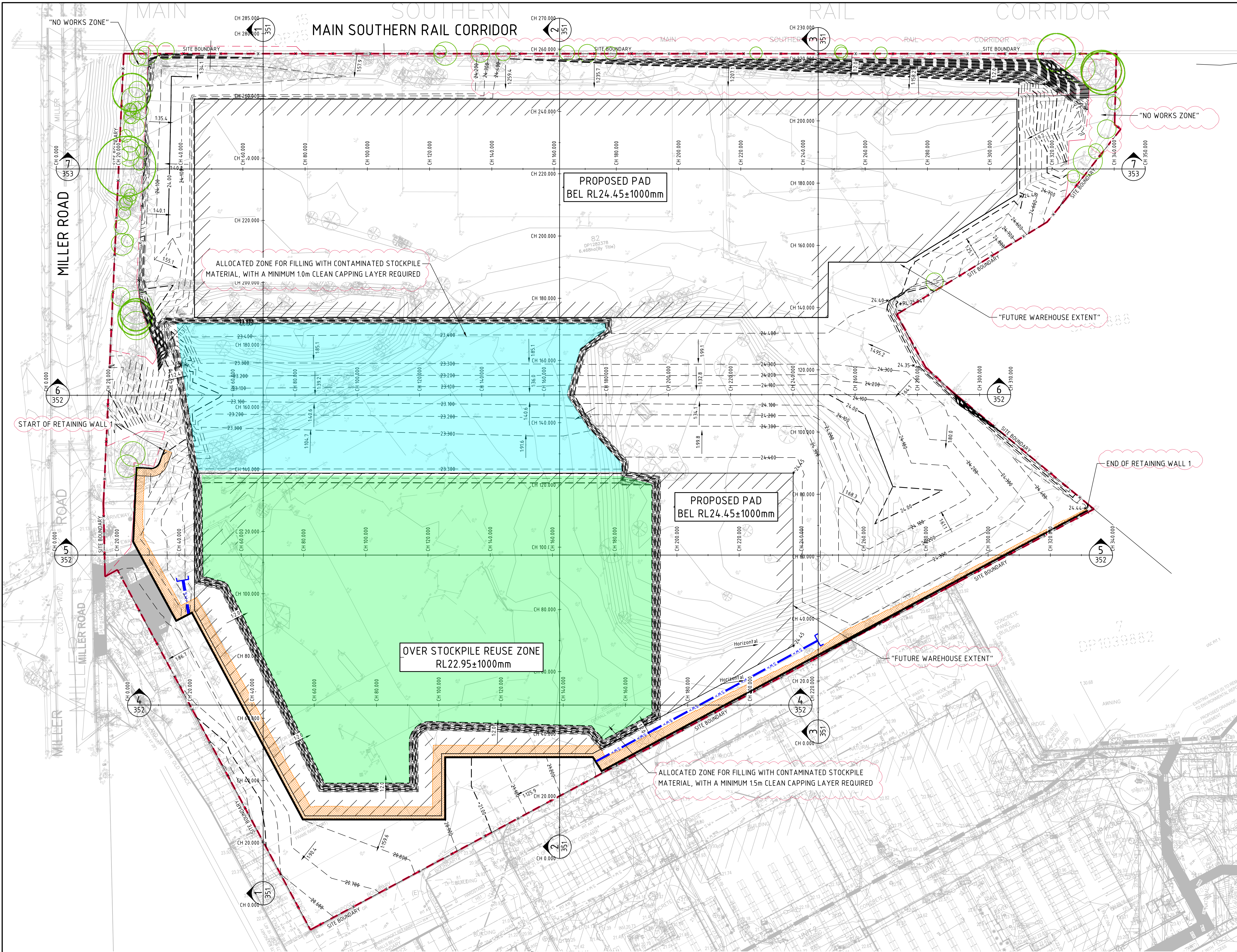
PROJECT PROPOSED DEVELOPMENT 191 MILLER ROAD, CHESTER HILL, NSW 2162					
DESIGNED AH	DRAWN QP	DATE NOV '25	CHECKED DS	SIZE B1	SCALE AS SHOWN
CAD REF: C014242.05-EW250					



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DRAWING TITLE EROSION SEDIMENT CONTROL DETAILS SHEET 2	DRAWING No C014242.05-EW250	ISSUE B
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- ### SITE PREPARATION NOTES:
- ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT 'PSM182.01-002L PROVIDED BY PSM DATED 25/07/2025.
 - EXISTING LEVELS ARE BASED ON INFORMATION PROVIDED BY MNG LANDPARTNER TITLED 'DETAILED SURVEY OF LOT 82 ON DP1282378' DATED 07/11/2025.
 - STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED TOPSOIL BLENDING IS NOT ACCEPTABLE. ANY BLENDING PROPOSAL IS TO BE REFERRED TO THE ENGINEER.
 - COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +0mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND -0mm/-20mm ELSEWHERE.
 - PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION. WHERE EXPOSED ROCK (WEATHERED SHALE OR SANDSTONE) IS ENCOUNTERED AT CUT SUBGRADE LEVEL, THE EARTHWORKS CONTRACTOR IS TO ALLOW TO RIP THE SURFACE TO A NOMINAL 0.3-0.4m DEPTH AND RECOMPACT PER THE ENGINEERING SPEC AS REQUIRED.
 - AREAS TO RECEIVE FILL THAT ARE NOT ON BENCHED BATTERS) AND AREAS IN CUT SHALL BE PROOF ROLLED TO IDENTIFY ANY SOFT HEAVING MATERIAL. SOFT MATERIAL SHALL BE BOXED OUT AND REMOVED PRIOR TO FILL PLACEMENT. PROOF ROLLING TO BE INSPECTED BY A GEOTECHNICAL ENGINEER OR THE EARTHWORKS DESIGNER.
 - SITE WON FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HALF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HALF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
 - IMPORTED FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HALF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HALF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
 - ALL ENGINEERED FILL PARTICLES SHALL BE ABLE TO BE INCORPORATED WITHIN A SINGLE LAYER. FURTHER, LESS THAN 30% OF PARTICLES SHALL BE RETAINED ON THE 37.5 mm SIEVE ENGINEERED FILL SHALL BE ABLE TO BE TESTED IN ACCORDANCE WITH THE STANDARD COMPACTION METHOD (AS1289.5.4.1) OR HALF TEST METHOD (AS1289.5.7.1). THESE METHODS REQUIRE LESS THAN 20% PARTICLES ARE RETAINED ON THE 37.5 mm SIEVE. WHERE BETWEEN 20% AND 30% OF PARTICLES ARE RETAINED ON THE 37.5 mm SIEVE, THE ABOVE TEST METHODS SHALL STILL BE ADOPTED AND TEST REPORTS ANNOTATED APPROPRIATELY. THESE REQUIREMENTS SHOULD BE MET BY THE MATERIAL AFTER PLACEMENT AND COMPACTION.
 - ALL EARTHWORKS SHALL BE COMPLETED UNDER LEVEL 1 CONTROL IN ACCORDANCE WITH AS 3799-2007.
 - PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
 - EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
 - MATCH EXISTING LEVELS AT BATTER INTERFACE.
 - CONTRACTOR TO MATCH EXISTING LEVELS AT THE INTERFACE OF EARTHWORKS AND EXISTING SURFACE AT BATTER LOCATIONS OR WHERE NO RETAINING WALLS ARE PRESENT. ANY DISCREPANCY BETWEEN DESIGN AND EXISTING LEVELS TO BE REFERRED TO THE ENGINEER FOR DIRECTION OR ADJUSTMENTS TO DESIGN LEVELS.
 - DURING EARTHWORKS THE CONTRACTOR IS TO ENSURE ALL AREAS ARE FREE DRAINING & WILL NOT RETAIN RAIN WATER DURING RAINFALL. PROVIDE TEMPORARY MEASURES AS REQUIRED TO ENSURE FREE FLOWING RUNOFF THROUGH MANAGED DRAINAGE PATHS, DIVERSION DRAINS OR OTHER SUITABLE DISPOSAL METHOD AS AGREED DURING THE WORKS. REFER ANY CONCERNS TO THE ENGINEER. REFER TO EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES.

EARTHWORK ESTIMATES

SITE AREA	= 6.36 Ha
SITE STRIP (200mm OVER 6.36 Ha)	= (-12,730m³) (TO BE EXPORTED)
CUT	= -11,480m³
FILL	= +51,655m³
ALLOWANCES	
DETAILED EXCAVATION (11,500m³/Ha)	= -9,540m³
ESTIMATED STOCKPILE VOLUME (85% REUSABLE, 15% TO BE DISPOSED)	= -38,900m³
STOCKPILE TO BE REMOVED FROM SITE	= -5,835m³
STOCKPILE TO BE USED AS FILL UNDER CLEAN CAPPING MATERIAL BEFORE COMPACTION	= -33,065m³, POST-COMPACTION = -28,105m³
RETAINING WALL 1 = -4510m³ (RW1 - TBC BY D&C CONTRACTOR)	
DIFFERENCE	= -1980m³ (i.e. CUT OVER FILL)

NOTE:
VOLUMES BASED ON 200mm SITE STRIP OVER THE NOMINATED AREA. EARTHWORKS VOLUMES ARE APPROXIMATE ONLY.
NO ALLOWANCE HAS BEEN MADE FOR DELETERIOUS MATERIAL, EROSION AND SEDIMENT CONTROL, BULKING OR COMPACTION OF FILLED SOILS, THE REMOVAL OF UNCONTROLLED OR CONTAMINATED MATERIAL OR ANY OTHER UNSPECIFIED EXCAVATION RELATED TO CONSTRUCTION ACTIVITIES. DETAILED EXCAVATION ALLOWANCE IS APPROXIMATE ONLY AND ACCEPTED FOR INFORMATION PURPOSES ONLY. CONTRACTOR TO CONFIRM VOLUMES.

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MNG LANDPARTNERS DATED 07/11/2025.

- 50.00 — - EXISTING CONTOUR (10.5m INTERVAL)
- 50.00 — - B.E.L. CONTOUR (MAJOR 0.5m)
- 50.00 — - B.E.L. CONTOUR (MINOR 0.1m)
- 50.00 — - B.E.L. SPOT LEVEL
- 10m EXTRA CUT FOR CLEAN CAPPING MATERIAL
- 15m EXTRA CUT FOR CLEAN CAPPING MATERIAL

PAVEMENT
BASE/ SUBBASE
CAPPING COURSES

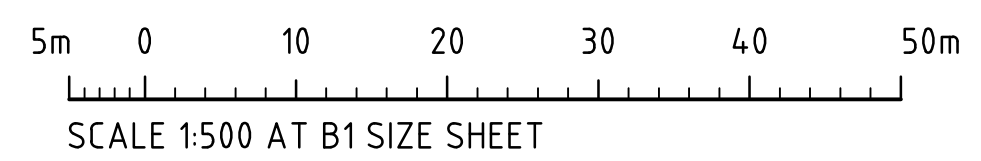
PAVEMENT FFL
300mm THROUGH BUILDING PAD & EXTERNAL PAVEMENTS
NOMINATED B.E. LEVEL

NOMINATED B.E.L. DETAIL

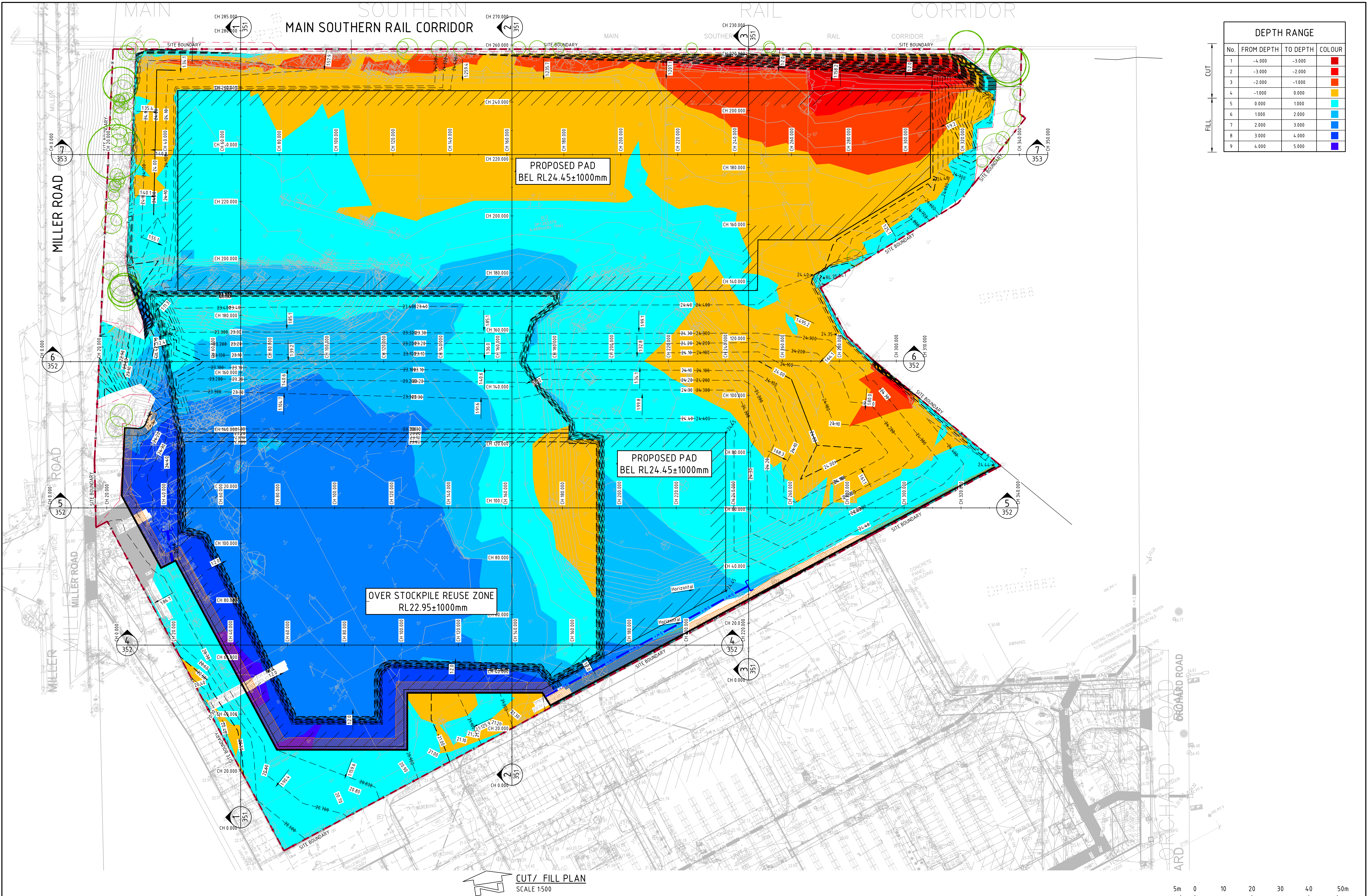
NTS

BULK EARTHWORKS PLAN
SCALE 1:500

FOR DEVELOPMENT APPLICATION

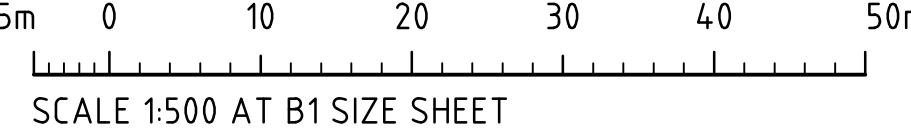


BULK EARTHWORK SURFACE UPDATED 12.12.25 D			ARCHITECT		CLIENT		PROJECT		COSTIN ROE CONSULTING PTY LTD.		DRAWING TITLE	
BULK EARTHWORK SURFACE UPDATED 05.12.25 C			ARCHITECT		CLIENT		PROPOSED DEVELOPMENT		ABN 50 003 696 446		BULK EARTHWORKS PLAN	
REVISED AS CLOUDED 24.11.25 B			ARCHITECT		CLIENT		191 MILLER ROAD, CHESTER HILL, NSW 2162		PO Box N419 Sydney NSW 1220		CIVIL & STRUCTURAL ENGINEERS	
ISSUED FOR INFORMATION 21.11.25 A			ARCHITECT		CLIENT		DESIGNED AH		Level 4, 8 Windmill Street, Millers Point NSW 2000		DRAWING No	
AMENDMENTS			ARCHITECT		CLIENT		DRAWN DP		p: +61 2 9251 7699 f: +61 2 9241 3731		C014242.05-EW300	
			ARCHITECT		CLIENT		CHECKED DS		e: mail@costinroe.com.au w: costinroe.com.au		ISSUE	
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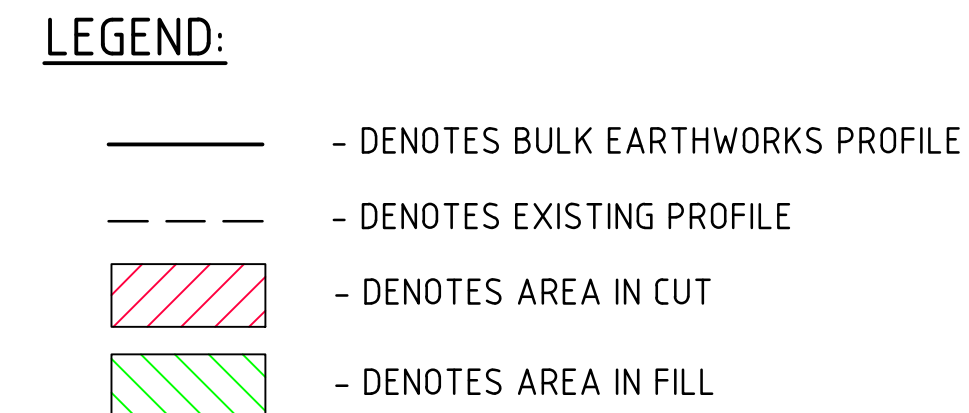
DEPTH RANGE			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	-4.000	-3.000	Red
2	-3.000	-2.000	Orange
3	-2.000	-1.000	Yellow
4	-1.000	0.000	Light Blue
5	0.000	1.000	Blue
6	1.000	2.000	Dark Blue
7	2.000	3.000	Very Dark Blue
8	3.000	4.000	Black
9	4.000	5.000	White

CUT/ FILL PLAN
SCALE 1:500



FOR DEVELOPMENT APPLICATION

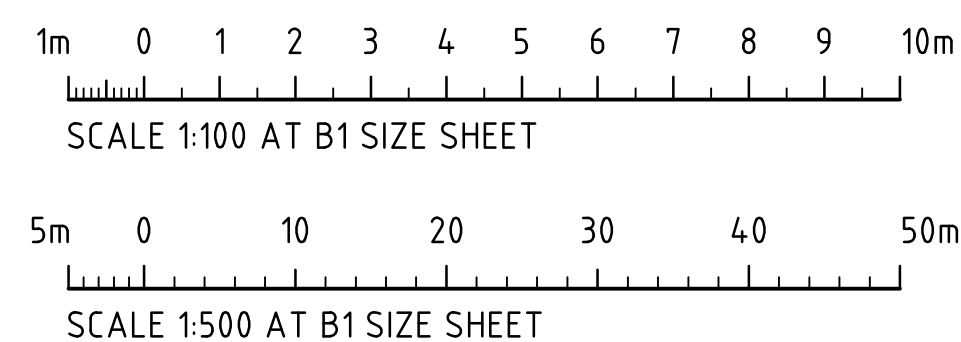
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BULK EARTHWORK SURFACE UPDATED	12.12.25	D																	
BULK EARTHWORK SURFACE UPDATED	05.12.25	C																	
REVISED AS CLOUDED	24.11.25	B																	
ISSUED FOR INFORMATION	21.11.25	A																	
DATE ISSUE AMENDMENTS	DATE ISSUE	DESIGNED AH	DRAWN DP	DATE NOV '25	CHECKED DS	SIZE B1	SCALE AS SHOWN	CAD REF: C014242.05-EW310	DRAWING No C014242.05-EW310	ISSUE D									



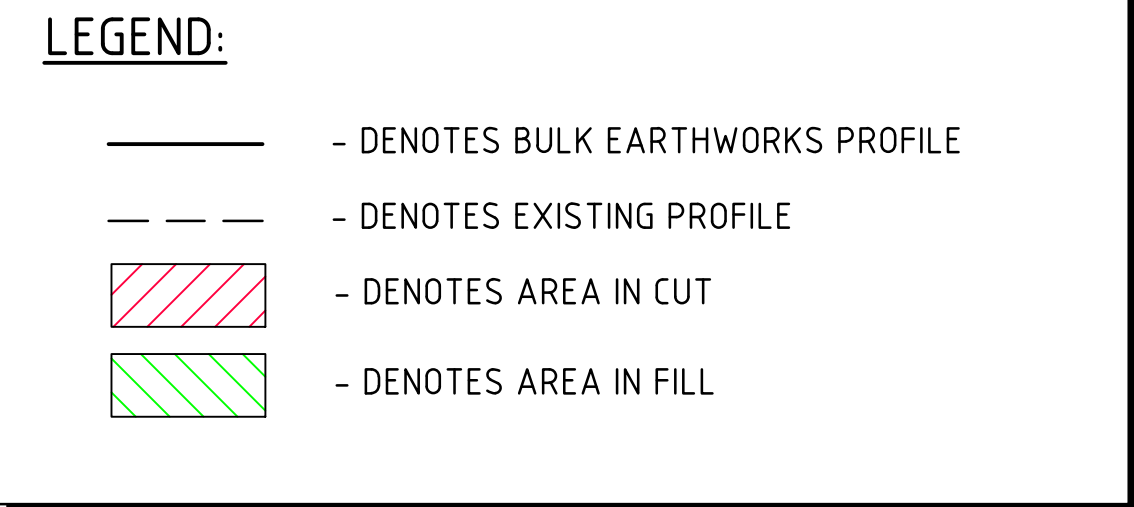
SECTION 3
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



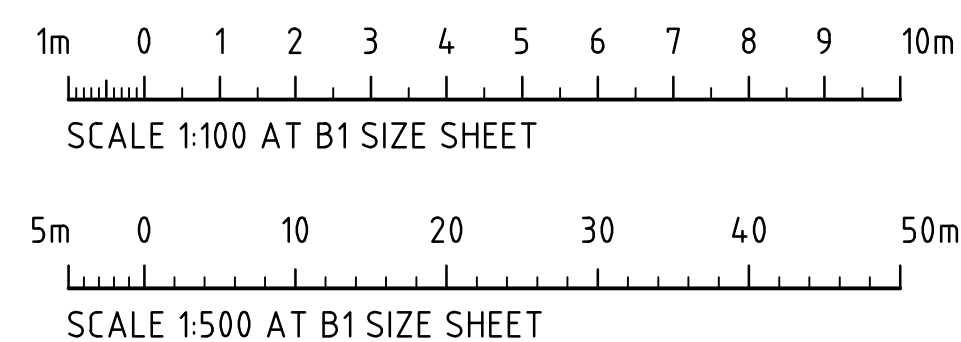
FOR DEVELOPMENT APPLICATION



			ARCHITECT		CLIENT		PROJECT		CONSULT AUSTRALIA		Costin Roe Consulting Pty Ltd. ABN 50 003 696 446		CRC COSTIN ROE CONSULTING		DRAWING TITLE BULK EARTHWORKS SECTIONS - SHEET 1	
							191 MILLER ROAD, CHESTER HILL, NSW 2162				PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 e: mail@costinroe.com.au				DRAWING No. C014242.05-EW351	
ISSUED FOR DEVELOPMENT APPLICATION			12.12.25		B											
ISSUED FOR INFORMATION			05.12.25		A											
AMENDMENTS			DATE		ISSUE		AMENDMENTS		DATE		ISSUE					



SECTION 6
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



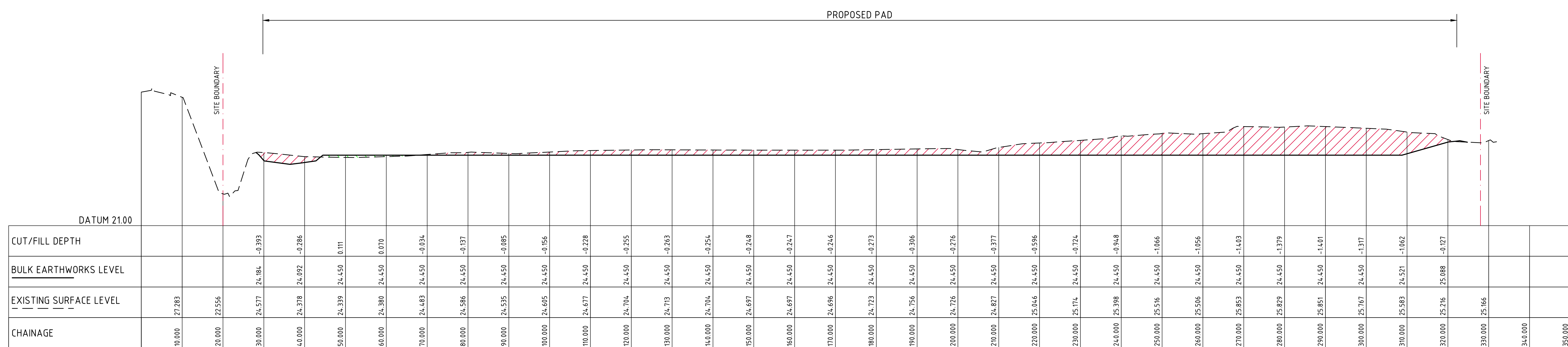
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HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



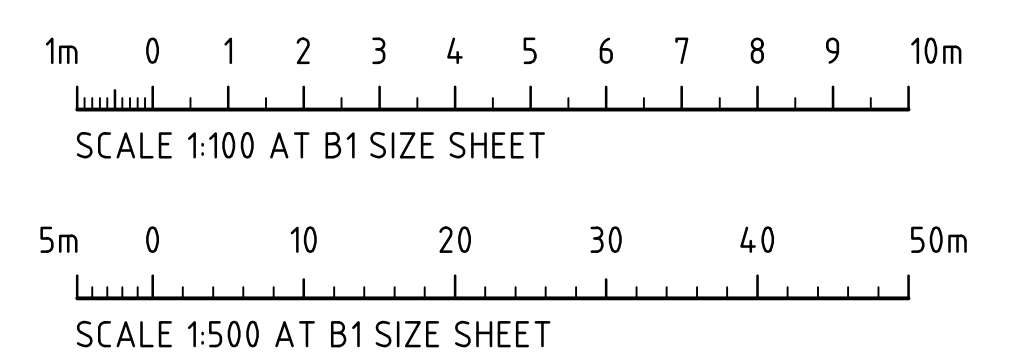
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HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

LEGEND:

-  - DENOTES BULK EARTHWORKS PROFILE
 - DENOTES EXISTING PROFILE
 - DENOTES AREA IN CUT
 - DENOTES AREA IN FILL

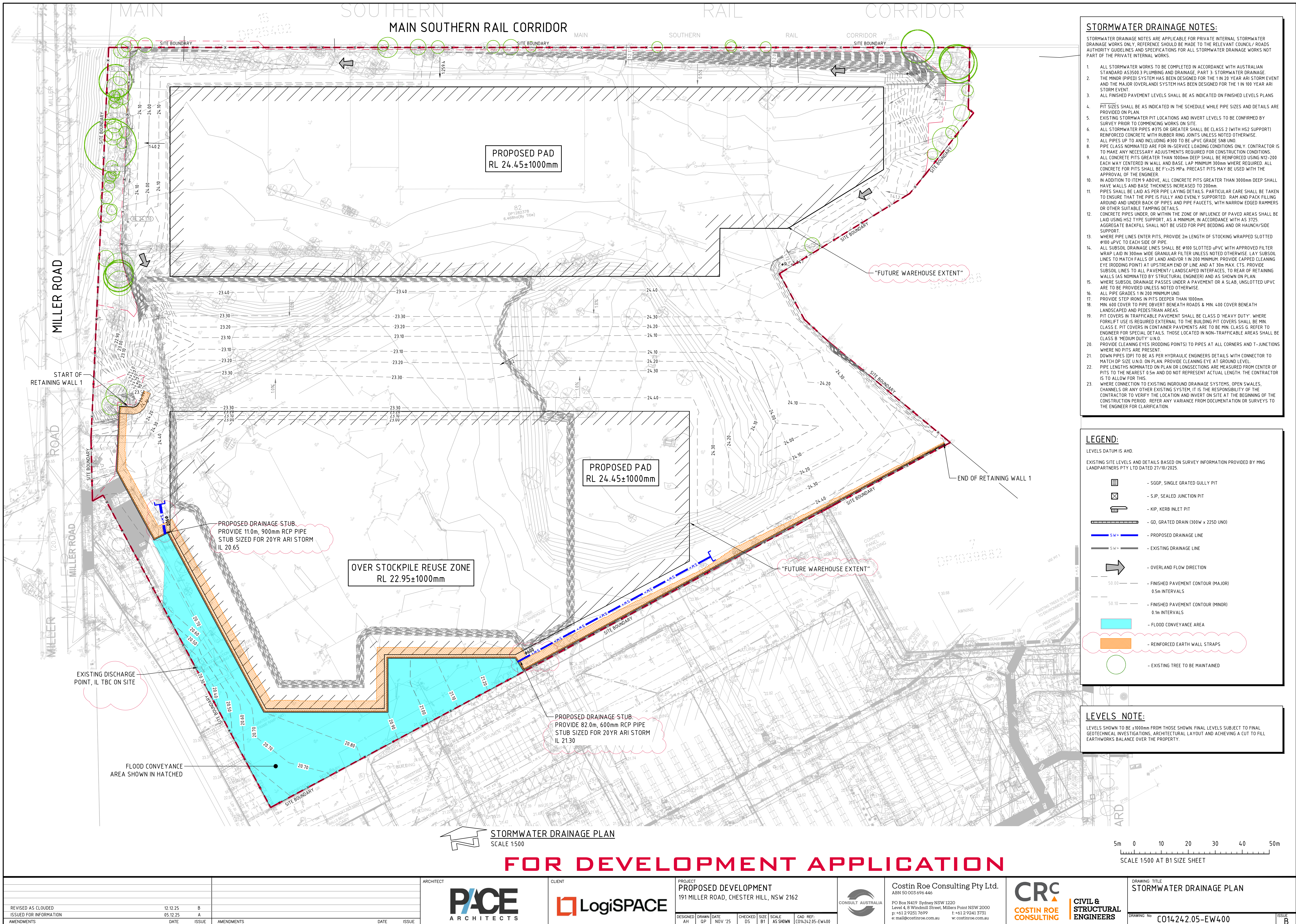


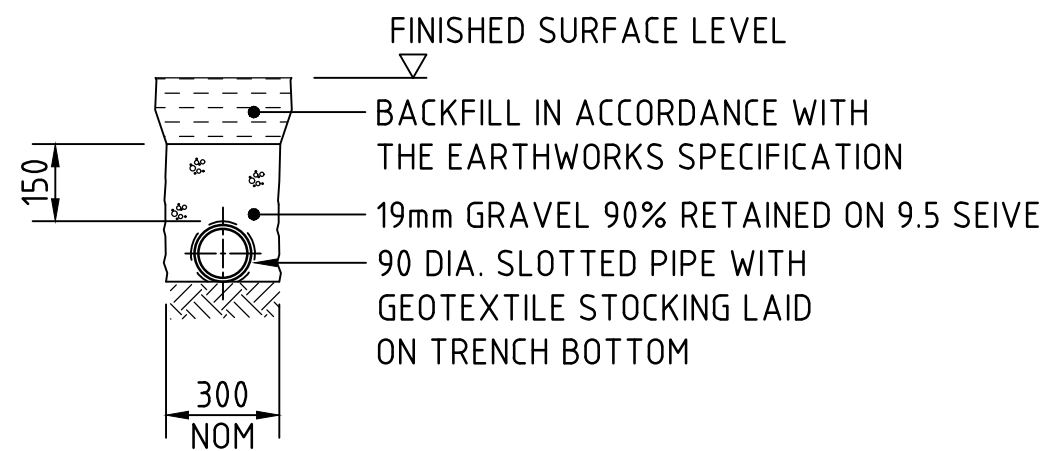
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VERTICAL SCALE 1:100



FOR DEVELOPMENT APPLICATION

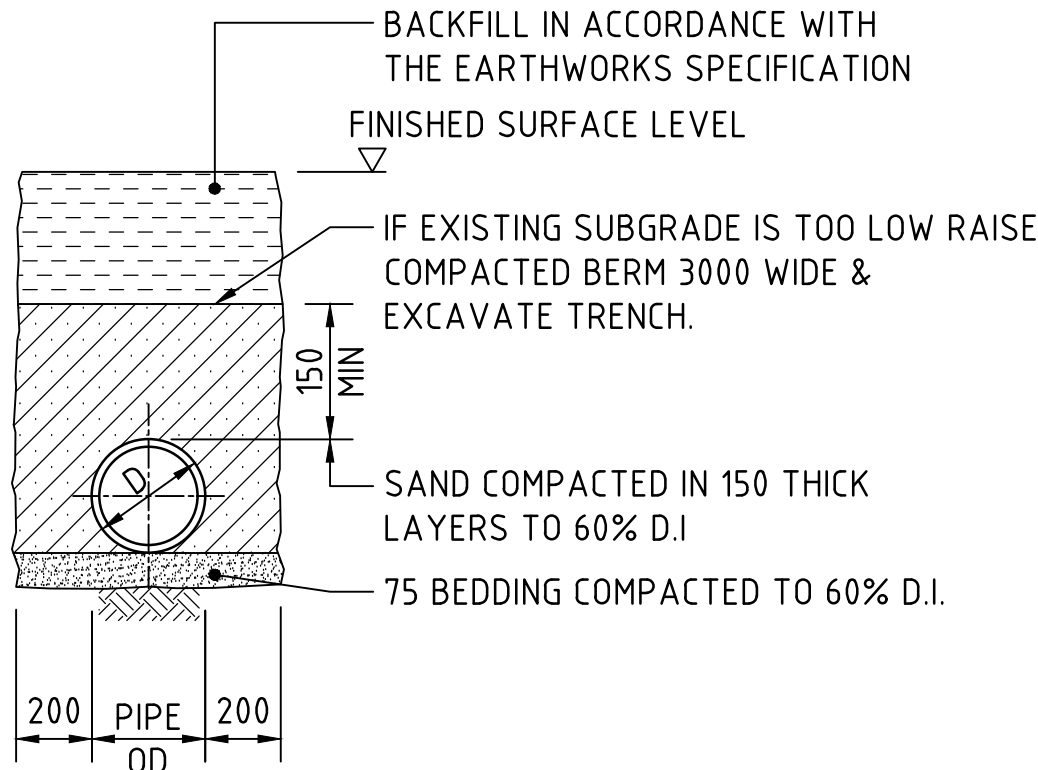
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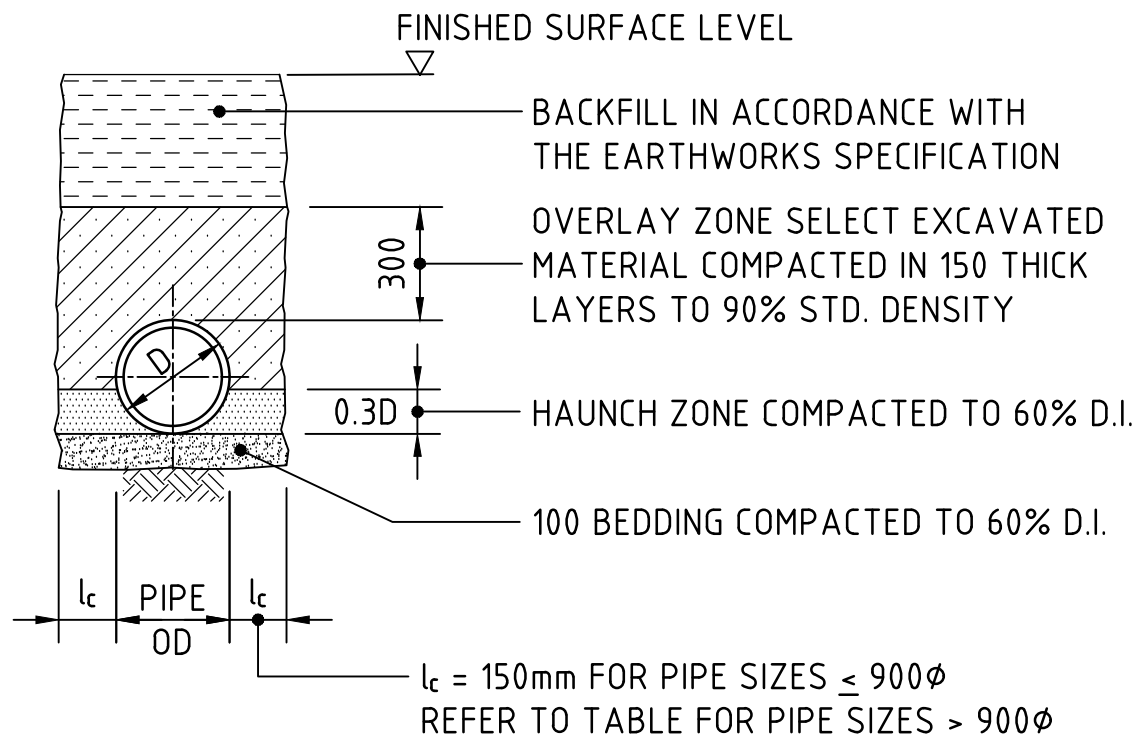


SUPPORT TO AGRICULTURAL DRAIN
SCALE 1:20

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
75.0	100
9.5	100 TO 50
2.36	100 TO 30
0.60	50 TO 15
0.075	25 TO 0
SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725	



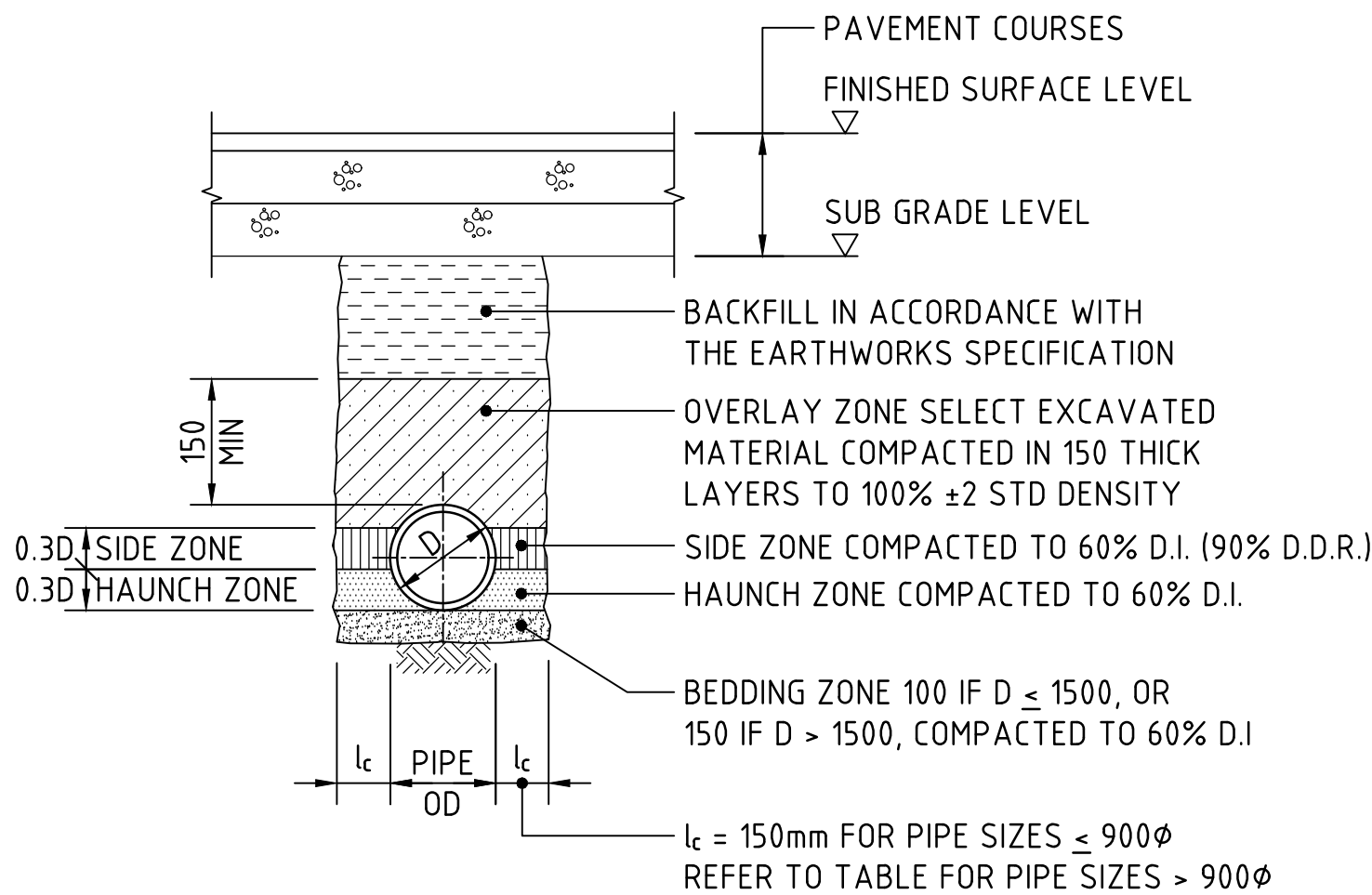
SUPPORT TO uPVC PIPES
SCALE 1:20



TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS
SCALE 1:20

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 20
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE WIDTH	
PIPE SIZE (mm)	l _c (mm)
≤ 900φ	150
1050φ	175
1200φ	200
1350φ	225
1500φ	250
1650φ	275
1800φ	300
ENGINEER TO SPECIFY TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800φ	

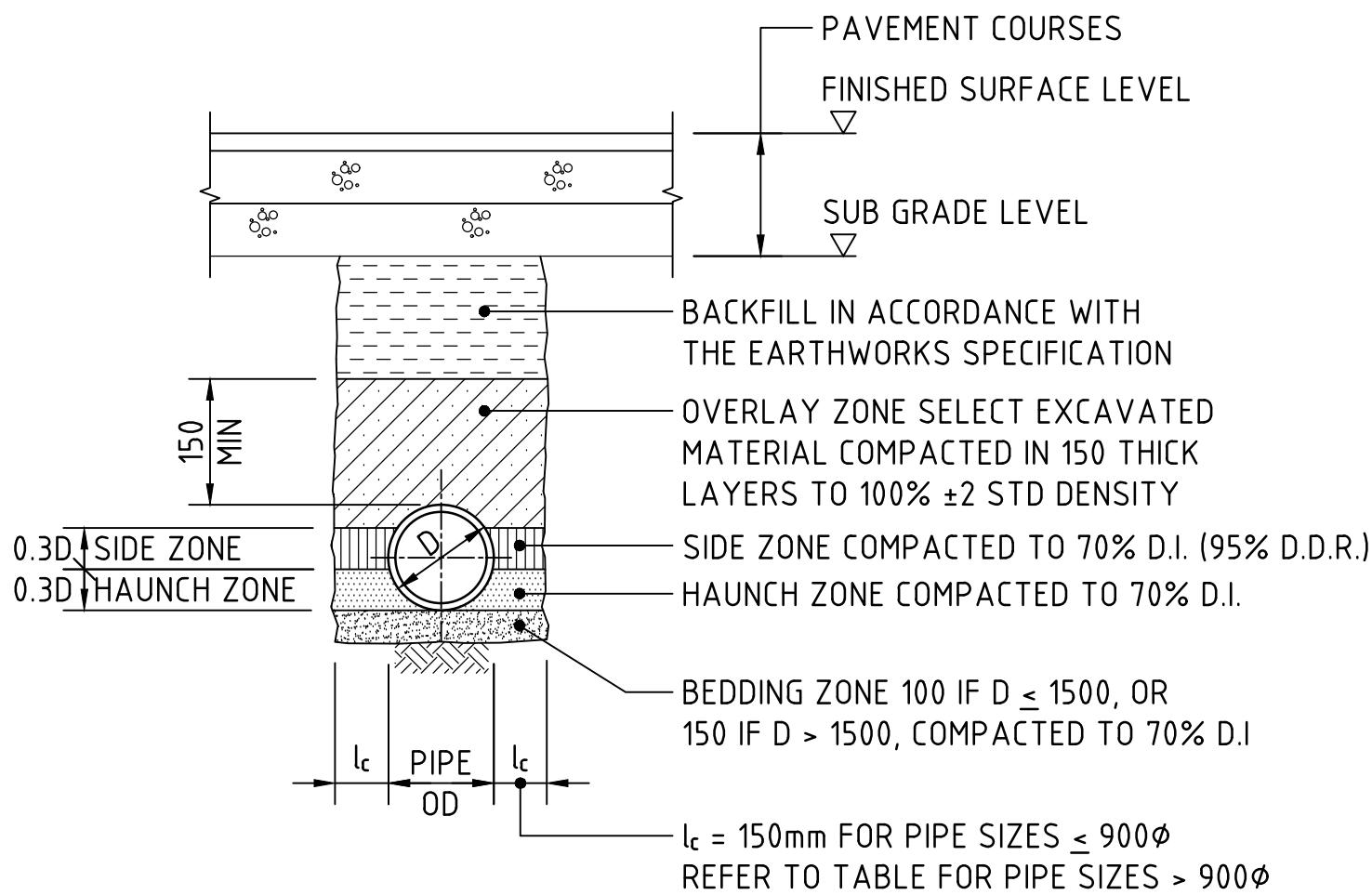


TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT

SCALE 1:20
D ≤ 1350, MAX FILL = 4.0m
D > 1350, MAX FILL = 3.0m

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 20
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

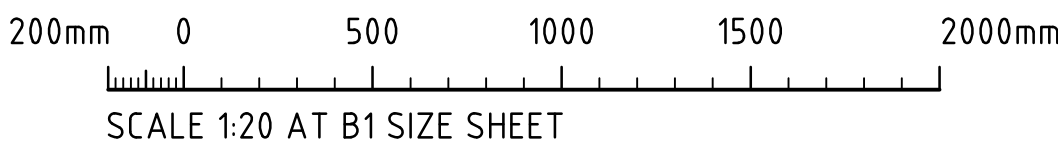
SIDE ZONE WIDTH	
PIPE SIZE (mm)	l _c (mm)
≤ 900φ	150
1050φ	175
1200φ	200
1350φ	225
1500φ	250
1650φ	275
1800φ	300
ENGINEER TO SPECIFY TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800φ	



TYPE HS3 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT

SCALE 1:20
D ≤ 1050, MAX FILL = 6.0m
D > 1050, MAX FILL = 4.8m

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
75.0	100
9.5	100 TO 50
2.36	100 TO 30
0.60	50 TO 15
0.075	25 TO 0
SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725	



FOR DEVELOPMENT APPLICATION

FOR DEVELOPMENT APPLICATION	12.12.25	B			
ISSUED FOR INFORMATION	05.12.25	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE



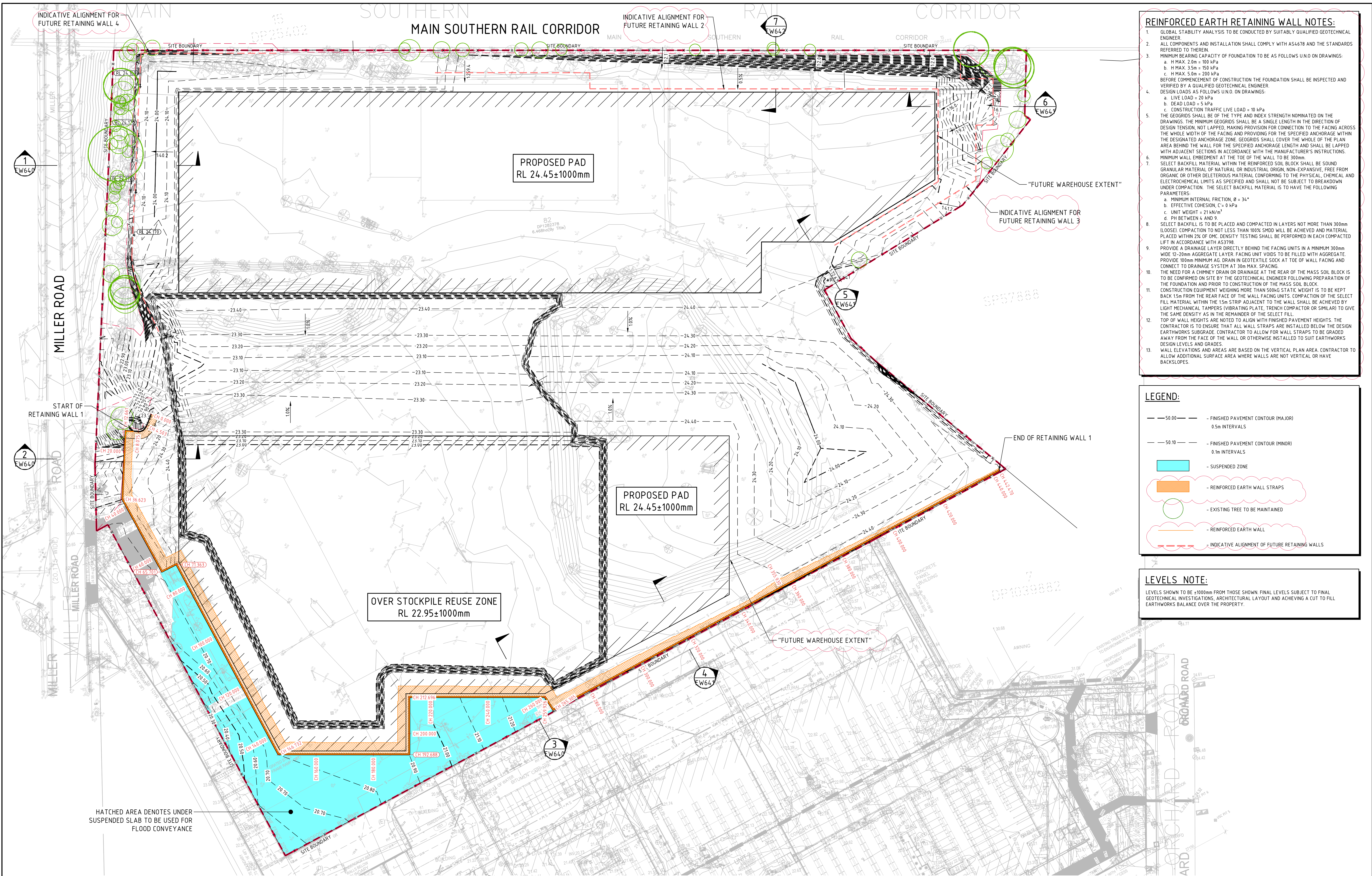
PROJECT PROPOSED DEVELOPMENT 191 MILLER ROAD, CHESTER HILL, NSW 2162					
DESIGNED AH	DRAWN QP	DATE NOV '25	CHECKED DS	SIZE B1	SCALE AS SHOWN
CAD REF: C014242.05-EW451					



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DRAWING TITLE STORMWATER DRAINAGE DETAILS SHEET 1		
DRAWING No	C014242.05-EW451	ISSUE B



REINFORCED EARTH RETAINING WALL NOTES:

- GLOBAL STABILITY ANALYSIS IS TO BE CONDUCTED BY SUITABLY QUALIFIED GEOTECHNICAL ENGINEER.
- ALL COMPONENTS AND INSTALLATION SHALL COMPLY WITH AS4678 AND THE STANDARDS REFERRED TO THEREIN.
- MINIMUM BEARING CAPACITY OF FOUNDATION TO BE AS FOLLOWS UNO ON DRAWINGS:
 - H MAX. 2.0m = 100 kPa
 - H MAX. 3.5m = 150 kPa
 - H MAX. 5.0m = 200 kPa
- BEFORE COMMENCEMENT OF CONSTRUCTION THE FOUNDATION SHALL BE INSPECTED AND VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER. DESIGN LOADS AS FOLLOWS UNO ON DRAWINGS:
 - LIVE LOAD = 20 kPa
 - DEAD LOAD = 5 kPa
 - CONSTRUCTION TRAFFIC LIVE LOAD = 10 kPa
- THE GEORGRIDS SHALL BE OF THE TYPE AND INDEX STRENGTH NOMINATED ON THE DRAWINGS. THE MINIMUM GEORGRIDS SHALL BE A SINGLE LENGTH IN THE DIRECTION OF DESIGN TENSION, NOT LAPPED, MAKING PROVISION FOR CONNECTION TO THE FACING ACROSS THE WHOLE WIDTH OF THE FACING AND PROVIDING FOR THE SPECIFIED ANCHORAGE WITHIN THE DESIGNATED ANCHORAGE ZONE. GEORGRIDS SHALL COVER THE WHOLE OF THE PLAN AREA BEHIND THE WALL FOR THE SPECIFIED ANCHORAGE LENGTH AND SHALL BE LAPPED WITH ADJACENT SECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- MINIMUM WALL EMBEDMENT AT THE TOE OF THE WALL TO BE 300mm.
- SELECT BACKFILL MATERIAL WITHIN THE REINFORCED SOIL BLOCK SHALL BE SOUND GRANULAR MATERIAL OF NATURAL OR INDUSTRIAL ORIGIN, NON-EXPANSIVE, FREE FROM ORGANIC OR OTHER DELETERIOUS MATERIAL CONFORMING TO THE PHYSICAL, CHEMICAL AND ELECTROCHEMICAL LIMITS AS SPECIFIED AND SHALL NOT BE SUBJECT TO BREAKDOWN UNDER COMPACTION. THE SELECT BACKFILL MATERIAL IS TO HAVE THE FOLLOWING PARAMETERS:
 - MINIMUM INTERNAL FRICTION, $\phi = 34^\circ$
 - EFFECTIVE COHESION, $c = 0$ kPa
 - UNIT WEIGHT = 21 kN/m³
 - PH BETWEEN 4 AND 9
- SELECT BACKFILL IS TO BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 300mm (LOOSE) COMPACTION TO NOT LESS THAN 100% SMDU WILL BE ACHIEVED AND MATERIAL PLACED WITHIN 2% OF OMC. DENSITY TESTING SHALL BE PERFORMED IN EACH COMPACTED LIFT IN ACCORDANCE WITH AS3798.
- PROVIDE A DRAINAGE LAYER DIRECTLY BEHIND THE FACING UNITS IN A MINIMUM 300mm WIDE 12-20mm AGGREGATE LAYER. FACING UNIT JOINTS TO BE FILLED WITH AGGREGATE. PROVIDE 100mm MINIMUM AG. DRAIN IN GEOTEXTILE SOCK AT TOE OF WALL FACING AND CONNECT TO DRAINAGE SYSTEM AT 30m MAX. SPACING.
- THE NEED FOR A CHIMNEY DRAIN OR DRAINAGE AT THE REAR OF THE MASS SOIL BLOCK IS TO BE CONFIRMED ON SITE BY THE GEOTECHNICAL ENGINEER FOLLOWING PREPARATION OF THE FOUNDATION AND PRIOR TO CONSTRUCTION OF THE MASS SOIL BLOCK.
- CONSTRUCTION EQUIPMENT WEIGHING MORE THAN 500kg STATIC WEIGHT IS TO BE KEPT BACK 15m FROM THE REAR FACE OF THE WALL FACING UNITS. COMPACTION OF THE SELECT FILL MATERIAL WITHIN THE 15m STRIP ADJACENT TO THE WALL SHALL BE ACHIEVED BY LIGHT MECHANICAL TAMPERS (VIBRATING PLATE, TRENCH COMPACTOR OR SIMILAR) TO GIVE THE SAME DENSITY AS IN THE REMAINDER OF THE SELECT FILL.
- TOP OF WALL HEIGHTS ARE NOTED TO ALIGN WITH FINISHED PAVEMENT HEIGHTS. THE CONTRACTOR IS TO ENSURE THAT ALL WALL STRAPS ARE INSTALLED BELOW THE DESIGN EARTHWORKS SUBGRADE. CONTRACTOR TO ALLOW FOR WALL STRAPS TO BE GRADED AWAY FROM THE FACE OF THE WALL OR OTHERWISE INSTALLED TO SUIT EARTHWORKS DESIGN LEVELS AND GRADES.
- WALL ELEVATIONS AND AREAS ARE BASED ON THE VERTICAL PLAN AREA. CONTRACTOR TO ALLOW ADDITIONAL SURFACE AREA WHERE WALLS ARE NOT VERTICAL OR HAVE BACKSLOPES.

LEGEND:

- 50.00 — FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- 50.10 — FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- SUSPENDED ZONE
- REINFORCED EARTH WALL STRAPS
- EXISTING TREE TO BE MAINTAINED
- REINFORCED EARTH WALL
- INDICATIVE ALIGNMENT OF FUTURE RETAINING WALLS

LEVELS NOTE:

LEVELS SHOWN TO BE +100mm FROM THOSE SHOWN. FINAL LEVELS SUBJECT TO FINAL GEOTECHNICAL INVESTIGATIONS, ARCHITECTURAL LAYOUT AND ACHIEVING A CUT TO FILL EARTHWORKS BALANCE OVER THE PROPERTY.

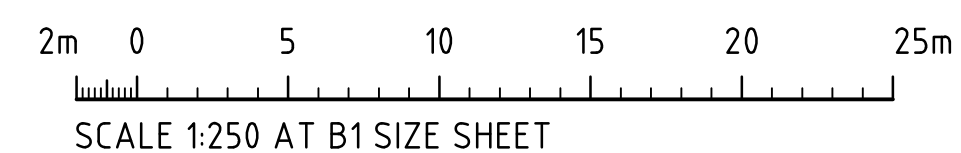
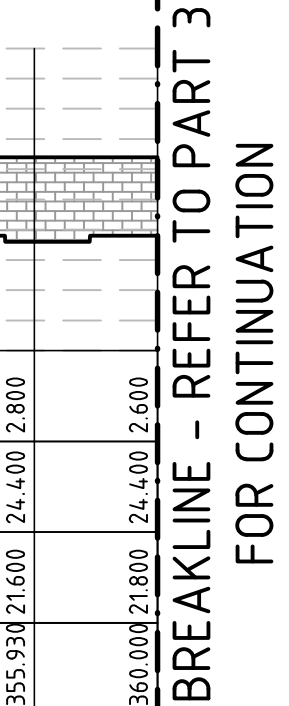
RETAINING WALL SETOUT PLAN
SCALE 1:500

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION			12.12.25			B			ARCHITECT			CLIENT			PROJECT			Costin Roe Consulting Pty Ltd.			DRAWING TITLE		
ISSUED FOR INFORMATION			05.12.25			A			ARCHITECTS			LogiSPACE			PROPOSED DEVELOPMENT			ABN 50 003 696 446			RETAINING WALL SETOUT PLAN		
AMENDMENTS			DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:	DRAWING No	ISSUE
															NOV '25			DS	B1	AS SHOWN	C014242.05-EW600	C014242.05-EW600	B

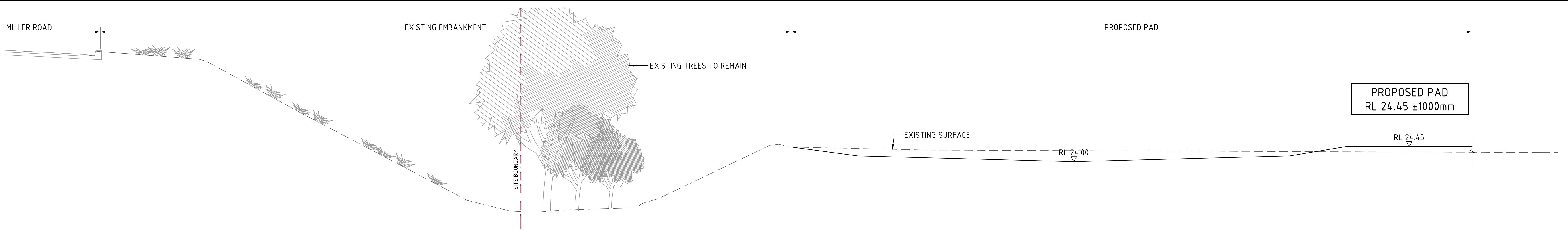


SCALE 1:250
WALL SURFACE AREA = 1352m²
WALL TYPE: REINFORCED EARTH WALL
LOADING: TBC

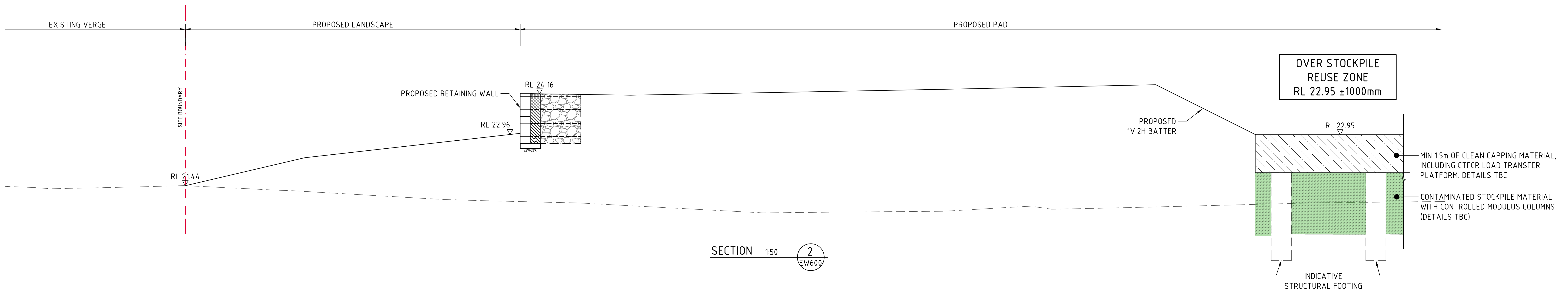


FOR DEVELOPMENT APPLICATION

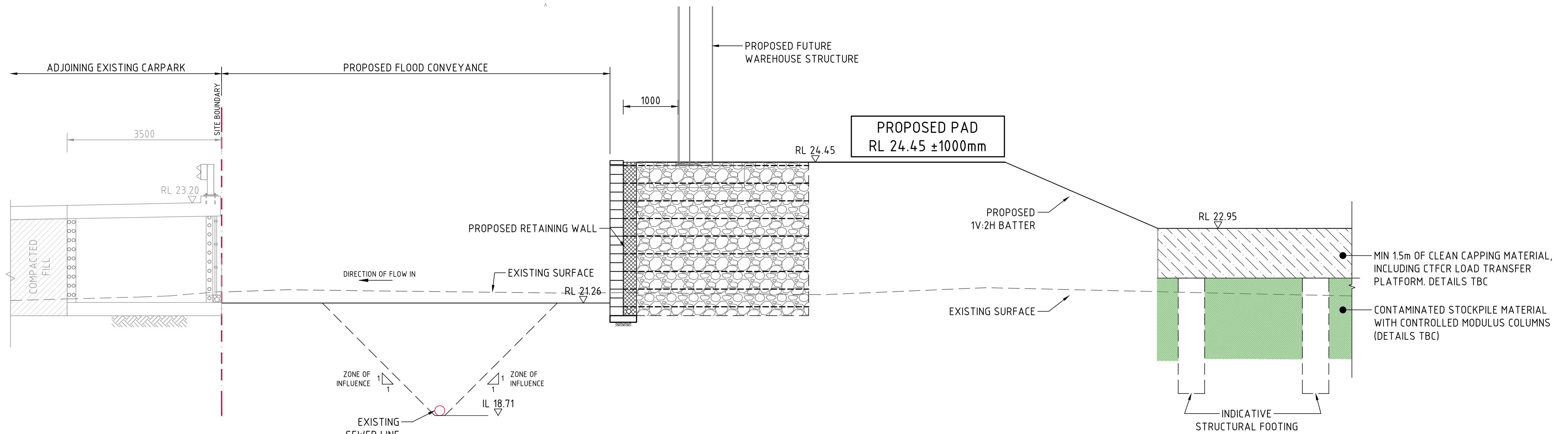
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							191 MILLER ROAD, CHESTER HILL, NSW 2162				PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 f: +61 2 9241 3731 e: mail@costinroe.com.au w: costinroe.com.au							
ISSUED FOR INFORMATION			12.12.25 A				DESIGNED		CHECKED		SCALE		CAD REF:					
AMENDMENTS			DATE ISSUE		AMENDMENTS		AH DP		DS		B1		AS SHOWN		C014242.05-EW610			
							NOV 25											



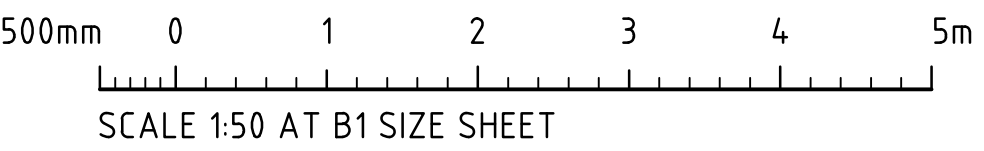
SECTION 1:50
EW600



SECTION 2:50
EW600

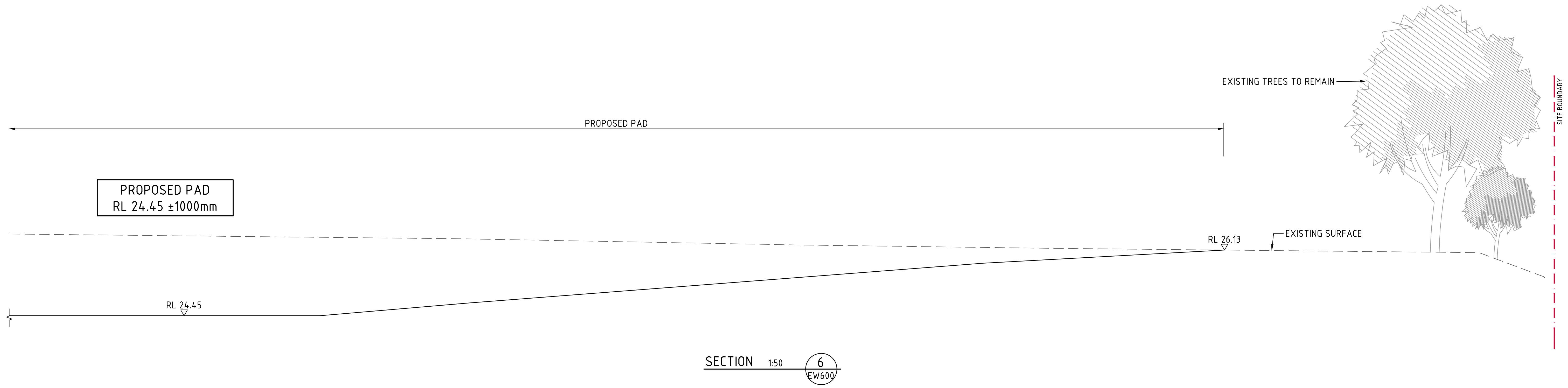
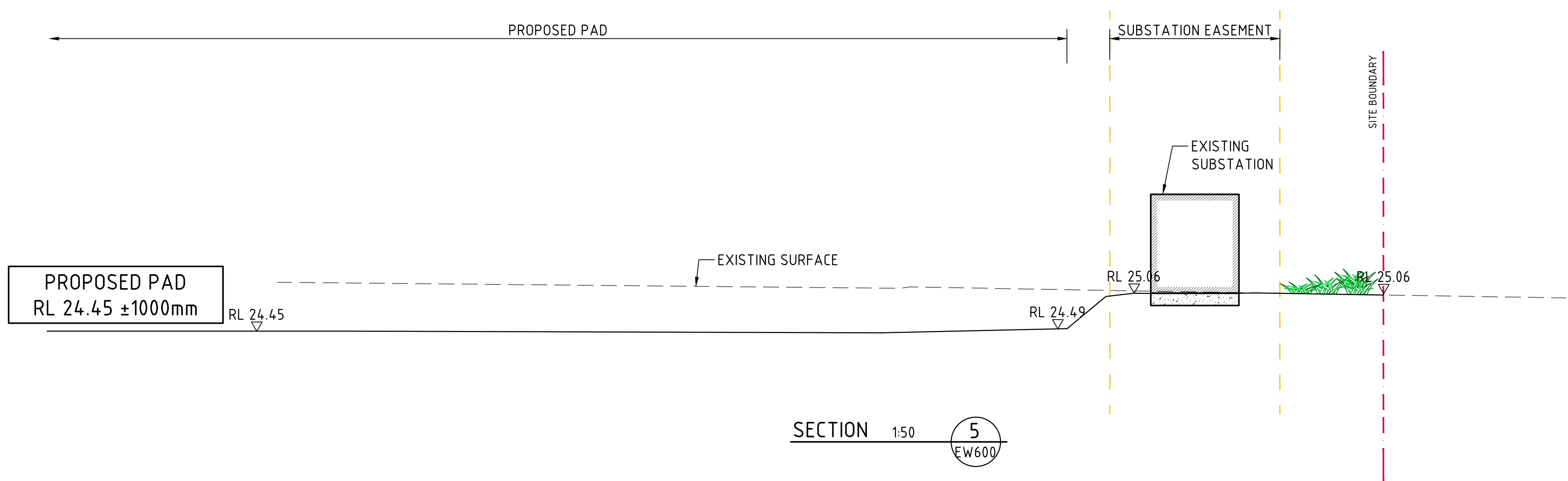
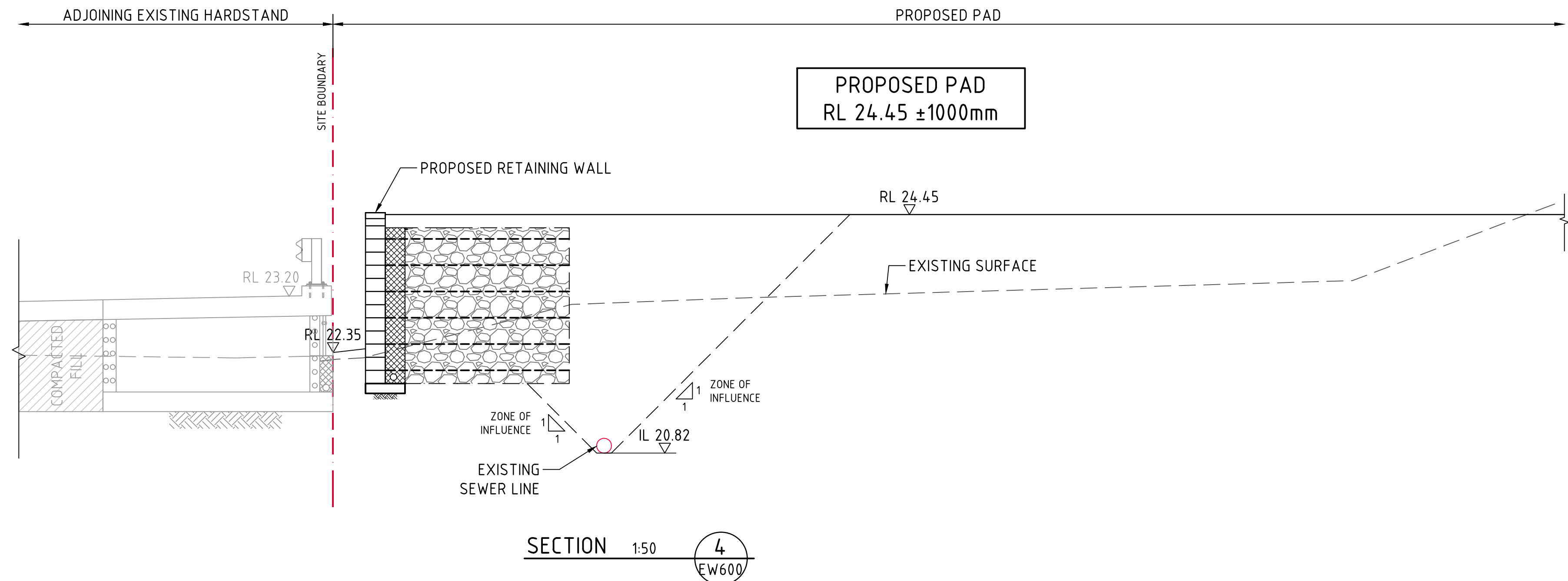


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EW600

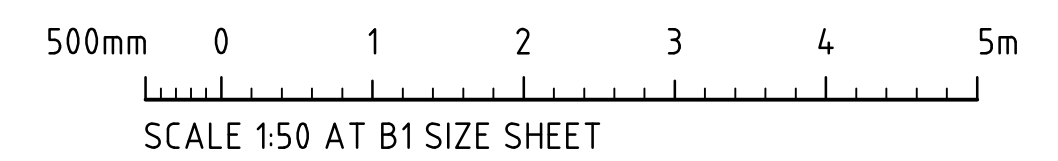


FOR DEVELOPMENT APPLICATION

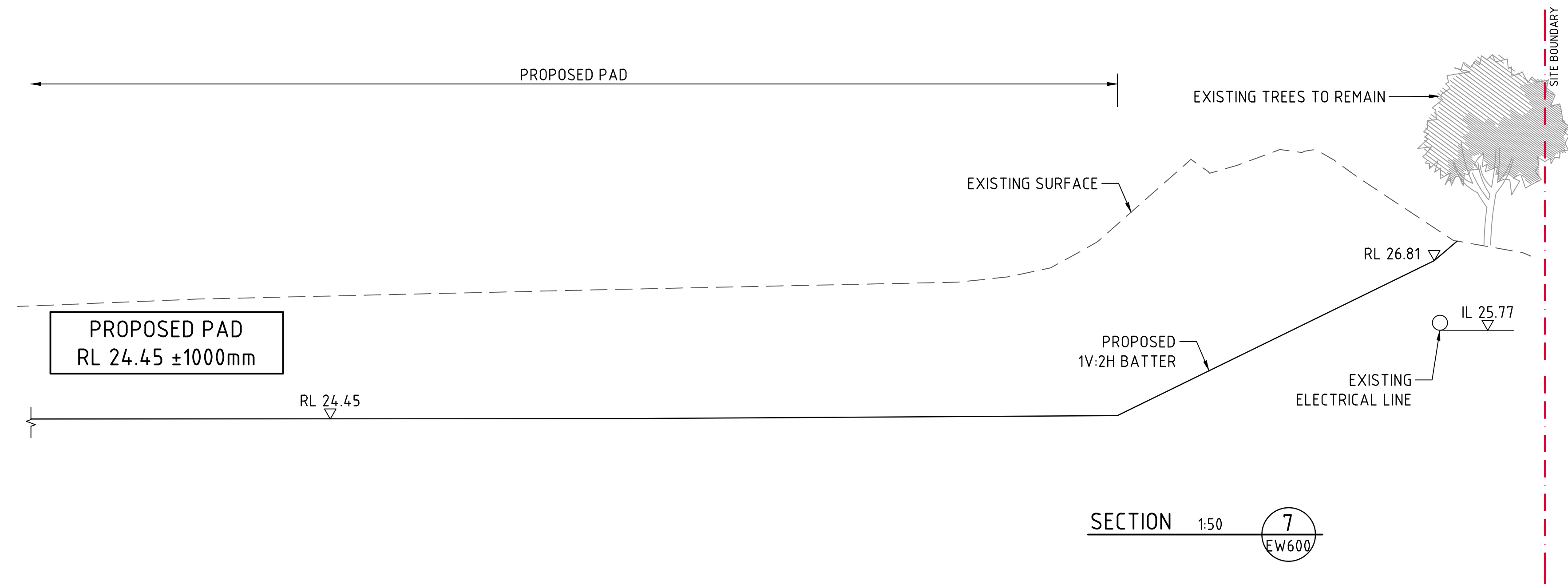
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12.12.25			A			NOV '25			PO Box N419 Sydney NSW 1220			C014242.05-EW640			C014242.05-EW640		
DATE			ISSUE			DS			Level 4, 8 Windmill Street, Millers Point NSW 2000			w: costinroe.com.au			ISSUE		
DATE			AMENDMENTS			B1			p: +61 2 9251 7699			e: mail@costinroe.com.au			A		
DATE			DATE			AS SHOWN			f: +61 2 9241 3731			w: costinroe.com.au					
DATE			DATE			CAD REF:											
DATE			DATE			C014242.05-EW640											



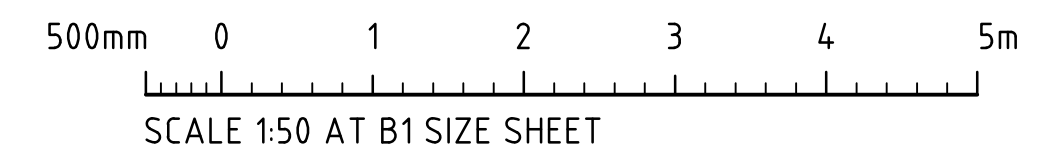
FOR DEVELOPMENT APPLICATION



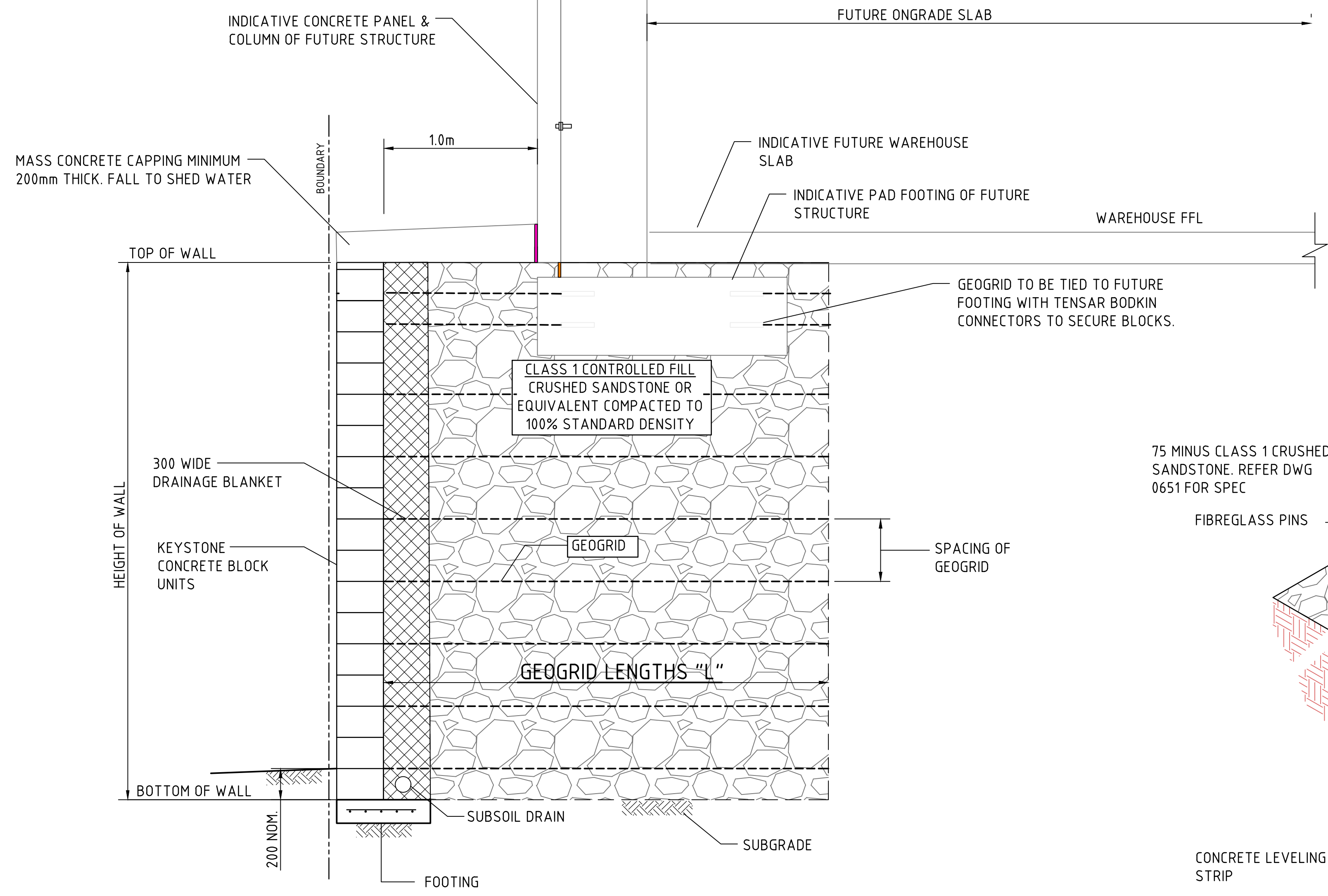
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ISSUED FOR INFORMATION				12.12.25		A																			
AMENDMENTS				DATE		ISSUE		AMENDMENTS				DATE		ISSUE		DRAWING No				C014242.05-EW641		ISSUE		A	



FOR DEVELOPMENT APPLICATION

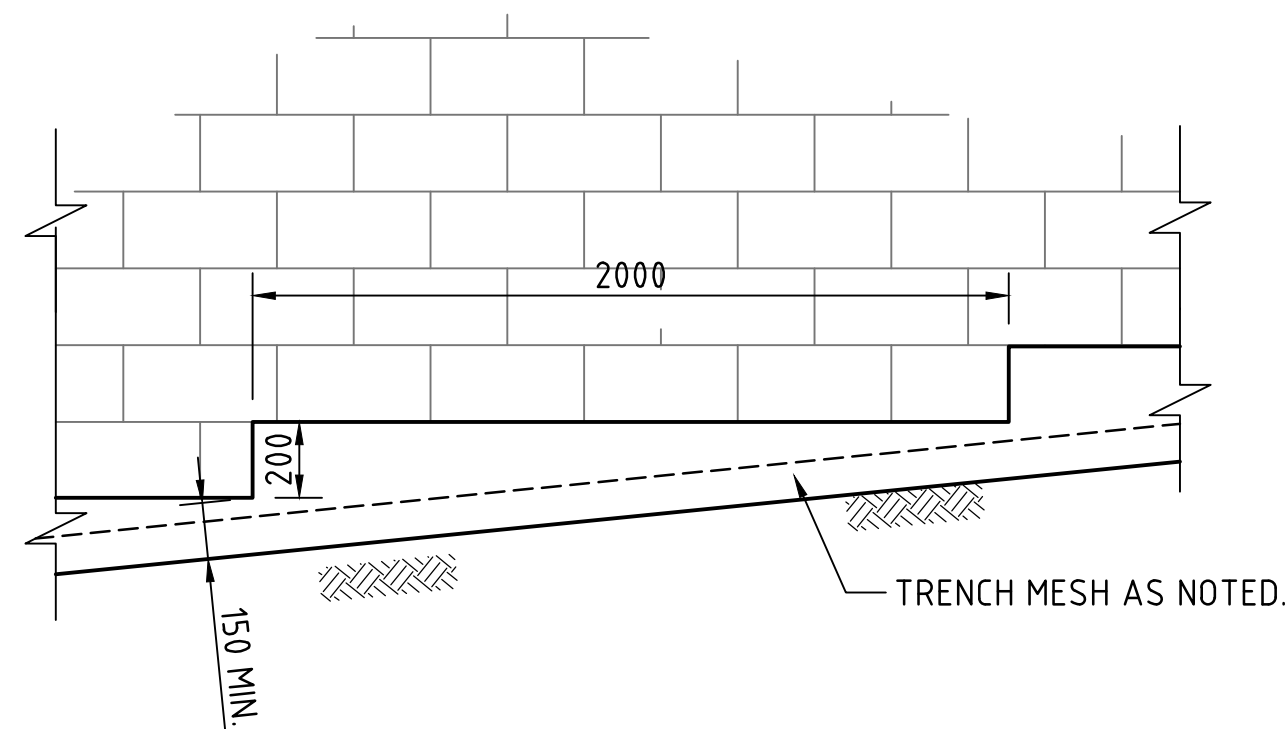


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				P/ACE		LogiSPACE		PROPOSED DEVELOPMENT				COSTIN ROE CONSULTING		TYPICAL SECTION - SHEET 3	
				ARCHITECTS				191 MILLER ROAD, CHESTER HILL, NSW 2162				CIVIL & STRUCTURAL ENGINEERS			
ISSUED FOR INFORMATION				12.12.25		A		DESIGNED				PO Box N419 Sydney NSW 1220		DRAWING No	
AMENDMENTS				DATE		ISSUE		AH				Level 4, 8 Windmill Street, Millers Point NSW 2000		C014242.05-EW642	
								NOV '25				p: +61 2 9251 7699		ISSUE	
								DS				e: mail@costinroe.com.au		A	
								B1				w: costinroe.com.au			
								SCALE							
								AS SHOWN							
								CAD REF:							
								C014242.05-642							



RETAINING WALL TYPE 1
(REINFORCED EARTH WALL)
SCALE 1:20

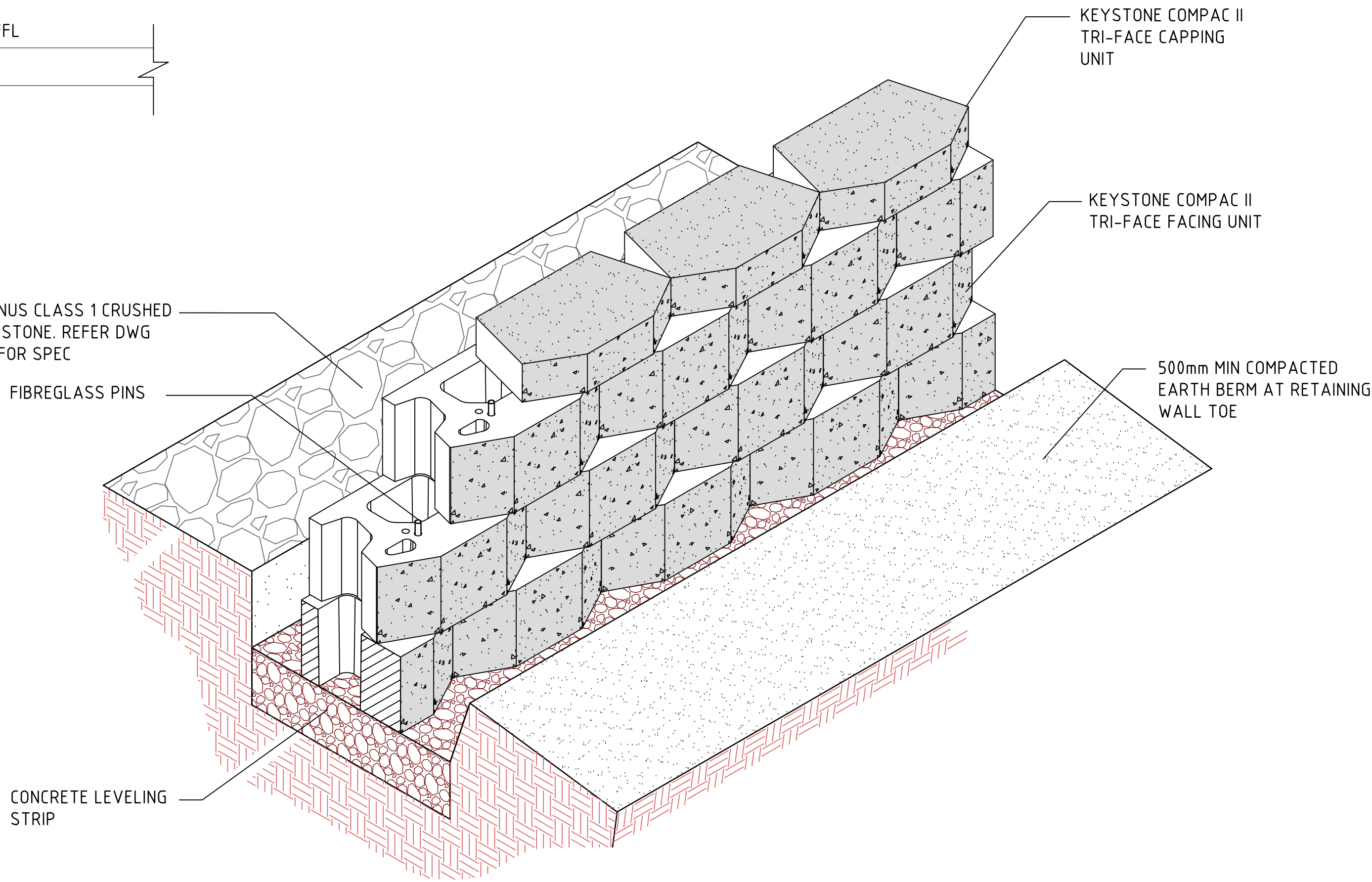
RETAINING WALL DETAILS
AND REINFORCEMENT LENGTHS
ARE INDICATIVE ONLY AND SUBJECT
TO DETAILED DESIGN BY D+C
CONTRACTOR



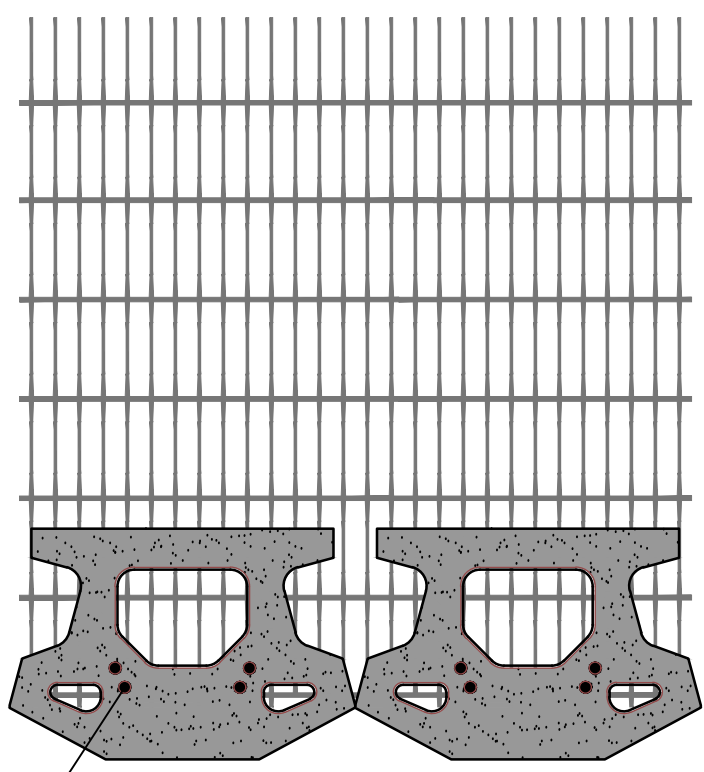
REINFORCED EARTH WALL TYPICAL LEVELLING STRIP STEP DETAIL
SCALE 1:20

CONCRETE QUALITY					
ELEMENT	SLUMP	AGGREGATE (MAX. SIZE)	CEMENT TYPE	ADMIXTURE	F'c (MPa)
CORE FILL	230	10	GP	NIL	15
FOOTING	80	20	GP	NIL	25

NOTE:
COVER TO ALL BASE REINFORCEMENT
TO BE MINIMUM 50mm



REINFORCED EARTH WALL ISOMETRIC VIEW
NOT TO SCALE
STRAPS NOT SHOWN FOR CLARITY



GRID & PIN CONNECTION
SCALE 1:10

2m 0 5 10 15 20 25m
SCALE 1:250 AT B1 SIZE SHEET

FOR DEVELOPMENT APPLICATION

ISSUED FOR INFORMATION	12.12.25	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE

ARCHITECT

PACE
ARCHITECTS

CLIENT

LogiSPACE

PROJECT

PROPOSED DEVELOPMENT
191 MILLER ROAD, CHESTER HILL, NSW 2162

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
AH	GP	NOV '25	DS	B1	AS SHOWN	C014242.05-EW650

CONSULT AUSTRALIA

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CRC
COSTIN ROE CONSULTING

CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE

RETAINING WALL DETAILS

DRAWING No C014242.05-EW650

ISSUE

A

APPENDIX B
CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN DRAFT

B.1 Introduction

An erosion and sediment control plan (ESCP) is shown on drawing Co13874.06-DA200 with details on DA250. These are conceptual plans only providing sufficient detail to clearly show that the works can proceed without undue pollution to receiving waters. A detailed plan will be prepared once consent is given and before works start.

B.2 General Conditions

1. The ESCP will be read in conjunction with the engineering plans, and any other plans or written instructions that may be issued in relation to development at the subject site.
2. Contractors will ensure that all soil and water management works are undertaken as instructed in this specification and constructed following the guidelines stated in:
 - a. The MRP DCP 2021
 - b. Control Association (ICEA) Australasia – “The White Book”.
 - c. Managing Urban Stormwater – Soils & Construction Volume 1 ('Blue Book')(Landcom, 2004).
 - d. DPIE Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets
3. All subcontractors will be informed of their responsibilities in minimising the potential for soil erosion and pollution to down slope areas.

B.3 Land Disturbance

1. Where practicable, the soil erosion hazard on the site will be kept as low as possible and as recommended in Table C.1.

Table C.1 - Limitations to access

Land Use	Limitation	Comments
Construction areas	Limited to 5 (preferably 2) metres from the edge of any essential construction activity as shown on the engineering plans.	All site workers will clearly recognise these areas that, where appropriate, are identified with barrier fencing (upslope) and sediment fencing (downslope), or similar materials.
Access areas	Limited to a maximum width of 5 metres	The site manager will determine and mark the location of these zones onsite. They can vary in position so as to best conserve existing vegetation and protect downstream areas while being considerate of the needs of efficient works activities. All site workers will clearly recognise these boundaries.
Remaining lands	Entry prohibited except for essential management works	

B.4 Erosion Control Conditions

1. Clearly visible barrier fencing shall be installed as shown on the plan and elsewhere at the discretion of the site superintendent to ensure traffic control and prohibit unnecessary site disturbance. Vehicular access to the site shall be limited to only those essential for construction work and they shall enter the site only through the stabilised access points.
2. Soil materials will be replaced in the same order they are removed from the ground. It is particularly important that all subsoils are buried and topsoils remain on the surface at the completion of works.
3. Where practicable, schedule the construction program so that the time from starting land disturbance to stabilisation has a duration of less than six months.
4. Notwithstanding this, schedule works so that the duration from the conclusion of land shaping to completion of final stabilisation is less than 20 working days.
5. Land recently established with grass species will be watered regularly until an effective cover has properly established and plants are growing vigorously. Further application of seed might be necessary later in areas of inadequate vegetation establishment.
6. Where practical, foot and vehicular traffic will be kept away from all recently established areas
7. Earth batters shall be constructed in accordance with the Geotechnical Engineers Report or with as low a gradient as practical but not steeper than:
 - 2H:1V where slope length is less than 7 metres
 - 2.5H:1V where slope length is between 7 and 10 metres
 - 3H:1V where slope length is between 10 and 12 metres
 - 4H:1V where slope length is between 12 and 18 metres
 - 5H:1V where slope length is between 18 and 27 metres
 - 6H:1V where slope length is greater than 27 metres
8. All earthworks, including waterways/drains/spillways and their outlets, will be constructed to be stable in at least the design storm event.
9. During windy weather, large, unprotected areas will be kept moist (not wet) by sprinkling with water to keep dust under control. In the event water is not available in sufficient quantities, soil binders and/or dust retardants will be used or the surface will be left in a cloddy state that resists removal by wind.

B.5 Pollution Control Conditions

1. Stockpiles will not be located within 5 metres of hazard areas, including likely areas of high velocity flows such as waterways, paved areas and driveways. Silt/sediment fences and appropriate stabilisation of stockpiles are to be provided as detailed on the drawings.
2. Sediment fences will:
 - a. Be installed where shown on the drawings, and elsewhere at the discretion of the site superintendent to contain the coarser sediment fraction (including aggregated fines) as near as possible to their source.

- b. Have a catchment area not exceeding 720 square meters, a storage depth (including both settling and settled zones) of at least 0.6 meters, and internal dimensions that provide maximum surface area for settling, and
 - c. Provide a return of 1 metre upslope at intervals along the fence where catchment area exceeds 720 square meters, to limit discharge reaching each section to 10 litres/second in a maximum 20-year tc discharge.
3. Sediment removed from any trapping device will be disposed in locations where further erosion and consequent pollution to down slope lands and waterways will not occur.
4. Water will be prevented from directly entering the permanent drainage system unless it is relatively sediment free (i.e. the catchment area has been permanently landscaped and/or likely sediment has been treated in an approved device). Nevertheless, stormwater inlets will be protected.
5. Temporary soil and water management structures will be removed only after the lands they are protecting are stabilised.

B.6 Waste Management Conditions

Acceptable bind will be provided for any concrete and mortar slurries, paints, acid washings, lightweight waste materials and litter. Clearance service will be provided at least weekly.

B.7 Site Inspection and Maintenance

1. A self-auditing program will be established based on a Check Sheet. A site inspection using the Check Sheet will be made by the site manager:
 - At least weekly.
 - Immediately before site closure.
 - Immediately following rainfall events in excess of 5mm in any 24-hour period.

The self-audit will include:

- Recording the condition of every sediment control device
 - Recording maintenance requirements (if any) for each sediment control device
 - Recording the volumes of sediment removed from sediment retention systems, where applicable
 - Recording the site where sediment is disposed
 - Forwarding a signed duplicate of the completed Check Sheet to the project manager/developer for their information
2. In addition, a suitably qualified person will be required to oversee the installation and maintenance of all soil and water management works on the site. The person shall be required to provide a short monthly written report. The responsible person will ensure that:
 - The plan is being implemented correctly
 - Repairs are undertaken as required
 - Essential modifications are made to the plan if and when necessary

The report shall carry a certificate that works have been carried out in accordance with the plan.

3. Waste bins will be emptied as necessary. Disposal of waste will be in a manner approved by the Site Superintendent.
4. Proper drainage will be maintained. To this end drains (including inlet and outlet works) will be checked to ensure that they are operating as intended, especially that,
 - No low points exist that can overtop in a large storm event
 - Areas of erosion are repaired (e.g. lined with a suitable material) and/or velocity of flow is reduced appropriately through construction of small check dams or installing additional diversion upslope.
 - Blockages are cleared (these might occur because of sediment pollution, sand/soil/spoil being deposited in or too close to them, breached by vehicle wheels, etc.).
5. Sand/soil/spoil materials placed closer than 2 meters from hazard areas will be removed. Such hazard areas include and areas of high velocity water flows (e.g. waterways and gutters), paved areas and driveways.
6. Recently stabilised lands will be checked to ensure that erosion hazard has been effectively reduced. Any repairs will be initiated as appropriate.
7. Excessive vegetation growth will be controlled through mowing or slashing.
8. All sediment detention systems will be kept in good, working condition. In particular, attention will be given to:
 - a. Recent works to ensure they have not resulted in diversion of sediment laden water away from them
 - b. Degradable products to ensure they are replaced as required, and
 - c. Sediment removal, to ensure the design capacity or less remains in the settling zone.
9. Any pollutants removed from sediment basins or litter traps will be disposed of in areas where further pollution to down slope lands and waterways should not occur.
10. Additional erosion and/or sediment control works will be constructed as necessary to ensure the desired protection is given to down slope lands and waterways, i.e. make ongoing changes to the plan where it proves inadequate in practice or is subjected to changes in conditions at the work site or elsewhere in the catchment.
11. Erosion and sediment control measures will be maintained in a functioning condition until all earthwork activities are completed and the site stabilised
12. Litter, debris and sediment will be removed from the gross pollutant traps and trash racks as required.

EROSION AND SEDIMENT CONTROL WEEKLY SITE INSPECTION SHEET

LOCATION
 INSPECTION OFFICER DATE
 SIGNATURE

Legend: 4 OK 7 Not OK N/A Not applicable

Item	Consideration	Assessment
1	Public roadways clear of sediment.	.....
2	Entry/exit pads clear of excessive sediment deposition.	.....
3	Entry/exit pads have adequate void spacing to trap sediment.	.....
4	The construction site is clear of litter and unconfined rubbish.	.....
5	Adequate stockpiles of emergency ESC materials exist on site.	.....
6	Site dust is being adequately controlled	.....
7	Appropriate drainage and sediment controls have been installed prior to new areas being cleared or disturbed.	.....
8	Up-slope "clean" water is being appropriately diverted around/through the site.	.....
9	Drainage lines are free of soil scour and sediment deposition.	.....
10	No areas of exposed soil are in need of erosion control.	.....
11	Earth batters are free of "rill" erosion.	.....
12	Erosion control mulch is not being displaced by wind or water.	.....
13	Long-term soil stockpiles are protected from wind, rain and stormwater flow with appropriate drainage and erosion controls.	.....
14	Sediment fences are free from damage.	.....
15	Sediment-laden stormwater is not simply flowing "around" the sediment fences or other sediment traps.	.....
16	Sediment controls placed up-slope/around stormwater inlets are appropriate for the type of inlet structure.	.....
17	All sediment traps are free of excessive sediment deposition.	.....
18	The settled sediment layer within a sediment basin is clearly visible through the supernatant prior to discharge such water.	.....
19	All reasonable and practicable measures are being taken to control sediment runoff from the site.	.....
20	All soil surfaces are being appropriately prepared (i.e. pH, nutrients, roughness and density) prior to revegetation.	.....
21	Stabilised surfaces have a minimum 70% soil coverage.	.....
22	The site is adequately prepared for imminent storms.	.....
23	All ESC measures are in proper working order.	.....

APPENDIX C
EROSION AND SEDIMENT CONTROL

WEEKLY SITE INSPECTION SHEET

LOCATION
 INSPECTION OFFICERDATE
 SIGNATURE

Legend: 4 OK 7 Not OK N/A Not applicable

Item	Consideration	Assessment
1	Public roadways clear of sediment.	.....
2	Entry/exit pads clear of excessive sediment deposition.	.....
3	Entry/exit pads have adequate void spacing to trap sediment.	.....
4	The construction site is clear of litter and unconfined rubbish.	.....
5	Adequate stockpiles of emergency ESC materials exist on site.	.....
6	Site dust is being adequately controlled.	.....
7	Appropriate drainage and sediment controls have been installed prior to new areas being cleared or disturbed.	.....
8	Up-slope "clean" water is being appropriately diverted around/through the site.	.....
9	Drainage lines are free of soil scour and sediment deposition.	.....
10	No areas of exposed soil are in need of erosion control.	.....
11	Earth batters are free of "rill" erosion.	.....
12	Erosion control mulch is not being displaced by wind or water.	.....
13	Long-term soil stockpiles are protected from wind, rain and stormwater flow with appropriate drainage and erosion controls.	.....
14	Sediment fences are free from damage.	.....
15	Sediment-laden stormwater is not simply flowing "around" the sediment fences or other sediment traps.	.....
16	Sediment controls placed up-slope/around stormwater inlets are appropriate for the type of inlet structure.	.....
17	All sediment traps are free of excessive sediment deposition.	.....
18	The settled sediment layer within a sediment basin is clearly visible through the supernatant prior to discharge such water.	.....
19	All reasonable and practicable measures are being taken to control sediment runoff from the site.	.....
20	All soil surfaces are being appropriately prepared (i.e. pH, nutrients, roughness and density) prior to revegetation.	.....
21	Stabilised surfaces have a minimum 70% soil coverage.	.....
22	The site is adequately prepared for imminent storms.	.....
23	All ESC measures are in proper working order.	.....

APPENDIX D

CITY OF CANTERBURY-BANKSTOWN – STORMWATER SYSTEM REPORT

DOCUMENT NUMBER: WP-SIAonI-1067/2025 (Date 05/06/2025)



Level 1, 66 - 72 Rickard Road, Bankstown NSW
PO Box 8, Bankstown NSW 1885
Tel: (02) 9707 9010 - Fax: (02) 9707 9408
DX 11220 BANKSTOWN
council@cbc.city.nsw.gov.au

CITY OF CANTERBURY BANKSTOWN

To: Costin Roe Consulting
4/8 Windmill St
MILLERS POINT NSW 2000

STORMWATER SYSTEM REPORT 191 Miller Road, CHESTER HILL NSW 2162

Property Address	191 Miller Road Chester Hill 2162
Lot/Section/Deposited Plan	Lot 82 DP 1282378
Date Prepared:	05/06/2025
Ref:	WP-SIAONL-1067/2025
Prepared By:	Mustafa Ways
Development Type:	Industrial/Industrial Extension

FLOOD STUDY REQUIRED

No

This Stormwater System Report (SSR) provides flood and stormwater information about the property.

The information in this report should be reviewed by those who are knowledgeable in flooding or have a technical requirement to understand more about Council's building development controls (such as surveyors, builders, certifiers, architects and engineers).

Stormwater Infrastructure

The site is affected by the following Sydney Water stormwater system components.

- A variable width Sydney Water drainage easement located along the western site boundary the site.

Property Levels

Description	Minimum (m AHD)	Maximum (m AHD)
Approximate Ground Level	20.40	29.10

Flooding Levels

Stormwater Catchment Flooding from Villawood Drain Works-As-Executed Study (Civic Design, 2009)

Flood Event	Minimum Level (m AHD)	Maximum Level (m AHD)
5% AEP (20 year ARI)	-	-
1% AEP (100 year ARI)	20.70	26.70
PMF (Probable Maximum Flood)	21.30	27.30

Terms and Definitions

Annual Exceedance Probability (AEP)	The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.
Average Recurrence Interval (ARI):	Similar to AEP. The long-term average number of years between the occurrence of a flood as big as (or larger than) the selected event.
metres above Australian Height Datum (m AHD)	The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.
Maximum and Minimum Ground Level –	Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.
Probable Maximum Flood	An extreme flood deemed to be the largest flood that could conceivably occur at a specific location The PMF defines the extent of flood prone land (i.e. the floodplain).

Further Information

For further information on flood-related development controls which may be applicable to this property, refer to the following guidelines:

- Canterbury Bankstown Development Control Plan (2023, Chapter 2.2 Flood Risk Management)
- Canterbury Bankstown Development Engineering Standards (2023)
- Council Standard Drawings.

Disclaimer

The information contained in this document is not endorsed by the Council as without error, omission or mis-description. Council accordingly expressly disclaims all and any liability and responsibility in respect of loss, damage or injury to person or property arising from anything done or omitted to be done by any person in reliance, whether wholly or in part, upon any part of this information.

Any person having regard to the information contained in this document is encouraged to seek, at their discretion, all other sources of information on the subject matter as they consider appropriate, which may include local knowledge and/or professional advice.

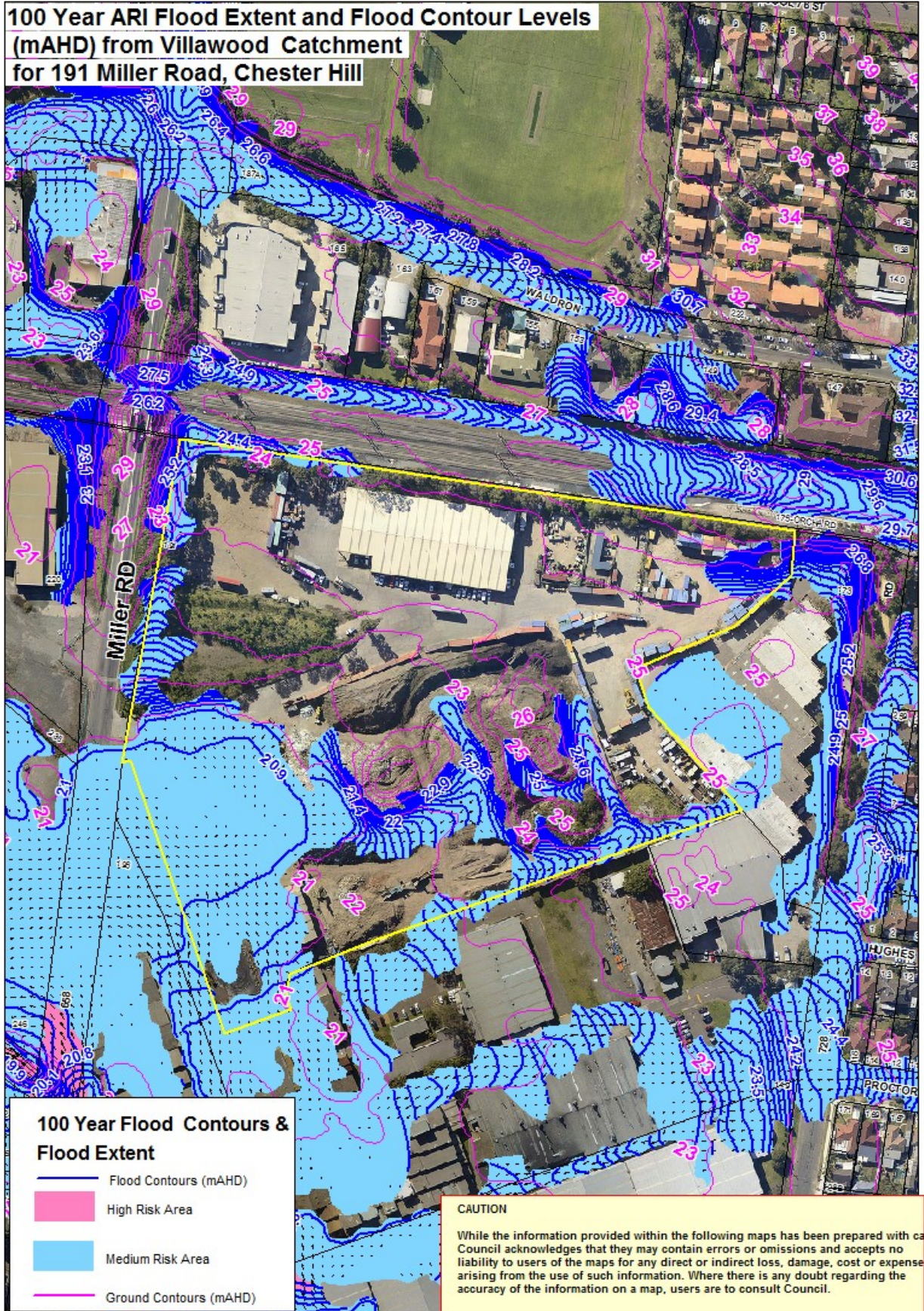
ATTACHMENTS**For 1% AEP (100 year ARI)**

1. Flood Extent & Flood Contours Map
2. Flood Depth Map
3. Velocity Depth Product Map

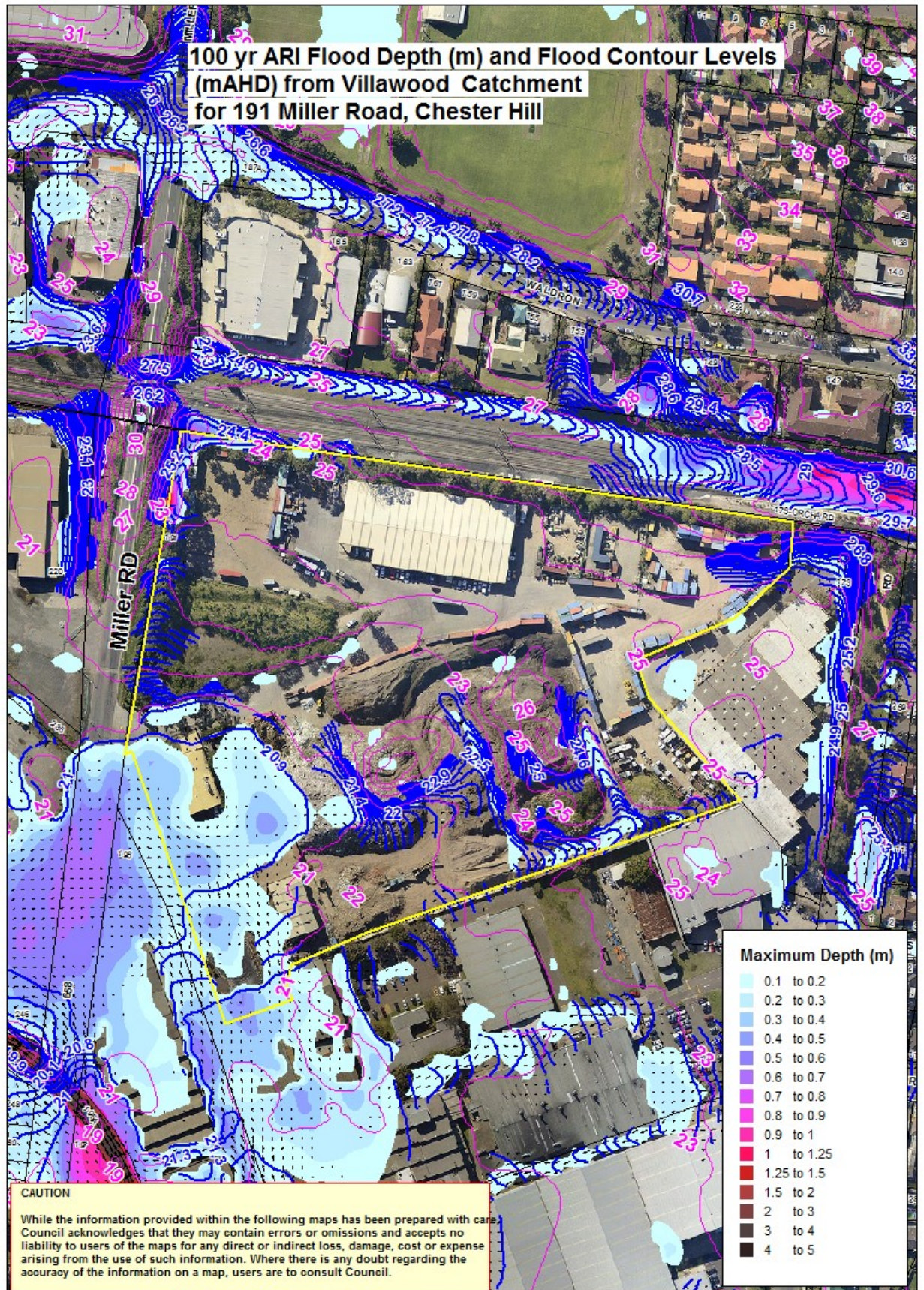
For PMF

4. Flood Contours & Flood extent Map
5. GIS Map (from Council's Data)
6. Aerial Map (from Council 's Data)

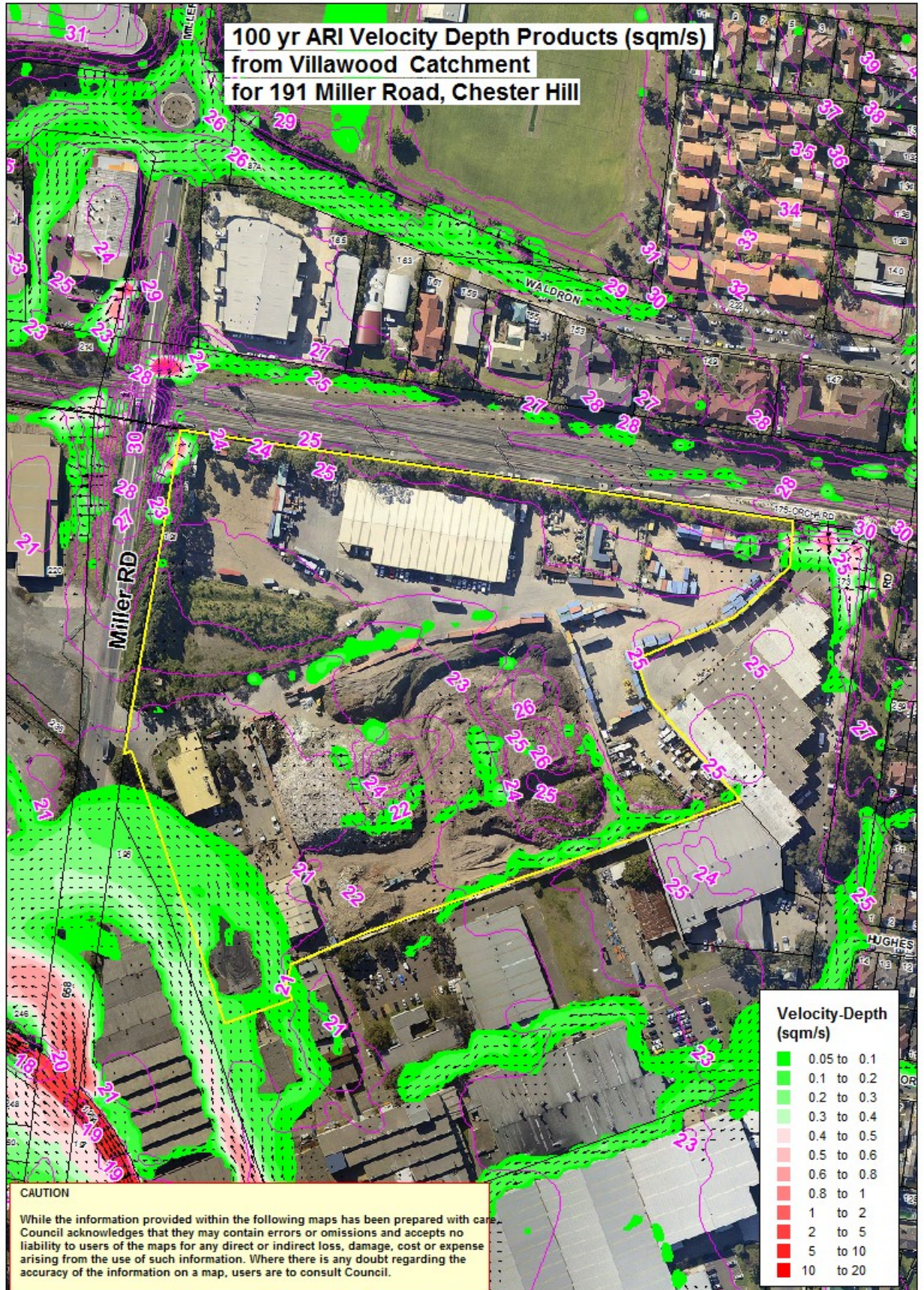
**100 Year ARI Flood Extent and Flood Contour Levels
(mAHD) from Villawood Catchment
for 191 Miller Road, Chester Hill**



100 yr ARI Flood Depth (m) and Flood Contour Levels (mAHD) from Villawood Catchment for 191 Miller Road, Chester Hill

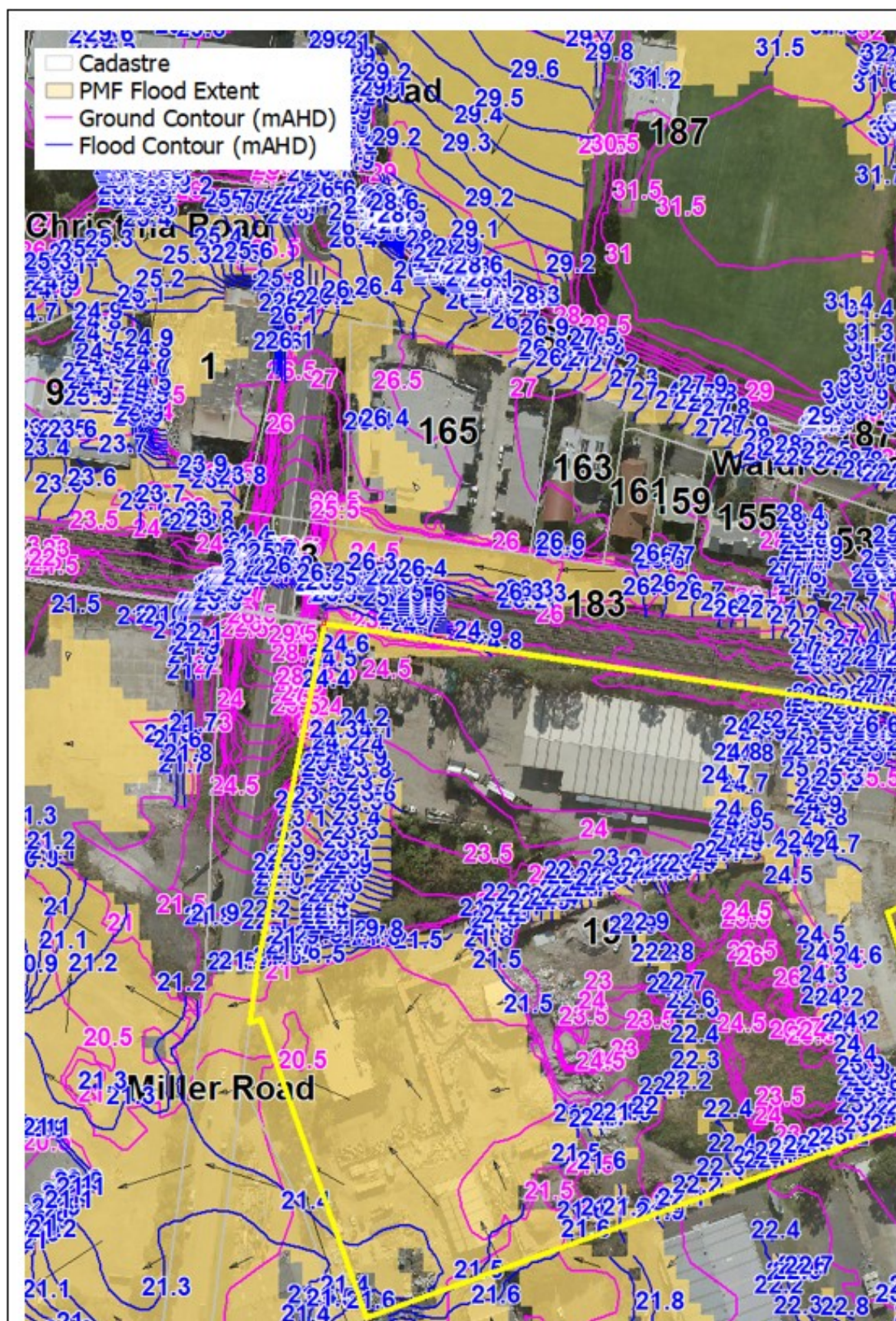


**100 yr ARI Velocity Depth Products (sqm/s)
from Villawood Catchment
for 191 Miller Road, Chester Hill**



CAUTION

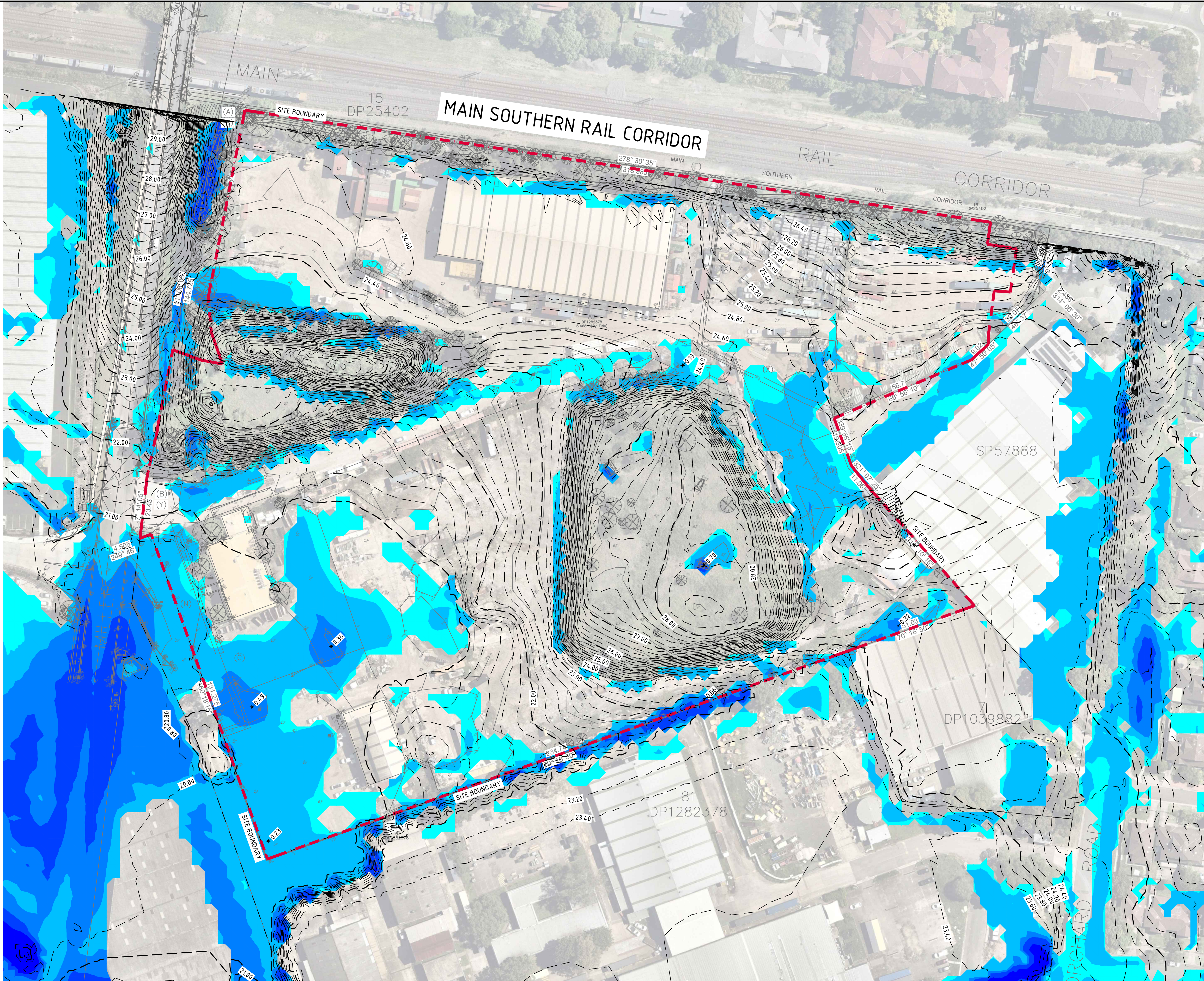
While the information provided within the following maps has been prepared with care, Council acknowledges that they may contain errors or omissions and accepts no liability to users of the maps for any direct or indirect loss, damage, cost or expense arising from the use of such information. Where there is any doubt regarding the accuracy of the information on a map, users are to consult Council.





 1:2,775 2 July 2025	191 Miller Road, Chester Hill <i>Aerial Map</i> DISCLAIMER: COUNCIL EXPRESSLY DISCLAIMS ALL LIABILITY FOR ERRORS OR OMISSIONS. THIS PLAN HAS NO LEGAL STANDING	
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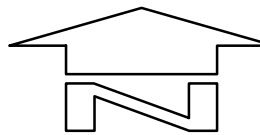
APPENDIX E
FLOOD ASSESSMENT FIGURES



- LEGEND:**
- LEVELS DATUM IS AHD.
- 30.00 — - FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
 - 30.20 — - FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
 - — - FLOOD MODELLING BOUNDARY
 - — - SITE BOUNDARY
 - — - INFLOW HYDROGRAPH
 - — - OUTFLOW BOUNDARY
 - SW — - STORMWATER INFRASTRUCTURE

FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.050	
2	0.050	0.100	
3	0.100	0.300	
4	0.300	0.500	
5	0.500	1.000	
6	1.000	5.000	

NOTE:
FLOODING EXCLUDED FOR DEPTHS LESS THAN 50mm TO FILTER RESULTS FROM RAIN-ON-GRID MODEL.



1% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:750

FOR INFORMATION

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

ISSUED FOR INFORMATION	16.12.25	B
PRELIMINARY ONLY	03.12.25	A
AMENDMENTS	DATE	ISSUE



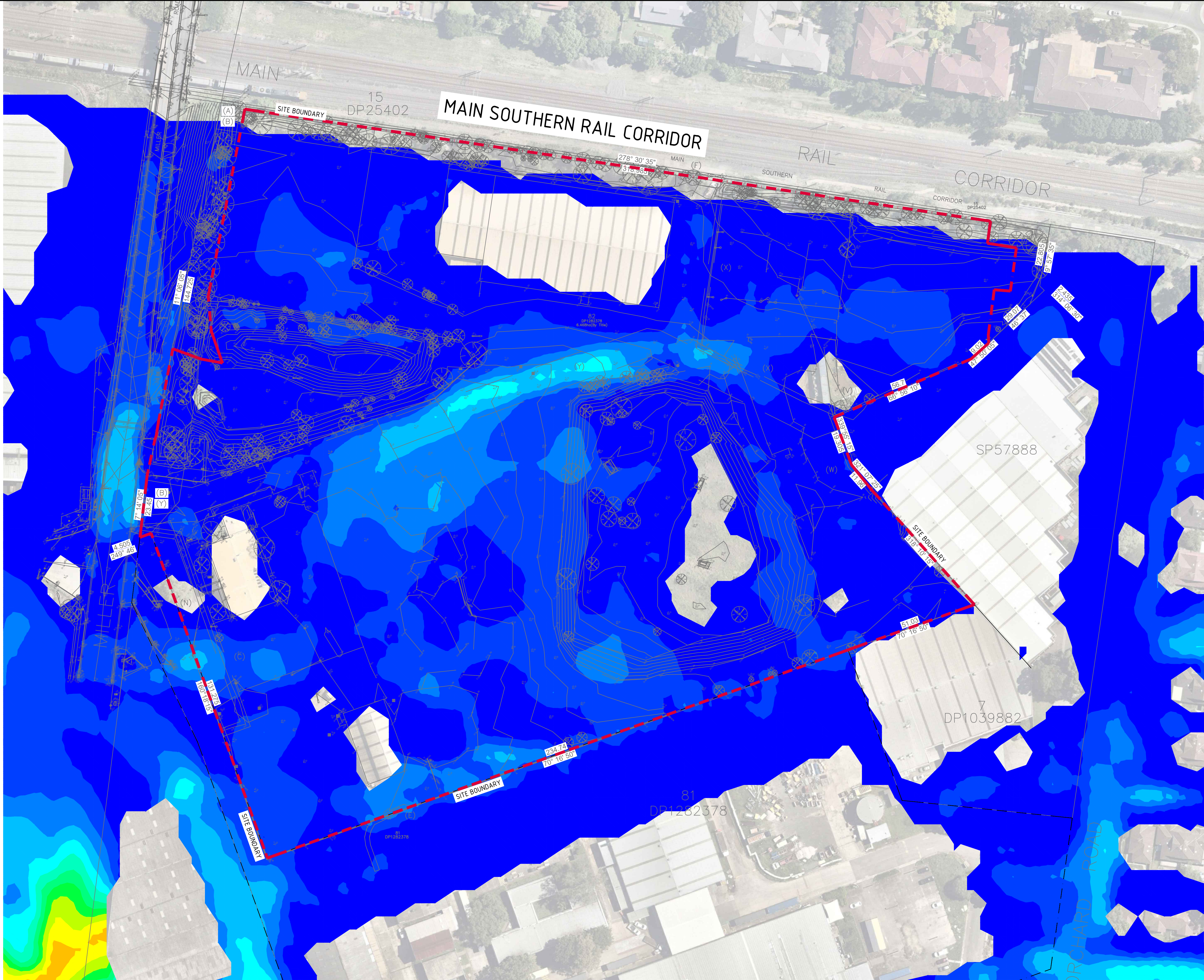
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DESIGNED CC	DRAWN CC	DATE DEC '25	CHECKED DS	SIZE A1	SCALE AS SHOWN
CAD REF: C014242.05-F230					



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DRAWING TITLE 1% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS	
DRAWING No C014242.05-F230	ISSUE B



- LEGEND:**
- LEVELS DATUM IS AHD.
- 30.00 — - FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
 - 30.20 — - FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
 - — - FLOOD MODELLING BOUNDARY
 - — - SITE BOUNDARY
 - — - INFLOW HYDROGRAPH
 - — - OUTFLOW BOUNDARY
 - SW — - STORMWATER INFRASTRUCTURE

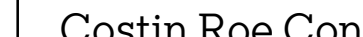
NOTE:
FLOODING EXCLUDED FOR DEPTHS LESS THAN 50mm TO FILTER RESULTS FROM RAIN-ON-GRID MODEL.

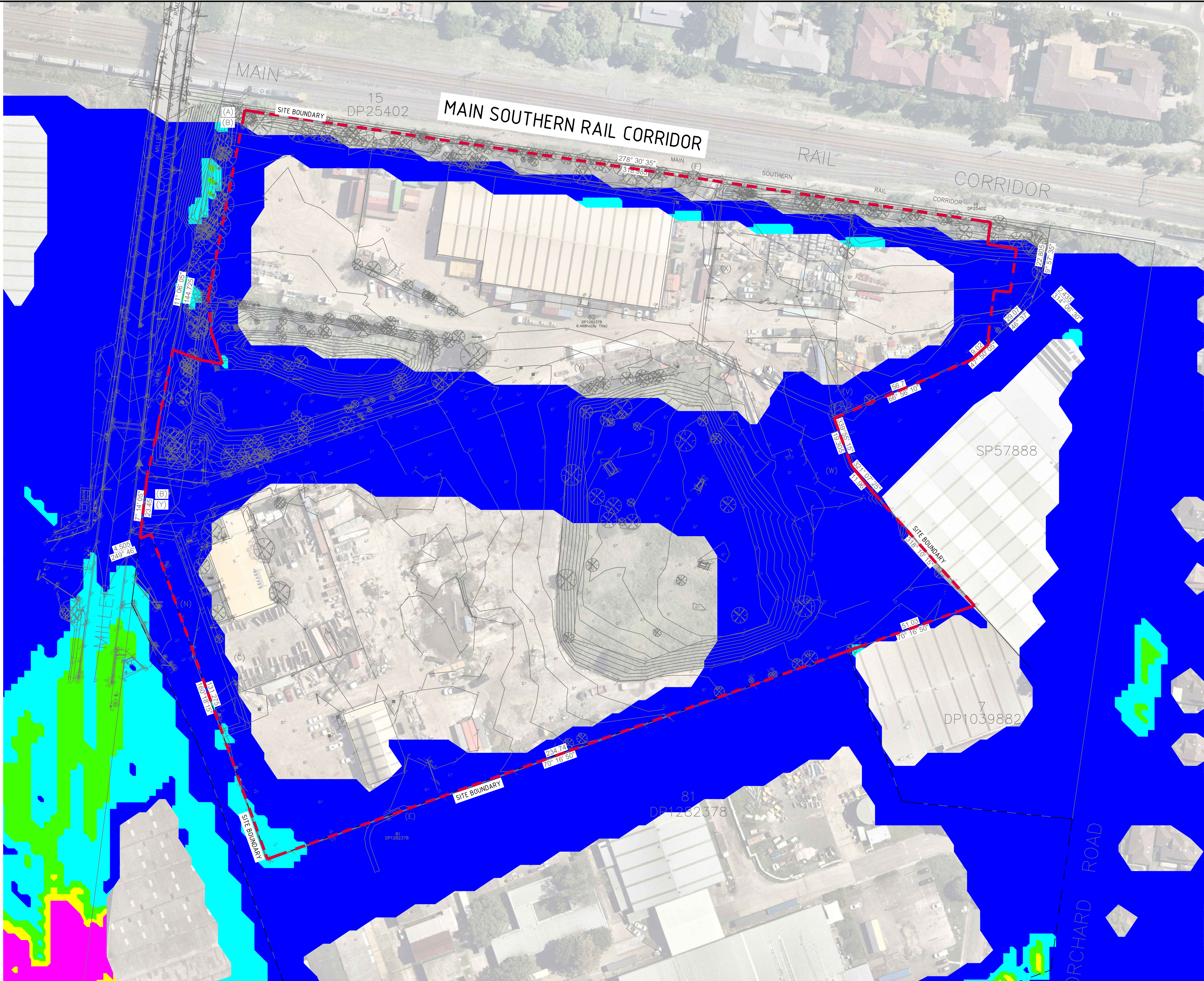
FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	2.250	Blue
10	2.250	2.500	Blue
11	2.500	2.750	Blue
12	2.750	3.000	Blue
13	3.000	3.250	Blue
14	3.250	3.500	Blue

1% AEP PRE-DEVELOPMENT FLOOD VELOCITY
SCALE 1:750

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

PRELIMINARY ONLY

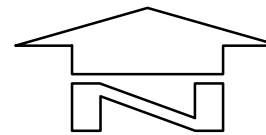
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ISSUED FOR INFORMATION 16.12.25 B																		
PRELIMINARY ONLY 03.12.25 A																		
AMENDMENTS DATE ISSUE							DESIGNED CC		DRAWN CC		DATE DEC' 25		CHECKED DS		SIZE A1			
							SCALE AS SHOWN		CAD REF: C01424.05-F231									
															DRAWING No C01424.05-F231			
															ISSUE B			



- LEGEND:**
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - INFLOW HYDROGRAPH
 - OUTFLOW BOUNDARY
 - STORMWATER INFRASTRUCTURE
 - H1
 - H2
 - H3
 - H4
 - H5
 - H6

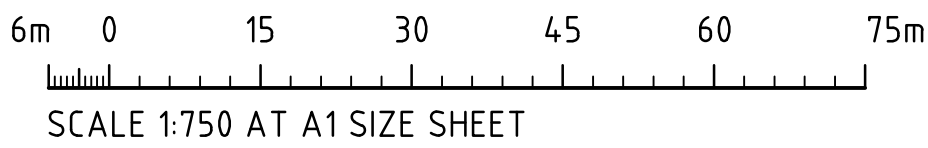
FLOOD HAZARD CLASSIFICATION AS PER
AUSTRALIAN RAINFALL & RUNOFF 2019, A GUIDE TO
FLOOD ESTIMATION - BOOK 6 - FLOOD HYDRAULICS

NOTE:
FLOODING EXCLUDED FOR DEPTHS LESS THAN 50mm TO FILTER
RESULTS FROM RAIN-ON-GRID MODEL.



1% AEP PRE-DEVELOPMENT FLOOD HAZARD
SCALE 1:750

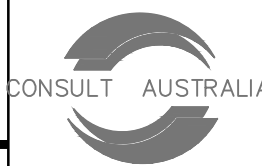
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PRELIMINARY ONLY	03.12.25	A
AMENDMENTS	DATE	ISSUE



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DESIGNED CC	DRAWN CC	DATE DEC' 25	CHECKED DS	SIZE A1	SCALE AS SHOWN	CAD REF: C014242.05-F232

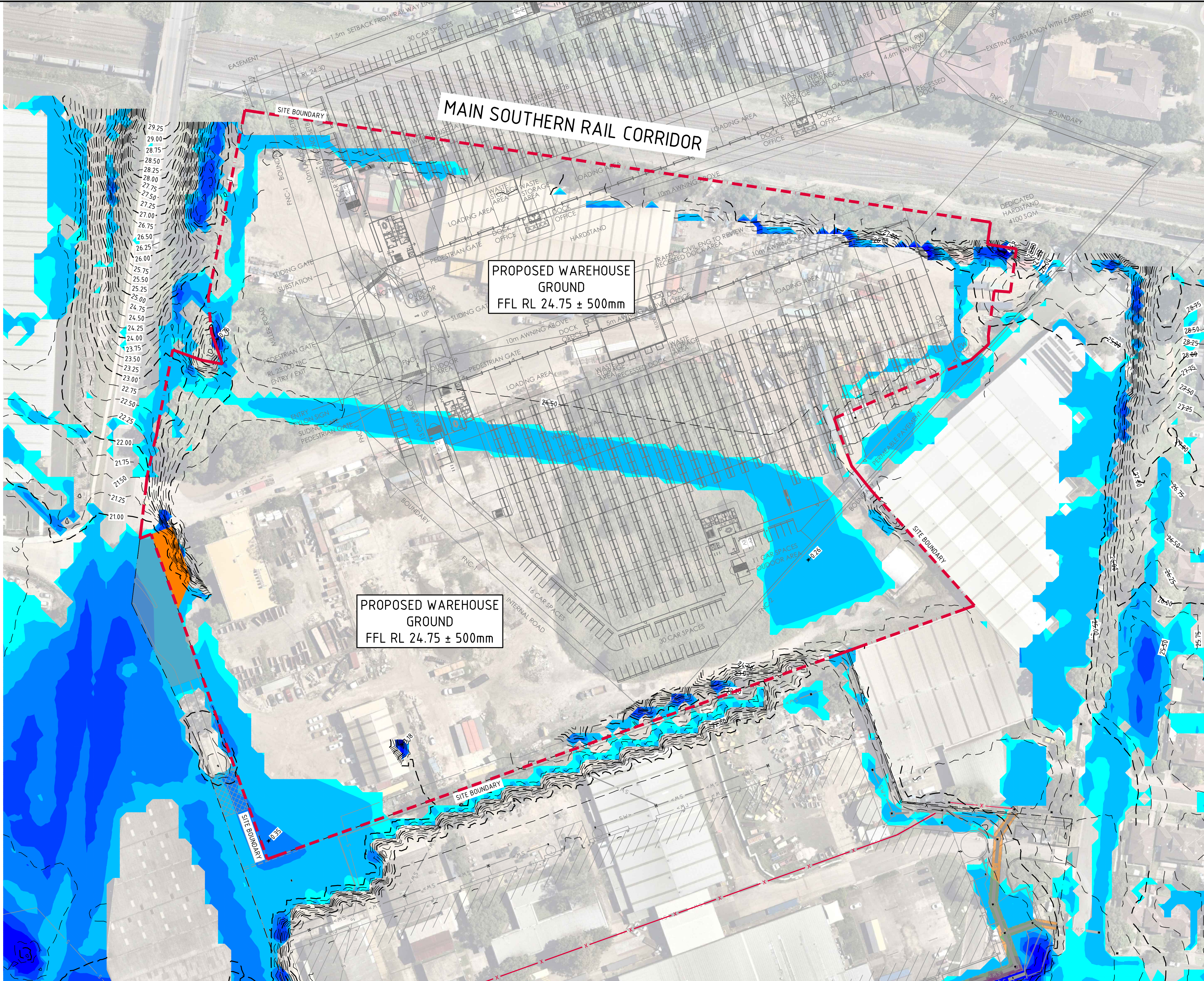


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DRAWING TITLE 1% AEP PRE-DEVELOPMENT FLOOD HAZARD PLAN
DRAWING No C014242.05-F232

ISSUE
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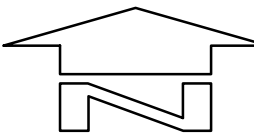


LEGEND:
LEVELS DATUM IS AHD.

- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
- FLOOD MODELLING BOUNDARY
- SITE BOUNDARY
- INFLOW HYDROGRAPH
- OUTFLOW BOUNDARY
- STORMWATER INFRASTRUCTURE

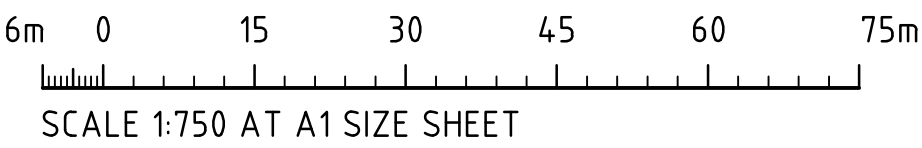
FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.050	
2	0.050	0.100	
3	0.100	0.300	
4	0.300	0.500	
5	0.500	1.000	
6	1.000	5.000	

NOTE:
FLOODING EXCLUDED FOR DEPTHS LESS THAN 50mm TO FILTER RESULTS FROM RAIN-ON-GRID MODEL.



1% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:750

FOR INFORMATION



ISSUED FOR INFORMATION	16.12.25	B
PRELIMINARY ONLY	03.12.25	A
AMENDMENTS	DATE	ISSUE

ARCHITECT

PACE
ARCHITECTS

CLIENT

LogiSPACE

PROJECT
PROPOSED DEVELOPMENT
191 MILLER ROAD, CHESTER HILL
NSW 2162

DESIGNED CC	DRAWN CC	DATE DEC '25	CHECKED DS	SIZE A1	SCALE AS SHOWN	CAD REF: C014242.05-F330
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CONSULT AUSTRALIA

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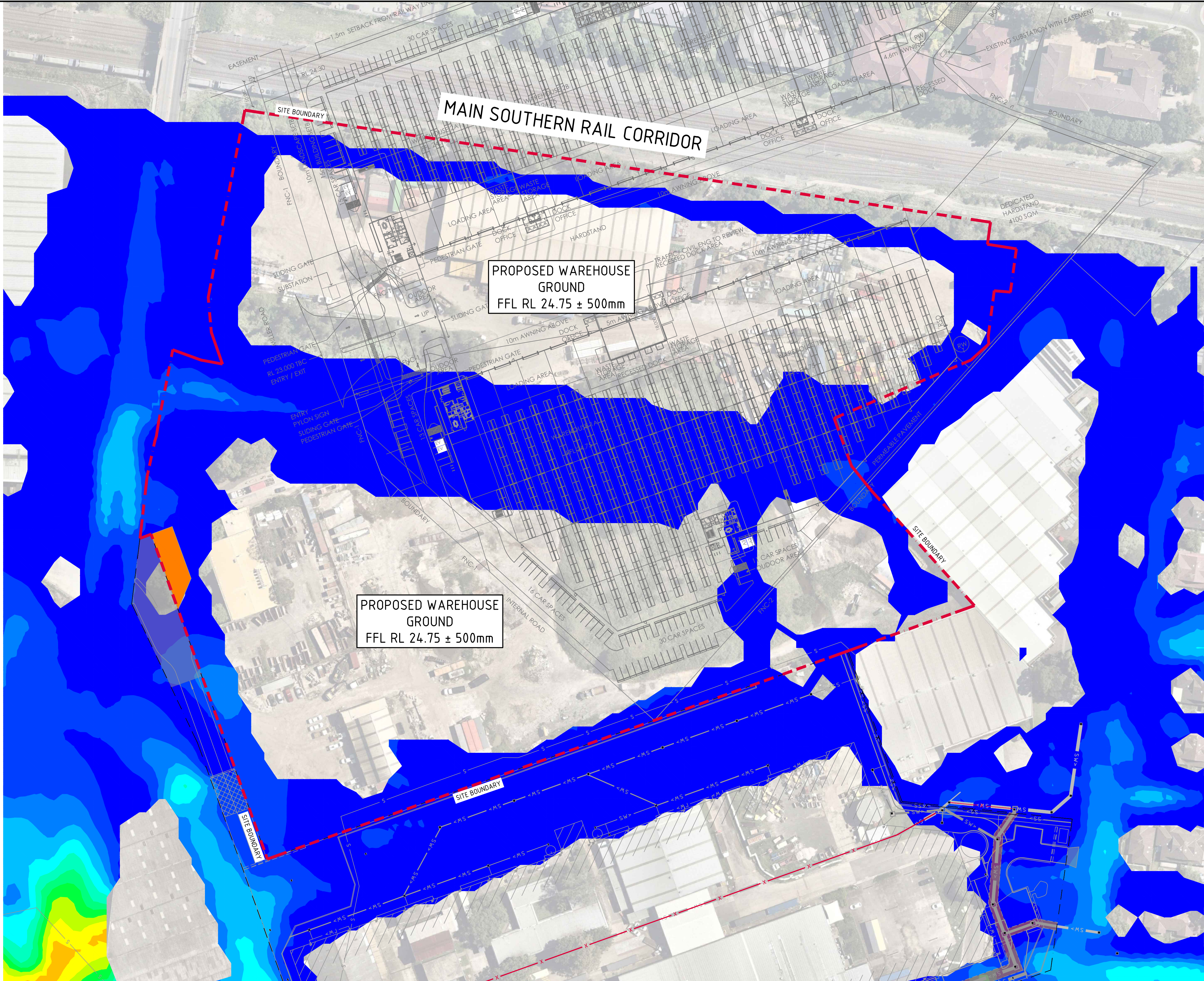
CRC
COSTIN ROE
CONSULTING

**CIVIL &
STRUCTURAL
ENGINEERS**

DRAWING TITLE
1% AEP POST-DEVELOPMENT
FLOOD LEVELS AND DEPTHS PLAN

DRAWING No C014242.05-F330

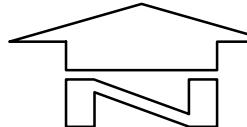
ISSUE
B



- LEGEND:**
- LEVELS DATUM IS AHD.
- 30.00 — - FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
 - 30.20 — - FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
 - — - FLOOD MODELLING BOUNDARY
 - — - SITE BOUNDARY
 - — - INFLOW HYDROGRAPH
 - — - OUTFLOW BOUNDARY
 - SW — - STORMWATER INFRASTRUCTURE

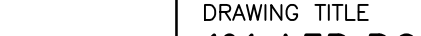
NOTE:
FLOODING EXCLUDED FOR DEPTHS LESS THAN 50mm TO FILTER RESULTS FROM RAIN-ON-GRID MODEL.

FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Light Blue
5	1.000	1.250	Light Blue
6	1.250	1.500	Light Green
7	1.500	1.750	Light Green
8	1.750	2.000	Light Green
9	2.000	2.250	Light Green
10	2.250	2.500	Light Green
11	2.500	2.750	Light Green
12	2.750	3.000	Light Green
13	3.000	3.250	Light Green
14	3.250	3.500	Light Green

 1% AEP POST-DEVELOPMENT FLOOD VELOCITY
SCALE 1:750

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

			ARCHITECT 		CLIENT 		PROJECT PROPOSED DEVELOPMENT 191 MILLER ROAD, CHESTER HILL NSW 2162						Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 f: +61 2 9241 3731 e: mail@costinroe.com.au w: costinroe.com.au		 CIVIL & STRUCTURAL ENGINEERS		DRAWING TITLE 1% AEP POST-DEVELOPMENT FLOOD VELOCITY PLAN					
ISSUED FOR INFORMATION			16.12.25		B		DESIGNED CC				DRAWN CC		DATE DEC '25		CHECKED DS		SIZE A1		SCALE AS SHOWN		CAD REF: C01424.05-F331	
PRELIMINARY ONLY			03.12.25		A																	
AMENDMENTS			DATE		ISSUE																DRAWING No C01424.05-F331	
																					ISSUE B	



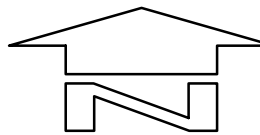
LEGEND:

LEVELS DATUM IS AHD.

- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
- FLOOD MODELLING BOUNDARY
- SITE BOUNDARY
- INFLOW HYDROGRAPH
- OUTFLOW BOUNDARY
- STORMWATER INFRASTRUCTURE

NOTE:
FLOODING EXCLUDED FOR DEPTHS LESS THAN 50mm TO FILTER RESULTS FROM RAIN-ON-GRID MODEL.
FLOOD LEVEL DIFFERENCE PROVIDED FOR THE PRE-DEVELOPMENT SCENARIO VS THE POST-DEVELOPMENT SCENARIO. DETAILED SITE DRAINAGE HAS BEEN INCLUDED FOR BOTH MODELLING SCENARIOS. ORIGINAL SURFACE - PRE-DEVELOPMENT WITH DRAINAGE 1% AEP FLOOD LEVEL
COMPARISON SURFACE - POST-DEVELOPMENT 1% AEP FLOOD LEVEL.

FLOOD LEVEL AFFLUX (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	-5.000	-0.020	
2	-0.020	0.020	
3	0.020	0.030	
4	0.030	0.040	
5	0.040	0.050	
6	0.050	0.100	
7	0.100	0.500	
8	0.500	1.500	
9	1.500	2.500	
10	2.500	5.000	



1% AEP FLOOD LEVEL AFFLUX
SCALE 1:750

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

ARCHITECT PACE ARCHITECTS			CLIENT LogiSPACE			PROJECT PROPOSED DEVELOPMENT 191 MILLER ROAD, CHESTER HILL NSW 2162			Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 f: +61 2 9241 3731 e: mail@costinroe.com.au w: costinroe.com.au			DRAWING TITLE 1% AEP FLOOD LEVEL AFFLUX DRAWING No C01424.05-F530		
ISSUED FOR INFORMATION PRELIMINARY ONLY AMENDMENTS			DESIGNED CC			DRAWN CC			CHECKED DS			SIZE A1		
16.12.25 03.12.25 DATE			B A ISSUE			SCALE AS SHOWN			CAD REF: C01424.05-F500			COSTIN ROE CONSULTING CIVIL & STRUCTURAL ENGINEERS		
												ISSUE B		

