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CIVIL ENGINEERING DESIGN REPORT

WALLGROVE BUSINESS HUB

97-151 WALLGROVE ROAD, CECIL PARK, NSW

Revision 4.0

April 2025

henry&hymas

Our Ref No. 230804

Project verification

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Preface

Henry & Hymas has been engaged by Greater Sydney Parklands to prepare this Civil Engineering Report (The Report) to satisfy civil engineering matters in support of the State Significant Development Application (SSDA) for the proposed Wallgrove Business Hub at 97-151 Wallgrove Road, Cecil Park.

The Report aims to provide a summary of key civil engineering design elements of the proposed Development Application:

- General site locality, topography and existing characteristics;
- The proposed site works – earthworks and site access;
- Stormwater management;
- Flooding;
- Sediment and Erosion

The Report has been prepared in conjunction with a set of Civil Engineering Drawings which show the general proposed civil and stormwater design for the development. The drawings are available for review in Appendix A of this Report.

The following principles have been adopted as part of the design process:

- Consideration of design intent in relation to functionality, expectations and requirements of the end user.
- Compliance with relevant Council and relevant authority standards and policies.
- Design coordination with the project team.
- A design philosophy sympathetic to the site constraints, environment, terrain, and landform.
- Retention of existing infrastructure where suitable.

The civil engineering component of the aforementioned project has been designed in accordance with the following Council codes and policies:

- Fairfield City Council's Stormwater Management Policy 2017.
- Fairfield City Council's Policy 4-515 – Specification for Roadwork and Drainage associated with subdivision or other development.
- Austroads Guide to Pavement Technology – Part 2: Pavement Structural Design.

Furthermore, Catchment Simulation Solutions Pty Ltd (CSS) have been engaged by Greater Sydney Parklands to undertake flood modelling and investigate the impact of the proposed development on the local flood behavior under a Development Agreement with Council. The flood modelling and associated flood mapping and results are presented in Chapter 6 of The Report. Interpretation and discussion on the flood modelling and associated flood mapping and results is presented in Chapter 6 of this report.

1. Site overview

The subject site is located within Cecil Park in the municipality of Fairfield City Council and within the Western Sydney Parklands at 97-151 Wallgrove Road, Cecil Park. The site is legally described as Part Lot 25 Sec.4 DP2954 and Part Lot 24 DP1152887 and is approximately 9.889ha in area.

The subject site located within the Parklands is shown in red in the aerial photo at Figure 1 below and is approximately 7.3ha in area. The site is located approximately 500m north of Elizabeth Drive and the proposed M12 Motorway, and to the west of the M7 Motorway and Wallgrove Road. The M7 Motorway from Wallgrove Road is located within 100m south of the site.

A tributary of Ropes Creek is located west of the site. Land to the north and further west of the site is not within the Parklands, and is therefore subject to Fairfield Local Environmental Plan 2013 (Fairfield LEP 2013). This adjacent land is primarily zoned RU4 Primary Production Small Lots under the Fairfield LEP 2013, with a minimum subdivision size of 1ha. There are rural dwellings located within 100m to the west, accessed off Cecil Road, and to the north, accessed off Kosovich Place. This area adjacent to the site is part of the Horsley Park and Cecil Park Urban Investigation Area, with the preferred structure plan (2019) for the land identifying small lot single dwelling housing as the preferred future use. No. 17-19 Kosovich Place, located adjoining the north-west boundary of the site, has development consent for the staged construction of a new Saints Peter and Paul Assyrian Primary School, intended to cater for up to 630 students (SSD-9210).

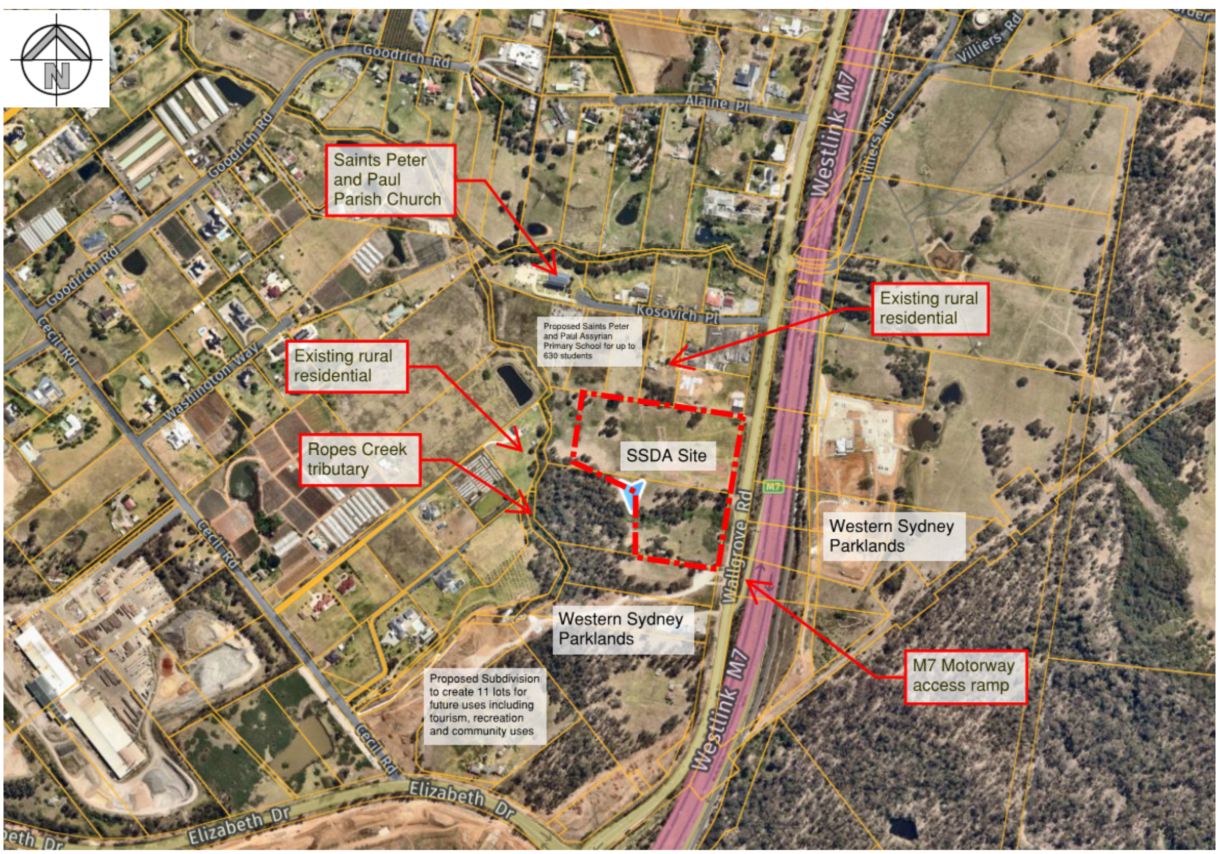


Figure 1: Exiting Site Locality Sketch, Nearmap Images, Annotations by H&H

The existing site is undeveloped and covered in grass and vegetation with the exemption of small sheds and an unsealed access road near the southern boundary of the site. The site generally falls from east to west at an average grade of approximately 5% with 22.8m of fall across the site from the southeastern corner to the northwestern corner. The existing site topography can be seen in the feature survey by Boxall Surveyors (Figure 2 below). The survey plan is included in Appendix B.

Figure 2: Feature Survey by Boxall Surveyors

An existing high voltage 11kV feeder is located in the Wallgrove Road reserve along the frontage of the site. The site does not currently have access to potable water or sewer. A 500mm trunk water main is located on the Wallgrove Road frontage, and two high pressure trunk gas main is located adjacent to the frontage of the site. The site is not currently serviced by any formal stormwater drainage network.

2. Proposed Development

The proposed development is proposed to be subdivided into two lots comprising two tenancies (WH1, WH2) with associated access roads, car parks and loading areas. The main access road (Estate Road) for vehicles near the northern boundary of the site will tie into Wallgrove Road and form a road intersection, and is intended to be dedicated to Fairfield City Council in the future. The proposed car parks and loading areas servicing the warehouse buildings are proposed to be accessed via the proposed internal driveways off the Estate Road.

The total site area is 9.8895ha, among which an approximate area of 7.0298ha is developable. The proposed two warehouses feature a Building Area of 3.6475ha in area with associated carparking, driveway, road and landscaping areas.

The proposed development is intended to be delivered in two stages. Stage One (Subdivision Stage) which is the subdivision works stage aims to provide fully accessible, prepared and benched pads with the associated roads, driveways and infrastructure including the On-site Stormwater Detention (OSD) basins and the stormwater drainage system for the main access road (Estate Road). Stage Two (Lot Development Stage) which is the final construction stage aims to deliver the two warehouse buildings with the associated hardstand areas and car parks. The civil engineering design detailed in this report focuses on Stage One as it is expected Stage Two is to be designed as part of future Development Applications for each individual lot.

Architectural concept plans can be found in Appendix C of this report, and excerpt of the site plan with an indicative staging map is shown below in Figure 3.

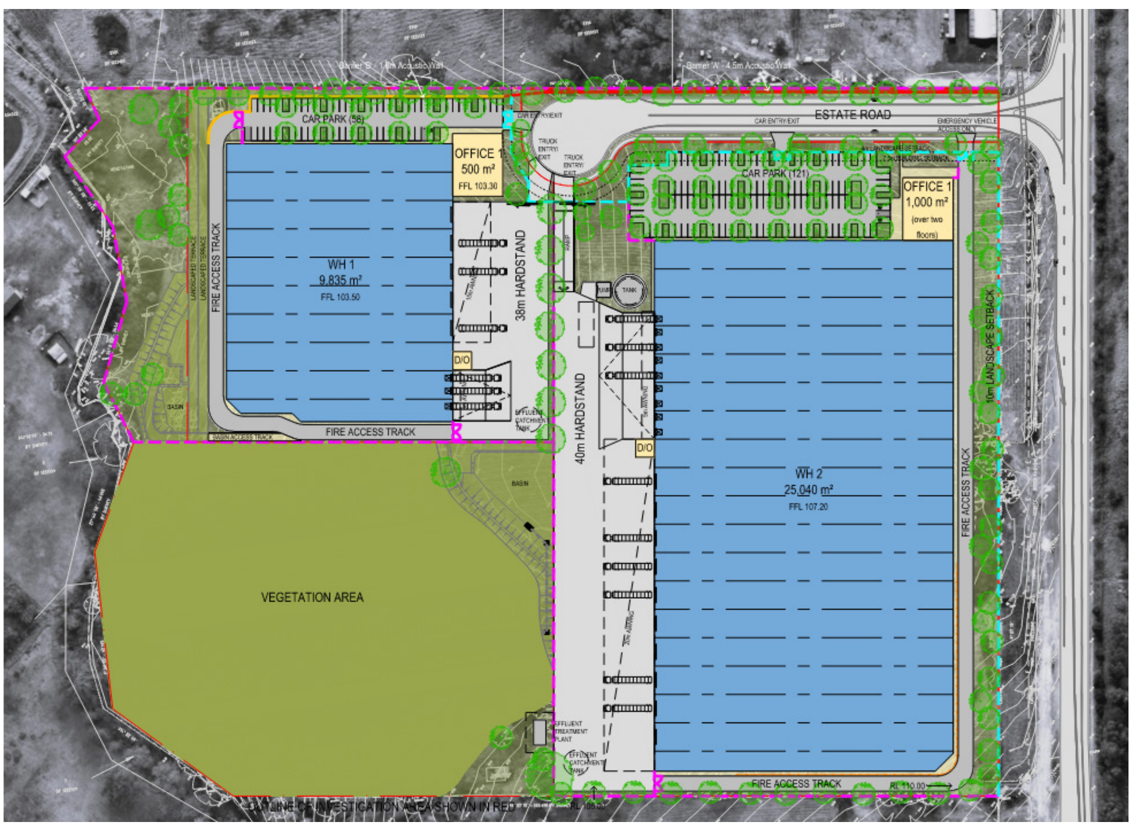


Figure 3: Architectural Site Plan of the Proposed Development. Nettletontribe 2025

3. Site Works

3.1 Bulk Earthworks

Cut and fill earthworks are required to achieve the grades and levels required to form the general proposed site levels and access the development with a focus on minimising earthwork spoil or shortfall. The cut and fill earthworks calculations have been undertaken for Subdivision Stage and Lot Development Stage.

The cut and fill quantities for the subdivision as a whole effectively balance with a minimal site spoil of material in the order of 210m^3. The site spoil is proposed to be stockpiled onsite for future use to form the individual pads which will effectively balance in the masterplan scenario. Benched pad levels have been designed such that each individual lot will balance when future development occurs.

The distribution of cut and fill throughout the site in the Subdivision Stage is shown on civil engineering drawings 230804_DA_BE01, Appendix A. A smaller-scale figure is shown below, Figure 4. Green represents filling and red represents cutting.

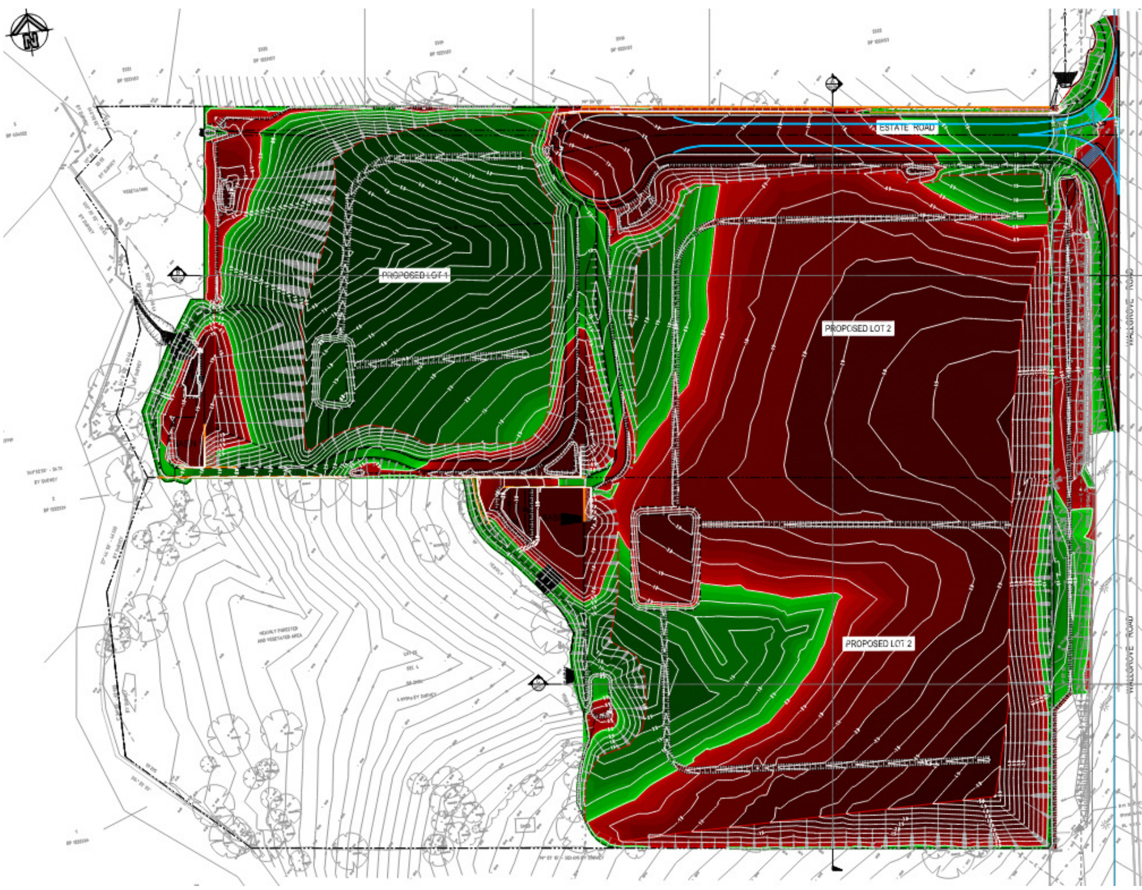


Figure 4: Bulk Earthworks Cutting and Filling Plan – Stage One. Henry & Hymas 2025

3.2 Embankment Stability/ Retaining Walls

Earthworks batters are provided wherever possible as part of the proposed Stage one works. Earthworks batters will be provided at maximum slopes of 1 in 3 as per geotechnical advice by Section 6.3.3 of the Geotechnical Report prepared by Construction Science dated 6th September 202. And where short-term construction batters at maximum slopes of 1 in 1 are implemented, these will be protected from erosion by appropriately installed sediment and erosion control measures.

Given that the focus of this design is the subdivision works phase, retaining walls within the site driven by the internal layout and/or boundary walls easily constructed as part of the individual development of each lot are not detailed in the engineering drawings (however are shown indicatively based on the masterplan design). Additional retaining walls may be required at a later stage but these will be designed as part of any future Development Applications for each individual lot. A preliminary grading and retaining plan has been prepared for a typical lot layout for the individual lots and is shown on engineering drawing C150. The plan shows a typical retaining and grading strategy for a future lot.

Whilst earthworks batters will be provided wherever possible, retaining walls will be required in some instances where there are significant level changes including where stormwater structures such as basins are proposed. Additional retaining walls will be required to provide interim suitable access locations to the proposed lots or stormwater infrastructure delivered in Stage One. These walls are predominately located adjacent to the access roads, and the OSD basins which are discussed in Chapter 4 below. The locations and heights of these retaining walls are shown on the engineering drawings located in Appendix A. Retaining walls are required to form compliant grading for the proposed access road, reinforced core-filled blockwork walls are proposed to provide a ‘maintenance free’ retaining solution for all retaining elements within the public road reserve.

3.3 Road Works

The main access road (Estate Road) that is intended to be dedicated to Fairfield City Council in the future was designed in accordance with Council’s Policy No. 4-515: Specification for Roadworks and Drainage associated with subdivision or other development (The Policy), and Austroads Guide to Pavement Technology – Part 2: Pavement Structural Design. The key design elements are summarised as follows.

Typical Road Section

A 21.4m wide road reserve has been applied with a 14.4m wide road carriageway. The road geometry and grading has been designed in accordance with Council’s Standard Drawing S-1 ‘Typical cross section for subdivision roads’ as well as relevant provisions of Austroads. The road cross section was widened from the Council’s typical section in response to agency comments to increase the through-lane to 4.2m in width and provide a min 3.0m wide packing back to support larger vehicles. Refer to the civil engineering drawings C111 in Appendix A for more details.

Indicative Pavement Thickness Design

Based on Table 1.0 of The Policy, a design Equivalent Standard Axles (ESAs) of 5 x 10^6 for 20-year design life was used in pavement thickness design. It should be noted that the design ESA for the development can be amended for specific traffic data specific to the subject site.

According to the Geotechnical Report prepared by Construction Science dated 6th September 2023, it is anticipated that a design CBR of 3% would need to be adopted. Subgrade remediation such as subgrade replacement using crushed rock and lime stabilisation would likely be necessary in weak areas identified in the Geotechnical Report. It should be noted that given the anticipated significant excavation work, treatment of encountered weak material is subject to further geotechnical assessment following availability of construction plans to review significance in relation to depth and proximity of weak layers to the proposed development. It is also recommended that additional CBR testing is undertaken following the bulk excavation works to determine the design CBR more accurately and the suitable subgrade treatment method.

The pavement thickness design was undertaken based on Section 2.1.4 of The Policy, the design ESAs mentioned above, as well as relevant provisions of Austroads Guide to Pavement Technology – Part 2: Pavement Structural Design.

The proposed preliminary pavement profiles are as follows:

- Wearing course - 60mm thick asphaltic concrete (AC) comprising a 40mm AC14 layer followed by a 20mm AC10 layer.
- Base course - 200mm thick DGB20 (from approved sources only)
- Sub-base course - 200mm thick DGS40 (from approved sources only).
- Subgrade – lime stabilised subgrade to a depth of 300mm (assuming minimum 5% design CBR is achieved by stabilisation) in cut locations or import of select fill to effective 5% CBR in fill locations.

To reduce the overall pavement thickness, lime stabilisation should be considered where the bulk level cuts into the existing surface. Additionally, due to the extent of filling onsite, select fill can be imported to site to create an effective CBR of 5% or greater.

4. Stormwater Management

4.1 Existing System

The existing site topography shown in the survey plan indicates that majority of the site falls towards the existing tributary of Ropes Creek along the western site boundary, with the exemption of the grassed area in the proximity of the northeastern corner of the site falling towards the neighbouring site (2322 DP 1223137) and Wallgrove Road (Figure 5 below). Figure 5 also indicates that the local depressions within the site area form three natural valley, conveying majority of the site stormwater runoff to the tributary of Ropes Creek under the pre-development scenario. In-ground stormwater systems are not present onsite as indicated by the survey plan in Appendix B.

In addition, it can be seen from Figure 5 that stormwater runoff from a portion of the road reserve of Wallgrove Road fronting the subject development site drains towards the site as indicated by the topography. The majority of Wallgrove Road drains north due to the existing cross fall which prevents stormwater from entering the subject site.

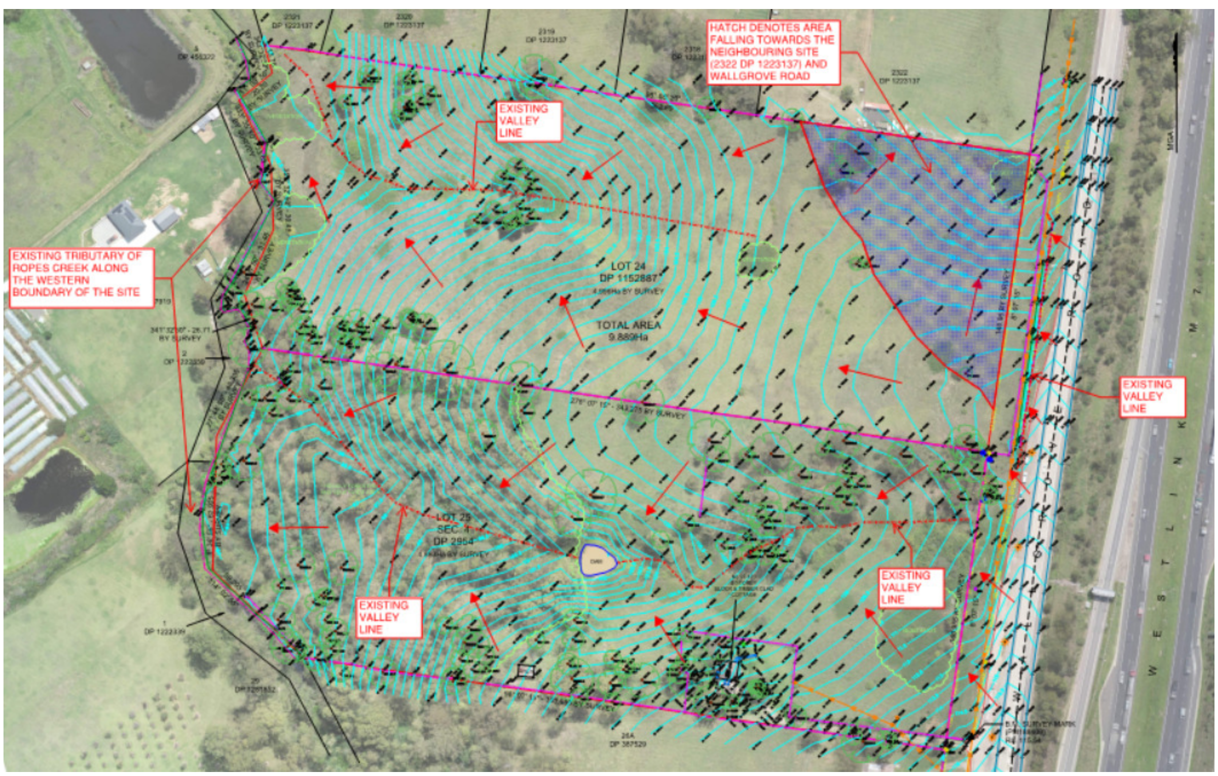


Figure 5: Feature Survey by Boxall Surveyors, Annotations by H&H

4.2 Proposed Stormwater System

The proposed stormwater management system responds to the architectural layout and incorporates the natural topography and site constraints to produce a cost-effective layout that meets best industry practices. The proposed stormwater management system has been designed to reduce the overall impact of the development on the existing onsite and surrounding stormwater systems and flow regime.

Onsite Stormwater Detention (OSD) will be provided to control the peak stormwater flows from the site by temporarily detaining stormwater from major storms in two above ground basins which are then discharged to the downstream drainage system (existing tributary of Ropes Creek) at a controlled rate. In accordance with Fairfield City Council's Stormwater Management Policy 2017, OSD will be provided to control stormwater runoff from the subject development site such that, maximum (Permissible Site Discharge) PSD of 78L/s/ha for the 5, 15, 30, 60, 180, 360 and 540-minute duration storms for the 5 to 100 year ARIs for the developed site is not exceeded. The proposed OSD system for the subject development comprises two above ground basins which are detailed in the civil engineering drawings in Appendix A.

In Stage One (Subdivision Stage), stormwater runoff from the prepared pad sites of Lot 1 and Lot 2 is proposed to be diverted to temporary sediment basins within the sites via catch drains, and later drain to the OSD basins which ultimately discharge to the existing tributary of Ropes Creek to the west of the site. The OSD basins are proposed to be constructed as permanent basins which cater for the future Stage Two development (Lot Development Stage). Also, the portion of the site that drains towards the neighbouring site under the pre-development scenario is proposed to be developed into sealed access road, and has been designed to drain towards the tributary of Ropes Creek at the back of the site so as not to adversely impact on the neighbouring property. Refer to the civil engineering drawings in Appendix A for details and locations of the proposed temporary basins and catch drains.

In Stage Two (Lot Development Stage), the stormwater management system for the future development is intended to collect all concentrated flows from future impervious areas such as roofs, car parks, loading areas and driveways as well as stormwater runoff generated by pervious areas such as landscaping. The design of the stormwater system for Stage Two is subject to separate Development Applications for each individual lot, however, the downstream infrastructure delivered as part of Stage One has been appropriately design (layout and sizing etc.) for the masterplan layout based on indicative lot layouts reflective of the current development standard.

The site stormwater drainage system and the proposed OSD system have been designed based on two main sub-catchment areas which are designed to be generally consistent with the existing catchments and maintain existing downstream drainage depressions which are vegetated. The western catchment area including future warehouse WH1 and the associated pavement and landscaped areas is in the order of approximately 2.0079ha. The eastern catchment area in the order of approximately 4.5556ha includes future warehouse WH2 and the associated pavement and landscaped areas. OSD basins have been designed such that the overall site discharge from the site as a whole is in accordance with the PSD requirements from Fairfield City Council. Refer to Figure 6 below for details of the prepared stormwater catchment plan.

Furthermore, flood modelling described in Chapter 6 in this report has been undertaken by Catchment Simulations Solutions (CSS) to assess the impact of minor variations to the existing predeveloped catchments i.e. existing portion of land previously draining north which is proposed to be directed to the west (same overall catchment being the Ropes Creek Tributary).

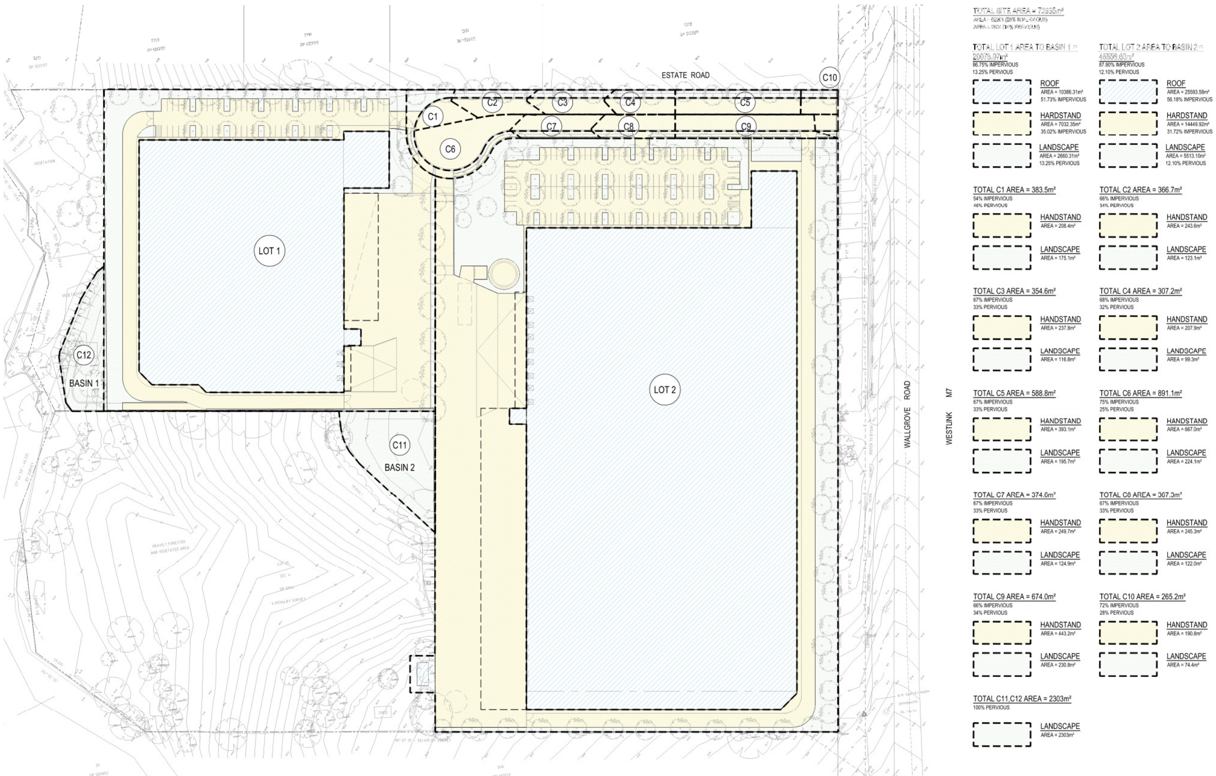


Figure 6: Stormwater Catchment Plan, H&H 2025 (drawing no. 230804_DA_C250)

Figure 7 below shows the proposed locations of the two OSD basins. Basin 1 (760m^3) which has been designed to cater for the western catchment area and the site area of warehouse WH1 is located to the west of the future warehouse building of WH1. Basin 2 (1988m^3) which has been designed for the eastern catchment area and the site area of future warehouse WH2 is located to the west of the WH2 Hardstand. Both basins are to be constructed from earthen batters, and where required, retaining structures. Details and specifications of the proposed OSD system can be found in the civil engineering drawings, Appendix A. It should be noted that due to the constraints in levels, flooding and adjacent creek Basin 1 has limited volume capacity. Basin 2 was increased in volume to compensate for the Basin 1 with the overall PSD for the development within Council's requirements.

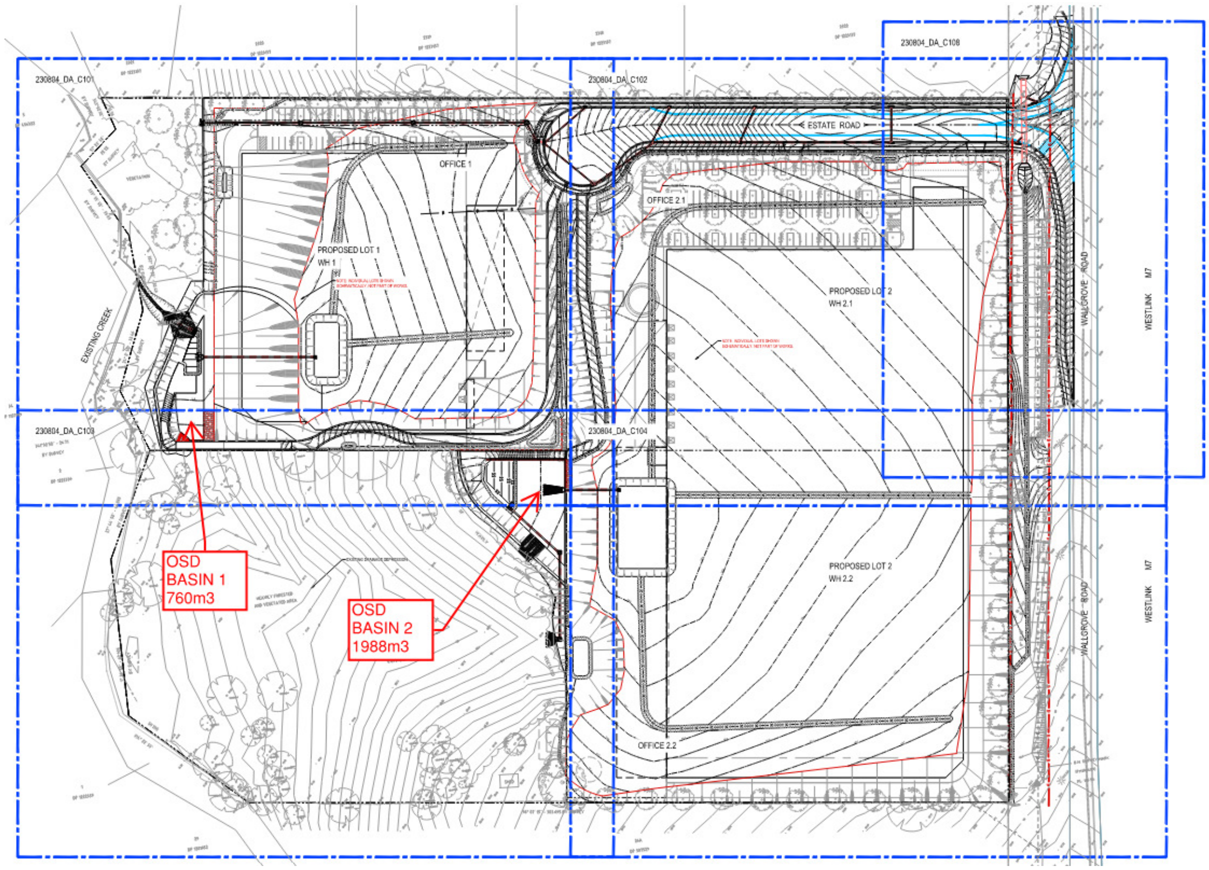


Figure 7: Civil Engineering Site Plan, H&H 2025

DRAINS modelling software and analysis methods recommended by 2019 edition of Australian Rainfall and Runoff were used to ensure that Council's PSD requirements are met by the attenuation of run-off flows provided by the proposed OSD basins. Table 1 below summarises the site discharge flow rates in the 20-year and 100-year ARI storm events.

ARI	Western catchment discharge flow rate (OSD Basin 1) (L/s)	PSD – Western catchment (L/s)	Eastern catchment discharge flow rate (OSD Basin 2) (L/s)	PSD – Eastern catchment (L/s)	**Total discharge flow rate (L/s)**	**Total PSD (both catchments) (L/s)**
20	196	156.6	284	355.3	**480**	**511.9**
100	195	156.6	316	355.3	**511**	**511.9**

Table 1: Site discharge flow rates for OSD sizing

By providing the OSD system, and from review of Table 1 above summarising the discharge flow rates, it is evident that the PSD requirements have been met to the satisfaction of Fairfield City Council's Stormwater Management Policy 2017.

The DRAINS file submitted for assessment is detailed below:

- 230804_Site drainage [03]

The OSD basin outlets have been designed to be coordinated with the existing site topography. Basin outlets are proposed to be installed with rip rap scour protection. The outlet of OSD basin 1 is proposed to discharge to the existing watercourse along the western site boundary which is a tributary of Ropes Creek via a proposed rip rap lined drainage channel. The eastern catchment (i.e. outlet of OSD basin 2) has been oriented to maintain environmental flow in existing drainage depression (natural valley line) within the undeveloped area which ultimately discharges to the same watercourse. The flood model has been developed to incorporate the sizes and locations of the stormwater basin outlets to ensure the discharge locations do not adversely impact the existing flow regime. Refer to Chapter 6 for further details. The 20-year ARI and 100-year ARI flood levels at the locations in the proximity of the discharge locations of the OSD basins have been adopted as the tailwater levels in the DRAINS model.

4.3 Stormwater Quality

It should be noted that the subject development site is located within the Rural Zone as denoted by Figure 8 – Stormwater Management Zones of Fairfield City Council's Stormwater Management Policy 2017. As stated by the policy, stormwater quality improvement is not required within the Rural Zone. However, given the nature of the proposed development which is classified as industrial and involves the development of an existing green field site into impervious areas such as pavement and roofs, stormwater quality treatment is proposed for the development.

Pollution and contamination dislodged or inherent to and in stormwater and stormwater run-off from urban developments have the potential to damage the ecology and health of local creeks and waterways. As such stormwater quality improvement devices (SQIDs) that aim to minimise pollution during construction and operation of the development have been incorporated into the overall stormwater management design. These devices have been sized, specified and designed in accordance with Fairfield City Council's Stormwater Management Policy 2017.

The performance of the stormwater quality improvement devices (SQIDs) in mitigating pollution from urban development can be assessed by simulating a post developed pollutant reduction rate for the stormwater system. In accordance with Fairfield City Council's Stormwater Management Policy 2017 the development must achieve a minimum percentage reduction of the post developed average annual loads of pollutants in accordance with the Table 2 below:

Pollutant	**% Post development pollutant reduction targets**
Gross Pollutants (GP)	90
Total Suspended Solids (TSS)	80
Total Phosphorous (TP)	55
Total Nitrogen (TN)	40

Table 2: Post development pollutant reduction targets – Fairfield City Council

To better determine the conceptual design of the water quality treatment trains and to ensure the treatment trains satisfy the reduction parameters outlined in Table 1, a Model for Urban Stormwater Improvement Conceptualisation (MUSIC) was developed.

The MUSIC model was set up with the rainfall station, time period data, evapotranspiration data, source node data, treatment node data and run-off parameters provided in Council's Policies.

SQIDs proposed for the development site are provided in a treatment train which consists of bio-retention basins and primary screening (Gross Pollutant Traps (GPTs) or pit baskets). The proposed bio-retention basins are in the form of combined OSD/Bio-retention basin which is incorporated in the two proposed OSD basins discussed in Section 4.2 of this report. The two bio-retention basins and the retaining walls required around the perimeter of the basins are proposed to be delivered as part of the OSD basin constructions in Stage One (Subdivision Stage), so that the combined OSD/Bio-retention basins are online servicing lot 1 and lot 2 from Stage One onwards. The Primary treatment are to be installed within the new stormwater pits as part of the Stage Two (Lot Development Stage) works. Pit baskets have been utilised in the MUSIC modelling however, the pit baskets can be substituted by Gross Pollutant Traps (GPTs) subject to future design of the individual lots.

Areas not draining to the proposed water management basin, such as the access road reserve, will be treated for gross pollutants, suspended solids and hydrocarbons by a Gross Pollutant Trap (GPTs). The GPT which do not drain to the bioretention filter media will be fitted with an oil battle to remove hydrocarbons within the stormwater run-off generated by developed site areas. Due to the intention to dedicate the Estate Road to Council, it is understood a GPT is preferable to other treatment methods due its compliance with Councils pre-existing maintenance methodology. Under the Subdivision Stage scenario, sediments are prevented from entering the bio-retention basins by the provision of several sedimentation basins provided for the prepared pads.

A schematic of the MUSIC model can be viewed below in Figure 9. The schematic illustrates the interrelationship between source nodes (catchments) and treatment nodes (water quality treatment measures) for the catchment. The resultant reduction in post developed pollutants calculated by the simulation is presented in Table 3 below. With the implementation of the following stormwater quality improvement (SQIDs) devices, the resultant post developed pollutant loads have been reduced below the reduction target for all targeted pollutants. Detailed drawings and specifications of the proposed SQIDs can be found on the civil engineering drawings included in Appendix A.

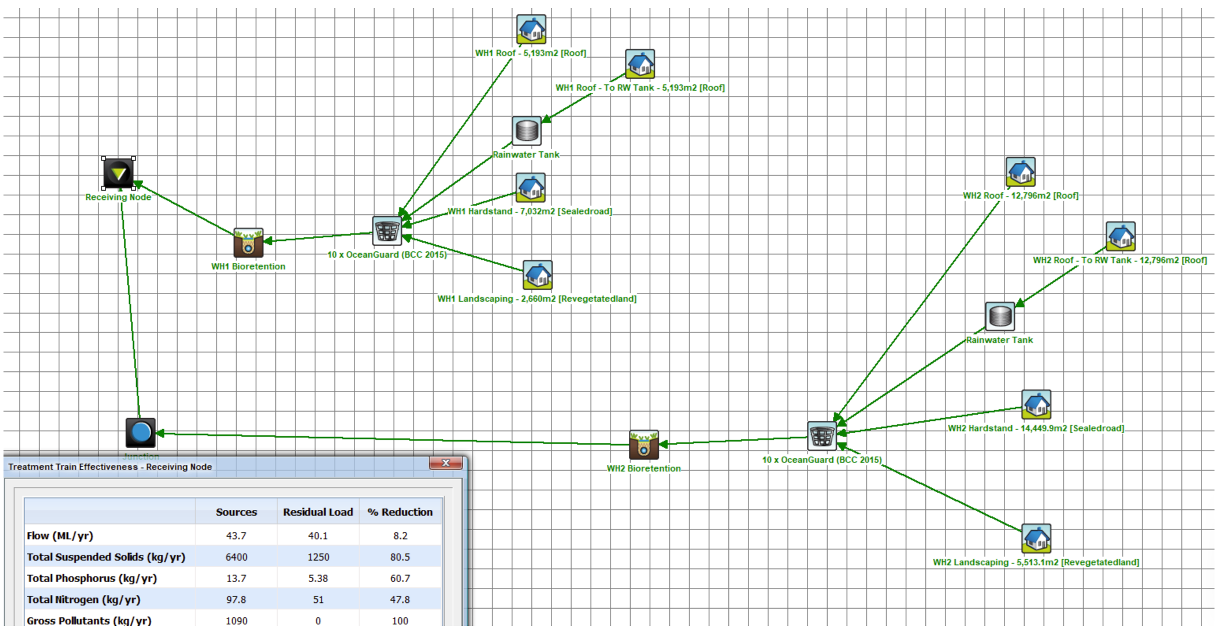


Figure 9: MUSIC modelling results

Pollutant	**% Post development pollutant reduction targets**	**Achieved % Post development pollutant reduction targets**
Gross Pollutants (GP)	90	100
Total Suspended Solids (TSS)	80	80.5
Total Phosphorous (TP)	55	60.7
Total Nitrogen (TN)	40	47.8

Table 3: Summary of Pollutant Reduction Targets Achieved

The following MUSIC model prepared for the proposed development site is detailed below:

- 230804_MUSIC MODEL[03].sqz

4.4 Stormwater Quality Improvement Devices (SQIDs)

Primary Treatment - Pit Baskets and Gross Pollutant Traps

As part of an effective treatment train for the site system, selected areas of the development or targeted removal zones (TRZs), will be pre-treated via passive screening pit baskets. To form a site-wide primary treatment system the TRZ for the development encompasses all external areas not beneath roofs and exposed to surface run-off. Target zones, mostly comprising of highly trafficked and hardstand areas that have suitable hydraulics to drain through the basket, are subject to higher instances of pollution and litter and stand most to benefit from effective pre-treatment and have been modelled in MUSIC.

The pit basket proposed to be used is the “200-micron mesh Oceanguard” pit basket filter by Ocean Protect. Due to the preliminary nature of the analysis a nominal 10-15 pit baskets are proposed for each lot to provide effective pre-treatment for the modelling. It is understood this nominal quantity is subject to the layout and design of each development stage. The pit baskets can be substituted by GPTs subject to future design of the individual lots. A typical pit basket filter is shown in Figure 10 below.

Primary treatment in the form a GPT is proposed to be provided for the Estate Road. The recommended GPT is the Rocla CDS Unit 0708. The GPT is to assist in the water quality treatment for the main access road by capturing gross pollutant, litter, grit, sediment and associated soils.

The Rocla CDS is a Gross Pollutant Trap designed to capture and retain gross pollutants, litter, grit, sediments and associated oils, utilizing indirect screening technology. A typical Rocla CDS GPT is shown in Figure 11 below.

Secondary treatment – Bioretention Filter Basin

To meet the water quality requirements, and to successfully implement a treatment train approach, a bioretention basin is located at the end of the major stormwater drainage lines for each lot. Bioretention systems are commonly used in Sydney to meet stormwater quality targets and are often preferred due to cost and integration with surrounding landscape. Bioretention systems are vegetated soil media filters, which treat stormwater by allowing it to pond on the vegetated surface, then slowly infiltrate through the soil media. Treated water is captured at the base of the system and discharged via outlet pipes. A typical cross-section of a bioretention system is shown in Figure 12. The natural media filtration targets the removal of gross pollutants, suspended solids, targeted nutrients and hydrocarbons within the stormwater run-off generated by the developed site areas and is proposed to be used in this development.

The bioretention basins are proposed to include a partially permanently saturated transition zone to increase the longevity and establishment of biofilm, in addition to ensuring adequate water sources for planted macrophilic plant species.

Proposed bioretention basins are specified and modelled with appropriate depth of filter media, transition and drainage layers as outlined in typical bioretention filter detail in Fairfield City Council’s WSUD Stormwater Management Policy 2017.

The bioretention filter area required for each basin (lot) is listed below in Table 3.

	Bioretention filter surface (m^2)
Basin 1 (Lot 1)	70
Basin 2 (Lot 2)	180

Table 3: Summary of Bioretention filter surface area per basin

The maintenance of the SQIDS is important to ensure the effective removal of pollutants throughout the life of the asset. As such, a maintenance schedule will be required to be detailed at the Construction Certificate stage.

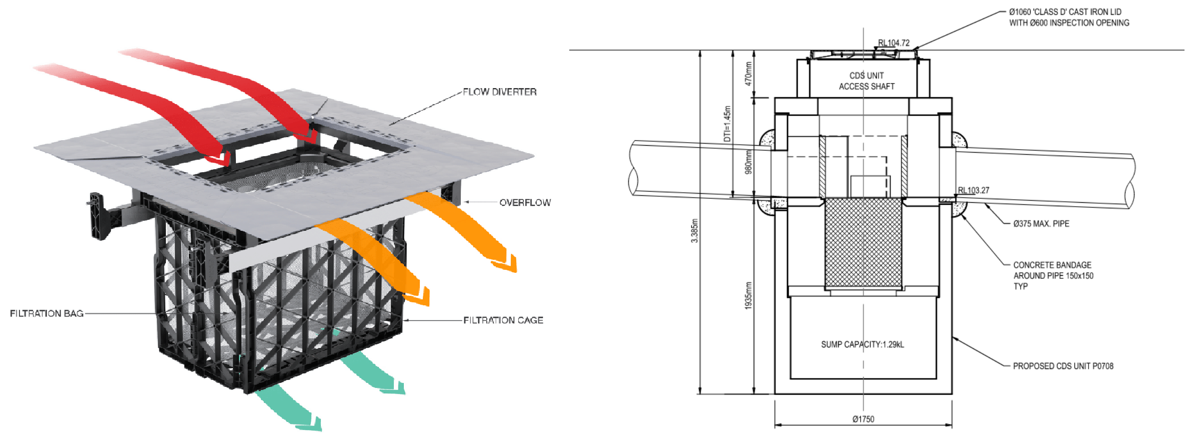


Figure 10 and 11: OceanGaurd pit basket filter (Ocean Protect) (left), Rocla CDS Unit 0708 GPT filter (Rocla) (right)

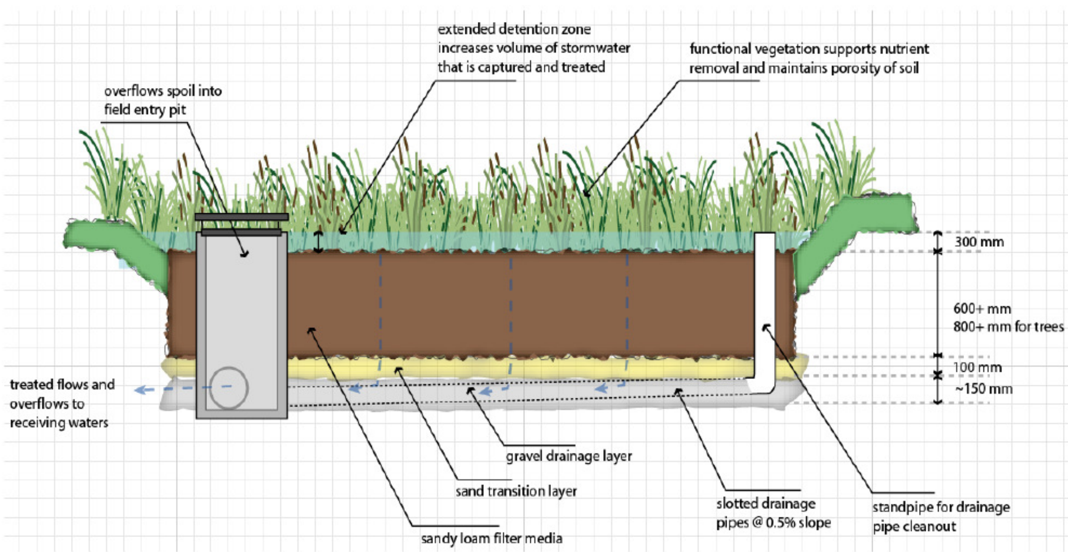


Figure 12: Bioretention filter cross section (Water by Design, 2009)

4.5 Water Conservation

Given the scale of the development lots, the nature of their use and the unknown arrangement of each lot (subject to individual Development Application), an industry standard water conservation strategy for industrial/commercial developments is proposed to meet a minimum of 80% of the non-potable water demand on site through rainwater. Water demand must allow for internal rainwater reuse at the rate of 0.1 KL/day per toilet/urinal and external landscape watering (excluding turf areas) at rate of 0.4 kL/year/m^2 as PET-Rain.

As water reuse will likely form part of any effective water quality treatment train for the proposed development, rainwater tanks that harvest and store rainwater for have been included in the water quality modelling for the site. Using MUSIC water quality modelling software, a rainwater tank size that satisfies 80% of the non-potable water demand of the development was estimated. Several assumptions are to be made when sizing the rainwater tanks. These assumptions are fundamental for determining the water demand of each rainwater tank, and thus the storage volume. These assumptions include;

- 50 - 75% of the roof area of a specific roof catchment will drain to the rainwater tank;
- 75 - 100% of landscaped area within the development area (i.e. Lot 1 and Lot 2 site areas) will be drip irrigated using harvested water. Remaining landscaped areas that are undisturbed by the development throughout the site are assumed to not require irrigation;
- All toilets/urinals within the future development lots are proposed to operate with harvested water;
- Rainwater reuse is to be in accordance with the intent of Council's policies.

Water quality MUSIC modelling was performed in accordance with the MUSIC modelling guidelines and the above assumptions listed above. The MUSIC modelling established that a rainwater storage volume of 150kL is required for Lot 1 and 60kL for Lot 2. The rainwater tanks satisfy approximately 80% of non-potable demand for the subject site.

It should be noted that the individual rainwater tank volumes can be increased/ decreased based on the catchment draining to the tank and the final configuration of the development lot.

5. Sediment and Erosion Controls

During construction, appropriate sediment and erosion control measures need to be implemented to ensure that downstream receiving waters are not adversely impacted as a result of construction activities. The engineering drawings 230804_SSDA_SE01-SE02 (Appendix A) by Henry & Hymas outline appropriately designed and detailed measures to mitigate against this risk. These measures have been designed in accordance with the requirements of the publication "Landcom – Managing Urban Stormwater - Soils and Construction, Volume 1, 4th Edition March 2004" and Fairfield City Council requirements. These measures include temporary sediment basins, catch drains, sediment fences, stabilised site access, haybale filters, and mesh and gravel inlet filters.

6. Flooding

As previously noted, the site is located adjacent to a tributary to Rope Creek which lies to the north of the development. The subject site is identified at risk of flooding as identified in the 'Rural Area Flood Study Ropes, Reedy & Eastern Creeks' flood study prepared by BMT dated November 2013. Flood mapping indicating the subject site and the 1% Annual Exceedance Probability (AEP) flood event flood extent, depth and level is shown below in Figure 13. Figure 13 indicates portions of the site are subject to flooding although it is evident that floodwaters are generally confined to the existing tributary and corresponding contributing drainage depressions. It is recognised that a Flood Impact Assessment is required for the development to ensure the proposed development has adequate immunity to flooding and to assess the developments impact on local flood behavior, if any.

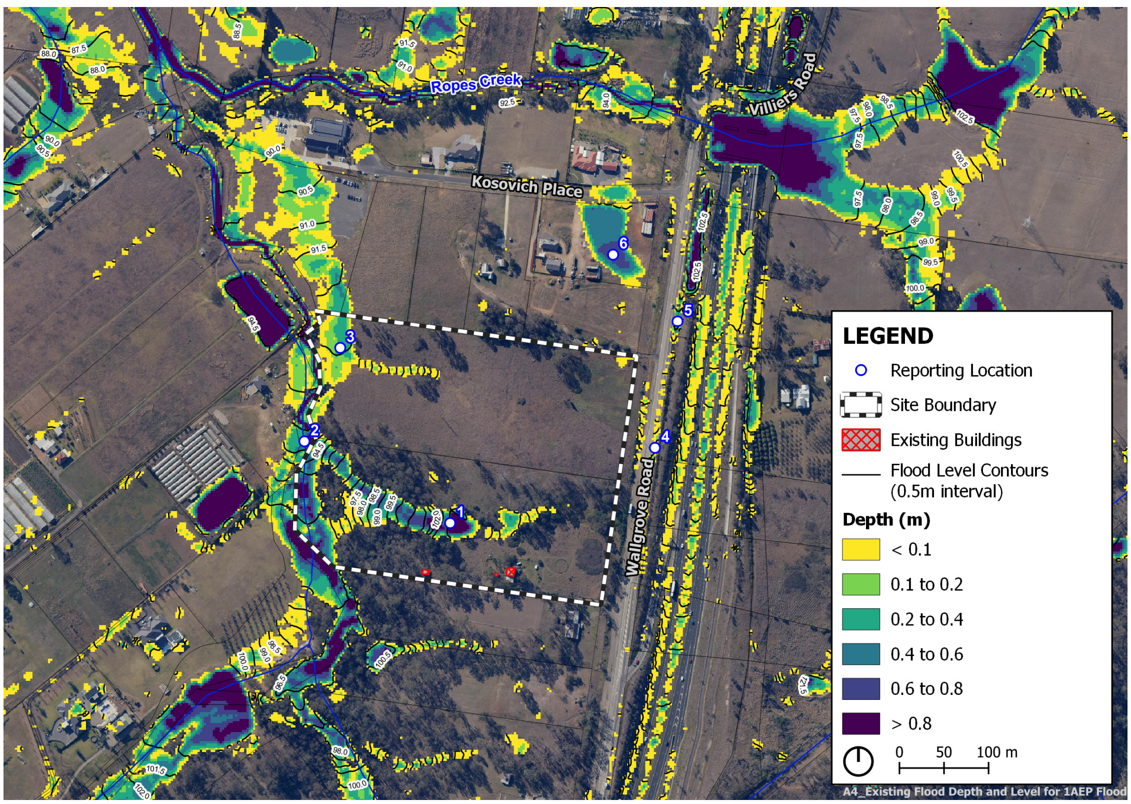


Figure 13: Existing Flood Depth and Level - 1% AEP

Specialist flood engineers, Catchment Simulations Solutions (CSS), were engaged to undertake a detailed Flood Impact Assessment for the development. CSS were specifically engaged to undertake the assessment due to their understanding of the Ropes Creek Catchment and their ongoing involvement with Council as a preferred flood expert. It is understood that CSS has entered into a development agreement with Council and as such will provide a copy of the flood extent/depth and hazard mapping as well as 'difference' mapping which shows the development's impact of existing flood behavior (if relevant) directly to Council. It is also understood a copy of the Hydraulic Model will be provided to Council's engineers to assess the configuration and parameters of the model. A detailed summary of the flood mapping produced by CSS is presented below including information about the model, its configuration, and key results.

A discussion of the flood mapping produced by CSS is also provided below.

The modelling program TUFLOW was utilised to develop a hydraulic model that simulates existing flood conditions and the impact the development will have on existing flood behavior. The assessment has included detailed modelling of the local reaches of the local floodplain to establish existing design flood conditions. The establishment of design flood conditions largely serves two objectives:

- Ensuring appropriate development design to achieve desired flood immunity standard; and
- Establishing baseline conditions for the quantification of potential impacts due to changes to the existing flooding regimes and to assess the potential impact of the proposed development.

<u>Flood Hazard (literature review)</u>

The Flood Hazard Guideline 7-3 of the Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR, 2017) represents the current industry best practice with regards to defining flood hazard. The guideline considers a holistic approach to consider flood hazards to people, vehicles and structures. The flood hazard level is determined on the basis of the predicted flood depth and velocity. This is conveniently done through the analysis of flood model results. A high flood depth will cause a hazardous situation while a low depth may only cause an inconvenience. High flood velocities are dangerous and may cause structural damage while low velocities generally have no major threat. The Flood hazard is expressed as the product of flood velocity and depth or Flood Velocity x Depth product.

<u>TUFLOW Model Configuration</u>

The hydraulic model for the development utilised Fairfield City Council's Rope Creeks TUFLOW model and builds upon the updated "existing conditions" flood information that was provided by Council's Drainage Engineers.

The post-development modelling included the following updates to the existing condition modelling:

- Inclusion of the design terrain model (refer engineering drawings for proposed levels). The design terrain model relates to the masterplan scenario i.e. completed individual lots.
- Inclusion of the proposed stormwater pit and pipe system. This included the on-site stormwater system that drains the impervious sections of the site into Ropes Creek, as well as the box culvert that drains a roadside swale beneath the proposed driveway crossover.
- Inclusion of proposed buildings as flow obstructions.
- Updates to hydraulic roughness and imperviousness to reflect the new hardstand areas.

The updated model was then used to re-simulate the design 5% AEP and 1% AEP floods along with the Probable Maximum Flood (PMF) for post-development conditions.

<u>TUFLOW Modelling Results</u>

Flood mapping indicating flood level/depth/extent, flood velocity and 'Velocity x Depth product' mapping for the proposed 1% AEP flood event is shown in Figure 14 to 16 below. 'Difference mapping', indicating the difference between flood level/depth/extent, flood velocity and 'Velocity x Depth' between the existing and proposed scenarios in the 1% AEP flood event is shown in Figure 17, 18 and 19 below. Additional flood extent/depth mapping and 'Velocity x Depth product' mapping for the 5% AEP flood event and Probable Maximum Flood (PMF) event is included in Appendix E of this report. Full scale mapping for the 1% AEP scenario (Figures 14 -16) is also included in Appendix E of this report. Tables 4 - 7 which show flood data and key reporting locations are shown below. The key reporting locations are also shown below in Figures 14 – 19.

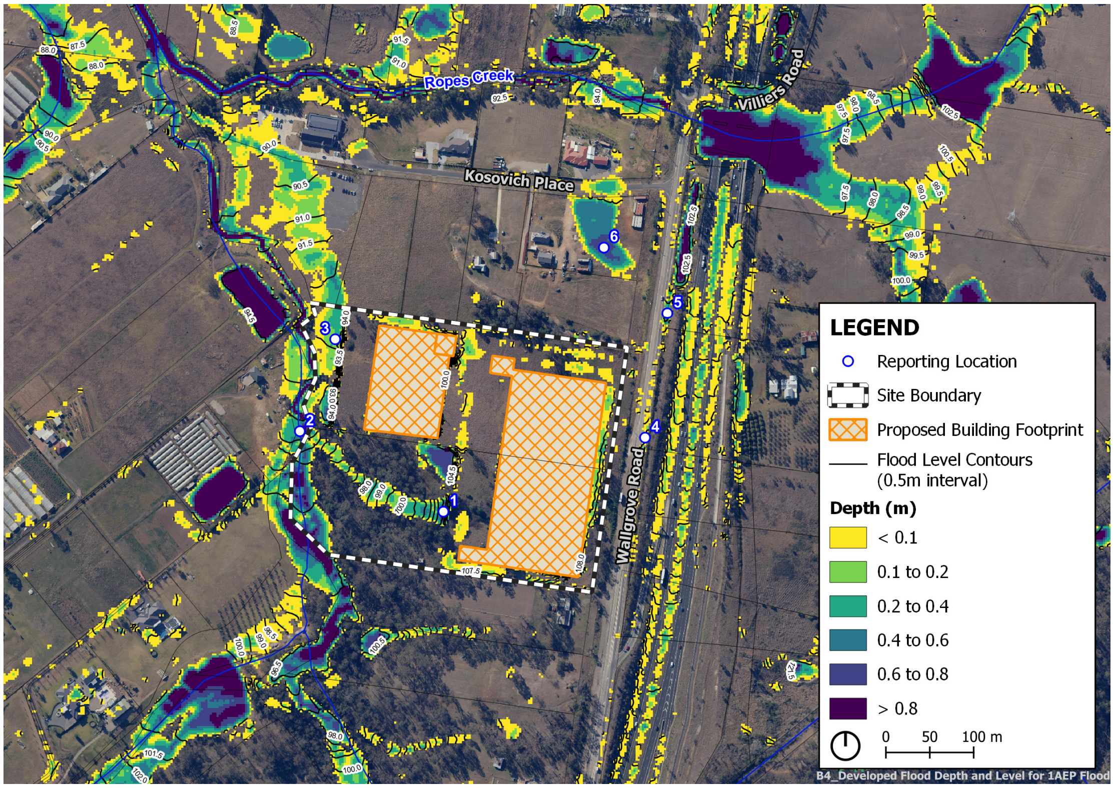


Figure 14: Developed Flood Depth and Level - 1% AEP

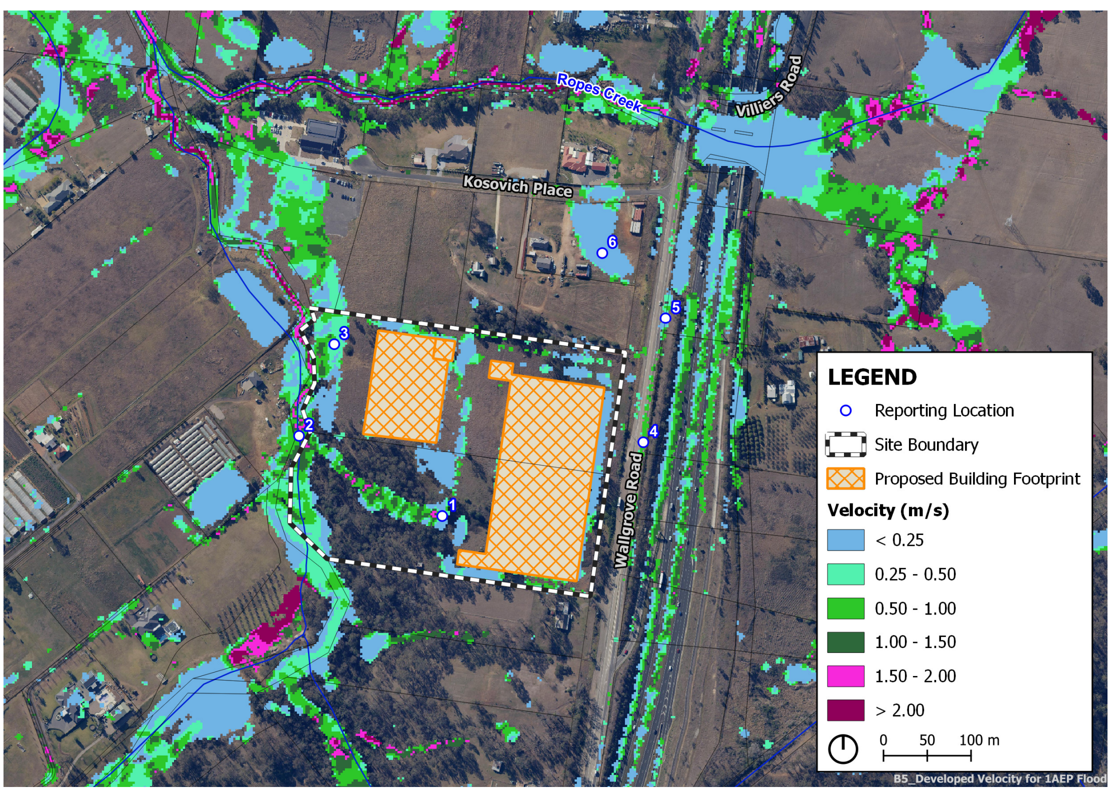


Figure 15: Developed Velocity - 1% AEP

henry&hymas

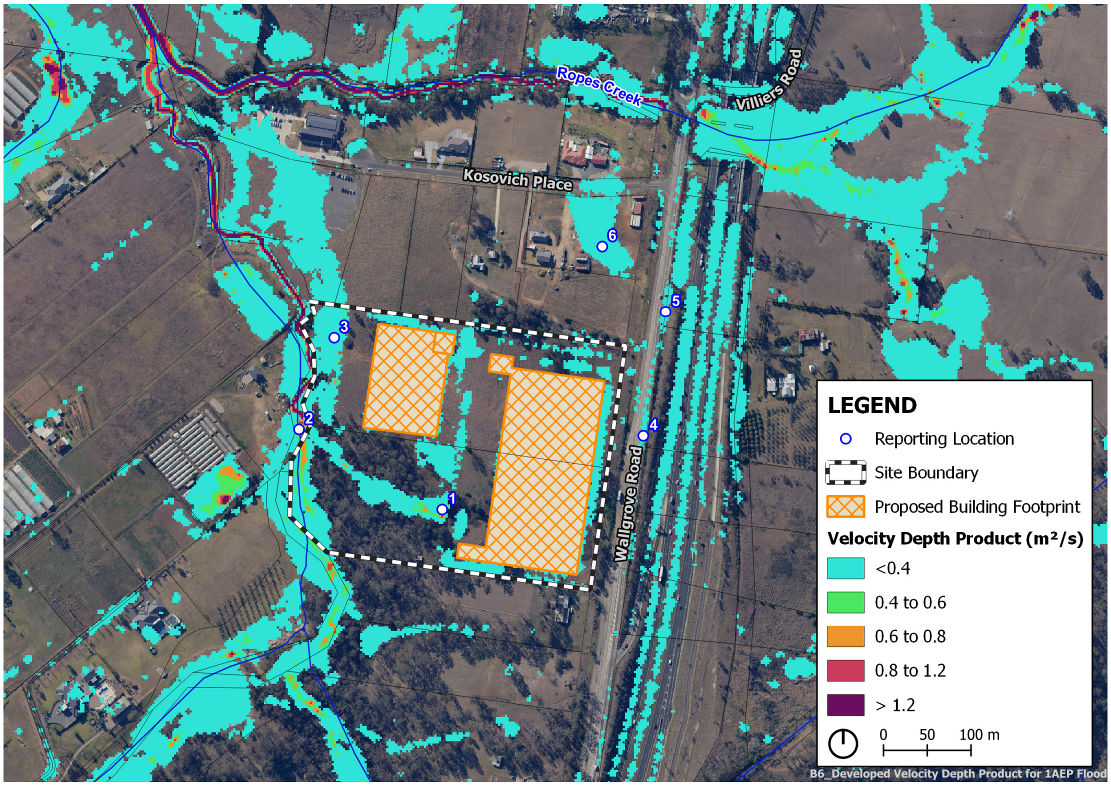


Figure 16: Developed Velocity x Depth Product - 1% AEP

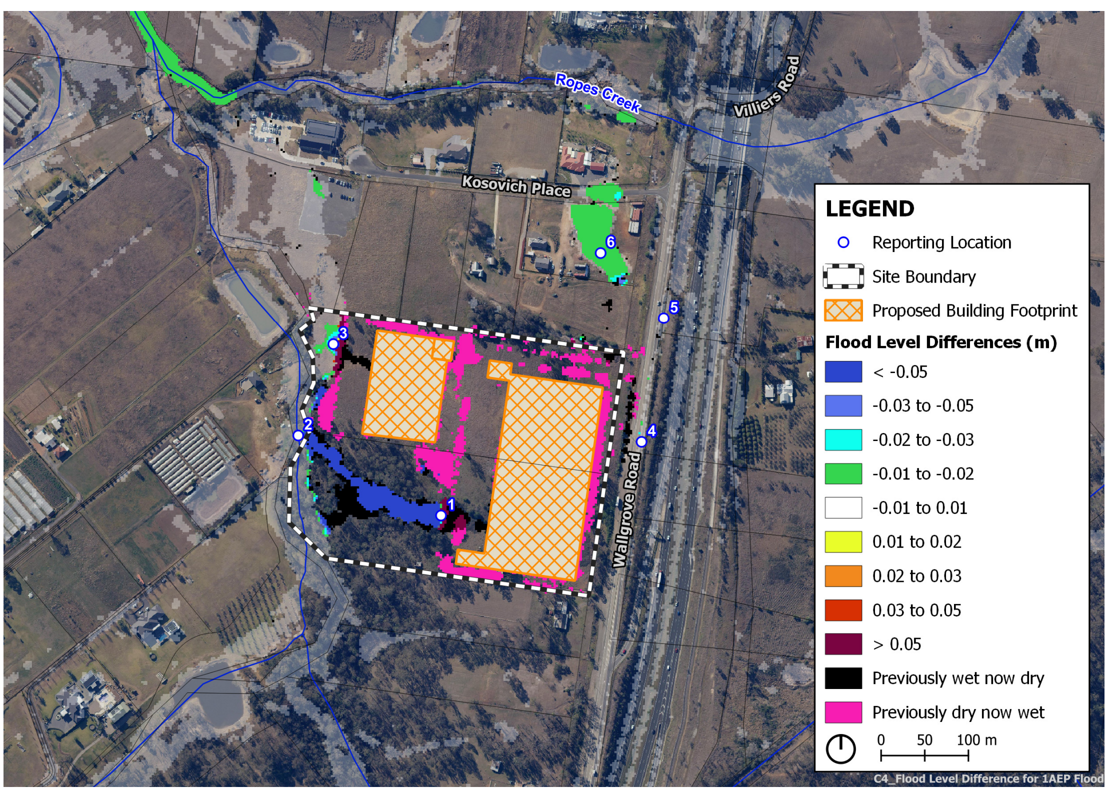


Figure 17: Flood Level Difference - 1% AEP

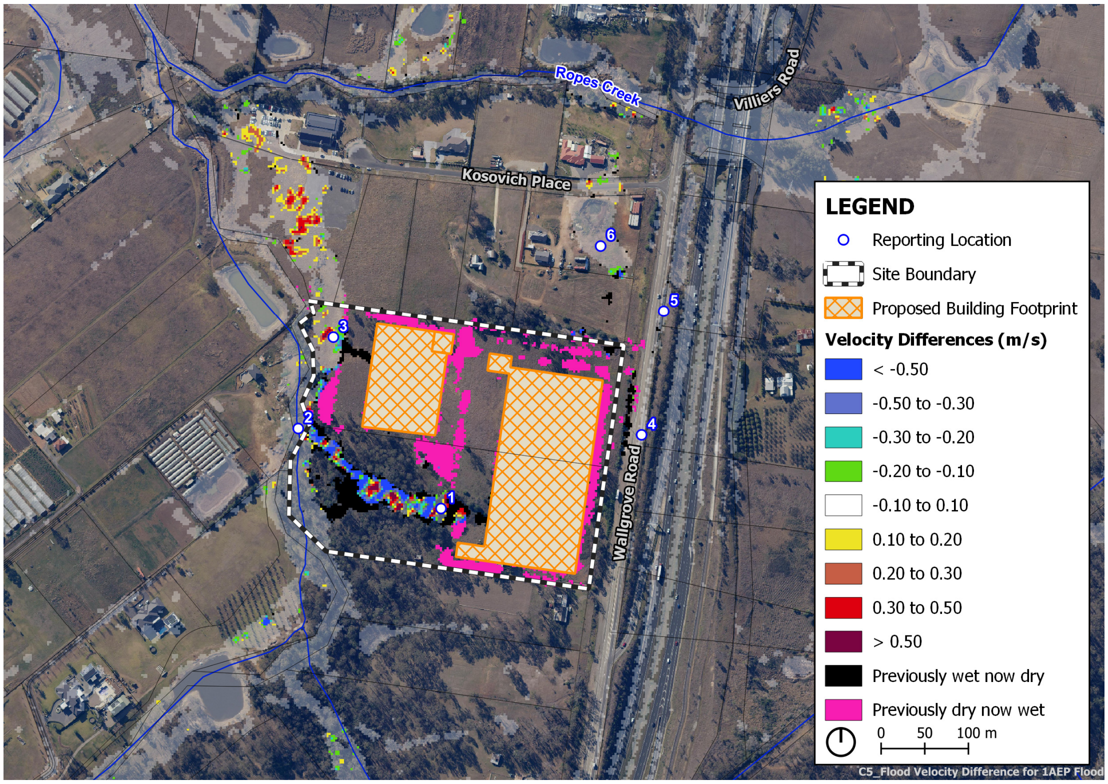


Figure 18: Flood Velocity Difference - 1% AEP

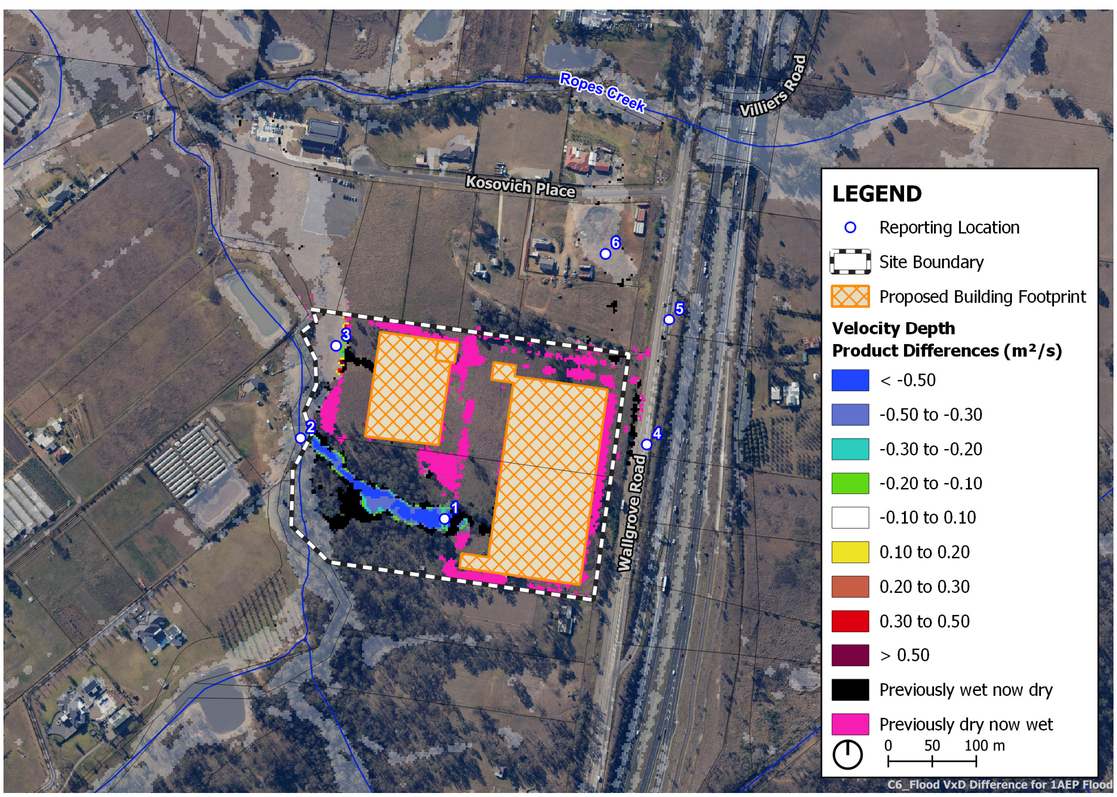


Figure 19: Flood Velocity x Depth Product Difference - 1% AEP

Reporting Location	Depth (m) 1% AEP		5% AEP		PMF	
	Existing	Developed	Existing	Developed	Existing	Developed
1	1.45	1.69	1.45	1.69	1.33	1.45
2	0.90	0.90	0.82	0.82	1.61	1.60
3	0.22	0.17	0.19	0.06	1.02	0.99
4	0.11	0.11	0.10	0.10	0.16	0.16
5	0.67	0.67	0.66	0.66	0.72	0.72
6	0.64	0.63	0.63	0.61	0.85	0.87

Table 4: Flood Depths Comparison Table

Reporting Location	Level (m) 1% AEP			5% AEP			PMF		
	Existing	Developed	Differences	Existing	Developed	Differences	Existing	Developed	Differences
1	103.09	103.08	-0.01	103.09	103.08	-0.01	102.96	102.83	-0.13
2	93.82	93.81	0.00	93.74	93.74	0.00	94.53	94.51	-0.02
3	92.46	92.41	-0.05	92.43	92.30	-0.13	93.26	93.23	-0.03
4	110.08	110.08	0.00	110.08	110.07	0.00	110.13	110.13	0.00
5	104.23	104.23	0.00	104.22	104.22	0.00	104.28	104.28	0.00
6	100.03	100.02	-0.01	100.02	100.00	-0.02	100.24	100.26	0.01

Table 5: Flood Levels Comparison Table

Reporting Location	Velocity (m/s) 1% AEP			5% AEP			PMF		
	Existing	Developed	Differences	Existing	Developed	Differences	Existing	Developed	Differences
1	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.35	-0.14
2	0.58	0.58	0.00	0.51	0.51	0.00	1.27	1.28	0.01
3	0.40	0.36	-0.03	0.36	0.09	-0.28	1.01	1.07	0.07
4	0.94	0.93	0.00	0.86	0.86	0.00	1.45	1.45	0.00
5	0.08	0.08	0.00	0.06	0.06	0.00	0.20	0.20	0.00
6	0.02	0.02	-0.01	0.02	0.01	-0.01	0.15	0.12	-0.03

Table 6: Flood Velocities Comparison Table

Reporting Location	VxD (m^2/s) 1% AEP			5% AEP			PMF		
	Existing	Developed	Differences	Existing	Developed	Differences	Existing	Developed	Differences
1	1.91	2.29	0.00	1.91	2.29	0.00	1.74	1.91	-0.14
2	0.56	0.51	0.00	0.56	0.43	0.00	2.02	2.02	0.01
3	0.09	0.06	-0.03	0.07	0.01	-0.28	1.03	1.06	0.07
4	0.11	0.11	0.00	0.09	0.09	0.00	0.24	0.24	0.00
5	0.08	0.08	0.00	0.06	0.06	0.00	0.07	0.07	0.00
6	0.03	0.02	-0.01	0.03	0.01	-0.01	0.06	0.08	-0.03

Table 7: Flood Velocity x Depth Products Comparison Table

Summary of the Modelling Results

Based on the figures and tables above, the impact of the proposed development on the existing flood behaviour and flow regime in the storm events (5% AEP, 1% AEP and PMF) can be summarised as follows.

- Flood depths and levels

Figure 17 and Table 4 and 5 indicates the proposed development will slightly decrease the flood levels within the downstream neighbouring properties and the majority of the subject site area in the order of 0.01m to 0.05m. Although a small portion of the site area in the proximity of 'Location 1' shows slight increase in flood depth, it is located away from the proposed warehouse buildings and sufficient freeboard is achieved. This increase is due to the OSD basin which requires local excavation (depression) in this area. It should be noted at this location the overall flood level is lower than existing i.e. increased depth but lower level due to the location of the proposed basin. In the PMF event a minor increase (10mm) in flood level is noted to the northeast of the development (reporting location 6). However, from review of hazard mapping it is evident the minor increase in flood level does not result in increase in velocity x depth product and does not constitute additional 'hazard'. The peak flood level impacts are generally a reduction in level and limited to within the site boundary with no significant impacts on neighbouring property upstream or downstream of the Site.

- Flood velocities

Figure 18 and Table 6 indicates the velocity of the floodwaters within and outside the subject site will either remain unchanged or decrease as a result of the proposed development, with the exception of the area to the northwest of the site in the 1% AEP storm event. The minor and localised increase in flood velocity is understood to be contributed by the instability of the flood model which does not reflect the true flood behaviour. All other velocity changes correspond to local changes in the flow distribution and have no broader impacts to property upstream or downstream of the Site.

- Flood velocity x depth products (Hazard)

Figure 19 and Table 7 indicates there is no change of the flood velocity x depth products (i.e. hydraulic hazards) beyond the subject site, which is indicative of that the proposed development will not introduce additional hazard to downstream/neighbouring properties and waterways. All other velocity x depth products changes correspond to local changes in the flow distribution and have no broader impacts to property upstream or downstream of the site nor the proposed development itself.

All Lot's finished levels are above the peak 1% AEP flood level for flooding originating off-site or from Rope Creek Tributary (with a 0.5 m freeboard allowance). The proposed finish levels of the development provide all Lots with flood immunity up to the Extreme Event (PMF). It should be noted, Flood modelling does not include the proposed stormwater system for the future development site. Although flood mapping indicated 'wet' locations within the development pads, these locations will be effective drained via the individual stormwater system and directed to the proposed OSD basins. The three outlet locations have been modelled in the flood model. Resultant flood mapping indicates no offsite increases in flood level, velocity or hazard as a result of the proposed locations for the outlets or corresponding redistribution in pre-developed flows.

Notwithstanding advice from the ecological consultant It is expected that the minor changes to peak flood levels are unlikely to cause a widespread shift from the existing ecological community which is adapted to periodic flooding to another distinct ecological community.

Flood Emergency Management

Major development in the floodplain typically requires consideration of flood emergency management procedures and response. The post-development flood mapping indicates that all of the developments lots remains flood free up to and including the PMF level. Accordingly, risk to life is effectively managed in providing areas of flood free refuge. Flood-free access to or from the development Site is available up to and including the PMF event, The development access road (Estate Road) and intersection with Wallgrove Road provides safe emergency access to minimum 1% AEP flood immunity (up to PMF immunity). Local surrounding road networks (Wallgrove Road) provide safe emergency access to the greater high network (M7).

Notwithstanding the low flood risk for the development area, Site based emergency management plans can be developed to incorporate flood warning and emergency response opportunities. This may be simply to include flooding considerations in the development of individual business/occupant emergency management plans that address other site risks such as fire etc. The management action may be as simple as acknowledgement of the access route to the greater highway network. Other flood monitoring/warning actions can be linked to existing services from BoM and SES. Given the low flood risk of the broader estate, there is no requirement for any estate specific flood warning system or response plan.

Flooding Conclusion

The key outcomes of flood assessment with consideration of the suitability of the proposed development with respect to flooding constraints are summarised below:

- Flood Planning Levels – the flood planning level (FPL) is derived from the peak 1% AEP flood level from local catchment flooding, plus a 0.5 m freeboard allowance. This provides the minimum habitable floor levels for the proposed development. The proposed finish levels of the development provide all lots with flood immunity up to the PMF Event (i.e. no inundation).
- Flood Impacts – the flood impact assessment has indicated localised changes to peak flood level and velocity distributions as a result of the encroachment of the proposed development landform into the existing flood inundation extent. Impacts are typically confined to within the Site boundaries with no significant impacts on adjacent and upstream/downstream property.
- Flood Risk Management – all of the proposed development lots are located outside of the PMF extent. The development access road provides a minimum 1% AEP flood immunity (up to PMF immunity).

Additional Flooding Information – April 2025.

- In response to agency comments the concept layout was amended with changes predominately relating to the internal lot layout of Lot 1 as well as minor changes to Lot 2 layouts (refer architectural package for further commentary). The external facing earthen batter of the Stormwater detention basin (Basin 1 and Basin 2) have had no significant changes in the updated civil design and are consistent with the previously documented (and modelled) design.
- Henry & Hymas provided a design surface (digital terrain model) for analysis in the flood modelling detailed earlier in this chapter (Chapter 6).
- Henry & Hymas have undertaken a review of the previous civil design Feb 2024 and confirm the development extent at the proposed flood interface remains unchanged and is consistent with the previously modelled interface. The future retaining wall associated with the future development of Lot 1 as well as earthen batters to Basin 1 do not extend further into the neighbouring floodplain and do not alter the currently understood/established and simulated flood conveyance capacity (floodway), flood storage or flood fringe. A comparison is provided in Table 8 below which shows the extent of works between the previous civil design and the updated civil design included in Appendix A of this report.
- Henry & Hymas confirm that the design surface (digital terrain model) associated with the currently proposed civil design in Appendix A does not result in an increase of fill material or a change of works extent within the flood interface/extent when compared to the design surface which formed the basis of the original Tuflow modelling presented above.

Based on the above, Henry & Hymas conclude that the flood modelling associated with the previous submission remains an accurate representation of the development interaction with the local floodplain and is suitable for assessment.

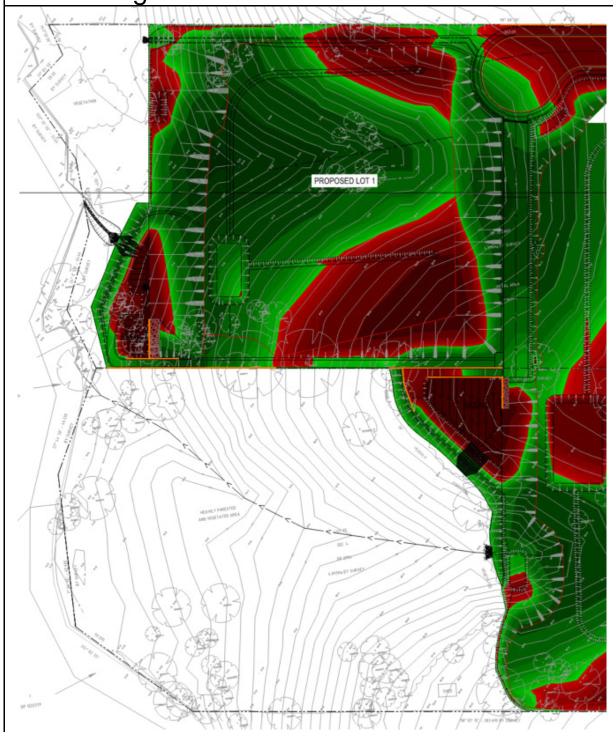
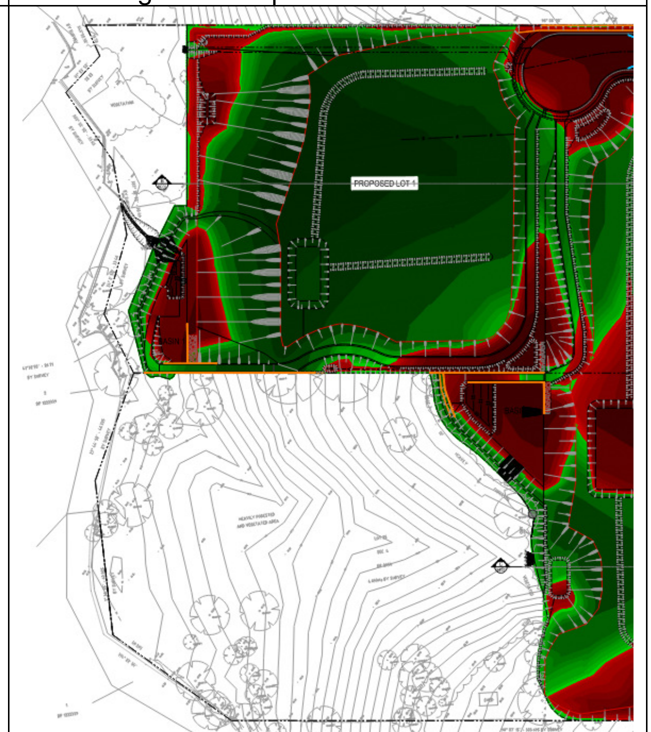
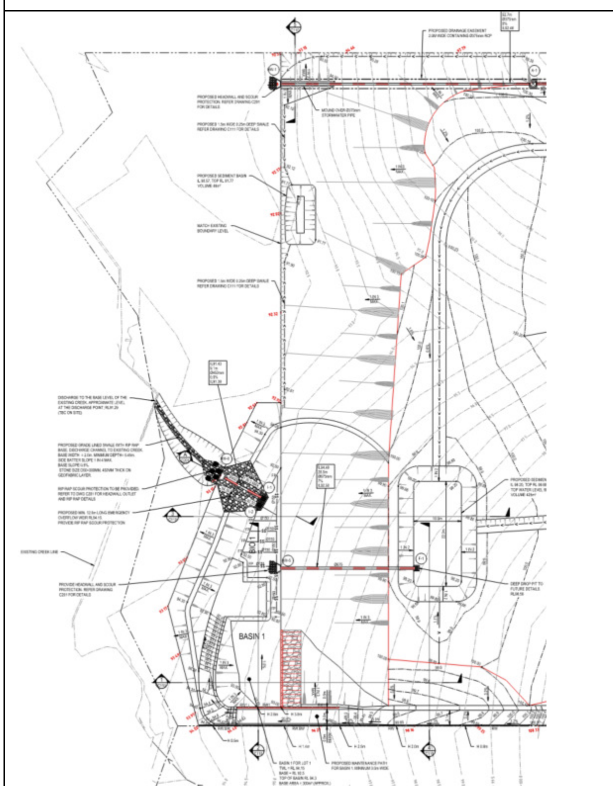
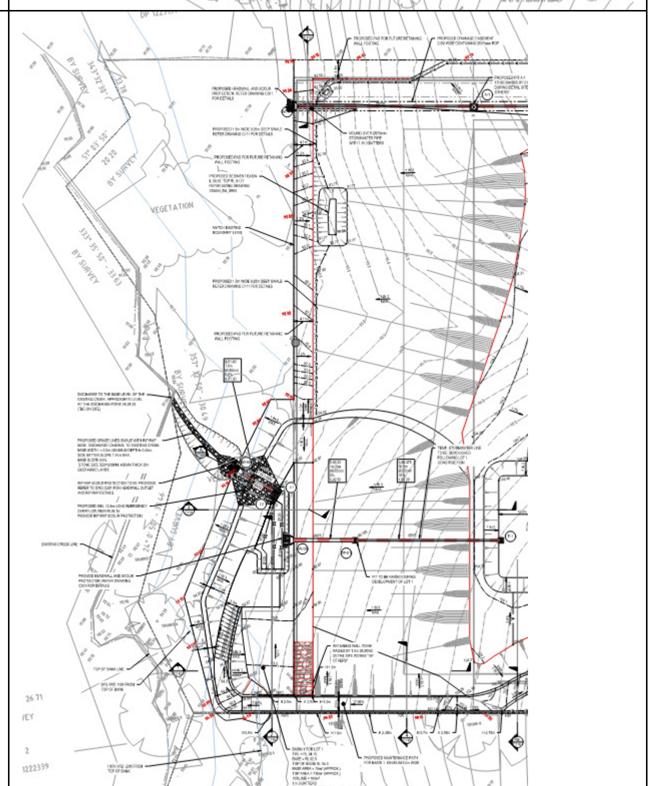
Civil Design dated Feb 2024	Civil Design dated April 2025
	
	

Table 8: Comparison of Civil Design

7. Conclusion

In general, the engineering objectives of civil design and stormwater management elements mentioned above are to create a system that is based on the architectural layout and incorporates the natural topography and site constraints to produce a cost-effective and appropriate drainage system that meets best industry practices and governing water quality and quantity objectives.

Furthermore, agency advice from Water NSW stating that Water NSW has no comments or particular requirements regarding the potential impacts of the proposed development on Water NSW's assets. Water NSW has been further consulted and has advised that adequate consultation has been undertaken. Refer to Appendix E for the e-mail correspondence with Water NSW.

We trust the information provided in this report satisfies matters relating to bulk earthworks, site works and stormwater matters such as site stormwater drainage, On-site Stormwater Detention, water quality, water conservation and flooding.

8. Appendices

Appendix A: Civil Engineering Drawings by Henry & Hymas Engineers

Appendix B: Site Survey

Appendix C: Architectural concept drawings – Site plan

Appendix D: Flood Mapping and results by CSS

Appendix E: E-mail correspondence with Water NSW

Appendix A: Civil Engineering Drawings by Henry & Hymas Engineers

PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW
CIVIL ENGINEERING WORKS

LOCALITY SKETCH
SCALE: N.T.S.

DRAWING SCHEDULE	
230804_DA_C000	COVER SHEET, DRAWING SCHEDULE AND LOCALITY SKETCH
230804_DA_C010	NOTES
230804_DA_C100	GENERAL ARRANGEMENT PLAN
230804_DA_C101	DETAIL PLAN - SHEET 1 OF 4
230804_DA_C102	DETAIL PLAN - SHEET 2 OF 4
230804_DA_C103	DETAIL PLAN - SHEET 3 OF 4
230804_DA_C104	DETAIL PLAN - SHEET 4 OF 4
230804_DA_C108	INTERSECTION DETAIL PLAN
230804_DA_C110	SITE SECTIONS - SHEET 1 OF 2
230804_DA_C111	SITE SECTIONS - SHEET 2 OF 2
230804_DA_C120	ROAD CHAINAGES PLAN AND ROAD LONGITUDINAL SECTION
230804_DA_C150	DETAIL PLAN -ULTIMATE STAGE-GRADING AND RETAINING
230804_DA_C200	STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE
230804_DA_C201	BIO-RETENTION BASIN SECTIONS AND STORMWATER DETAILS
230804_DA_C202	GROSS POLLUTANT TRAP DETAIL
230804_DA_C210	STORMWATER LONG SECTION - SHEET 1 OF 2
230804_DA_C211	STORMWATER LONG SECTION - SHEET 2 OF 2
230804_DA_C250	STORMWATER CATCHMENT PLAN - MASTER PLAN STAGE
230804_DA_C310	RETAINING WALL TYPICAL DETAILS
230804_DA_C510	KERB AND LAYBACK STANDARD DETAILS
230804_DA_SE01	SEDIMENT AND EROSION CONTROL PLAN
230804_DA_SE02	SEDIMENT AND EROSION CONTROL DETAILS
230804_DA_BE01	BULK EARTHWORKS CUT AND FILL PLAN
230804_DA_BE02	BULK EARTHWORKS SITE SECTIONS

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025					
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024					
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024					

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Web
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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title
COVER SHEET, DRAWING SCHEDULE AND LOCALITY SKETCH

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	N.T.S.

Drawing number: 230804_DA_C000
Revision: 03

GENERAL NOTES:

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH CITY OF FAIRFIELD COUNCIL'S CIVIL WORKS SPECIFICATION. CONTRACTOR TO OBTAIN AND RETAIN A COPY ON SITE DURING THE COURSE OF THE WORKS.
2. ALL NEW WORKS ARE TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS AND MARRY IN A 'WORKMANLIKE' MANNER.
3. THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL SERVICES WITH EACH RELEVANT AUTHORITY. ANY DAMAGE TO SERVICES SHALL BE RECTIFIED BY THE CONTRACTOR OR THE RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY OR AS DETERMINED FROM SERVICE DIAGRAMS. H & H CONSULTING ENGINEERS PTY. LTD CANNOT GUARANTEE THE INFORMATION SHOWN NOR ACCEPT ANY RESPONSIBILITY FOR INACCURACIES OR INCOMPLETE DATA.
4. SERVICES & ACCESSES TO THE EXISTING PROPERTIES ARE TO BE MAINTAINED IN WORKING ORDER AT ALL TIMES DURING CONSTRUCTION.
5. ADJUST EXISTING SERVICE COVERS TO SUIT NEW FINISHED LEVELS TO RELEVANT AUTHORITY REQUIREMENTS WHERE NECESSARY.
6. REINSTATE AND STABILISE ALL DISTURBED LANDSCAPED AREAS.
7. MINIMUM GRADE OF SUBSOIL SHALL BE 0.5% (1:200) FALL TO OUTLETS.
8. ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS, EROSION AND SEDIMENTATION CONTROL PLAN AND CITY OF FAIRFIELD COUNCIL'S WORKS REQUIREMENTS WHERE APPLICABLE.
9. CONTRACTOR TO CHECK AND CONFIRM SITE DRAINAGE CONNECTIONS ACROSS THE VERGE PRIOR TO COMMENCEMENT OF SITE DRAINAGE WORKS.
10. PROPERTIES AFFECTED BY THE WORKS ARE TO BE NOTIFIED IN ADVANCE WHERE DISRUPTION TO EXISTING ACCESS IS LIKELY.

SITEWORKS NOTES

- DATUM : A.H.D.
- ORIGIN OF LEVELS : REFER TO BENCH OR STATE SURVEY MARKS WHERE SHOWN ON PLAN.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO THE COMMENCEMENT OF WORK.
- ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS & THE DIRECTIONS OF THE SUPERINTENDENT.
- EXISTING SERVICES UNLESS SHOWN ON THE SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS ACHIEVED.
- THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
- CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATION IS TO BE UNDERTAKEN OVER TELSTRA OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.
- CONTRACTOR TO OBTAIN AUTHORITY APPROVALS WHERE APPLICABLE.
- MAKE SMOOTH TRANSITION TO EXISTING SURFACES AND MAKE GOOD.
- THESE PLANS SHALL BE READ IN CONJUNCTION WITH APPROVED LANDSCAPE, ARCHITECTURAL, STRUCTURAL, HYDRAULIC AND MECHANICAL DRAWINGS AND SPECIFICATIONS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED RELATING TO DEVELOPMENT AT THE SITE.
- TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MINIMUM OF 50mm IN BITUMINOUS PAVING.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.
- GRADES TO PAVEMENTS TO BE AS IMPLIED BY RL'S ON PLAN . GRADE EVENLY BETWEEN NOMINATED RL'S. AREAS EXHIBITING PONDING GREATER THAN 5mm DEPTH WILL NOT BE ACCEPTED UNLESS IN A DESIGNATED SAG POINT.
- ALL COVERS AND GRATES ETC TO EXISTING SERVICE UTILITIES ARE TO BE ADJUSTED TO SUIT NEW FINISHED SURFACE LEVELS WHERE APPLICABLE.

EXISTING SERVICES & FEATURES

- THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA OR AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF HIS PROGRAM FOR THE RELOCATION/ CONSTRUCTION OF TEMPORARY SERVICES.
- CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDING 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 TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL FROM THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
- EXISTING SERVICES, BUILDINGS, EXTERNAL STRUCTURES AND TREES SHOWN ON THESE DRAWINGS ARE EXISTING FEATURES PRIOR TO ANY DEMOLITION WORKS.
- EXISTING SERVICES UNLESS SHOWN ON SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE A 'DIAL BEFORE YOU DIG' SEARCH AND TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.

SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE SURVEYOR SPECIFIED IN THE TITLE BLOCK.
THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. HENRY AND HYMAS PTY. LTD. DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT HENRY AND HYMAS PTY. LTD. THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM ORIGINAL SURVEY DOCUMENTS.

COMPACTION REQUIREMENTS

1. PREPARATION FOR PAVEMENT:
   CLEAR SITE, STRIP TOP-SOIL, CUT AND FILL AND PREPARATIONS OF SUB-GRADE SHALL BE AS DESCRIBED IN " SUBGRADE PREPARATION".
2. SUB-GRADE SHALL BE COMPACTED TO 98% STANDARD DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.1., TOP 300MM TO 100% SDD.
3. LOWER BASE COURSE SHALL BE CONSTRUCTED FROM CRUSHED SANDSTONE COMPACTED TO 100% STANDARD DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.1. OF THICKNESS NOTED ON DRAWINGS.
4. BASE COURSE SHALL BE CONSTRUCTED FROM FINE CRUSHED ROCK COMPACTED TO 100% STANDARD DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.1 OF THICKNESS NOTED ON DRAWINGS.
5. WEARING SURFACE SHALL BE ASPHALTIC CONCRETE TO STANDARD SPECIFICATION, MINIMUM THICKNESS = 30mm U.N.O.
6. TESTING OF THE SUBGRADE AND PAVEMENT LAYERS SHALL BE CARRIED OUT BY APPROVED N.A.T.A. REGISTERED LABORATORY.

BULK EARTHWORKS/ SUBGRADE PREPARATION - SITEWORKS.

1. REFER TO GEOTECHNICAL INVESTIGATION REPORT (CONSTRUCTION SCIENCES REFERENCE 10791E/P/71a) RELATING TO EXISTING GROUND CONDITIONS, SITE TREATMENT AND SUPERVISION.
2. THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ON THESE DRAWINGS HAVE BEEN PLOTTED FROM SURVEY AND AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.
3. HENRY AND HYMAS PTY LTD CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS, ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN ARISING FROM ANY CAUSE WHATSOEVER.
   CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION.
   FOR COMMENCEMENT OF WORKS ON SITE, SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.
4. ALL SERVICES ARE TO BE LOCATED AND CUT OFF PRIOR TO THE COMMENCEMENT OF EXCAVATION AND FILLING OPERATIONS.
5. ALL TOP SOIL, ORGANIC MATTER AND FILL MATERIAL SHALL BE REMOVED FROM ALL AREAS UNDER BUILDING AND CARPARK LOCATIONS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. AREAS TO BE FULLY STRIPPED OF EXISTING FILL AND DARK BROWN BLACK UPPER ORGANIC ALLUVIUM, OR OBVIOUS UNSUITABLE MATERIAL.
6. EXCAVATE TO ACHIEVE SUBGRADE LEVELS WHERE NECESSARY.
7. THE EXPOSED SUBGRADE AFTER STRIPPING AND/ OR EXCAVATION IS TO BE PROOF ROLLED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER REQUIREMENTS UNDER THE SUPERVISION OF AN EXPERIENCED GEOTECHNICAL ENGINEER OR AN EXPERIENCED CIVIL ENGINEER. ANY AREAS ON THE SUBGRADE EXHIBITING EXCESSIVE DEFLECTION / MOVEMENT UNDER ROLLER TO BE EXCAVATED TO A MIN. DEPTH OF 0.5m AND REPLACED WITH APPROVED GRANULAR MATERIAL COMPACTED IN 250mm LOOSE LAYERS OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
8. ENGINEERED FILL FOR REPLACEMENT OF SOFT OR HEAVING AREAS OR FOR BULK FILLING TO COMPRISE ESSENTIALLY OF GRANULAR MATERIALS (EG. EXCAVATED SHALE), WITH A PARTICLE SIZE NOT GREATER THAN 75mm DIAMETER. ENGINEERED FILL TO BE PLACED IN LAYERS NOT EXCEEDING 250mm LOOSE THICKNESS AND COMPACTED TO 100% OF STANDARD MAXIMUM DRY DENSITY (SMDD) WITHIN ± 2% OF OPTIMUM MOISTURE CONTENT (OMC).
9. IMPORTED FILLING (IF REQUIRED) IS TO BE TO THE APPROVAL OF THE GEOTECHNICAL ENGINEER. THE CONTRACTOR IS TO NOMINATE THE SOURCE AND PROVIDE A SAMPLE FOR APPROVAL PRIOR TO IMPORTATION AND PLACEMENT ON SITE.
10. ALL FILL MATERIAL SHALL BE FROM A SOURCE APPROVED BY THE SUPERINTENDENT AND SHALL COMPLY WITH THE FOLLOWING.
    FREE FORM ORGANIC AND PERISHABLE MATTER
    MAXIMUM PARTICLE SIZE = 75mm
    MAXIMUM PLASTICITY INDEX = 15%
    MIN CBR 5%

    ALL IMPORTED FILL MATERIAL SHALL BE IN ACCORDANCE WITH GEOTECHNICAL ENGINEER REQUIREMENTS.
11. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH GEOTECHNICAL ENGINEER REQUIREMENTS.
12. IN-SITU DENSITY TESTING AND SUPERVISION MUST BE CARRIED OUT IN ACCORDANCE WITH GEOTECHNICAL ENGINEER REQUIREMENTS.

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025					
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024					
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024					

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Architect
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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title
NOTES

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	N.T.S.

Drawing number: 230804_DA_C010
Revision: 03

GENERAL ARRANGEMENT PLAN

SCALE: 1:500

SCALE 1:500

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024

Client: GREATER SYDNEY PARKLANDS TRUST

Architect: nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

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Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: GENERAL ARRANGEMENT PLAN

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:500

Drawing number: 230804_DA_C100 — Revision: 03

REFER TO 230804_DA_C103 FOR CONTINUATION

DETAIL PLAN

SCALE: 1:250

SCALE 1:250

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024

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Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: DETAIL PLAN
SHEET 1 OF 4

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:250

Drawing number: 230804_DA_C101 — Revision: 03

REFER TO 230804_DA_C104 FOR CONTINUATION

ROADWORKS DETAIL PLAN

SCALE: 1:250

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
03	ISSUED FOR SSDA APPROVAL	MB	FZ	17.06.2024
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024

Client: GREATER SYDNEY PARKLANDS TRUST

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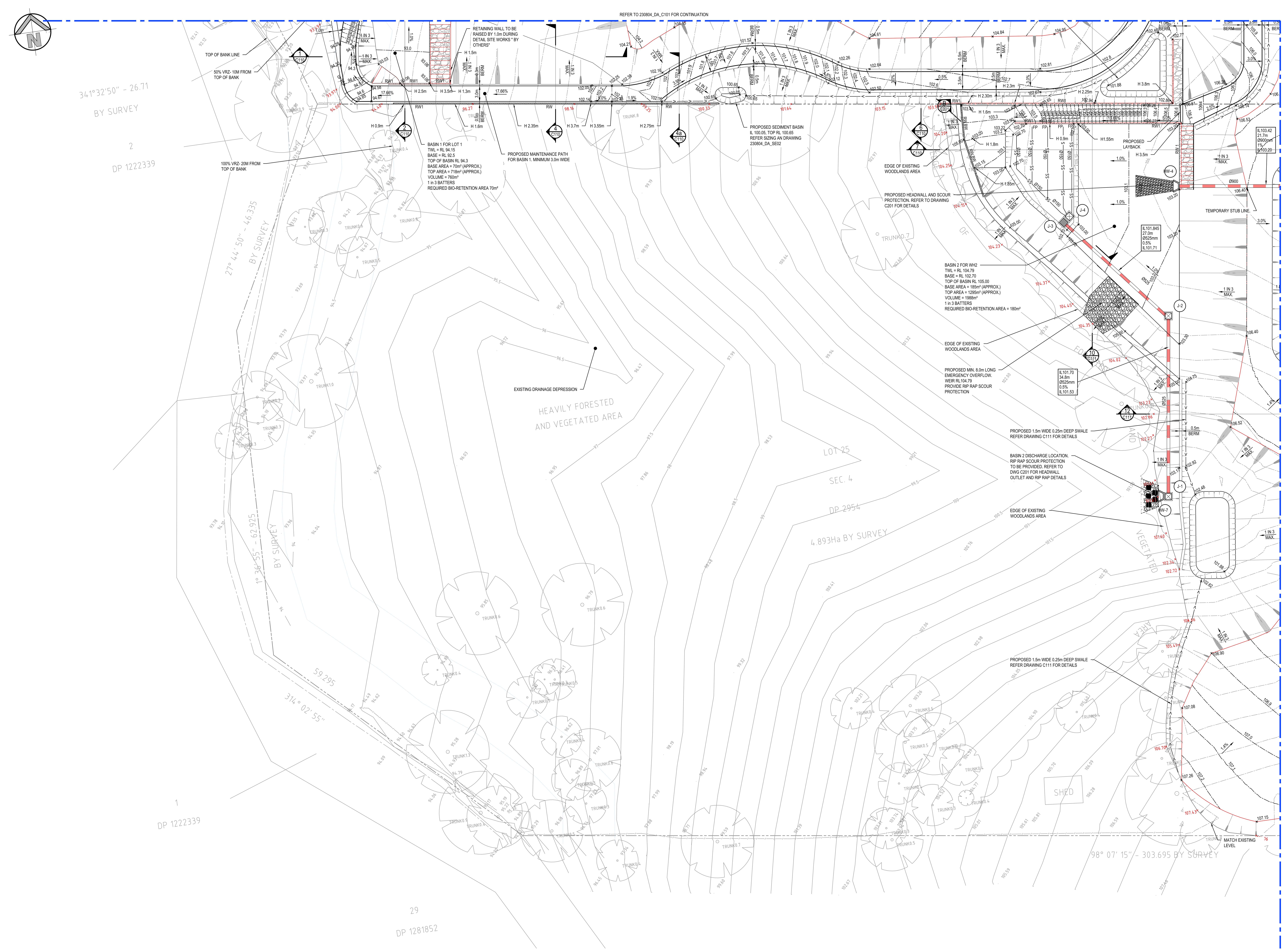
Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: ROADWORKS DETAIL PLAN
SHEET 2 OF 4

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:250

Drawing number: 230804_DA_C102 Revision: 04



LEGEND

- EXISTING BOUNDARY
- PROPOSED RIDGE LINE
- PROPOSED VALLEY LINE
- PROPOSED JUNCTION PITS
- PROPOSED SURFACE INLET PITS
- PROPOSED LINTEL ONGRADE & SAG PITS
- PROPOSED PIT TAG (LINE LETTER, PIT NUMBER)
- STORMWATER UPSTREAM INVERT RL, STORMWATER PIPE DIAMETER & CLASS, STORMWATER PIPE LENGTH, STORMWATER PIPE GRADE, STORMWATER DOWNSTREAM INVERT RL
- PROPOSED GRATED DRAIN
- EXISTING STORMWATER PIPE
- PROPOSED STORMWATER PIPE
- PROPOSED SWALE
- PROPOSED BATTER LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED SPOT LEVEL
- EXISTING SPOT LEVEL
- PROPOSED FALL
- PROPOSED HEIGHT OF WALL
- PROPOSED CHAINAGE
- PROPOSED KERB & GUTTER
- PROPOSED SA KERB
- PROPOSED RETAINING WALL
- PROPOSED RETAINING WALL (BLOCKWORK)
- PROPOSED RETAINING WALL TYPE 1 (BY OTHERS)
- PROPOSED CULVERT
- PROPOSED HEADWALL
- EXISTING ELECTRICAL LINE
- EXISTING GAS LINE
- PROPOSED CRASH VEHICLE BARRIER
- PROPOSED FLUSHING POINT

ROADWORKS DETAIL PLAN

SCALE: 1:250

SCALE 1:250

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024

Client: GREATER SYDNEY PARKLANDS TRUST

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Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: ROADWORKS DETAIL PLAN
SHEET 3 OF 4

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:250

Drawing number: 230804_DA_C103 — Revision: 03

ROADWORKS DETAIL PLAN

SCALE: 1:250

SCALE 1:250

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025					
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024					
01	ISSUEF FOR CO-ORDINATION	MB	FZ	17.01.2024					

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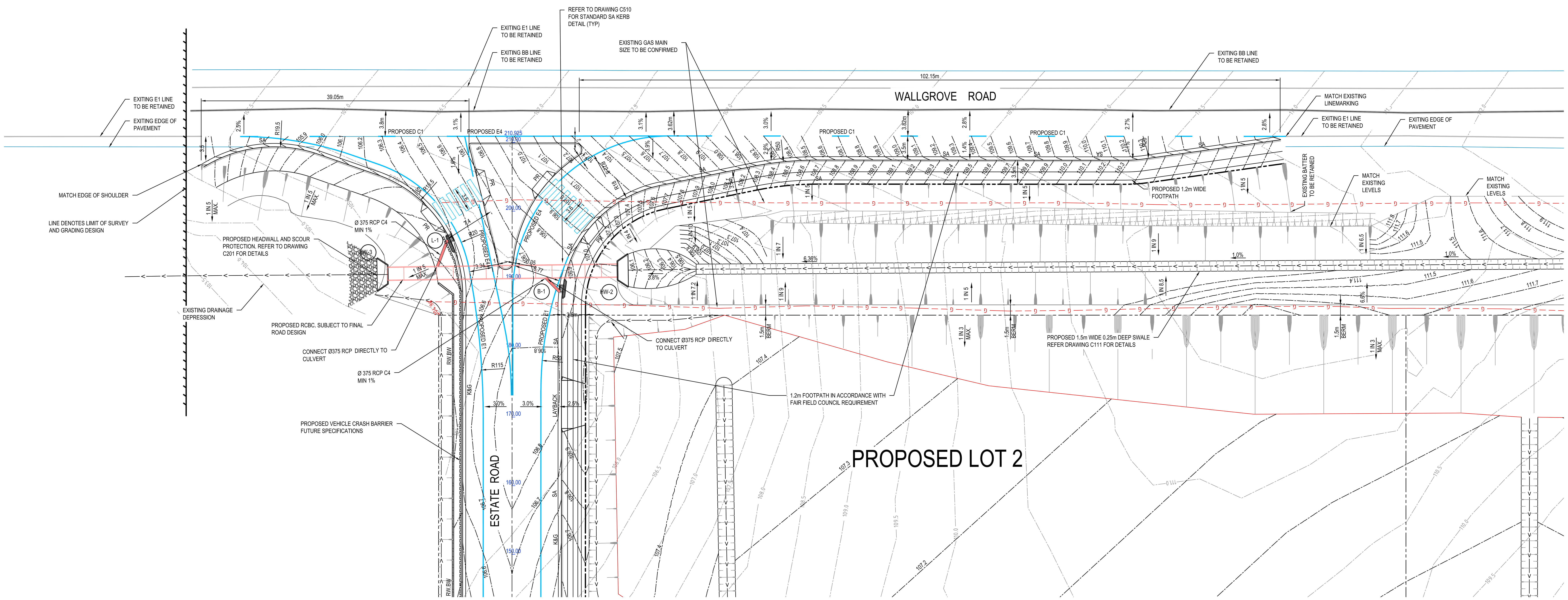
Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title
ROADWORKS DETAIL PLAN
SHEET 4 OF 4

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:250

Drawing number: 230804_DA_C104 Revision: 03



INTERSECTION DETAIL PLAN

SCALE: 1:250

LEGEND

- EXISTING BOUNDARY
- PROPOSED RIDGE LINE
- PROPOSED VALLEY LINE
- PROPOSED JUNCTION PITS
- PROPOSED SURFACE INLET PITS
- PROPOSED LINTEL ONGRADE & SAG PITS
- PROPOSED PIT TAG (LINE LETTER, PIT NUMBER)
- STORMWATER UPSTREAM INVERT RL. / STORMWATER PIPE DIAMETER & CLASS / STORMWATER PIPE LENGTH / STORMWATER PIPE GRADE / STORMWATER DOWNSTREAM INVERT RL.
- PROPOSED GRATED DRAIN
- EXISTING STORMWATER PIPE
- PROPOSED STORMWATER PIPE
- PROPOSED SWALE
- PROPOSED BATTER LINE
- EXISTING CONTOURS
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- PROPOSED CHAINAGE
- PROPOSED KERB & GUTTER
- PROPOSED SA KERB
- PROPOSED RETAINING WALL
- PROPOSED RETAINING WALL (BLOCKWORK)
- PROPOSED RETAINING WALL TYPE 1 (BY OTHERS)
- PROPOSED CULVERT
- PROPOSED HEADWALL
- EXISTING ELECTRICAL LINE
- EXISTING GAS LINE
- PROPOSED CRASH VEHICLE BARRIER
- PROPOSED FLUSHING POINT

0 5 10 15 20 25m

SCALE 1:250

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025					

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Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: INTERSECTION DETAIL PLAN

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:250

Drawing number: 230804_DA_C108 Revision: 01

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	LC	FZ	17.01.2024

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Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title
SITE SECTIONS
SHEET 1 OF 2

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:100

Drawing number: 230804_DA_C110
Revision: 03

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR SSDA APPROVAL	LC	NW	24.04.2025
03	ISSUED FOR SSDA APPROVAL	MB	FZ	17.06..2024
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	LC	FZ	17.01.2024

Client
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DRAWING TO BE PRINTED IN COLOUR

Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title
SITE SECTIONS
SHEET 2 OF 2

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	1:100

Drawing number: 230804_DA_C111
Revision: 04

PROPOSED ROAD CHAINAGES PLAN - CENTERLINE MC01

SCALE: 1:250

HORIZONTAL CURVE DATA: R 75

VERTICAL CURVE LENGTH (m) / VERTICAL CURVE RADIUS (m): VC 30 / R 2000; VC 40 / R 666.67; VC 30 / R 1246.69; VC 30 / R 907.34; VC 12 / R 307.69

VERTICAL GEOMETRY GRADE (%) / VERTICAL GEOMETRY LENGTH (m): 3% / 43.33; 3.5% / 15; 5% / 43.16; -1% / 40.59; 1.4% / 30; -1.9% / 21; 2% / 19.33

DATUM RL = 100.300

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
0	103.000	103.723	-0.723
10	103.300	104.529	-1.229
20	103.600	105.242	-1.642
28.57	103.857	105.780	-1.923
30	103.900	105.903	-2.003
40	104.200	106.690	-2.490
43.332	104.300	106.764	-2.464
50	104.544	106.959	-2.414
58.332	104.881	107.313	-2.432
60	104.953	107.379	-2.427
70	105.411	107.449	-2.038
73.332	105.575	107.529	-1.954
80	105.908	107.669	-1.760
81.497	105.983	107.673	-1.690
90	106.354	107.587	-1.233
100	106.652	107.614	-0.962
101.497	106.683	107.611	-0.928
110	106.799	107.377	-0.578
114.83	106.817	107.143	-0.327
120	106.796	106.971	-0.175
121.497	106.783	106.922	-0.138
127.087	106.727	106.694	0.033
130	106.702	106.574	0.127
139.554	106.665	106.200	0.465
140	106.665	106.183	0.482
142.087	106.668	106.103	0.565
150	106.709	105.723	0.986
157.087	106.788	105.380	1.408
160	106.825	105.251	1.574
169.848	106.878	105.047	1.831
170	106.878	105.046	1.832
172.087	106.875	105.043	1.832
180	106.821	105.122	1.699
187.087	106.714	105.290	1.424
190	106.673	105.543	1.129
192.934	106.659	105.824	0.835
193.087	106.659	105.838	0.820
199.087	106.720	106.143	0.577
200	106.738	106.132	0.606
210	106.938	106.947	-0.009
212.422	106.987	106.987	-0.000

PROPOSED ESTATE ROAD LONGITUDINAL SECTION CENTRELINE MC01

HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50

SCALE 1:50 (0 – 5000mm)

SCALE 1:250 (0 – 25m)

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR SSDA APPROVAL	LC	NW	24.04.2025
03	ISSUED FOR SSDA APPROVAL	MB	FZ	17.06.2024
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	LC	FZ	17.01.2024

Client: GREATER SYDNEY PARKLANDS TRUST
Architect: nettletontribe partnership

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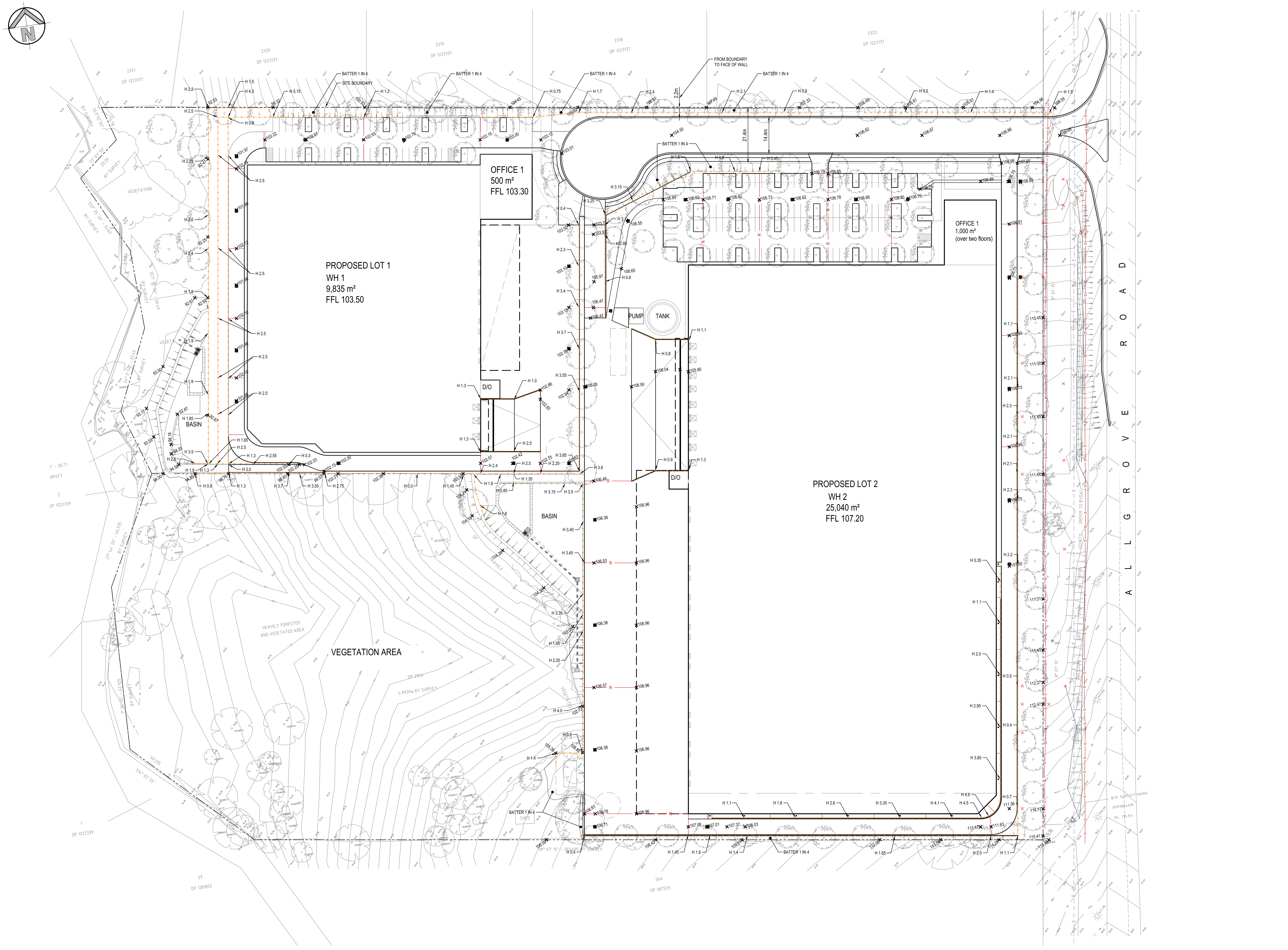
DRAWING TO BE PRINTED IN COLOUR

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: ROAD CHAINAGES PLAN AND ROAD LONGITUDINAL SECTION

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	AS SHOWN

Drawing number: 230804_DA_C120
Revision: 04



LEGEND

- EXISTING BOUNDARY
- PROPOSED RIDGE LINE
- PROPOSED VALLEY LINE
- PROPOSED JUNCTION PITS
- PROPOSED SURFACE INLET PITS
- PROPOSED LINTEL ONGRADE & SAG PITS
- PROPOSED GRATED DRAIN
- PROPOSED BATTER LINE
- PROPOSED SPOT LEVEL
- PROPOSED SPOT LEVEL
- PROPOSED HEIGHT OF WALL
- PROPOSED RETAINING WALL

NOTE: GRADING, LEVELS AND RETAINING HEIGHTS BASED ON INDICATIVE LOT LAYOUT AND IS INDICATIVE ONLY.

GENERAL ARRANGEMENT PLAN
SCALE: 1:500

SCALE 1:500

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025

Client: GREATER SYDNEY PARKLANDS TRUST
Architect: nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: DETAIL PLAN
ULTIMATE STAGE-GRADING AND RETAINING

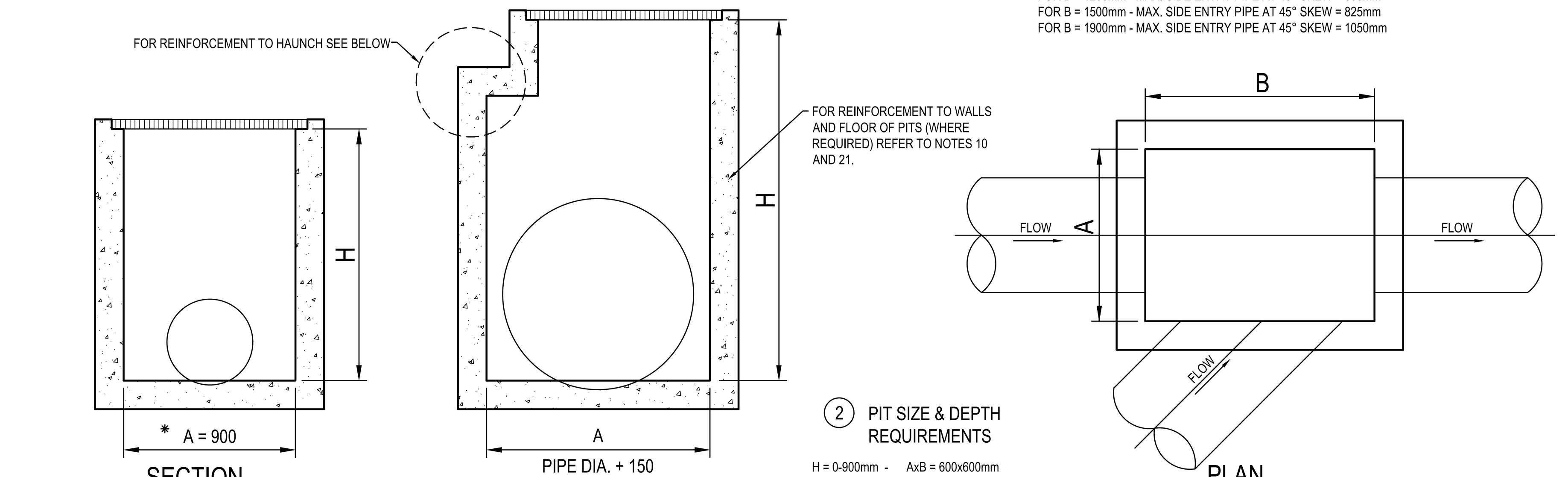
Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	1:500

Drawing number: 230804_DA_C150
Revision: 01

TYPICAL PIT CHAMBER SIZES
IT IS THE CONTRACTORS RESPONSIBILITY TO SELECT PIT CHAMBER SIZE WITH REGARDS TO PIPE SIZE, DEPTH TO INVERT AND SKEW ANGLE. REFER SKETCHES BELOW.

1. SELECT PIT CHAMBER USING THE STEPS BELOW:
2. SELECT PIT CHAMBER SIZE DEPENDING ON THE PIPE DIAMETERS.
3. CHECK PIT CHAMBER SIZE TO SATISFY DEPTH TO INVERT REQUIREMENTS.
   CHECK PIT CHAMBER DIMENSIONS TO SATISFY THE SKEW ANGLE IN THE TABLE.

FOR B = 600mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 225mm
FOR B = 900mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 375mm
FOR B = 1200mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 600mm
FOR B = 1500mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 825mm
FOR B = 1900mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 1050mm



SECTION
NTS

*A = 600 FOR PIPES UP TO 375 DIA.

(1) PIT CHAMBER DIMENSIONS FOR PIPES UP TO 600 DIA.

SECTION
NTS

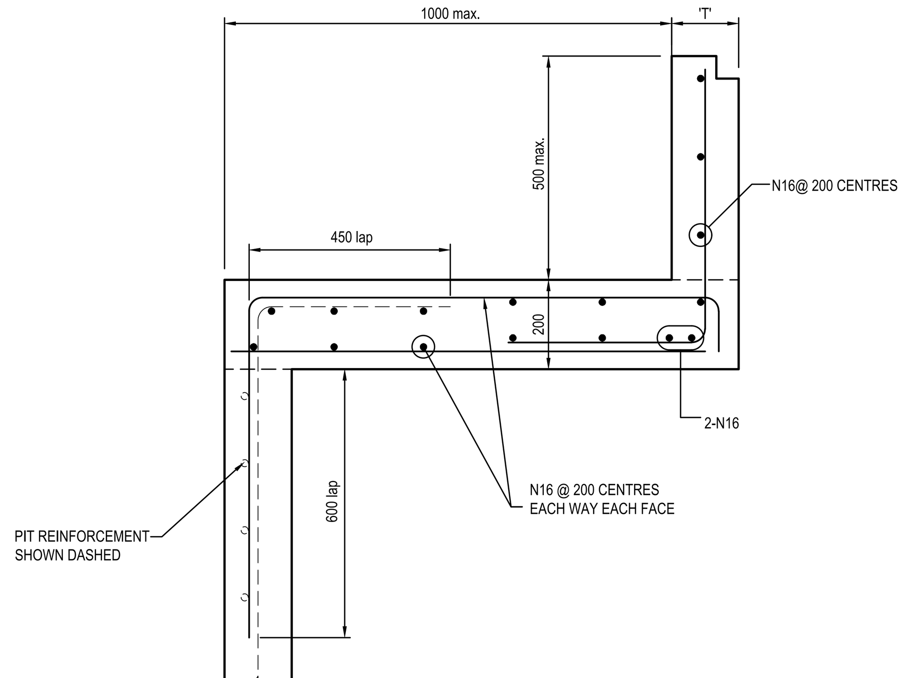
(1) PIT CHAMBER FOR PIPES GREATER THAN 600 DIA.

(2) PIT SIZE & DEPTH REQUIREMENTS

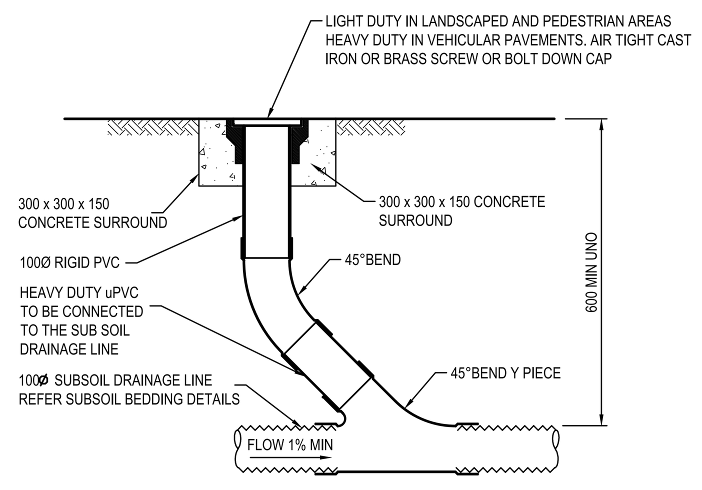
H = 0-900mm - AxB = 600x600mm
H = 900-1200mm - AxB = 900x900mm
H = >1200mm - AxB = 900x900mm

PLAN
NTS

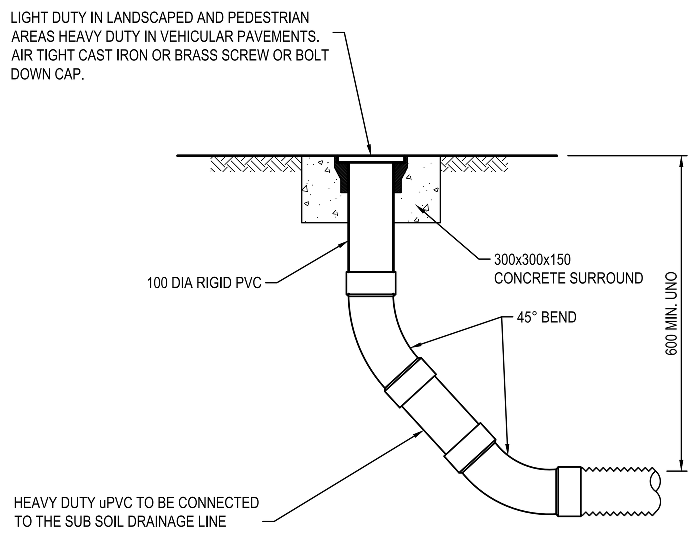
(3) PIT CHAMBER FOR SIDE ENTRY ON SKEW



HAUNCH DETAIL -TYPICAL
SCALE 1:10



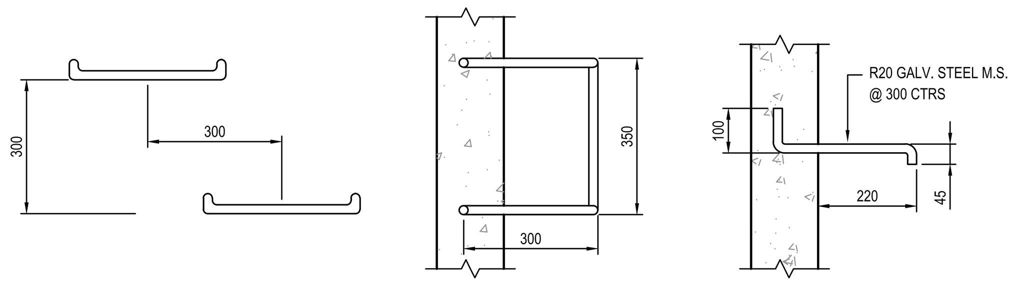
INTERMEDIATE RISER (IR)
SCALE 1:10
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



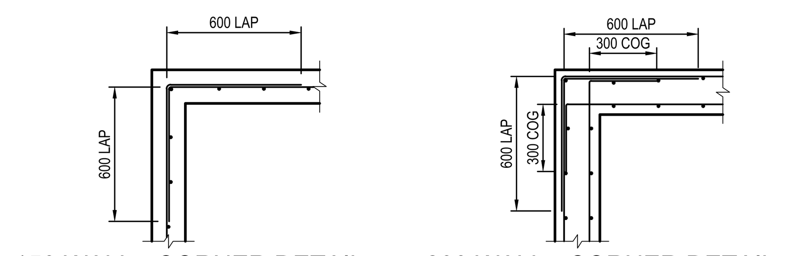
FLUSHING POINT (FP)
SCALE 1:10
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED

PIT LID SCHEDULE

PIT/STRUCTURE NUMBER	DESCRIPTION
A-1 A-2 A-3 TP-1	PROPOSED JUNCTION PIT WITH 900x900 HEAVY DUTY SEALED LID CLASS "D", IN ACCORDANCE WITH ACCORDANCE WITH CITY OF FAIRFIELD COUNCIL'S REQUIREMENT OR APPROVED EQUIVALENT. PIT LID LEVEL TO BE ADJUSTED DURING DETAILED LOT DEVELOPING
F-1 F-2	TEMPORARY HIGH LEVEL OUTLET PIT IN SEDIMENT BASIN, REFER NOTES ON PLANS FOR DETAILS. TYPICALLY SURCHAGE STYLE INLET PIT WITH 900x900 HINGED LIGHT DUTY GRATED LID CLASS "B"
A-6 A-7 C-1 D-1 E-1 L-1	PROPOSED 1.20m KERB INLET PIT WITH HEAVY DUTY GRATE AND FRAME, CLASS 'D', IN ACCORDANCE WITH CITY OF FAIRFIELD COUNCIL'S REQUIREMENTS OR APPROVED EQUIVALENT.
A-9 A-8 A-4 A-5 B-1	PROPOSED SAG KERB INLET PIT WITH 2.4m LINTEL AND HEAVY DUTY GRATED LID CLASS "D" IN ACCORDANCE WITH CITY OF FAIRFIELD COUNCIL'S REQUIREMENTS OR APPROVED EQUIVALENT.
I-1 J-3	PROPOSED SURFACE INLET PIT WITH 1200x1200 HINGED HEAVY DUTY GRATED LID CLASS "D" IN ACCORDANCE WITH CITY OF FAIRFIELD COUNCIL'S REQUIREMENT OR APPROVED EQUIVALENT.
J-1 I-2 J-4 J-2	PROPOSED JUNCTION PIT WITH 1200x1200 HEAVY DUTY SEALED LID CLASS "D", IN ACCORDANCE WITH ACCORDANCE WITH CITY OF FAIRFIELD COUNCIL'S REQUIREMENT OR APPROVED EQUIVALENT.
HW-1 HW-2 HW-3 HW-4 HW-5 HW-6 HW-7	PROPOSED HEADWALL, REFER C201.
WQ-1	WATER QUALITY TREATMENT UNIT. ROCLA CDA 0708. REFER C202.

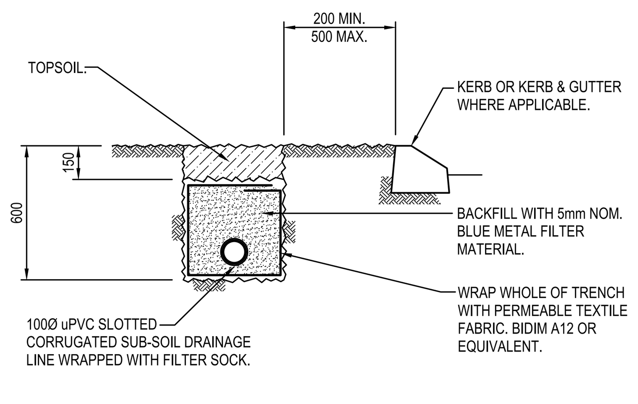


TYPICAL STEP IRON DETAIL
SCALE 1:10



150 WALL - CORNER DETAIL
SCALE 1:20

200 WALL - CORNER DETAIL
SCALE 1:20



SUB-SOIL DRAIN DETAIL
SCALE 1:20

DRAINAGE NOTES:

1. ALL STORMWATER WORK TO COMPLY WITH AS 3500 PART 3.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE MINIMUM COVER OF 600mm ON ALL PIPES.

3. PROTECTION OF PIPES DUE TO LOADS EXCEEDING W7 WHEEL LOAD SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

4. BEDDING TYPE SHALL BE TYPE H2 FOR RCP. WHERE NECESSARY THE OVERLAY ZONE SHALL BE REDUCED TO ACCOMMODATE PAVEMENT REQUIREMENTS. REFER TO THIS DRAWING FOR DETAILS.

5. MINIMUM COVER OVER EXISTING PIPES FOR PROTECTION DURING CONSTRUCTION SHALL BE 800mm.

6. NO CONSTRUCTION LOADS SHALL BE APPLIED TO PLASTIC PIPES.

7. FINISHED SURFACE LEVELS SHOWN ON LAYOUT PLAN DRGS TAKE PRECEDENCE OVER DESIGN DRAINAGE SURFACE LEVELS.

8. ALL PIPES UP TO AND INCLUDING 300 DIA. SHALL BE SOLVENT OR RUBBER RING JOINTED PVC CLASS SH PIPE TO AS1260. ALL OTHER PIPES TO BE RCP USING CLASS 2 RUBBER RING JOINTED PIPE. HARDIES FRC PIPE MAY BE USED IN LIEU OF RCP IF DESIRED IN GROUND. ALL AERIAL PIPES TO BE PVC CLASS SH.

9. ALL PITS IN NON TRAFFICABLE AREAS TO BE PREFABRICATED POLYESTER CONCRETE "POLYCRETE" WITH "LIGHT DUTY" CLASS B GALV. MILD STEEL GRATING AND FRAME.
ALL PITS IN TRAFFICABLE AREAS (CLASS "D" LOADING MAX) TO HAVE 150mm THICK CONCRETE WALLS AND BASE CAST IN-SITU f'c=32 MPa, REINFORCED WITH N12-200 BOTH LOADING WAYS CENTRALLY PLACE .U.N.O. ON SEPARATE DESIGN DRAWINGS IN THIS SET. GALV.MILD STEEL GRATING AND FRAME TO SUIT DESIGN LOADING. PRECAST PITS, RECTANGULAR OR CIRCULAR IN SHAPE, MAY BE USED IN LIEU AND SHALL COMPLY WITH RELEVANT AUSTRALIAN STANDARDS.

10. ALL PITS, GRATINGS AND FRAMES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION AND TO BE IN ACCORDANCE WITH AS3500.3 AND AS3996.
11. PIT CHAMBER DIMENSIONS ARE TO BE SELECTED TO SATISFY THE FOLLOWING:
- PIPE SIZE
- DEPTH TO INVERT
- SKEW ANGLE
REFER TYPICAL PIT CHAMBER DETAILS BELOW
IF PIT LID SIZE IS SMALLER THAN THE PIT CHAMBER SIZE THEN THE PIT LID IS TO BE CONSTRUCTED ON THE CORNER OF THE PIT CHAMBER WITH THE STEP IRONS DIRECTLY BELOW. ALTERNATIVELY THE PIT LID TO BE USED, IS TO BE THE SAME SIZE AS THE PIT CHAMBER.

12. FOR PIPE SIZES GREATER THAN Ø300mm, PIT FLOOR IS TO BE BENCHED TO FACILITATE FLOW.

13. GALVANISED STEP IRONS SHALL BE PROVIDED AT 300 CTS FOR PITS HAVING A DEPTH EXCEEDING 1200mm. SUBSOIL DRAINAGE PIPE SHALL BE PROVIDED IN PIPE TRENCHES ADJACENT TO INLET PIPES. (MINIMUM LENGTH 3m).

14. ALL SUBSOIL PIPES SHALL BE 100mm SLOTTED PVC IN A FILTER SOCK, UNO, WITH 3m INSTALLED UPSTREAM OF ALL PITS.

15. ALL PIPEWORK SHALL HAVE MINIMUM DIAMETER 100.

16. MINIMUM GRADE FOR ROOFWATER DRAINAGE LINES SHALL BE 1%.

17. ALL PIPE JUNCTIONS AND TAPER UP TO AND INCLUDING 300 DIA. SHALL BE VIA PURPOSE MADE FITTINGS.

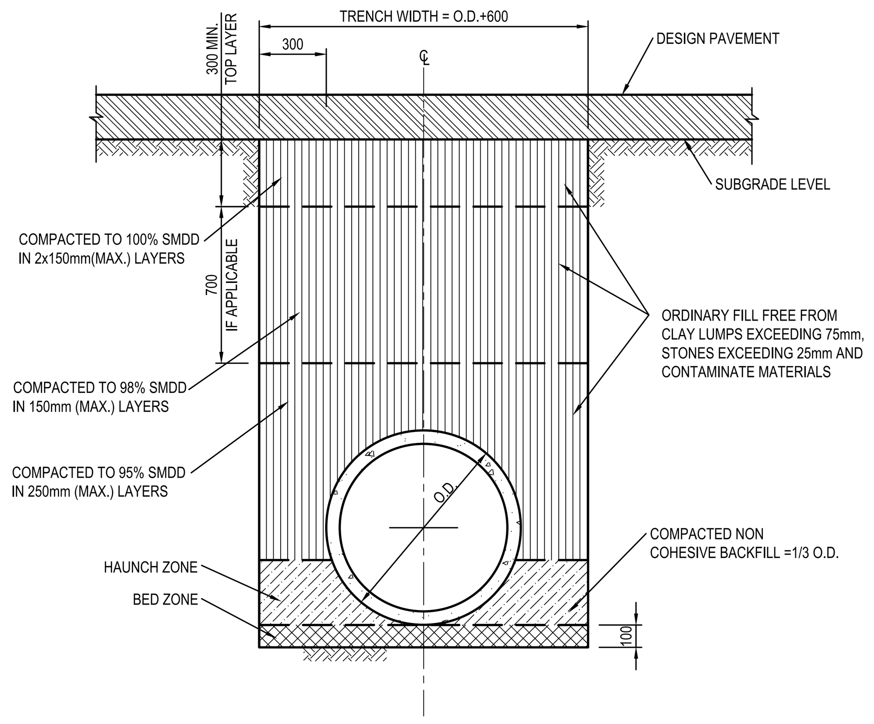
18. ALL ROOF DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH AS3500, PART 3. TESTING TO BE UNDERTAKEN AND REPORTS PROVIDED TO THE SUPERINTENDENT.

19. LOCATION OF THE DIRECT DOWN PIPE CONNECTIONS MAY VARY ON SITE TO SUIT SITE CONDITIONS, WHERE CONNECTION SHOWN ON LONG SECTIONS CHAINAGES ARE INDICATIVE ONLY.

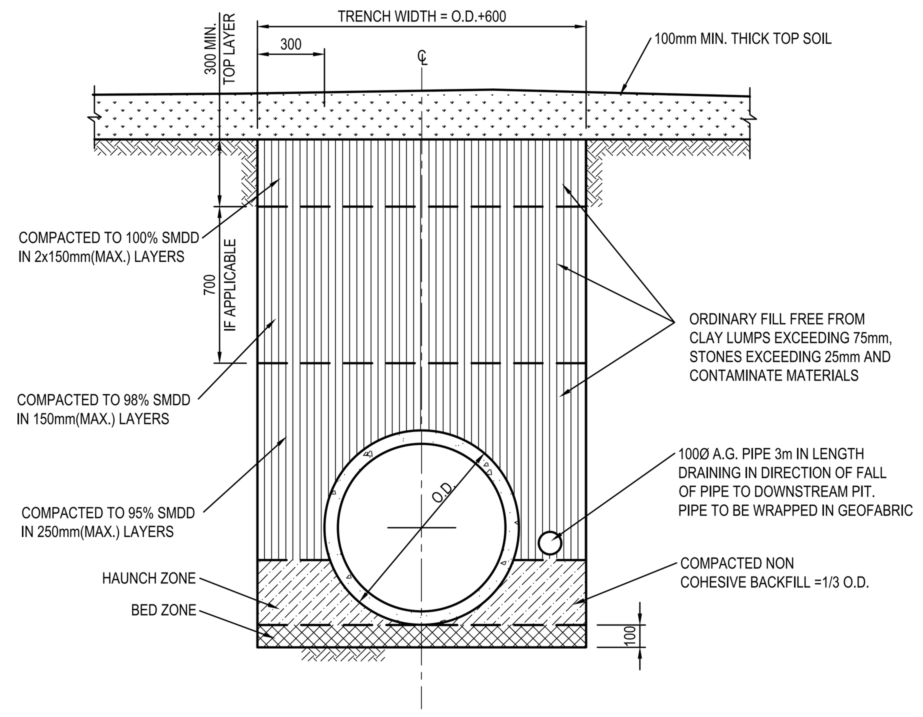
20. PITS IN EXCESS OF 1.5 m DEEP TO HAVE WALL AND FLOOR THICKNESS INCREASED TO 200mm. REINFORCED WITH N12@200 CTS CENTRALLY PLACED BOTH WAYS, BOTH FACES THROUGHOUT U.N.O.ON SEPARATE DESIGN DRAWINGS IN THIS SET. IF DEPTH EXCEEDS 5m CONTACT ENGINEER.

21. SUBSOIL DRAINAGE LINES FOR LANDSCAPE AREA NOT SHOWN ON THESE DRAWINGS. REFER TO LANDSCAPING PLANS FOR DETAILS.

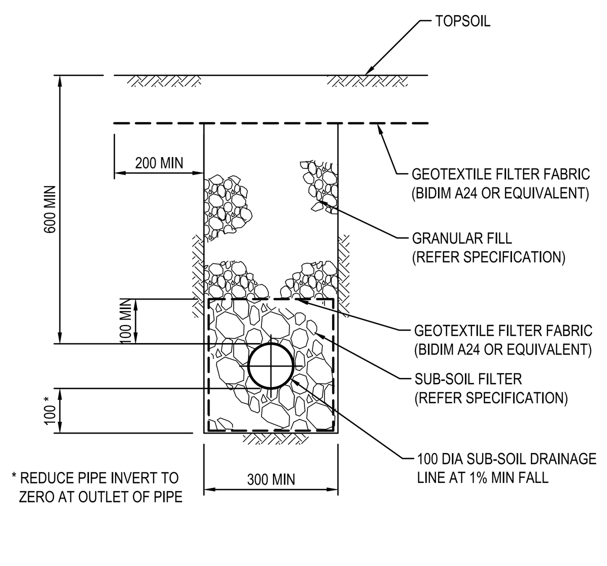
22. ALL STORMWATER PITS TO HAVE Ø100 uPVC SLOTTED SUBSOIL PIPES CONNECTED TO THEM. THESE SUBSOILS TO EXTEND 3m UPSTREAM OF THE PIT AT A MINIMUM GRADE.



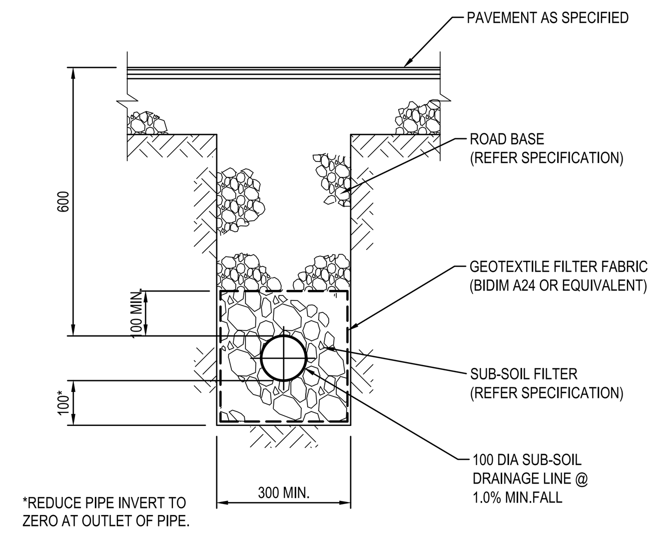
PIPE TRENCH INSTALLATION BENEATH PAVEMENT
(H1 & H2 SUPPORT)
SCALE 1:20



PIPE TRENCH INSTALLATION IN LANDSCAPE AREAS
(H1 & H2 SUPPORT)
SCALE 1:20



SUB-SOIL IN LANDSCAPED AREAS
SCALE 1:10



SUB-SOIL IN PAVED AREAS
SCALE 1:10

SUBSOIL DRAINAGE NOTES

1. GENERAL PROVIDE SUBSOIL DRAINS TO INTERCEPT GROUNDWATER SEEPAGE AND PREVENT WATER BUILD-UP BEHIND WALLS AND UNDER FLOORS AND PAVEMENT. CONNECT SUBSOIL TO SURFACE DRAINS OR TO THE STORMWATER DRAINAGE SYSTEM AS APPLICABLE.

2. PIPE DEPTH:
PROVIDE THE FOLLOWING MINIMUM CLEAR DEPTH, MEASURED TO THE CROWN OF THE PIPE, WHERE THE PIPE PASSES BELOW THE FOLLOWING ELEMENTS:

- 100mm BELOW FORMATION LEVEL OF THE PAVEMENT, KERB OR CHANNEL.
- 100mm BELOW THE AVERAGE GRADIENT OF THE BOTTOM OF FOOTINGS.

3. JOINTING:
AT JUNCTIONS OF SUBSOIL PIPES PROVIDE TEES, COUPLINGS OR ADAPTORS TO AS2439.1.

4. TRENCH WIDTH MINIMUM 300mm

5. PIPE UNDERLAY
GENERAL: GRADE THE TRENCH FLOOR EVENLY TO THE GRADIENT OF THE PIPELINE. IF THE TRENCH FLOOR IS ROCK, CORRECT ANY IRREGULARITIES WITH COMPACTED BEDDING MATERIAL. BED PIPING ON A CONTINUOUS UNDERLAY OF BEDDING MATERIAL, AT LEAST 75mm THICK AFTER COMPACTION. LAY THE PIPE WITH ONE LINE OF PERFORATIONS AT THE BOTTOM.

CHASES: IF NECESSARY TO PREVENT PROJECTIONS SUCH AS SOCKETS AND FLANGES FROM BEARING ON THE TRENCH BOTTOM OR UNDERLAY.

6. PIPE SURROUNDS:
GENERAL: PLACE THE MATERIAL IN THE PIPE SURROUND IN LAYERS SMALLER THAN OR EQUAL TO 200mm LOOSE THICKNESS, AND COMPACT WITHOUT DAMAGING OR DISPLACING PIPING.
DEPTH OF OVERLAY: TO THE UNDERSIDE OF THE BASE OF OVERLYING STRUCTURES SUCH AS PAVEMENTS, SLABS AND CHANNELS. TO WITHIN 150mm OF THE FINISHED SURFACE OF UNPAVED OR LANDSCAPED AREAS.

7. FILTER SOCKS PROVIDE POLYESTER PERMEABLE SOCKS CAPABLE OF RETAINING PARTICLES OF 0.25mm SIZES. SECURELY FIT OF JOIN THE SOCK AT EACH JOINT.

TABLE 1	
SIEVE SIZE (MM)	WEIGHT PASISNG (%)
75.0	100
9.5	100 TO 50
2.36	100 TO 30
0.60	50 TO 15
0.075	25 TO 0

TABLE 2	
SIEVE SIZE (MM)	WEIGHT PASISNG (%)
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

TABLE 3				
SUPPORT TYPE	BED ZONE X	HAUNCH ZONE Y	BED AND HAUNCH ZONES COMPACTION	MAX BEDDING FACTOR
HS1	100 IF D<=1500, OR 150 IF D>=1500	0.1D	50	2.0
HS2		0.3D	60	2.5
HS3		0.3D	70	4.0

SCALE 1:10

SCALE 1:20

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024

Client: GREATER SYDNEY PARKLANDS TRUST
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DRAWING TO BE PRINTED IN COLOUR

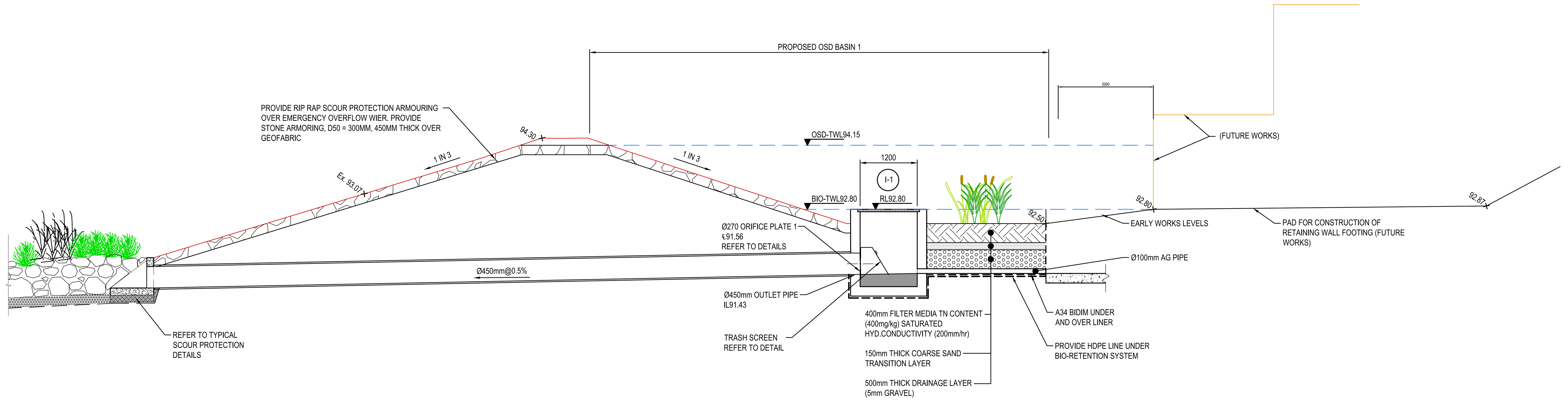
henry&hymas

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

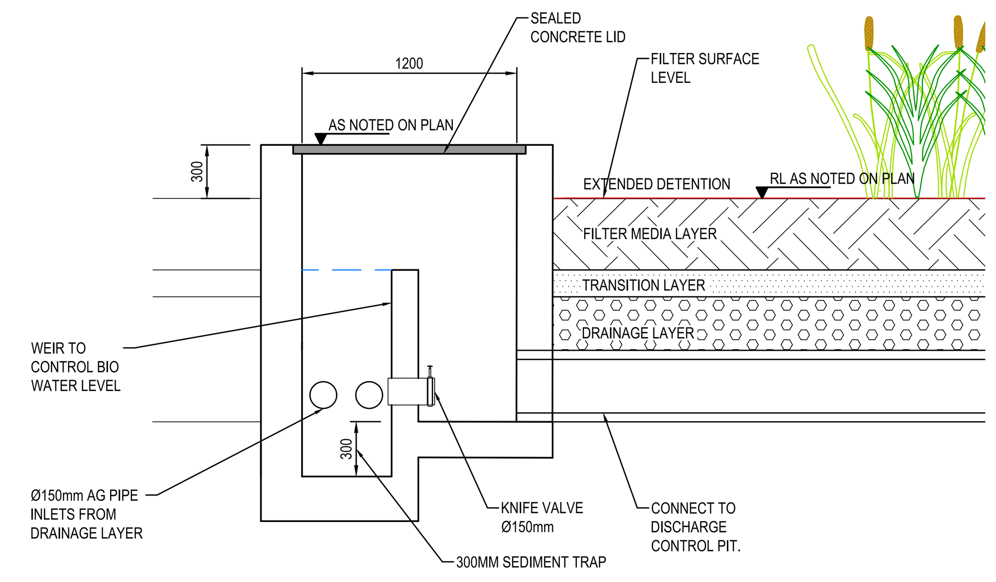
Title: STORMWATER MISECELLANEOUS DETAILS AND PIT LID SCHEDULE

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	AS NOTED

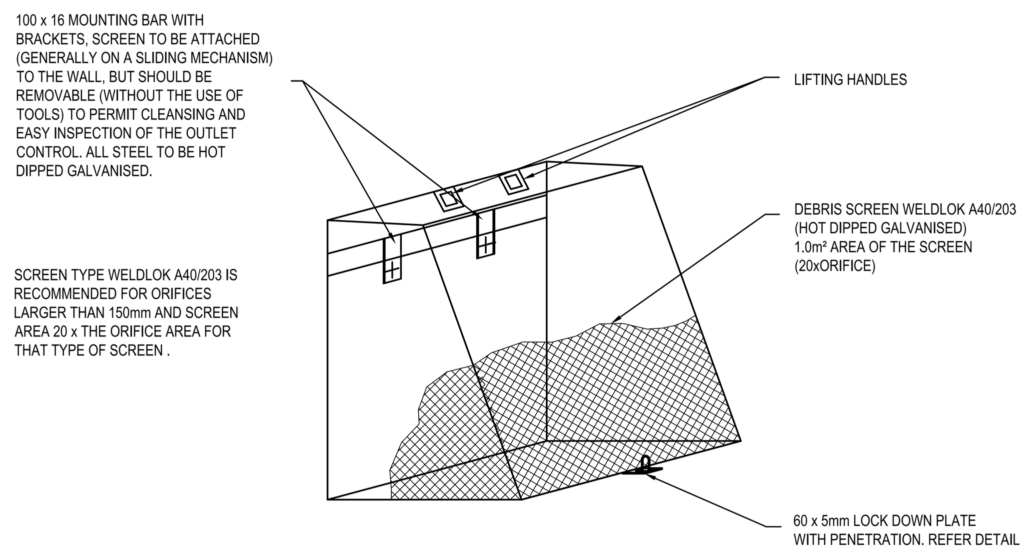
Drawing number: 230804_DA_C200
Revision: 03



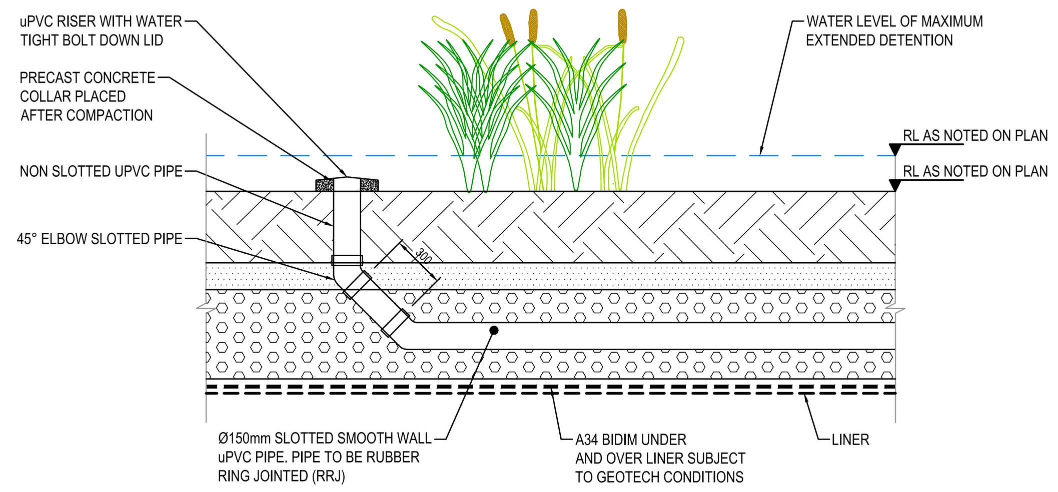
SECTION A C101
SCALE: 1:50



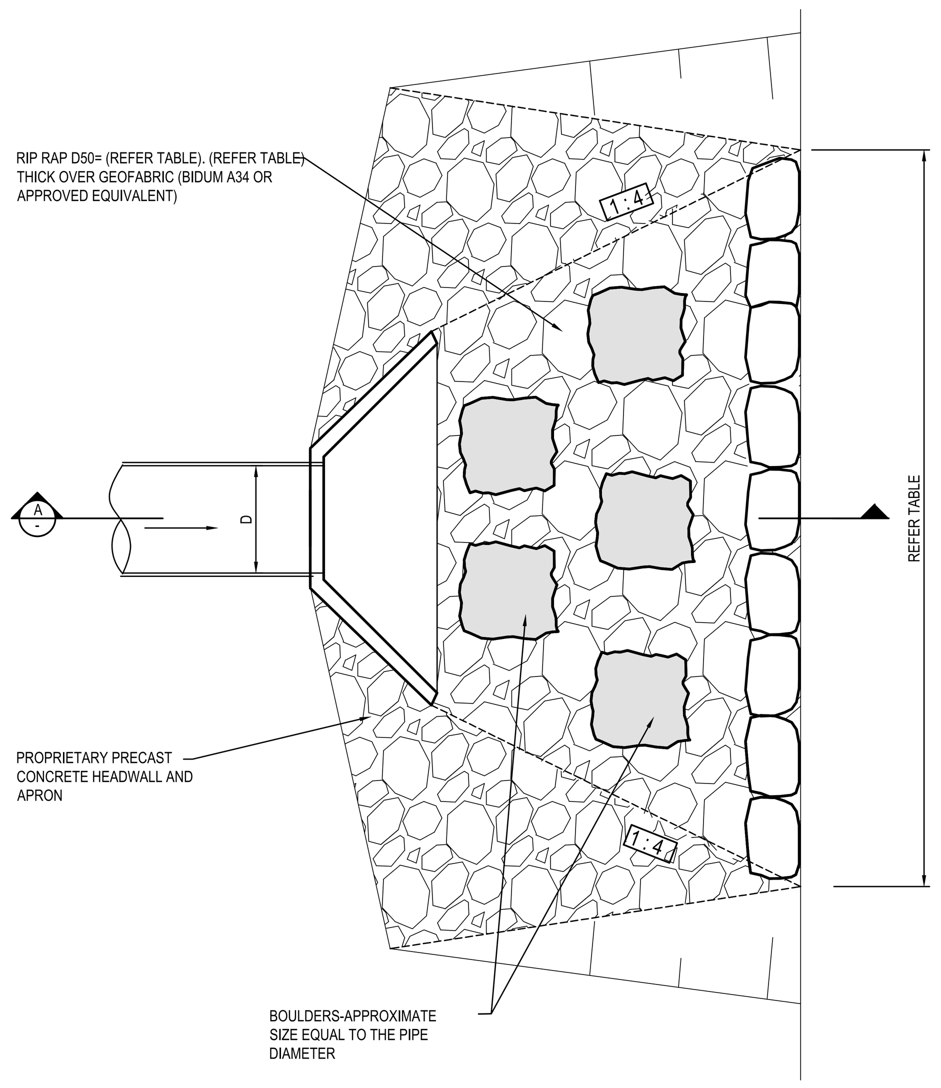
OUTLET FOR LARGE BIO-RETENTION SYSTEM (BASIN 2)
SCALE 1:25



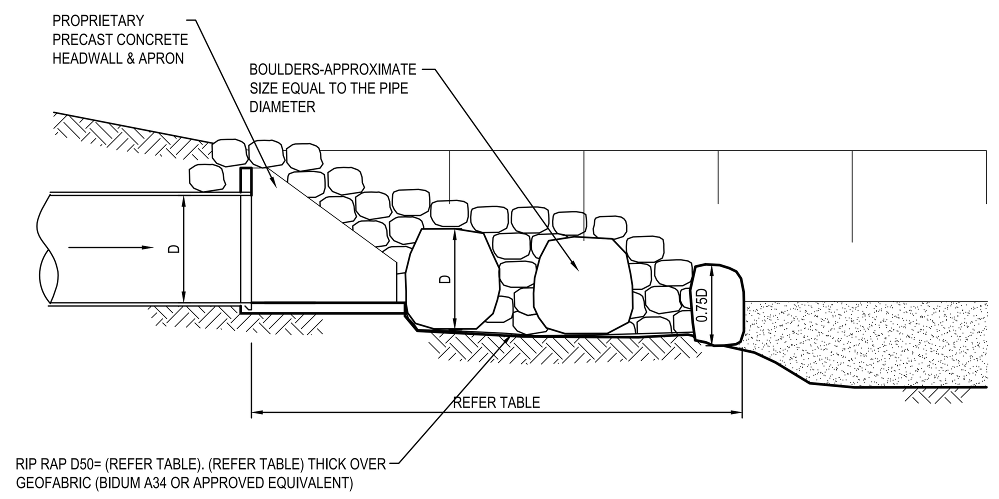
DEBRIS SCREEN DETAIL
NOT TO SCALE
ALL STEEL TO BE HOT DIPPED GALVANISED



DRAINAGE & FLUSHING POINTS
SCALE:1:25



ROCK HEADWALL - OUTLET PLAN TYPICAL
SCALE N.T.S.



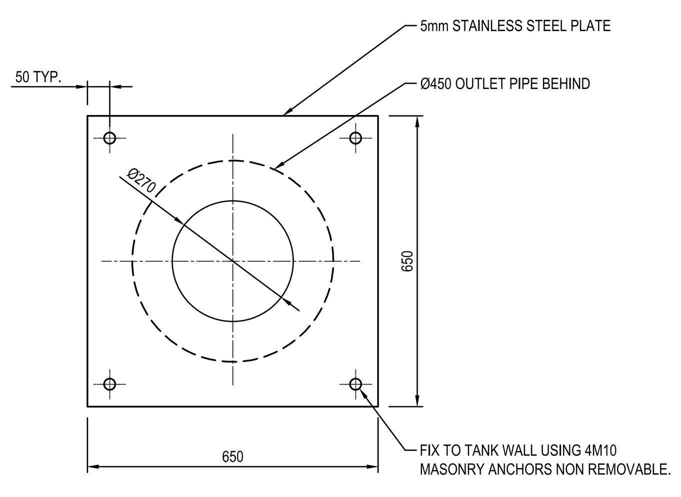
SECTION A
SCALE N.T.S.

	D_{50}					ROCK DISTRUBUTION BY %
	200mm	300mm	400mm	500mm	600mm	
ROCK SIZE (mm)	400	600	750	850	900	15-25%
	300	400	525	600	750	20%
	200	300	400	500	600	50%
	75	100	150	150	200	15-25%

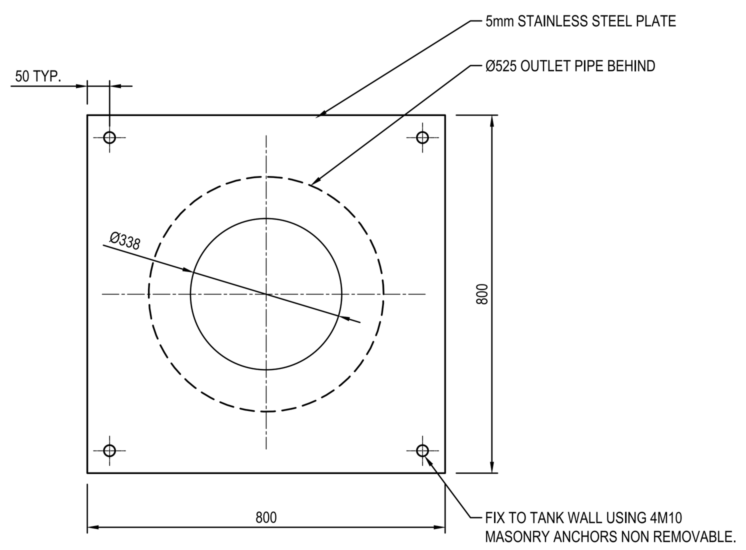
ROCK GRADATION TABLE

	ENTRY PIPE	HEADWALL	D_{50}	RIP RAP THICKNESS	LENGTH OF RIPRAP	WIDTH AT END
HW1	Ø375 RCP C2	PRECAST SINGLE CELL	300mm	400mm	4m	2m
HW2	1800x600 RCBC (T.B.C.)	PRECAST SINGLE CELL	400mm	600mm	4m	4m
HW3	1800x600 RCBC (T.B.C.)	PRECAST SINGLE CELL	400mm	600mm	4m	4m
HW4	Ø900 RCP C2	PRECAST SINGLE CELL	400mm	600mm	7.2m	2.7m
HW5	Ø675 RCP C2	PRECAST SINGLE CELL	400mm	300mm	5.4m	2.1m
HW6	Ø450 RCP C2	PRECAST SINGLE CELL	200mm	300mm	2m	1.5m
HW7	Ø600 RCP C2	PRECAST SINGLE CELL	300mm	450mm	3m	1.8m
HW8	Ø375 RCP C2	PRECAST SINGLE CELL	200mm	300mm	2m	1.2m

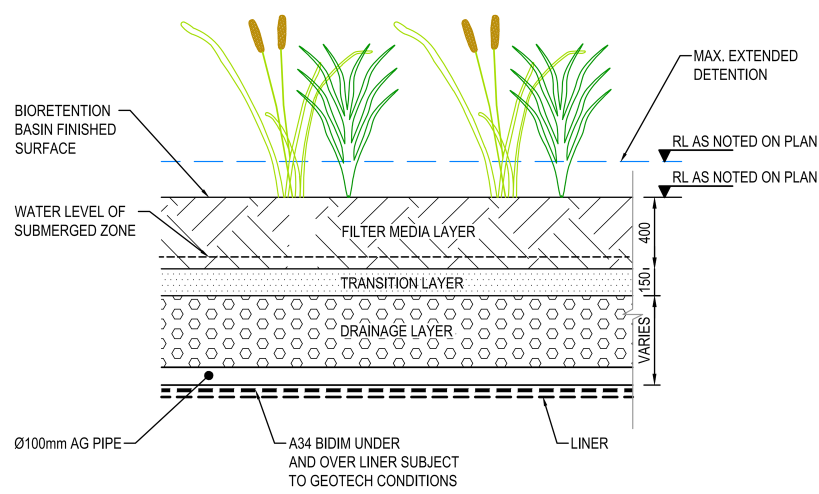
SCOUR PROTECTION - RIP RAP SIZING TABLE



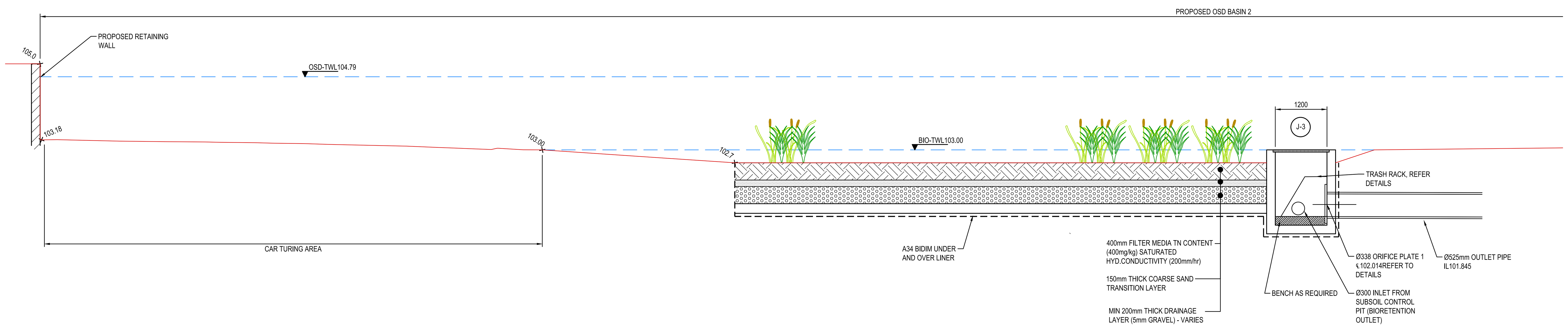
ORIFICE PLATE DETAIL 1
SCALE 1:10



ORIFICE PLATE DETAIL 2
SCALE 1:10



BIO-RETENTION FILTER PROFILE
SCALE 1:25
NOTE: PROVIDE MYCOTROPHIC PLANTS IN ACCORDANCE WITH LOCAL COUNCIL BIO-RETENTION LANDSCAPING DETAILS



SECTION B C103
SCALE: 1:50

0 500 1000 1500 2000 2500mm
500 300 100
SCALE 1:25

0 1000 2000 3000 4000 5000mm
1000 600 200
SCALE 1:50

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

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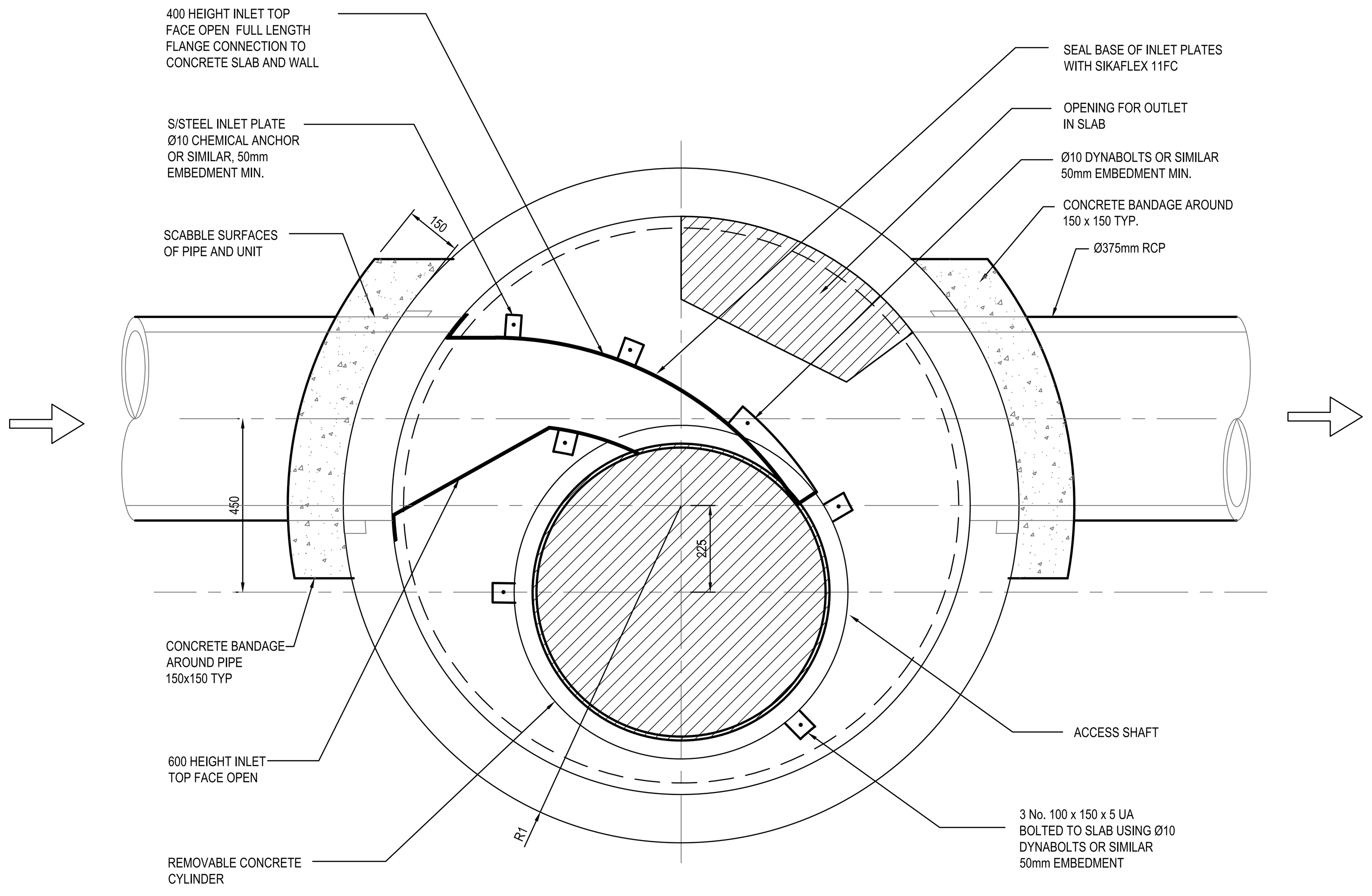
Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

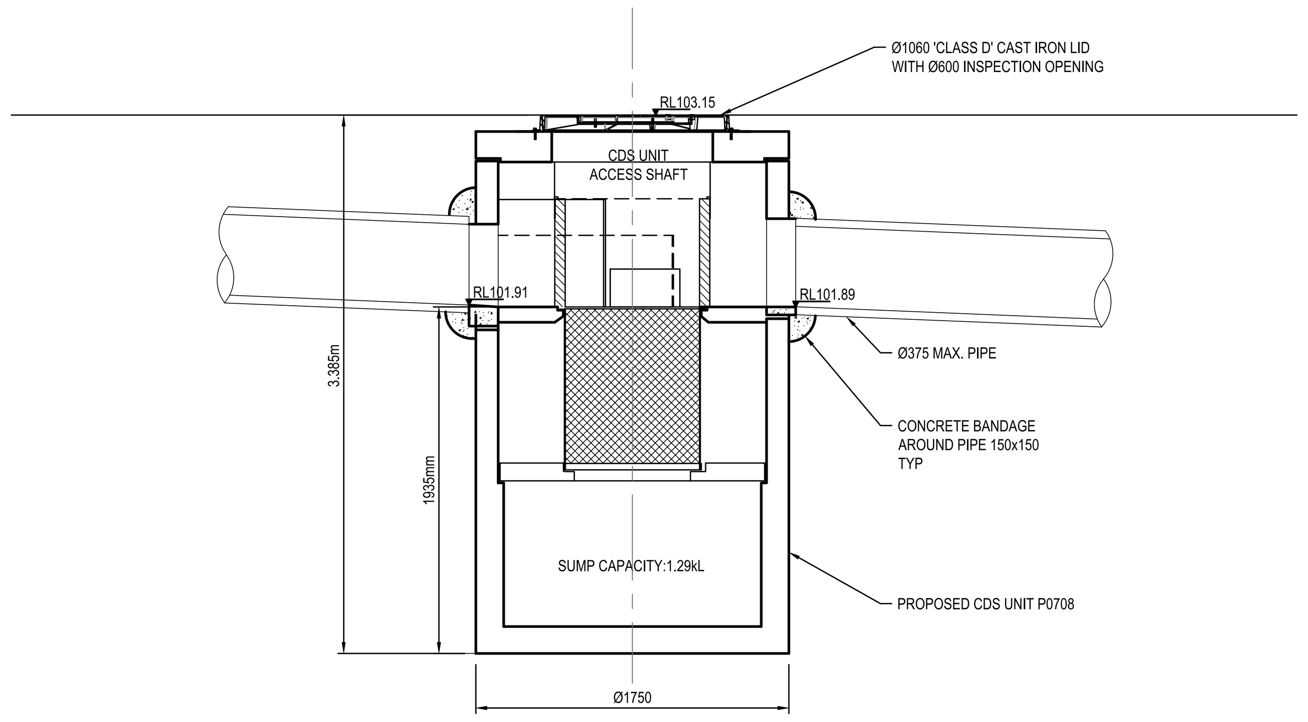
Title
BIO-RETENTION BASIN SECTIONS AND STORMWATER DETAILS

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	AS NOTED

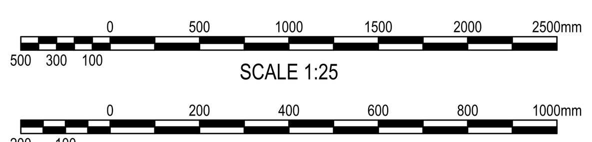
Drawing number 230804_DA_C201
Revision 04



LAYOUT
SCALE 1:10



SECTION
SCALE 1:25



ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
01	ISSUED FOR SSDA APPROVAL	MB	FZ	01.02.2024

Client: GREATER SYDNEY PARKLANDS TRUST
Architect: nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: GROSS POLLUTANT TRAP DETAIL

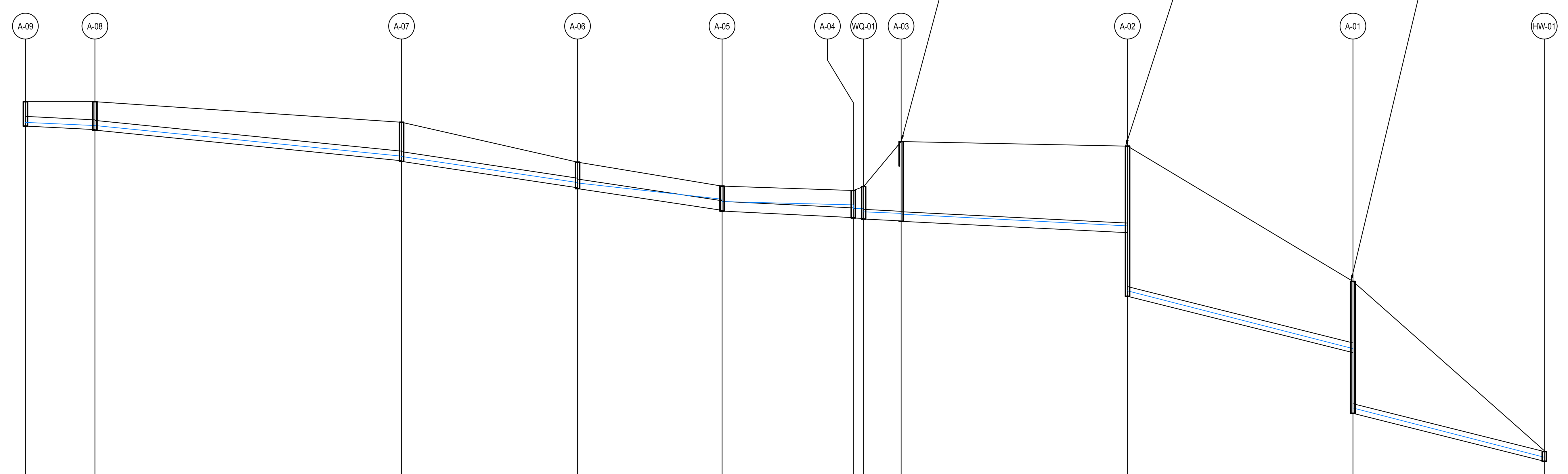
Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	AS NOTED

Drawing number: 230804_DA_C202
Revision: 02

PROPOSED PIT A-3
TO BE LOWERED BY 1.26m TO RL 103.15
DURING DETAIL SITE WORKS " BY OTHERS"

PROPOSED PIT A-2
TO BE LOWERED BY 1.81m TO RL 102.91
DURING DETAIL SITE WORKS " BY OTHERS"

PROPOSED PIT A-1
TO BE RAISED BY 2.67m TO RL 102.14
DURING DETAIL SITE WORKS " BY OTHERS"



	A-09 – A-08	A-08 – A-07	A-07 – A-06	A-06 – A-05	A-05 – A-04	A-04 – WQ-01	WQ-01 – A-03	A-03 – A-02	A-02 – A-01	A-01 – HW-01
Flow (L/s)	21L/s	46L/s	69L/s	91L/s	123L/s	146L/s	146L/s	145L/s	145L/s	144L/s
Pipe Size & Class	375mm	375mm	375mm	375mm	375mm	375mm	375mm	375mm	375mm	375mm
Grade (%)	1.00%	2.00%	3.00%	3.00%	1.00%	1.00%	1.00%	1.00%	5.00%	5.00%

Datum El. 87

	A-09		A-08		A-07		A-06		A-05		A-04		WQ-01		A-03		A-02		A-01		HW-01
H.G.L. LEVELS 1 in 20 YEAR ARI	105.645	105.524	105.524	104.332	104.321	103.306	103.290	102.660	102.566	102.442 102.309	102.295		102.170	102.110	102.079	101.622	99.100	96.858	94.550	92.638	
SURFACE R.L.	106.45		106.45		105.65		104.1		103.17		103		103.15		104.9		104.72		99.47		92.89
INVERT R.L.	105.500	105.365	105.345	104.153	104.130	103.104	103.070	102.227	102.200	101.945 101.930			101.910 101.890	101.817	101.800	101.360	98.890	96.700	94.340	92.480	
PIPE CHAINAGE	0		13.50		73.10		107.30		135.40				160.90 162.90		170.20		214.20		258.00		295.20

LINE A-09 - HW-01

SCALE: H 1:500 / V 1:100

0 2 4 6 8 10m
2 1
SCALE 1:100

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025					
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024					
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024					

Client
GREATER SYDNEY PARKLANDS TRUST

Architect
nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

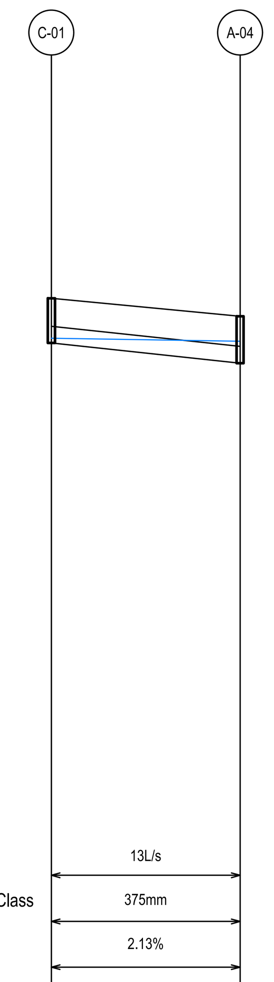
henry&hymas

Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title
STORMWATER LONG SECTION
SHEET 1 OF 2

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	AS SHOWN

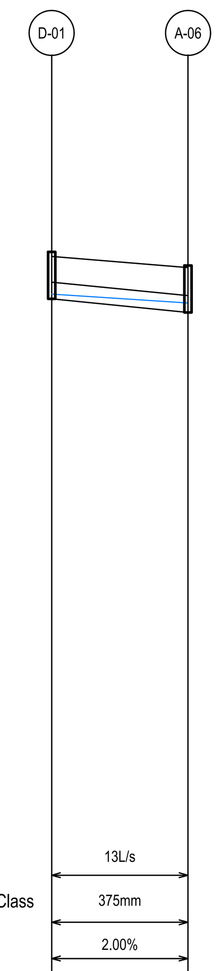
Drawing number: 230804_DA_C210
Revision: 03



Datum El. 87		
H.G.L. LEVELS 1 in 20 YEAR ARI	102.509	102.442
SURFACE R.L.	103.4	103
INVERT R.L.	102.400	101.950
PIPE CHAINAGE	0	21.10

LINE C-01 - A-04

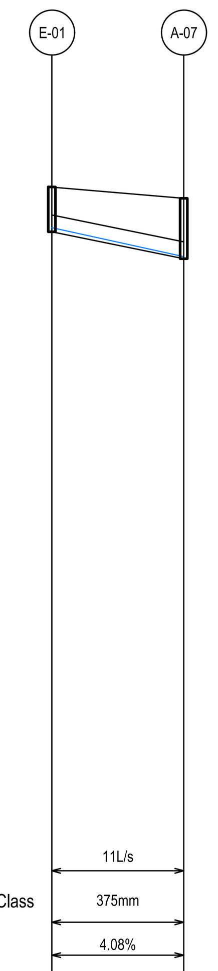
SCALE: H 1:500 / V 1:100



Datum El. 87		
H.G.L. LEVELS 1 in 20 YEAR ARI	103.508	103.306
SURFACE R.L.	104.35	104.1
INVERT R.L.	103.400	103.096
PIPE CHAINAGE	0	15.20

LINE D-01 - A-06

SCALE: H 1:500 / V 1:100



Datum El. 87		
H.G.L. LEVELS 1 in 20 YEAR ARI	104.992	104.345
SURFACE R.L.	105.9	105.65
INVERT R.L.	104.900	104.300
PIPE CHAINAGE	0	14.70

LINE E-01 - A-07

SCALE: H 1:500 / V 1:100

SCALE 1:100

SCALE 1:500

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	MB	FZ	17.01.2024

Client: GREATER SYDNEY PARKLANDS TRUST

Architect: nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

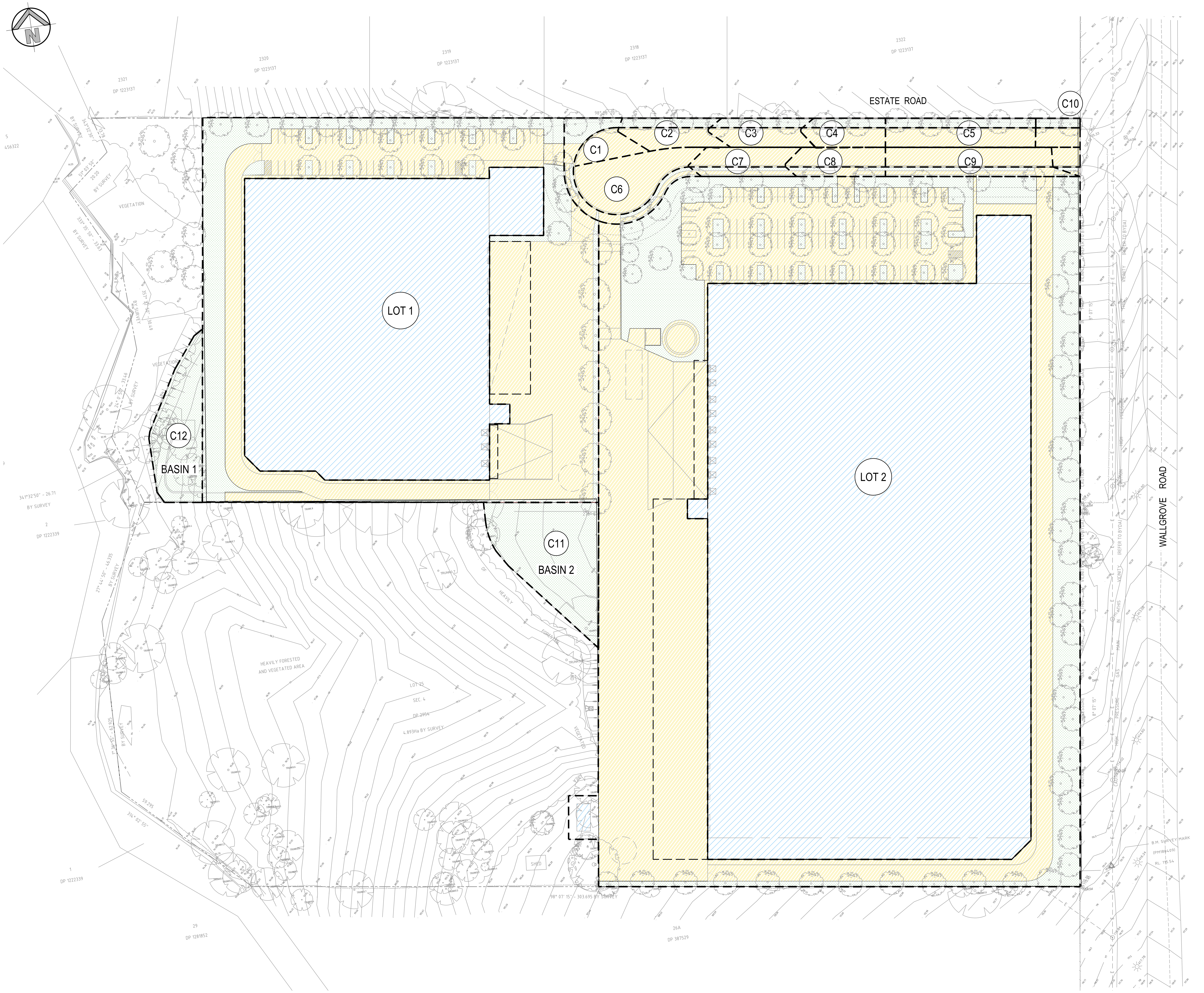
henry&hymas

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: STORMWATER LONG SECTION
SHEET 2 OF 2

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	AS SHOWN

Drawing number: 230804_DA_C211 Revision: 03



TOTAL SITE AREA = 72835m²

AREA = 62901 (86% IMPERVIOUS)
AREA = 9934 (14% PERVIOUS)

TOTAL LOT 1 AREA TO BASIN 1 = 20078.97m²

86.75% IMPERVIOUS
13.25% PERVIOUS

ROOF
AREA = 10386.31m²
51.73% IMPERVIOUS

HARDSTAND
AREA = 7032.35m²
35.02% IMPERVIOUS

LANDSCAPE
AREA = 2660.31m²
13.25% PERVIOUS

TOTAL LOT 2 AREA TO BASIN 2 = 45556.60m²

87.90% IMPERVIOUS
12.10% PERVIOUS

ROOF
AREA = 25593.58m²
56.18% IMPERVIOUS

HARDSTAND
AREA = 14449.92m²
31.72% IMPERVIOUS

LANDSCAPE
AREA = 5513.10m²
12.10% PERVIOUS

TOTAL C1 AREA = 383.5m²

54% IMPERVIOUS
46% PERVIOUS

HANDSTAND
AREA = 208.4m²

LANDSCAPE
AREA = 175.1m²

TOTAL C2 AREA = 366.7m²

66% IMPERVIOUS
34% PERVIOUS

HANDSTAND
AREA = 243.6m²

LANDSCAPE
AREA = 123.1m²

TOTAL C3 AREA = 354.6m²

67% IMPERVIOUS
33% PERVIOUS

HANDSTAND
AREA = 237.8m²

LANDSCAPE
AREA = 116.8m²

TOTAL C4 AREA = 307.2m²

68% IMPERVIOUS
32% PERVIOUS

HANDSTAND
AREA = 207.9m²

LANDSCAPE
AREA = 99.3m²

TOTAL C5 AREA = 588.8m²

67% IMPERVIOUS
33% PERVIOUS

HANDSTAND
AREA = 393.1m²

LANDSCAPE
AREA = 195.7m²

TOTAL C6 AREA = 891.1m²

75% IMPERVIOUS
25% PERVIOUS

HANDSTAND
AREA = 667.0m²

LANDSCAPE
AREA = 224.1m²

TOTAL C7 AREA = 374.6m²

67% IMPERVIOUS
33% PERVIOUS

HANDSTAND
AREA = 249.7m²

LANDSCAPE
AREA = 124.9m²

TOTAL C8 AREA = 367.3m²

67% IMPERVIOUS
33% PERVIOUS

HANDSTAND
AREA = 245.3m²

LANDSCAPE
AREA = 122.0m²

TOTAL C9 AREA = 674.0m²

66% IMPERVIOUS
34% PERVIOUS

HANDSTAND
AREA = 443.2m²

LANDSCAPE
AREA = 230.8m²

TOTAL C10 AREA = 265.2m²

72% IMPERVIOUS
28% PERVIOUS

HANDSTAND
AREA = 190.8m²

LANDSCAPE
AREA = 74.4m²

TOTAL C11,C12 AREA = 2303m²

100% PERVIOUS

LANDSCAPE
AREA = 2303m²

STORMWATER CATCHMENT PLAN - MASTERPLAN STAGE

SCALE: 1:500

SCALE 1:500

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	13.02.2024
01	ISSUED FOR CO-ORDINATION	MB	NW	17.01.2024

Client: GREATER SYDNEY PARKLANDS TRUST

Architect: nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: STORMWATER CATCHMENT PLAN
MASTERPLAN STAGE

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:500

Drawing number: 230804_DA_C250 Revision: 03

MASONRY CONSTRUCTION:

B1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3700 AND AS NOTED ON THE DRAWINGS.

B2 BRICK AND BLOCK COMPRESSIVE STRENGTH (f'uc) SHALL BE 15 MPa MINIMUM UNO. STRENGTH GRADE SHALL BE CLEARLY INDICATED ON THE DELIVERY DOCKETS.

B3 JOINT MORTAR SHALL BE OF CLASS M3 WITH 1:1:6 (CEMENT: LIME: SAND) PROPORTIONS BY VOLUME AND COMPLY WITH AS3700. MORTAR JOINTS SHALL BE 10 mm THICK AND HAVE A MAXIMUM TOOLED DEPTH OF 3 mm UNO.

B4 NON-LOAD BEARING WALLS SHALL BE SEPARATED FROM THE LOAD-BEARING ELEMENTS BY 15 mm THICK 'CANEITE' OR EXPANDED POLYSTYRENE UNO AT BOTH HORIZONTAL AND VERTICAL FACES.

NON-LOAD BEARING WALLS SHALL BE TIED TO THE SOFFITS OF BEAMS OR SLABS OVER BY USING 'MET 4-1' TIES (OR APPROVED EQUIVALENT), AT 800 mm MAX. CENTRES, UNO ON THE DRAWINGS, TO MANUFACTURER'S SPECIFICATIONS

B5 WHERE CONCRETE SLABS BEAR ON UNREINFORCED MASONRY, INCLUDING CLAY BRICKS, RENDER THE BEARING SURFACE OF THE MASONRY WALL WITH 1:3 (CEMENT : SAND) MORTAR TO ACHIEVE A LEVEL SURFACE AND PLACE A PRE-GREASED METAL SLIP JOINT PROTECTED BY 0.2 mm POLYETHYLENE SHEET TAPED TO THE FORMWORK BEFORE PLACING CONCRETE. SPECIAL DETAILS SUCH AS WATER-PROOFING MAY APPLY FOR ROOF SLABS OR SIMILARLY EXPOSED ELEMENTS.

B6 CONTROL JOINTS

1. CONTROL JOINTS SHALL BE PROVIDED IN MASONRY WALLS AS PER THE TABLE BELOW UNLESS CLOSER SPACINGS ARE SPECIFIED ELSEWHERE IN THE DOCUMENTATION.

MASONRY TYPE	LOCATION	JOINT SIZE (mm)	SPACING (m)
CONCRETE MASONRY	- EXTERNAL	10	7.0
	- EXTERNAL (WITH OPENINGS > 900mm IN HEIGHT)	10	5.0
	- INTERNAL (FACE FINISHED)	10	6.0
	- INTERNAL (RENDERED)	10	5.0
LIGHT-WEIGHT MASONRY	- INTERNAL / EXTERNAL	10	6.0
CLAY MASONRY	- INTERNAL / EXTERNAL	15	6.0 *
	- PARAPET WALLS	15	4.0

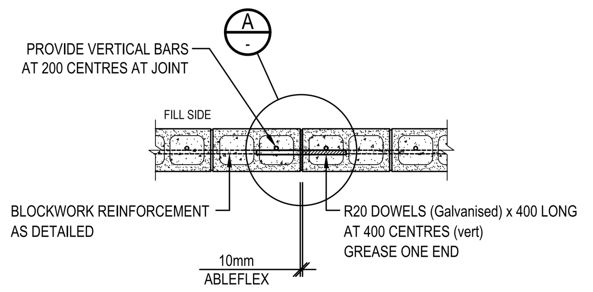
* - FOR REACTIVE ' CLASS M' SITES ONLY. REFER TABLE 4.3 OF AS3700.2011 FOR ARTICULATION JOINTS IN CLAY MASONRY.

2. CONTROL JOINTS SHALL BE PLACED AT HALF THE SPECIFIED SPACING FROM A CORNER. PROVIDE JOINTS TO MATCH JOINTS IN THE SUPPORTING STRUCTURE.
3. CONTROL JOINTS MUST BE KEPT FREE OF MORTAR AND SEALED WITH A POLYETHYLENE FOAM BACKING ROD SQUEEZED INTO THE GAP AND A GUNNED-IN MASTIC SEALANT. IF THE WALL IS TO BE FIRE-RATED, A FIRE-RATED SEALING SYSTEM WILL BE REQUIRED INSTEAD.

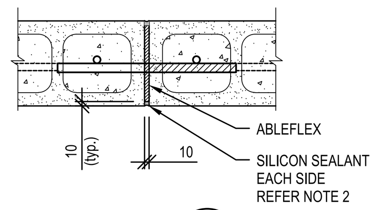
B7 BLOCKWORK

1. IN CORE-FILLED BLOCKWORK, EXCESS MORTAR PROTRUDING INTO THE CORES SHALL BE REMOVED BY RODDING AFTER EACH COURSE IS LAID. EVERY CORE FILLED WITH GROUT SHALL HAVE A CLEANOUT BLOCK IN THE BOTTOM COURSE.
2. REINFORCEMENT SHALL BE PLACED AND SECURELY TIED IN POSITION AS SHOWN ON THE DRAWINGS. STARTER BARS SHALL BE HELD IN PLACE BY TYING TO HORIZONTAL BARS AT CLEANOUT BLOCKS. PROVIDE COVER TO REINFORCEMENT AS SHOWN IN THE DETAILS.
3. CORE FILLING GROUT SHALL BE AS NOTED IN CONCRETE NOTES IN LIFTS NO MORE THAN 1200mm IN HEIGHT.

Element	Slump	Max. Agg. Size	Cement Type	Exposure Classif'n.	Min. Conc. Grade (f'c) MPa U.N.O	Conc. Cover (U.N.O.)
Core Filling Grout	230±30	10	GP	-	20	-



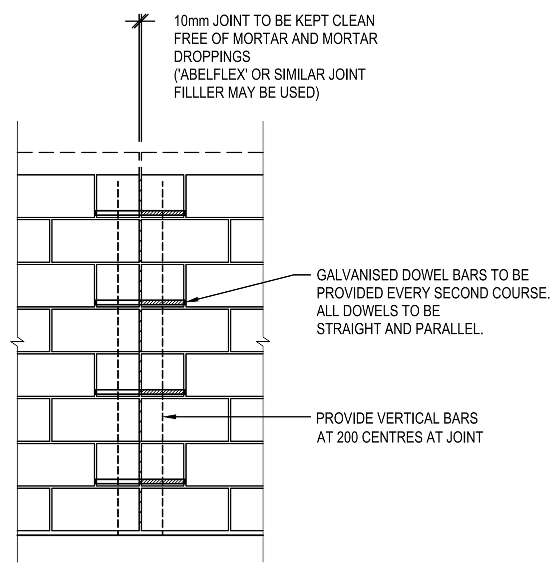
PLAN



DETAIL A

NOTES:

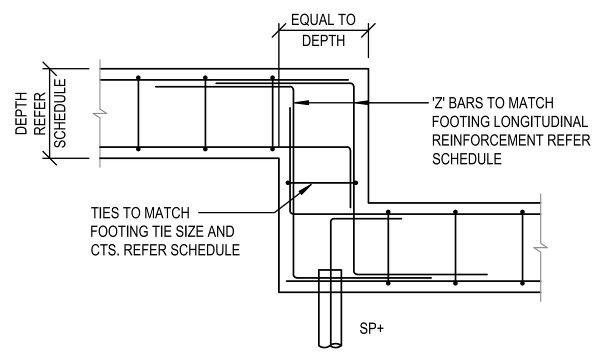
1. UNLESS OTHERWISE NOTED ON PLAN JOINTS SHALL BE LOCATED AT 8000 CENTRES max. AND 4000 FROM CORNERS.
2. PROVIDE SILICON SEALANT BOTH FACES IN ALL JOINTS, USE PARCHEM EMER-SEAL CR OR AN APPROVED EQUIVALENT.



ELEVATION

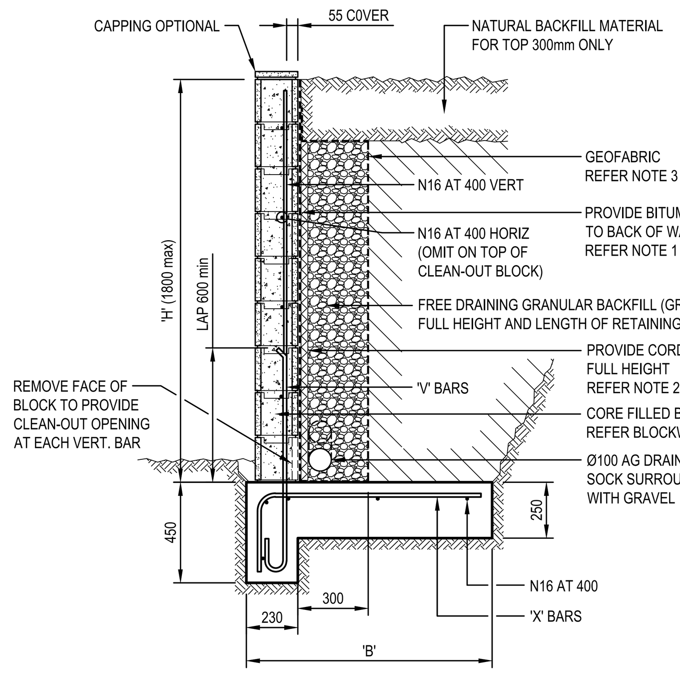
TYPICAL BLOCKWORK VERTICAL EXPANSION JOINT

SCALE 1:20



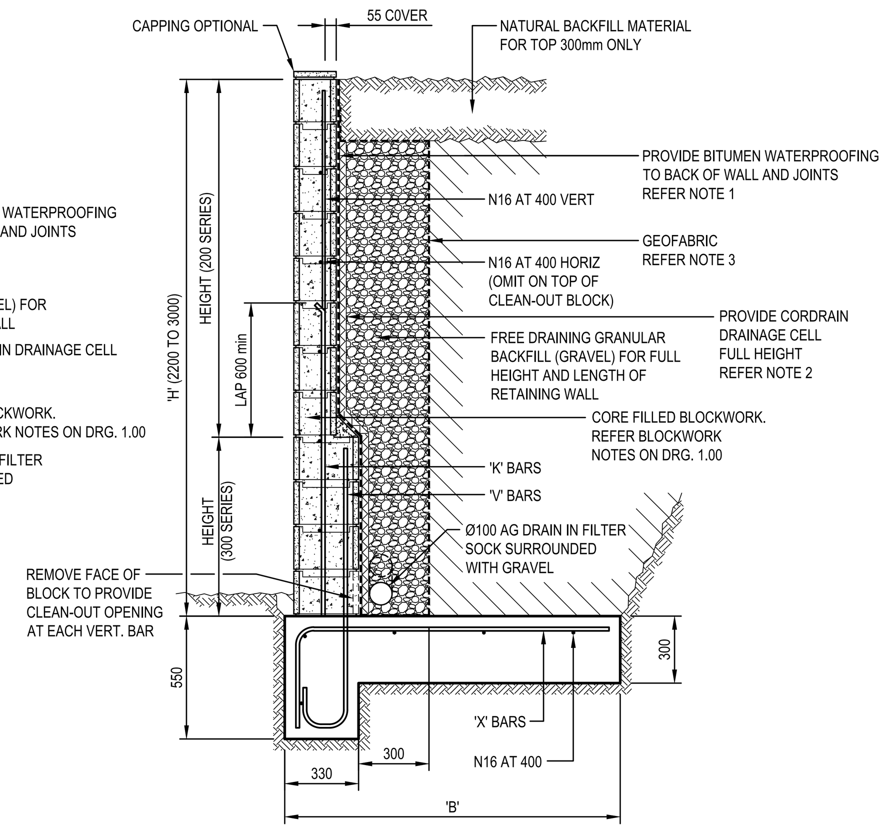
TYPICAL FOOTING STEP DETAIL

SCALE 1:20



150 OR 200 SERIES BLOCK WALL

15.0 kPa SURCHARGE



200 AND 300 SERIES BLOCK WALL

15.0 kPa SURCHARGE

RETAINING WALL SCHEDULE

TOTAL HEIGHT 'H' (mm)	HEIGHT OF BLOCK TYPE 200 SERIES	HEIGHT OF BLOCK TYPE 300 SERIES	'B' (mm)	'V' & 'X' BARS	'K' BARS
800	800	-	900	N16 AT 400	-
1000	1000	-	1000	N16 AT 400	-
1200	1200	-	1100	N16 AT 400	-
1400	1400	-	1200	N16 AT 400	-
1600	1600	-	1300	N16 AT 400	-
1800	1800	-	1400	N20 AT 400	-
2000	1400	600	1500	N16 AT 400	-
2200	1400	800	1700	N16 AT 400	N16 AT 400
2400	1400	1000	1900	N20 AT 400	N20 AT 400
2600	1400	1200	2200	N20 AT 400	N20 AT 400
2800	1400	1400	2400	N20 AT 400	N20 AT 400
3000	1400	1600	2700	N20 AT 400	N20 AT 400

NOTES:

1. ENSURE REAR FACE OF RETAINING WALL IS FULLY WATERPROOFED. USE EMER-PROOF ECOFLEX OR APPROVED EQUIVALENT IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION. EG: 2 COATS min. APPLIED IN OPPOSITE DIRECTIONS AND ALLOWED TO CURE FOR 7 DAYS.
2. INSTALL FULL HEIGHT DRAINAGE CELL TO REAR OF WALL, USE NYLEX CORDRAIN/18 OR APPROVED EQUIVALENT, THESE ARE SUPPLIED IN 1.2m WIDE ROLLS x 25m LONG AVAILABLE FROM MACCAFERRI IN ALL CAPITAL CITIES.
3. PROVIDE GEOFABRIC MATERIAL AS SEPERATION BETWEEN GRANULAR BACKFILL (GRAVEL) AND NATURAL BACKFILL MATERIAL. USE BIDIM A24 OR APPROVED EQUIVALENT.

0 400 800 1200 1600 2000mm
400 200
SCALE 1:20

ISSUED FOR APPROVAL

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ORIGIN OF LEVELS: SSM 26613, RL118.6

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01	ISSUED FOR SSDA APPROVAL	MB	FZ	01.02.2024

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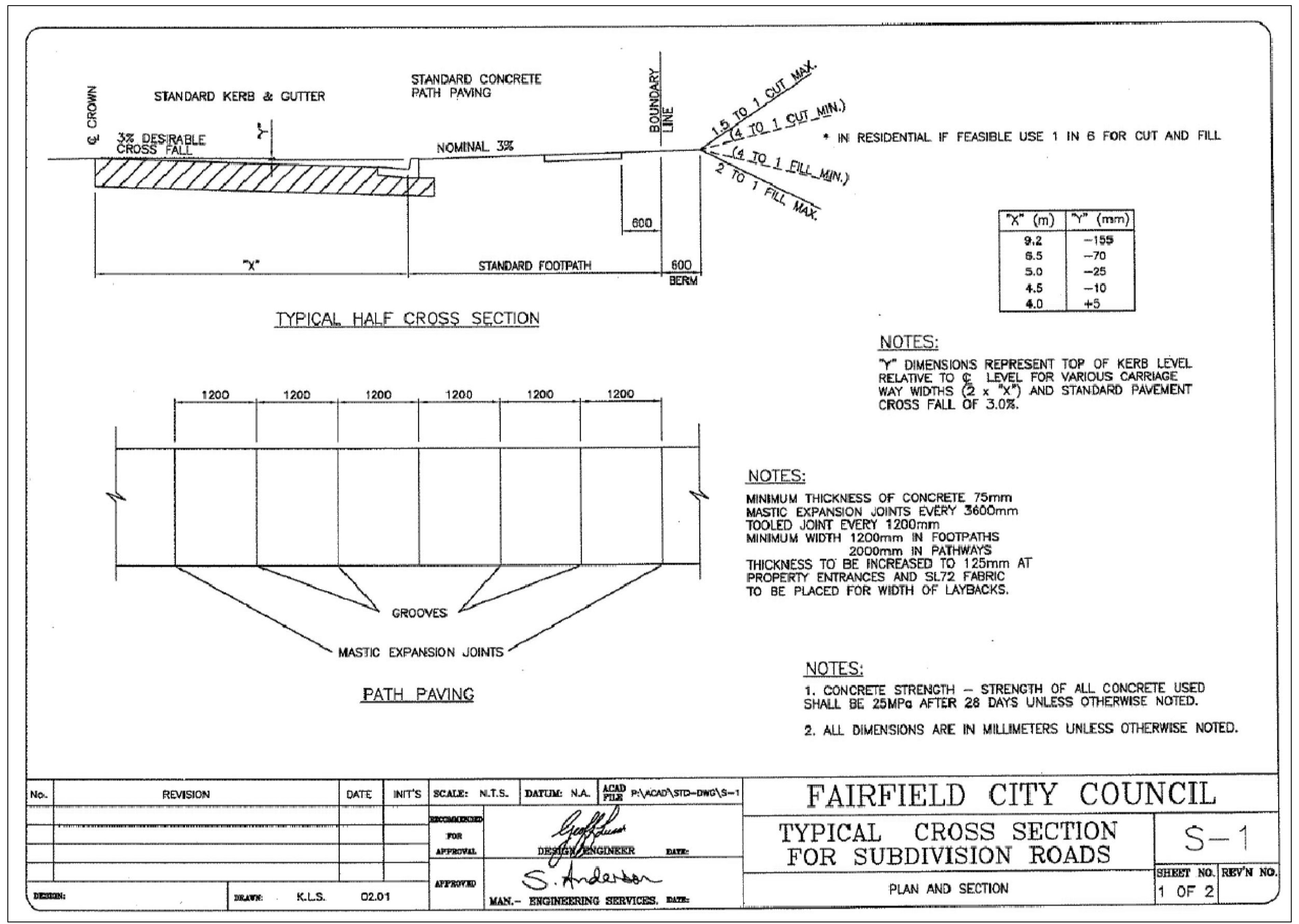
DRAWING TO BE PRINTED IN COLOUR

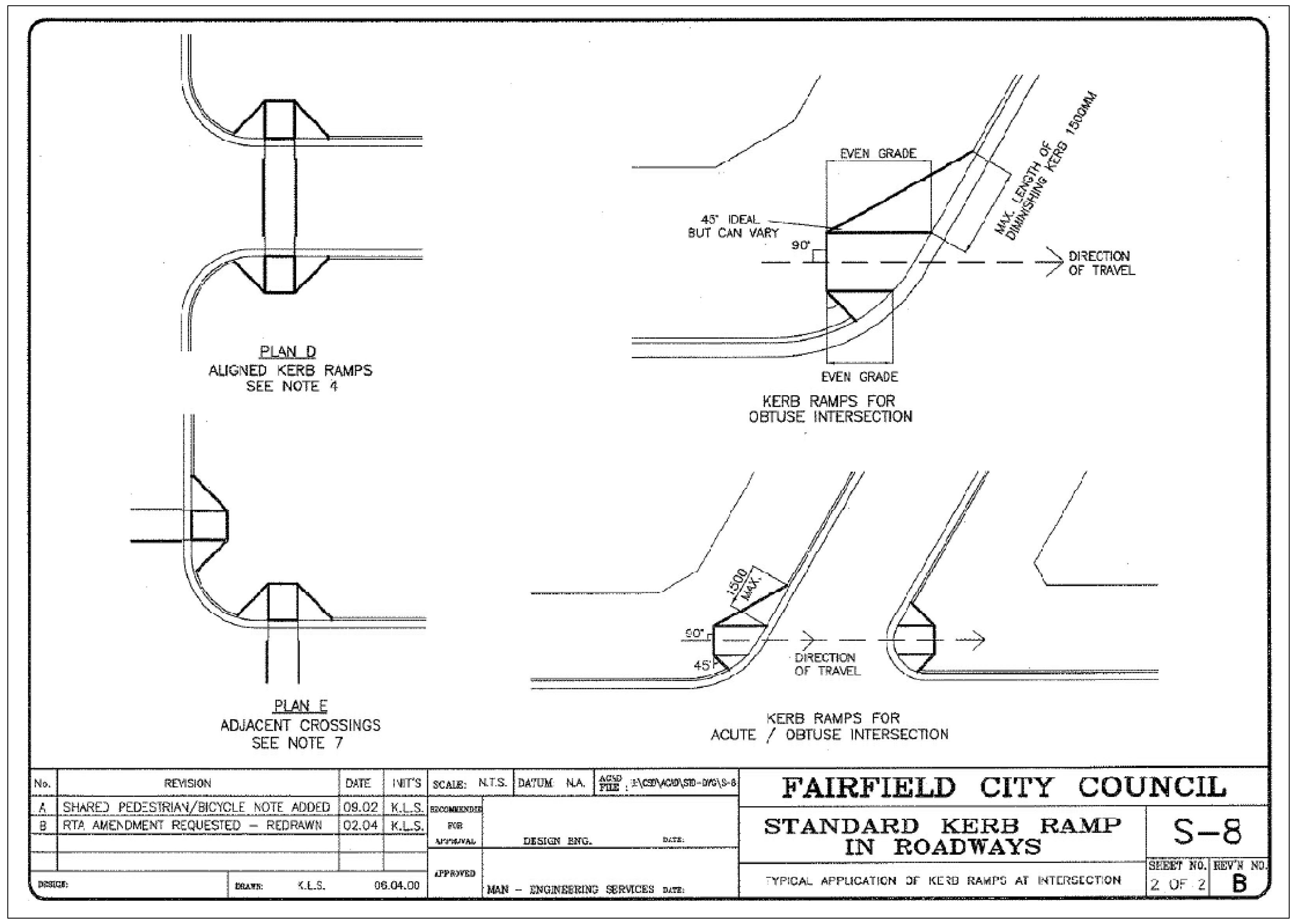
Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

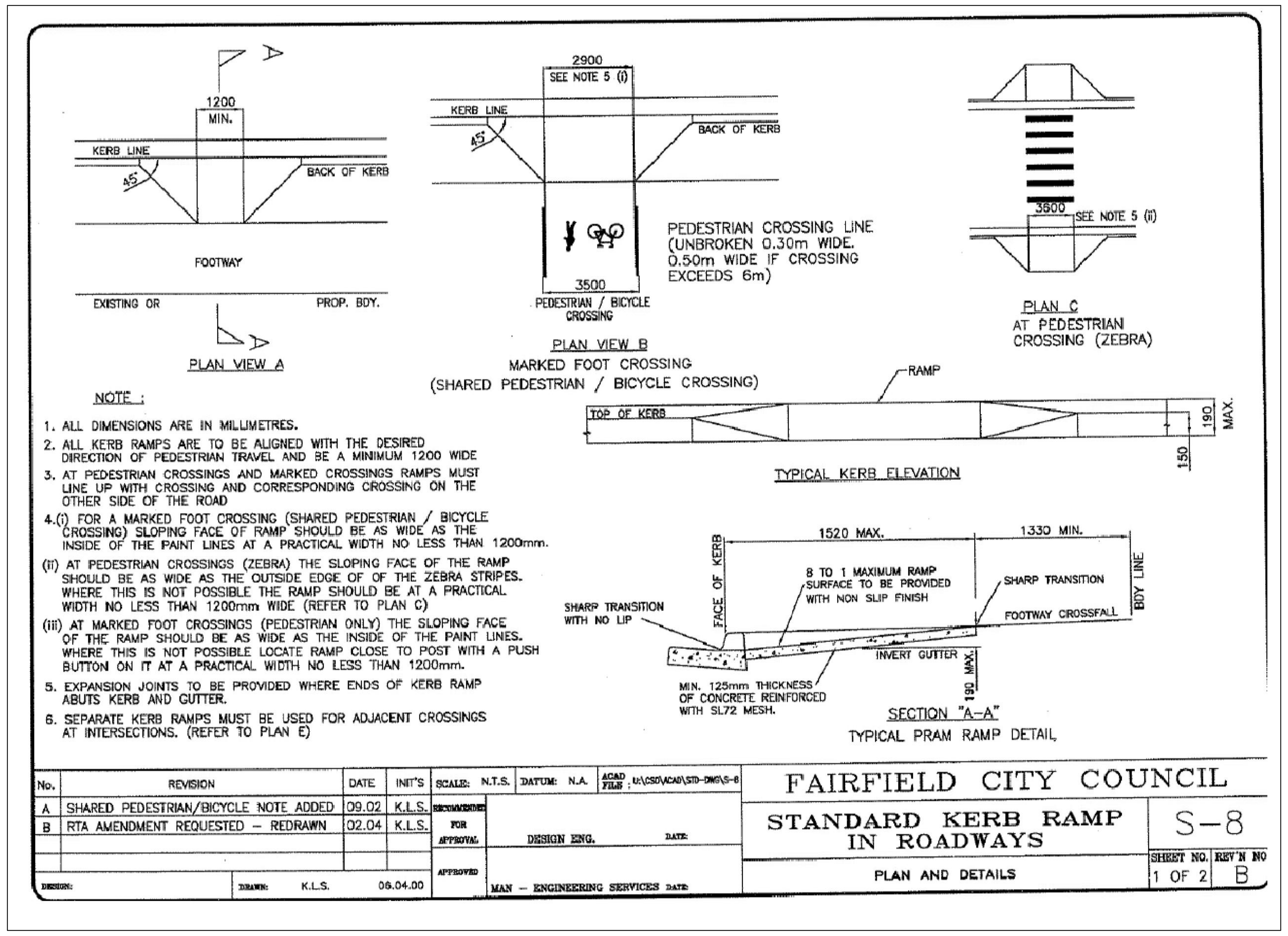
Title: RETAINING WALL TYPICAL DETAILS

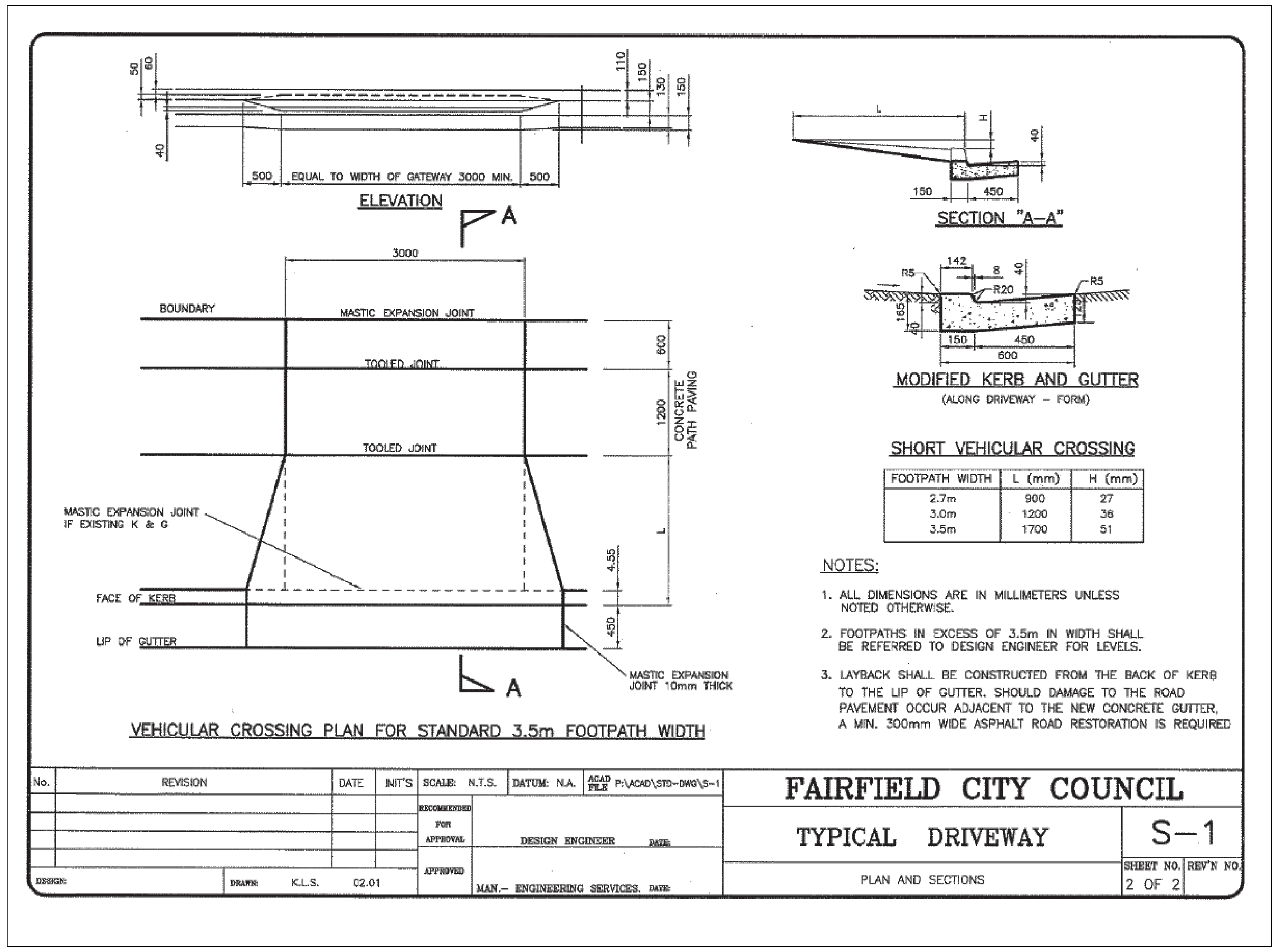
Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	AS NOTED

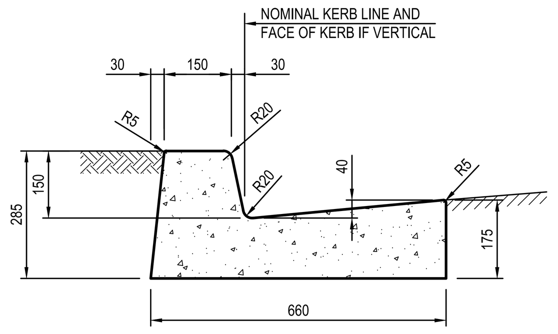
Drawing number: 230804_DA_C310 Revision: 02







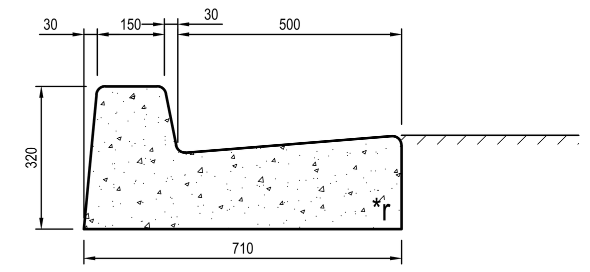




150mm KERB & GUTTER (K&G)

SCALE 1:10

NOTE:
CONFIRM DIMENSIONS AND DETAILS WITH LOCAL AUTHORITY



SA KERB

SCALE 1:10

BARRIER KERB AND GUTTER ADJACENT TO FOOTWAY

KERBING NOTES:

INCLUDES ALL KERBS, GUTTERS, DISH DRAINS, CROSSING AND EDGES.

1. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSING TO BE CONSTRUCTED ON MINIMUM 75mm GRANULAR BASE COURSE COMPACTED TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1.
2. EXPANSION JOINTS (EJ) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILTER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATION IN KERBS.
3. WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN SLABS.
4. BROAMED FINISHED TO ALL RAMPED AND VEHICULAR CROSSINGS, ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
5. IN THE REPLACEMENT OF KERBS
EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm FROM LIP OF GUTTER.
UPON COMPLETION OF NEW KERBS, NEW BASE COURSE AND SURFACE IS TO BE LAID 900mm WIDE TO MATCH EXISTING MATERIALS AND THICKNESS.
EXISTING ALLOTMENT DRAINAGE PIPE ARE TO BE BUILT INTO NEW KERB WITH A 100mm DIA HOLE.
EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

0 200 400 600 800 1000mm
200 100
SCALE 1:10

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	DC	FZ	24.04.2025
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Client: GREATER SYDNEY PARKLANDS TRUST

Architect: nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

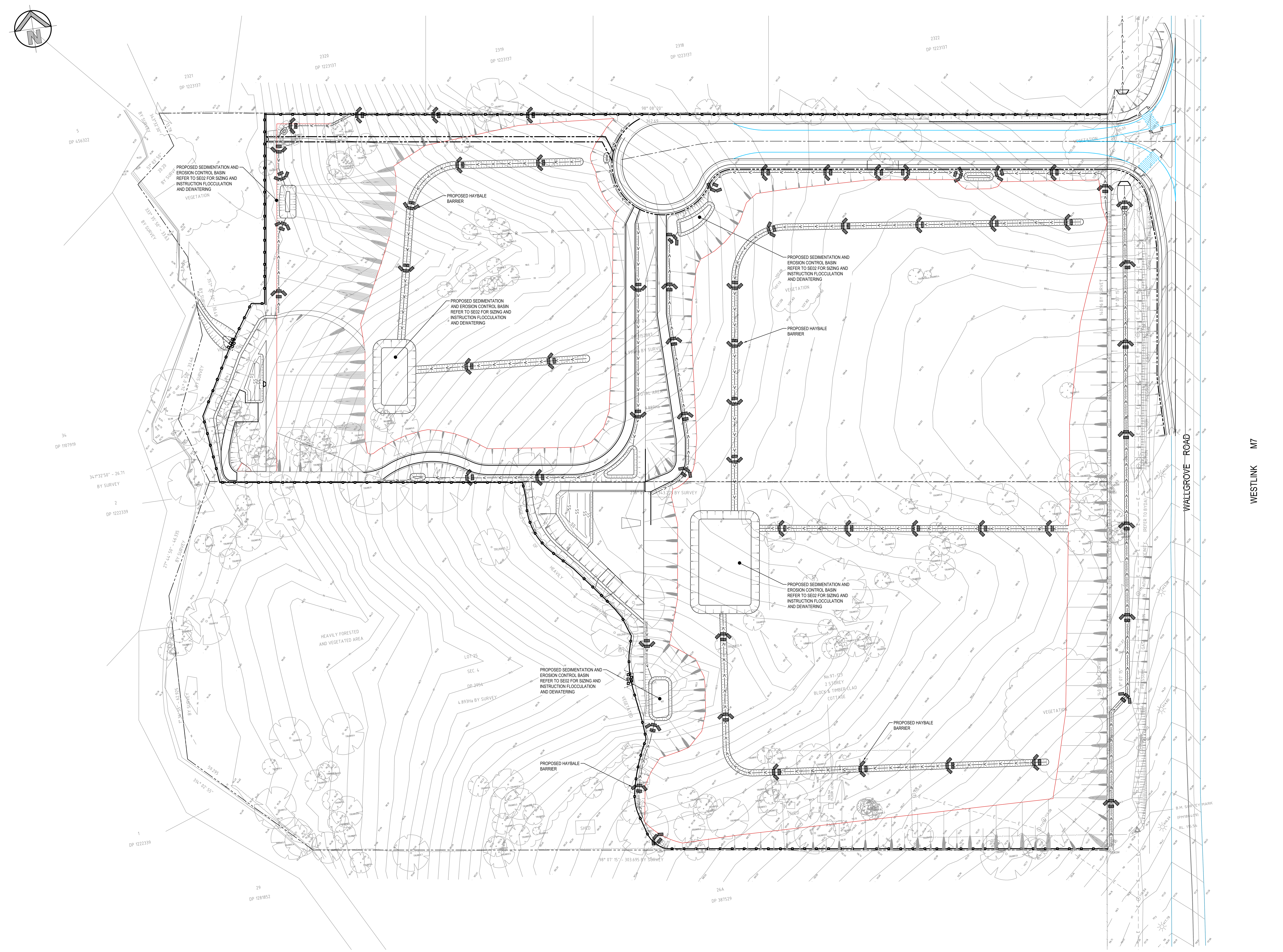
henry&hymas

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: KERB AND LAYBACK STANDARD DETAILS

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	AS NOTED

Drawing number: 230804_DA_C510
Revision: 03



SEDIMENT AND EROSION CONTROL PLAN

SCALE: 1:500

SCALE 1:500

LEGEND

- SITE BOUNDARY
- PROPOSED SEDIMENTATION FENCE
- PROPOSED CATCH DIVERSION DRAIN
- PROPOSED TRAFFIC MANOEUVRING
- PROPOSED HAYBALE FILTER OR ROCK CHECK DAM.
- PROPOSED STOCKPILE LOCATION
- PROPOSED VEHICLE SHAKER GRID
- PROPOSED STABILISED SITE ACCESS
- PROPOSED MESH AND GRAVEL INLET FILTER
- PROPOSED GEO-TEXTILE INLET FILTER
- PROPOSED SEDIMENT BASIN

SEDIMENT & EROSION CONTROL NOTES

- ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH CITY OF FAIRFIELD COUNCIL'S SPECIFICATIONS AND LANDCOM'S "SOIL AND CONSTRUCTION" MANUAL.
- ALL PERIMETER & SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN EARTH WORKS AND/OR CLEARING.
- THE SEDIMENT & EROSION CONTROL PLAN MAY REQUIRE FUTURE ADJUSTMENT TO REFLECT CONSTRUCTION STAGING. IT IS ALSO THE CONTRACTORS RESPONSIBILTY TO PREPARE THEIR OWN SEDIMENT AND EROSION CONTROL PLAN WHICH SUITS THE DESIGNED CONSTRUCTION STAGING.
- FILTRATION BUFFER ZONES ARE TO BE FENCED OFF AND ACCESS PROHIBITED TO ALL PLANT AND MACHINERY.
- ALL TEMPORARY EARTH BERMS, DIVERSIONS & SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED & MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
- 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 LOCATION.
- ALL TOPSOIL IS TO BE STOCKPILED ON SITE FOR REUSE (AWAY FROM TREES AND DRAINAGE LINES). MEASURES SHALL BE APPLIED TO PREVENT EROSION OF THE STOCKPILES.
- ALL EARTHWORK AREAS SHALL BE ROLLED EACH EVENING TO SEAL THE EARTHWORKS.
- ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND STRAW MULCHED WITHIN 14 DAYS OF COMPLETION OF FORMATION U.N.O. BY LANDSCAPE ARCHITECTS.
- UPON COMPLETION OF ALL EARTHWORKS OR AS DIRECTED BY COUNCIL SOIL CONSERVATION TREATMENTS SHALL BE APPLIED SO AS TO RENDER AREAS THAT HAVE BEEN DISTURBED, EROSION PROOF WITHIN 14 DAYS.
- EROSION AND SILT PROTECTION MEASURES ARE TO BE MAINTAINED AT ALL TIMES.

ISSUED FOR APPROVAL

SURVEY INFORMATION

SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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Client: GREATER SYDNEY PARKLANDS TRUST

Architect: nettletontribe partnership

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DRAWING TO BE PRINTED IN COLOUR

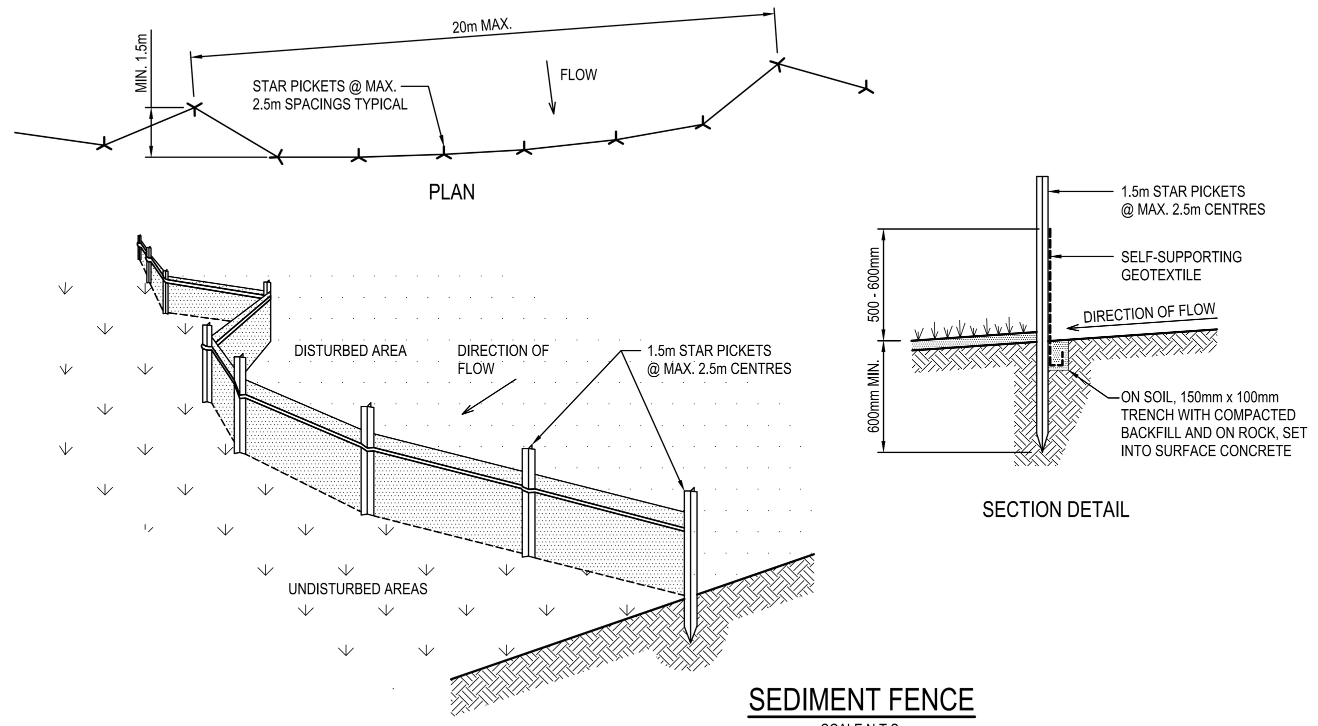
henry&hymas

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title: SEDIMENT AND EROSION CONTROL PLAN

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	**Approved**	**Scale @A0**
N. Wetzlar	A.Francis	1:500

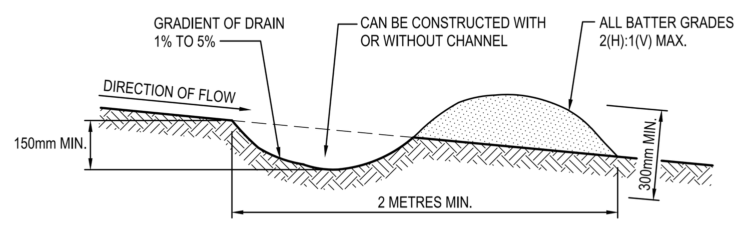
Drawing number: 230804_DA_SE01 Revision: 03



SEDIMENT FENCE
SCALE N.T.S.

SEDIMENT FENCE CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND @ 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

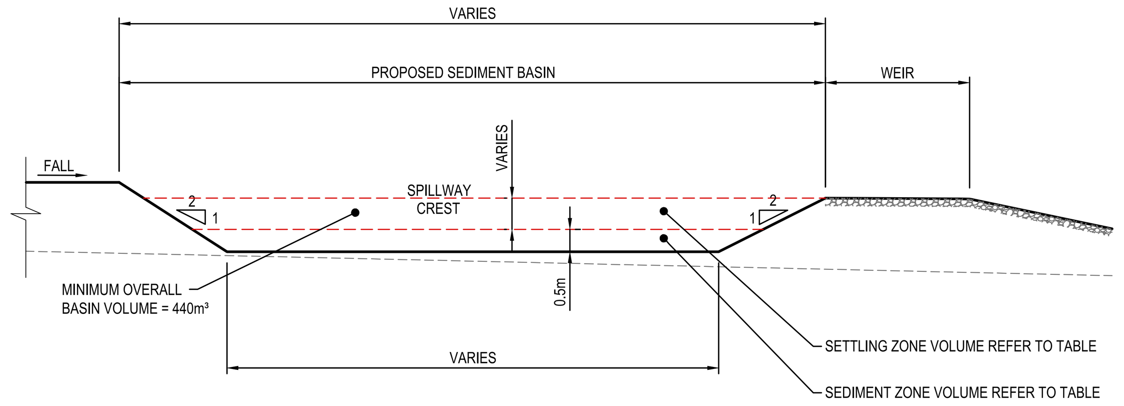


NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

EARTH BANK CONSTRUCTION NOTES:

1. BUILD WITH GRADIENTS BETWEEN 1% AND 5%.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS-SECTIONS, NOT "V" SHAPED.
5. ENSURE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

EARTH BANK (LOW FLOW)
SCALE N.T.S.



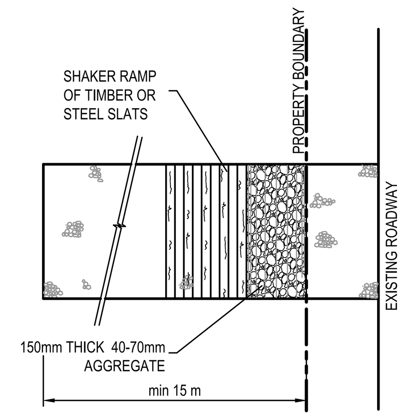
TYPICAL SECTION

SEDIMENTATION BASIN
N.T.S.

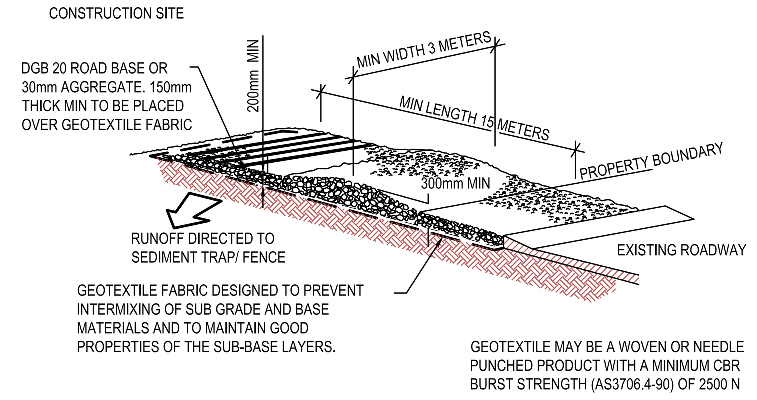
CONSTRUCTION SEQUENCE

WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:

1. INSTALL SEDIMENT FENCING AND CUT DRAINS TO MEET THE REQUIREMENTS OF THE SEDIMENT AND EROSION CONTROL PLAN. WASTE COLLECTION BINS SHALL BE INSTALLED ADJACENT TO SITE OFFICE.
2. CONSTRUCT STABILISED SITE ACCESS IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S REQUIREMENTS.
3. REDIRECT CLEAN WATER AROUND THE CONSTRUCTION SITE.
4. INSTALL SEDIMENT CONTROL PROTECTION MEASURES AT ALL NATURAL AND MAN-MADE DRAINAGE STRUCTURES. MAINTAIN UNTIL ALL THE DISTURBED AREAS ARE STABILISED.
5. CLEAR AND STRIP THE WORK AREAS. MINIMISE THE DAMAGE TO THE GRASS AND LOW GROUND COVER OF NON-DISTURBED AREAS.
6. ANY DISTURBED AREAS, OTHER THAN BUILDING PAD AREAS, SHALL IMMEDIATELY BE COVERED WITH SITE TOPSOIL WITHIN 7 DAYS OF CLEARING. BUILDING PAD AREAS SHALL BE COVERED WITH BITUMEN EMULSION AS SPECIFIED.
7. APPLY PERMANENT STABILISATION TO SITE (LANDSCAPING).



PLAN
STABILISED SITE ACCESS WITH SHAKER RAMP
N.T.S.



GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUB GRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS.

GEOTEXTILE MAY BE A WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

STABILISED SITE ACCESS WITH SHAKER RAMP
N.T.S.

NOTES:

1. THIS DEVICE IS TO BE LOCATED AT ALL EXITS FROM CONSTRUCTION SITE.
2. THIS DEVICE IS TO BE REGULARLY CLEANED OF DEPOSITED MATERIAL SO AS TO MAINTAIN A 50mm DEEP SPACE BETWEEN PLANKS.
3. ANY UNSEALED ROAD BETWEEN THIS DEVICE AND NEAREST ROADWAY IS TO BE TOPPED WITH 100mm THICK 40-70mm SIZE AGGREGATE.
4. ALTERNATIVELY, THREE(3) PRECAST CONCRETE CATTLE GRIDS (AS MANUFACTURED BY "HUMES CONCRETE MAY BE USED. 1, 2 & 3 ABOVE ALSO APPLY.

SEDIMENT BASIN SIZING

1. THE SEDIMENT BASIN SHALL BE CONSTRUCTED ON A RATE PER HECTARE BASIS AND HAS BEEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE LANDCOM MANUAL "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", FOR SEDIMENTATION **TYPE D** SOILS. THE DISTURBED AREA WITHIN THIS CATCHMENT AT ANY ONE TIME SHOULD BE LIMITED TO AN AREA FOR WHICH EACH SEDIMENT BASIN CAN HANDLE. EACH BASIN SHALL BE SIZED IN ACCORDANCE WITH THE TABLE BELOW.

SEDIMENT BASIN SIZING TYPE D SOILS	
VOLUMETRIC RUNOFF COEFFICIENT, CV	0.51 (APPENDIX F - TABLE F2)
85TH PERCENTILE 5 DAY TOTAL RAINFALL DEPTH, R	32.2 mm
CATCHMENT AREA, A	1 Ha (UNIT AREA)
SETTLING ZONE VOLUME (PER HECTARE) 10 CV A R	164.22 m³
DISTURBED CATCHMENT AREA	1 Ha (UNIT AREA)
R K LS P C	110.87m³
SEDIMENT ZONE VOLUME (0.17 A (R K LS P C)/1.3	14.5m³ < 50% SETTLING VOL=82.11 m³
TOTAL SEDIMENT BASIN VOLUME REQUIRED :	246.33 m³/Ha

* (LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)

2. THE FOLLOWING DESIGN PARAMETERS HAVE BEEN ASSESSED FOR THE SITE:

CONSTRAINT	VALUE	(SOURCE)*
RAINFALL EROSIVITY (R-FACTOR)	2350	APPENDIX B
LENGTH/SLOPE GRADIENT FACTOR, LS	0.955	APPENDIX A - TABLE A1
SOIL ERODIBILITY (K-FACTOR)	0.038	(TABLE C20)
EROSION CONTROL PRACTICE FACTOR (P-FACTOR)	1.3 (COMPACTED)	APPENDIX A - TABLE A2
COVER FACTOR (C-FACTOR)	1.0 (DURING EARTHWORKS)	APPENDIX A - FIGURE A5
CALCULATED SOIL LOSS, A (RUSLE EQUATION)	110.87t/Ha/YR	A = R K LS P C
SOIL HYDROLOGIC GROUP	GROUP C	APPENDIX C TABLE 20
SEDIMENT TYPE	TYPE D	APPENDIX C TABLE 4
85TH PERCENTILE 5-DAY RAINFALL EVENT	32.2mm (BLACKTOWN)	TABLE 6.3A

* (LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)

* SIZING TO BE UPDATE BASED ON DETAILED DESIGN

BASIN MANAGEMENT

1. THE CAPTURED STORMWATER IN THE SETTLING ZONE SHOULD BE DRAINED TO MEET THE MINIMUM STORAGE CAPACITY REQUIRED WITHIN A FIVE (5) DAY PERIOD FOLLOWING RAINFALL, PROVIDED THE ACCEPTABLE WATER QUALITY (NFR) AND TURBIDITY HAVE BEEN ACHIEVED.
2. CHEMICAL FLOCCULENT SUCH AS GYPSUM MAY BE DOSED TO AID SETTLING WITHIN 24 HOURS OF CONCLUSION OF EACH STORM. THE APPLIED DOSING RATES SHOULD ACHIEVE THE TARGET QUALITY WITHIN 36 TO 72 HOURS OF THE STORM EVENT.
3. INSPECT THE SEDIMENT BASINS AFTER EACH RAINFALL EVENT AND/OR WEEKLY. ENSURE THAT ALL SEDIMENT IS REMOVED ONCE THE SEDIMENT STORAGE ZONE IS FULL (REFER TO PEGS INSTALLED IN BASINS IN ACCORDANCE WITH THE SWMP). ENSURE THAT OUTLET AND EMERGENCY SPILLWAY WORKS ARE MAINTAINED IN A FULLY OPERATIONAL CONDITION AT ALL TIMES.

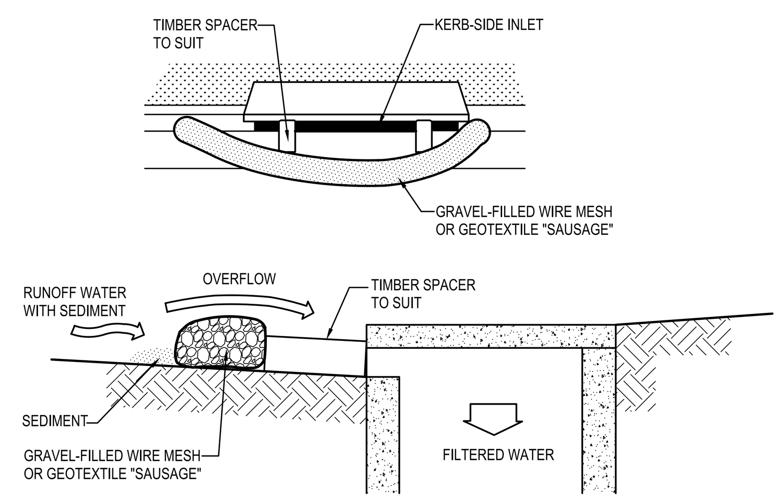
SOWING SEASON	SEED MIX
AUTUMN/WINTER	OATS@40KG/Ha + JAPANESE MILLET@10kg/Ha
SPRING/SUMMER	OATS@20kg/Ha + JAPANESE MILLET@20kg/Ha

NOTE : THESE PLANT SPECIES ARE FOR TEMPORARY REVEGETATION ONLY. THEY WILL ONLY PROVIDE PROTECTION FROM EROSION FOR SIX MONTHS. WHERE THE PADS ARE TO BE LEFT UNDEVELOPED FOR A LONGER PERIOD, THE CONTRACTOR SHALL SEEK ADVICE FROM THE SITE SUPERINTENDENT AS TO MORE APPROPRIATE REVEGETATION METHODS.

REVEGETATION IN ACCORDANCE WITH THE ABOVE TABLE WILL BE ENHANCED BY ADDING LIME AT A RATE OF 4kg/TONNE OF TOPSOIL AND 7.5kg/TONNE OF SUBSOIL.

4. THE LONG TERM GROUND COVER FACTORS FOR THE CONSTRUCTION WORKS IS NOT TO EXCEED THE FOLLOWING LIMITS:

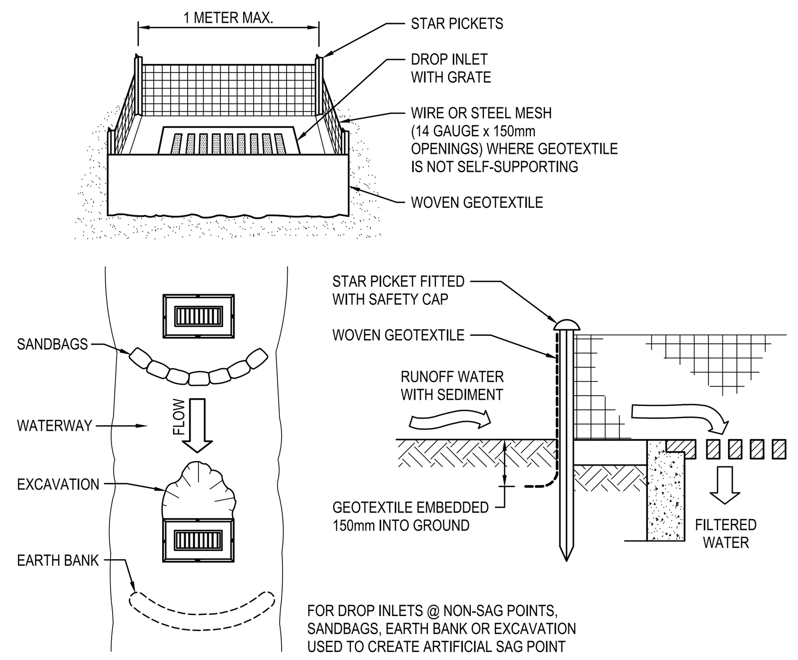
LAND	MAXIMUM C-FACTOR	REMARKS
WATERWAYS AND OTHER AREAS OF CONCENTRATED FLOWS, POST CONSTRUCTION	0.05	APPLIES AFTER TEN WORKING DAYS OF COMPLETION OF FORMATION AND BEFORE CONCENTRATED FLOWS ARE APPLIED. FOOT AND VEHICULAR TRAFFIC IS PROHIBITED IN THIS AREA AND 70% GROUND COVER IS REQUIRED.
STOCKPILES, POST CONSTRUCTION	0.10	APPLIES AFTER TEN WORKING DAYS FROM COMPLETION OF FORMATION. 60% GROUND COVER IS REQUIRED.
ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION.	0.15	APPLIES AFTER 20 DAYS OF INACTIVITY, EVEN THOUGH WORKS MAY BE INCOMPLETE. 50% GROUND COVER IS REQUIRED.



MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
3. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
4. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
5. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT / LADEN WATERS CANNOT PASS BETWEEN.

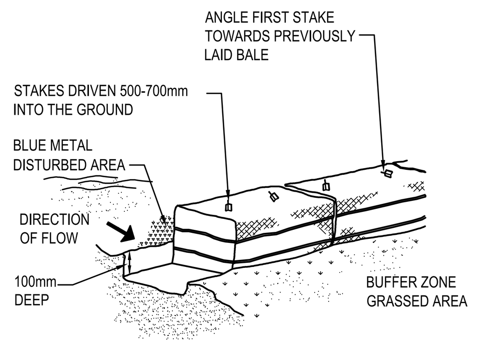
MESH & GRAVEL INLET FILTER
SCALE N.T.S.



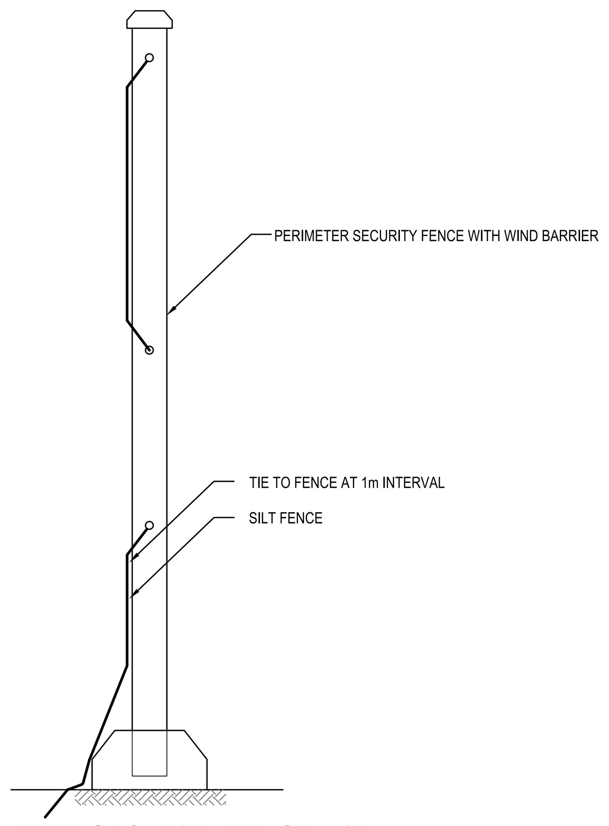
GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE.
2. PICKET SPACING TO BE MAXIMUM 1.0m.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILES UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

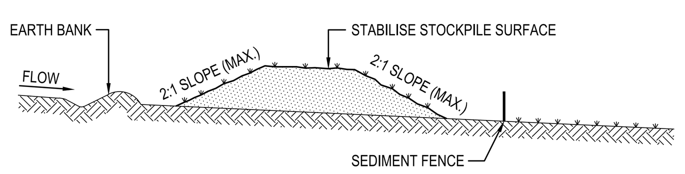
GEOTEXTILE INLET FILTER
SCALE N.T.S.



HAYBALE BARRIERS
N.T.S.



PERIMETER SECURITY FENCE WITH WIND BARRIER & SILT FENCE
N.T.S.



STOCKPILE CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

STOCKPILES
SCALE N.T.S.

ISSUED FOR APPROVAL

SURVEY INFORMATION
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BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

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Client: GREATER SYDNEY PARKLANDS TRUST
Architect: nettletontribe partnership

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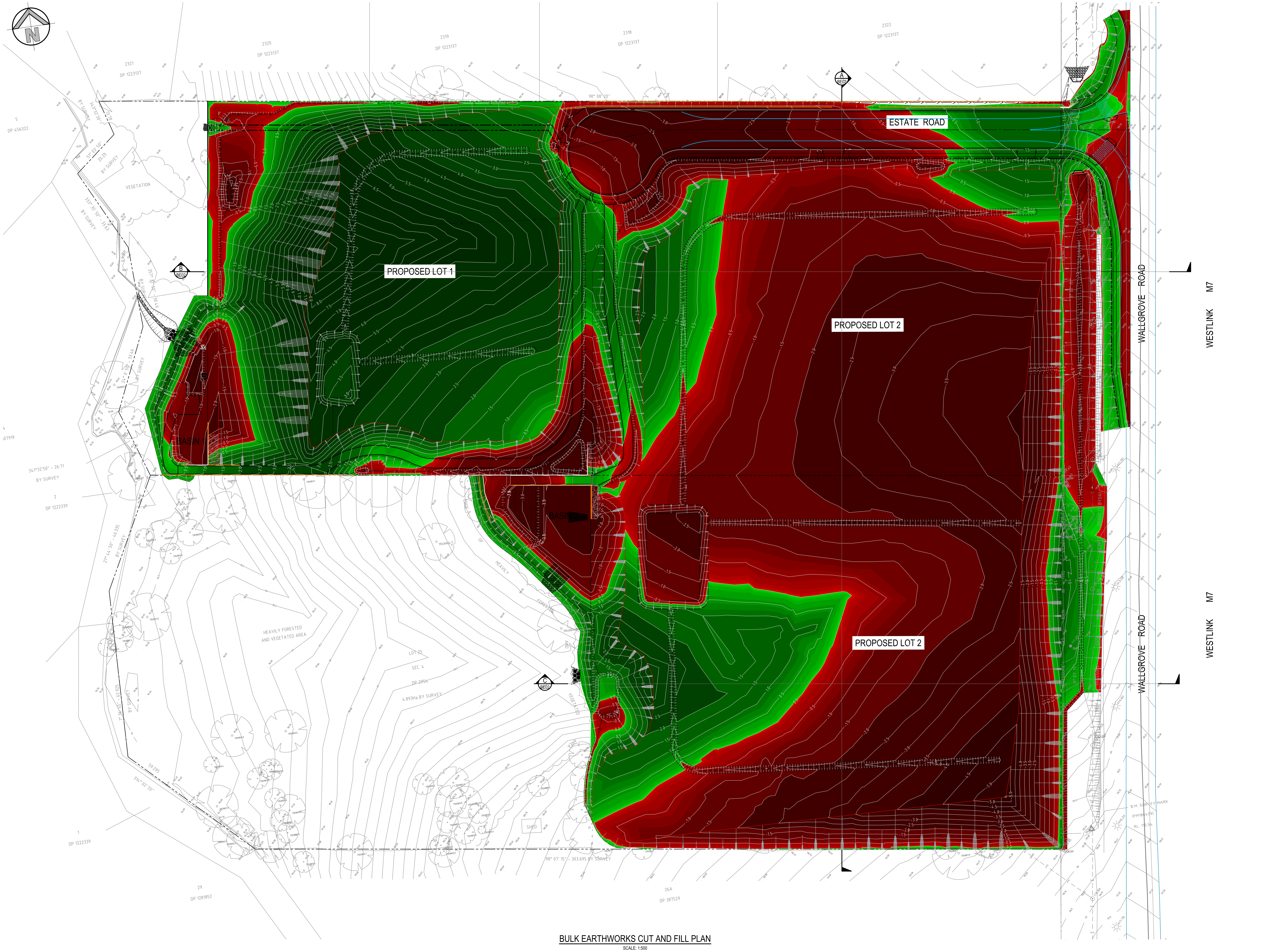
DRAWING TO BE PRINTED IN COLOUR

Project: PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW
Title: SEDIMENT AND EROSION CONTROL DETAILS

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	N.T.S.

Drawing number: 230804_DA_SE02
Revision: 03



BULK EARTHWORKS CUT AND FILL PLAN
SCALE: 1:500

SCALE 1:500

LEGEND

- EXISTING BOUNDARY
- DEPTH CONTOUR FOR FILL
- DEPTH CONTOUR FOR CUT
- PROPOSED BATTER LINE
- PROPOSED RETAINING WALL

DEPTH RANGE

Lower_value		Upper_value	Colour
-6	to	-4	Meters
-4	to	-2	Meters
-2	to	-1	Meters
-1	to	-.8	Meters
-.8	to	-.6	Meters
-.6	to	-.4	Meters
-.4	to	-.2	Meters
-.2	to	-.1	Meters
-.1	to	-.05	Meters
-.05	to	.0	Meters
.0	to	.05	Meters
.05	to	.1	Meters
.1	to	.2	Meters
.2	to	.4	Meters
.4	to	.6	Meters
.6	to	.8	Meters
.8	to	1	Meters
1	to	2	Meters
2	to	4	Meters
4	to	6	Meters

NOTES:

CONTOURS SHOW LEVEL DIFFERENCE BETWEEN STRIPPED "100mm" EXISTING SURFACE LEVELS AND BULK EARTHWORKS LEVELS

EARTHWORKS QUANTITIES

(APPROXIMATE ONLY)
NOT TO BE USED FOR CONTRACTUAL PURPOSES. TENDERERS TO DETERMINE VOLUMES USING THEIR OWN METHOD OF CALCULATION.

- EARTHWORKS QUANTITIES -	
TOTAL AREA (7.88 ha)	
CUT	78080m³
FILL	77870m³
EXCESS OF CUT	210m³
TOPSOIL STRIPPING "100mm" OF 7880m³ NOT INCLUDED IN CALCULATION	
EXCAVATION FOR SERVICE TRENCHES NOT INCLUDED IN CALCULATION	
EXCAVATION AND BACKFILL FOR RETAINING WALLS INCLUDED IN CALCULATION	
EXCAVATION FOR BOX CULVERTS UNDER ROAD NOT INCLUDED IN CALCULATION	

PAVEMENT THICKNESS "INCLUDING BEDDING THICKNESS"		
ROAD PAVEMENT	470	mm
LANDSCAPE	150	mm
FOOTPATH	150	mm
HEAVY DUTY CROSS OVER	350	mm
CONCRETE BASIN RAMP	250	mm
BIO BASIN	850	mm

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	LC	NW	24.04.2025
02	ISSUED FOR SSDA APPROVAL	MB	FZ	01.02.2024
01	ISSUED FOR CO-ORDINATION	LC	FZ	17.01.2024

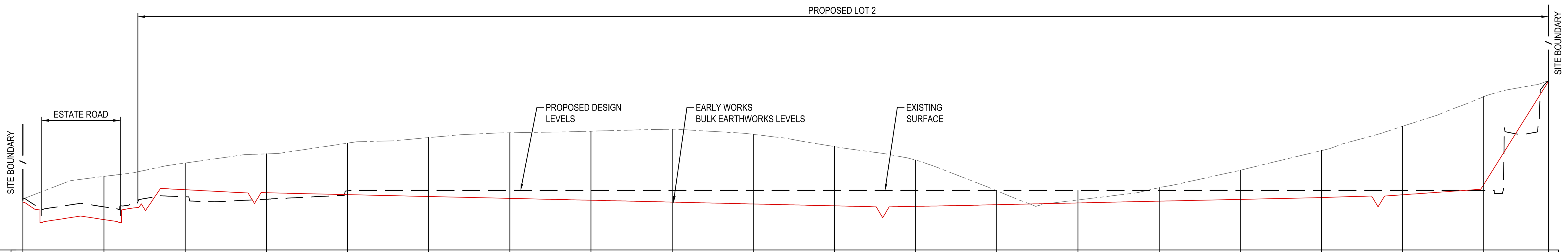
Client: GREATER SYDNEY PARKLANDS TRUST
Architect: nettletontribe partnership

Suite 2.01
828 Pacific Highway
Gordon NSW 2072
Telephone +61 2 9417 8400
Facsimile +61 2 9417 8337
Email email@hhconsult.com.au
Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

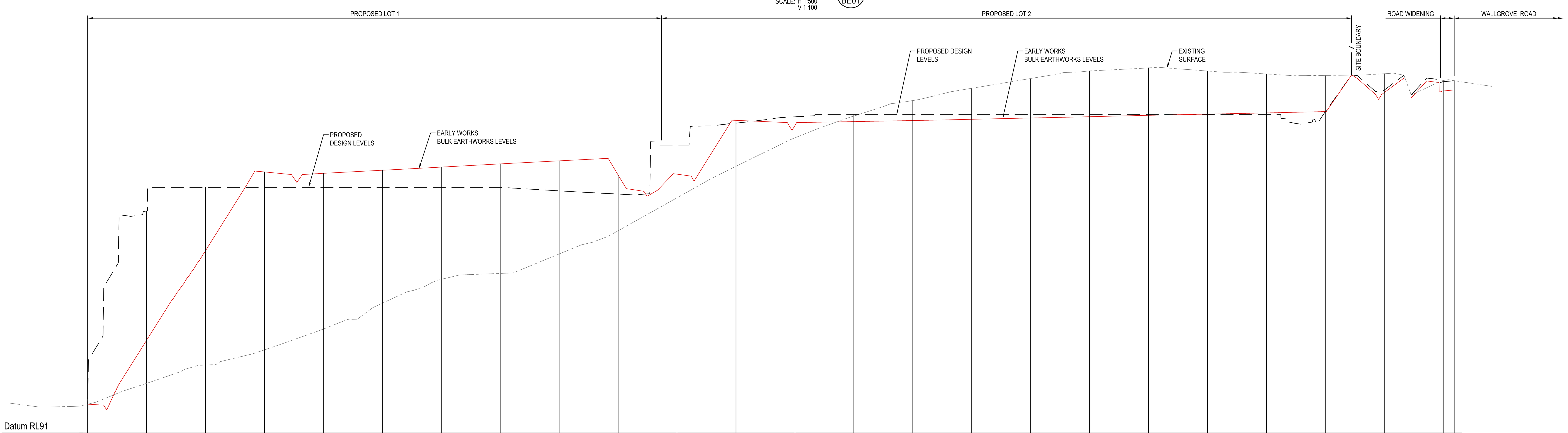
Project	Drawn	Designed	Date
PROPOSED WALLGROVE BUSINESS HUB 97-151 WALLGROVE ROAD, CECIL PARK NSW	M.Barrozo	F.Zhou	December 2023
	Checked: N. Wetzlar	Approved: A.Francis	Scale @A0: 1:500
Title: BULK EARTHWORKS CUT AND FILL PLAN	Drawing number: 230804_DA_BE01		Revision: 03



Datum RL105

BE DESIGN LEVELS	106.765	106.122	107.224	107.112	107.043	106.975	106.906	106.837	106.768	106.698	106.629	106.611	106.672	106.737	106.803	106.868	106.936	107.039	107.423	111.219
DESIGN LEVELS	106.915	106.592	106.965	106.875	107.182	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	111.219
EXISTING LEVELS		107.716	108.210	108.549	108.943	109.148	109.326	109.386	109.459	109.268	108.816	108.320	107.185	106.847	107.302	107.944	108.668	109.568	110.659	111.242
CHAINAGE	0.000	15.000	30.000	45.000	60.000	75.000	90.000	105.000	120.000	135.000	150.000	165.000	180.000	195.000	210.000	225.000	240.000	255.000	270.000	281.937

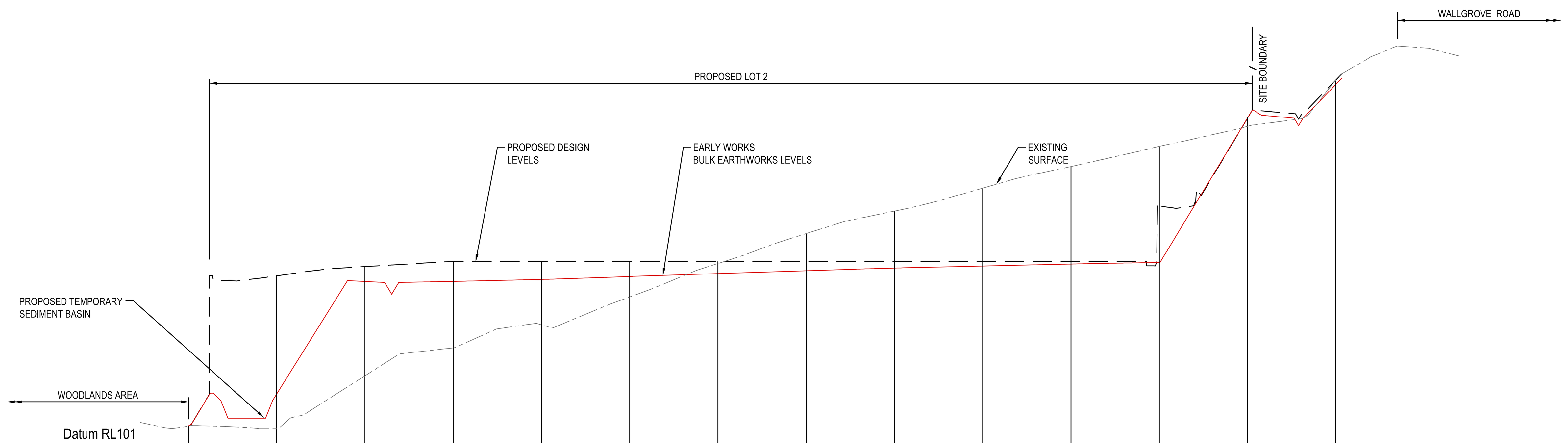
SECTION A BE01
SCALE: H 1:500
V 1:100



Datum RL91

BE DESIGN LEVELS	92.463	95.715	100.277	104.281	104.211	104.367	104.529	104.692	104.847	104.133	104.169	106.908	106.642	106.844	106.899	106.961	107.028	107.094	107.164	107.225	107.286	107.354	108.323	108.403	108.454
DESIGN LEVELS	92.463	102.294	103.500	103.500	103.500	103.500	103.500	103.500	103.321	103.158	105.648	106.769	107.087	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.347	108.448	108.873	108.924
EXISTING LEVELS	92.463	93.523	94.455	95.227	96.286	97.603	98.820	99.117	100.107	101.286	102.968	104.570	106.018	107.127	107.916	108.540	109.038	109.422	109.577	109.419	109.269	109.196	109.281	108.934	108.930
CHAINAGE	0.000	15.000	30.000	45.000	60.000	75.000	90.000	105.000	120.000	135.000	150.000	165.000	180.000	195.000	210.000	225.000	240.000	255.000	270.000	285.000	300.000	315.000	330.000	345.000	347.796

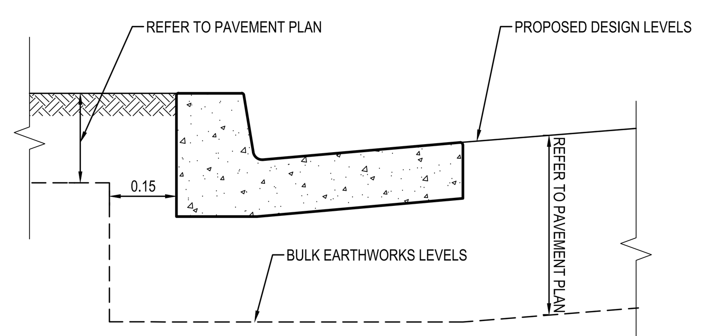
SECTION B BE01
SCALE: H 1:500
V 1:100



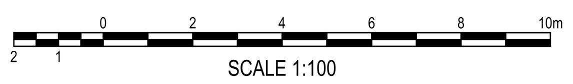
Datum RL101

BE DESIGN LEVELS	101.616	102.698	106.524	106.527	106.594	106.694	106.791	106.888	106.980	107.050	107.117	107.167	112.080	113.219
DESIGN LEVELS		106.716	107.029	107.200	107.200	107.200	107.200	107.200	107.200	107.200	107.200	109.090	112.076	113.369
EXISTING LEVELS	101.616	101.544	103.318	104.267	105.052	105.999	107.136	108.153	108.916	109.694	110.430	111.105	111.796	113.367
CHAINAGE	0.000	15.000	30.000	45.000	60.000	75.000	90.000	105.000	120.000	135.000	150.000	165.000	180.000	195.000

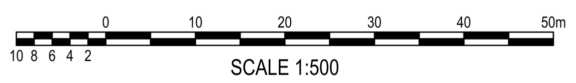
SECTION C BE01
SCALE: H 1:500
V 1:100



EXCAVATION DETAIL FOR KERB & GUTTER
SCALE N.T.S



SCALE 1:100



SCALE 1:500

ISSUED FOR APPROVAL

SURVEY INFORMATION
SURVEYED BY
BOXALL SURVEYORS
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 26613, RL118.6

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR SSDA APPROVAL	LC	NW	24.04.2025					
02	ISSUED FOR SSDA APPROVAL	MB	FZ	01.02.2024					
01	ISSUED FOR CO-ORDINATION	LC	FZ	17.01.2024					

Client
GREATER SYDNEY PARKLANDS TRUST

Architect
nettletontribe partnership

Suite 2.01
828 Pacific Highway
Gordon NSW 2072

Telephone
+61 2 9417 8400
Facsimile
+61 2 9417 8337
Email
email@hhconsult.com.au
Web
www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
PROPOSED WALLGROVE BUSINESS HUB
97-151 WALLGROVE ROAD, CECIL PARK NSW

Title
BULK EARTHWORKS
SITE SECTIONS

Drawn	Designed	Date
M.Barrozo	F.Zhou	December 2023
Checked	Approved	Scale @A0
N. Wetzlar	A.Francis	AS SHOWN

Drawing number: 230804_DA_BE02
Revision: 03

Appendix B: Site Survey

NOTES:

1. ONLY SERVICES WHICH WERE VISIBLE & ACCESSIBLE AT THE TIME OF THE SURVEY ARE SHOWN. FULL DETAILS OF SEWER AND OTHER SERVICES SHOULD BE OBTAINED FROM THE RELEVANT AUTHORITIES. UNDERGROUND SERVICES INFORMATION CAN BE OBTAINED FROM BEFORE YOU DIG AUSTRALIA (PH 1100) OR www.byda.com.au.
2. CONTOURS ARE APPROXIMATE ONLY, PREFERENCE TO BE GIVEN TO SPOT HEIGHTS.
3. MAJOR TREES SHOWN ONLY.
4. PROJECT CO-ORDINTES ARE MGA2020 (ZONE56)
5. AERIAL ORTHOPHOTO CAPTURED 20.03.2023
6. THIS PLAN HAS BEEN PREPARED FOR THE SOLE PURPOSE OF LODGING A DEVELOPMENT APPLICATION WITH THE LOCAL COUNCIL. THIS PLAN IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE EXPRESS PERMISSION OF BOXALL SURVEYORS PTY LTD.

Detail Survey Certificate

I, Shawn LeClerc BEng (Geo) MIS of Boxall Surveyors, a surveyor registered under the Surveying and Spatial Information Act 2002, certify that the survey represented in this plan was made in accordance with Clause 10 of the Surveying and Spatial Information Regulation 2017 with regard to the location of the boundaries shown on this plan.

Signature: Dated: 16.03.2023

Surveyor Identification No: 115
Surveyor registered under the Surveying and Spatial Information Act 2002

BEFORE YOU DIG
www.byda.com.au

PRINT IN COLOUR

LEGEND:

HYDRANT
STOP VALVE
WATER VALVE
WATER METER
GAS VALVE
GAS MARKER
GRATED DRAIN
SEWER/SEPTIC IP
SEWER MAN HOLE
LIGHT POLE
POWER POLE
COMMS PIT
TREE
BOUNDARY LINE
BITUMEN LINE
TOP OF BANK
BOTTOM OF BANK
CONCRETE LINE
EASEMENT LINE
FENCE LINE
VEGETATION
PAVERS LINE
KERB LINE
POOL
ROCK
ROOF LINE

APPROX. LINE OF SERVICES

OVER HEAD ELECTRICITY

CLIENT:	WESTERN SYDNEY PARKLANDS TRUST
ADDRESS:	No.97 WALLGROVE ROAD CECIL PARK LOT 24 IN DP 1152887 & LOT 25 SECTION 4 IN DP 2954

boxall

Liability limited by a scheme approved under Professional Standards Legislation
PO Box 519 Sutherland NSW 1499 | Suite 8/49-51 Eton Street
02 9521 5737 | www.boxallsurveyors.com.au | ACN 114 644 058

TITLE: PLAN OF SITE DETAIL AND LEVELS

REV	DATE	REVISION DETAILS

ORIGIN LEVELS: SSM 26613	RL 118.6
AZIMUTH: MGA20	DATUM: AHD
SURVEY: LC	DATE: 20.02.2023
DRAWN: LC	DATE: 16.03.2023
APPROVED: SL	DATE: 16.03.2023
SCALE: 1:700	SHEET 1 OF 2
DRAWING No: 11550-001	REV: ---- SIZE: A1

NOTES:

1. ONLY SERVICES WHICH WERE VISIBLE & ACCESSIBLE AT THE TIME OF THE SURVEY ARE SHOWN. FULL DETAILS OF SEWER AND OTHER SERVICES SHOULD BE OBTAINED FROM THE RELEVANT AUTHORITIES. UNDERGROUND SERVICES INFORMATION CAN BE OBTAINED FROM BEFORE YOU DIG AUSTRALIA (PH 1100) OR www.byda.com.au.
2. CONTOURS ARE APPROXIMATE ONLY, PREFERENCE TO BE GIVEN TO SPOT HEIGHTS.
3. MAJOR TREES SHOWN ONLY.
4. PROJECT CO-ORDINTES ARE MGA2020 (ZONE56)
5. AERIAL ORTHOPHOTO CAPTURED 20.03.2023
6. THIS PLAN HAS BEEN PREPARED FOR THE SOLE PURPOSE OF LODGING A DEVELOPMENT APPLICATION WITH THE LOCAL COUNCIL. THIS PLAN IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE EXPRESS PERMISSION OF BOXALL SURVEYORS PTY LTD.

Detail Survey Certificate

I, Shawn LeClerc BEng (Geo) MIS of Boxall Surveyors, a surveyor registered under the Surveying and Spatial Information Act 2002, certify that the survey represented in this plan was made in accordance with Clause 10 of the Surveying and Spatial Information Regulation 2017 with regard to the location of the boundaries shown on this plan.

Signature: Dated: 16.03.2023

Surveyor Identification No: 115
Surveyor registered under the Surveying and Spatial Information Act 2002

BEFORE YOU DIG www.byda.com.au

PRINT IN COLOUR

LEGEND:

HYDRANT
STOP VALVE
WATER VALVE
WATER METER
GAS VALVE
GAS MARKER
GRATED DRAIN
SEWER/SEPTIC IP
SEWER MAN HOLE
LIGHT POLE
POWER POLE
COMMS PIT
TREE
BOUNDARY LINE
BITUMEN LINE
TOP OF BANK
BOTTOM OF BANK
CONCRETE LINE
EASEMENT LINE
FENCE LINE
VEGETATION
PAVERS LINE
KERB LINE
POOL
ROCK
ROOF LINE

APPROX. LINE OF SERVICES

OVER HEAD ELECTRICITY

CLIENT:	WESTERN SYDNEY PARKLANDS TRUST
ADDRESS:	No.97 WALLGROVE ROAD CECIL PARK LOT 24 IN DP 1152887 & LOT 25 SECTION 4 IN DP 2954

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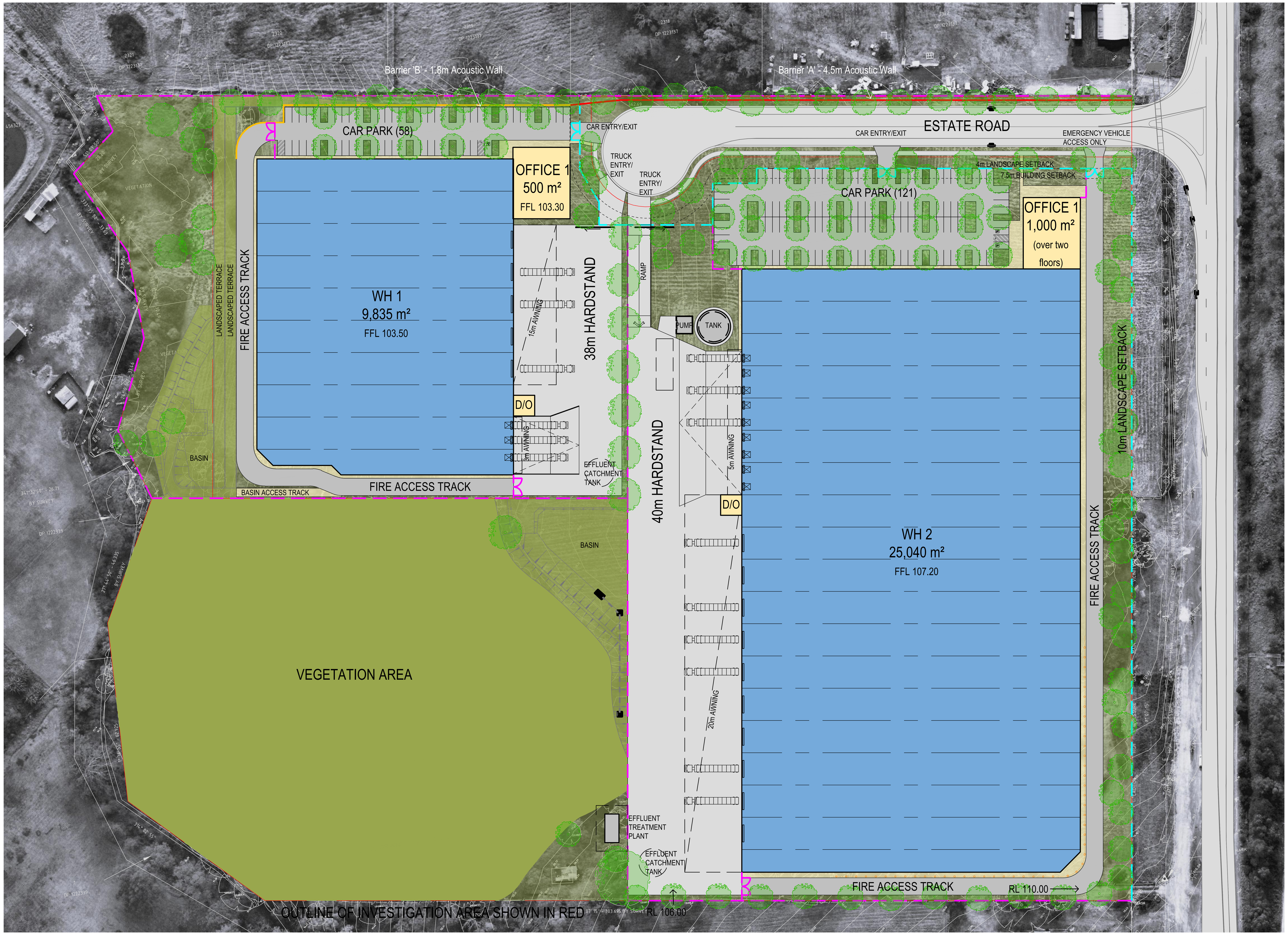
TITLE: PLAN OF SITE DETAIL AND LEVELS

REV	DATE	REVISION DETAILS

ORIGIN LEVELS: SSM 26613	RL 118.6
AZIMUTH: MGA20	DATUM: AHD
SURVEY: LC	DATE: 20.02.2023
DRAWN: LC	DATE: 16.03.2023
APPROVED: SL	DATE: 16.03.2023
SCALE: 1:700	SHEET 2 OF 2
DRAWING No: 11550-001	REV: ---- SIZE: A1

Appendix C: Architectural concept drawings – Site plan



WALLGROVE BUSINESS HUB 11-Apr-25 DA001[4]	
INVESTIGATION AREA (sqm)	**98,895**
LOT AREAS	AREA (sqm)
Lot 1 (PT1)	20,106
Lot 1 (PT2)	45,687
Road	4,505
Lot 3 (VEGETATION AREA)	28,597
GROSS DEVELOPABLE AREA (GDA)	**98,895**
CONSTRAINTS	AREA (sqm)
Vegetation Area (Lot 3)	28,597
NET DEVELOPABLE AREA (NDA)	**70,298**
ROAD RESERVES	AREA (sqm)
Road	4,505
NET SALEABLE AREA (NSA)	**65,793**
BUILDING AREAS	AREA (sqm)
Warehouse 1	9,835
Office 1 (incl. D/O)	550
Warehouse 2	25,040
Office 2 (incl. D/O)	1,050
TOTAL WAREHOUSE AREA	**34,875**
TOTAL OFFICE AREA	**1,600**
TOTAL BUILDING AREA	**36,475**
FSR	**0.55:1**
TOTAL CARPARKING PROVIDED	**179**

Fencing Legend

- 1,800mm high black PVC chainlink fencing with 3 rows of barbed wire over (total height 2100mm).
- 2,100mm high black powdercoated palisade style fencing.
- 1,800mm acoustic wall with retaining.
- 4,500mm acoustic wall with retaining.

1 WH1 LEVEL GF
1 : 750

Client

Western Sydney Parklands

Issue	Description	Date
1	MASTER PLAN LAYOUT UPDATED	07/03/2025
2	MASTER PLAN LAYOUT UPDATED	27/03/2025
3	MASTER PLAN LAYOUT UPDATED	31/03/2025
4	MASTER PLAN LAYOUT UPDATED	11/04/2025

Builder

Project Name
WALLGROVE BUSINESS HUB

Project Address
97 - 151 WALLGROVE ROAD, CECIL PARK NSW

Key Plan
0 15000 37500

Drawing Title:
CONCEPT MASTER PLAN

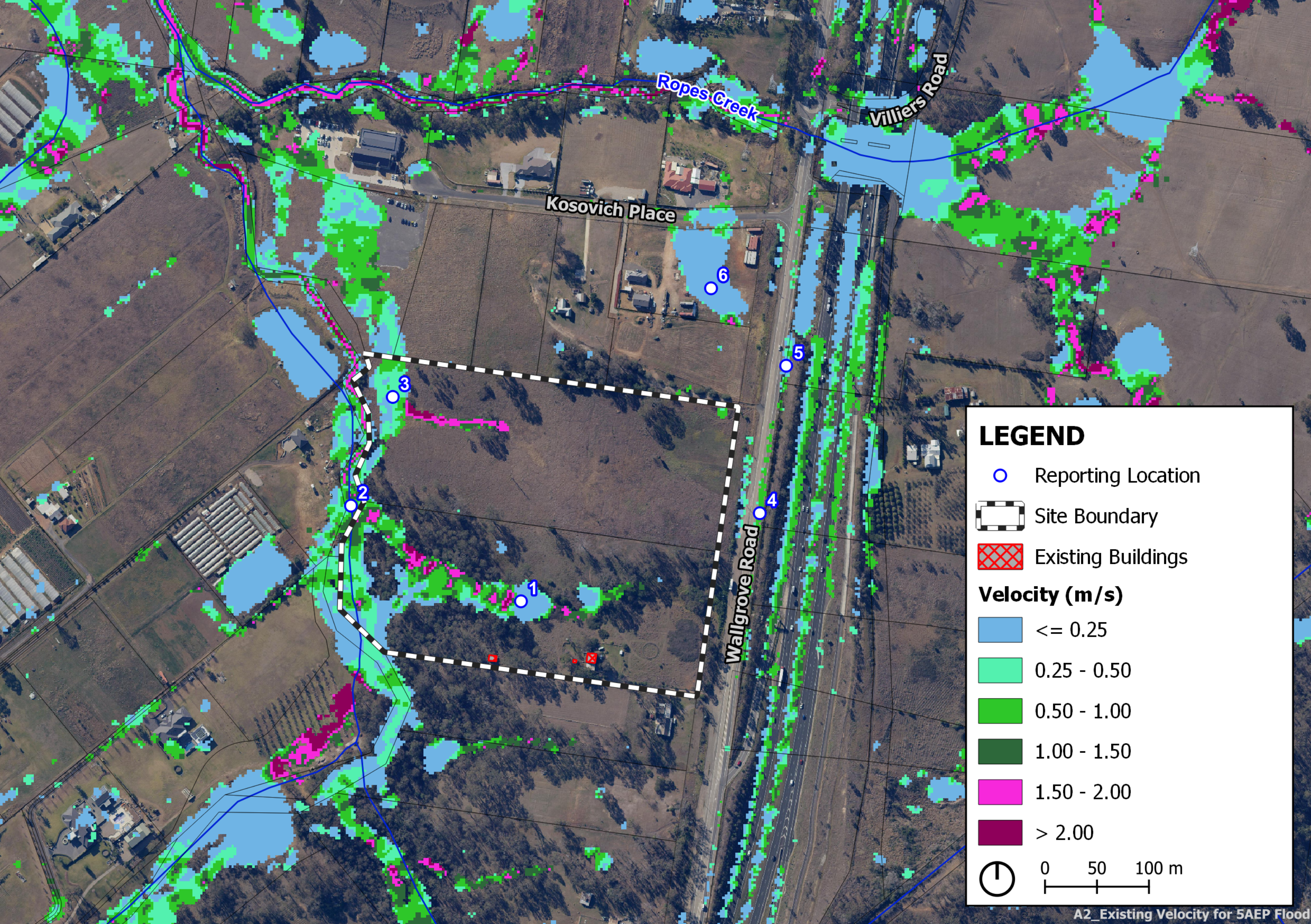
Author:	Checker:	Sheet Size:	Scale:
IG	-	A1	1:750

Drawing Number:	Issue:
13103_DA001	4

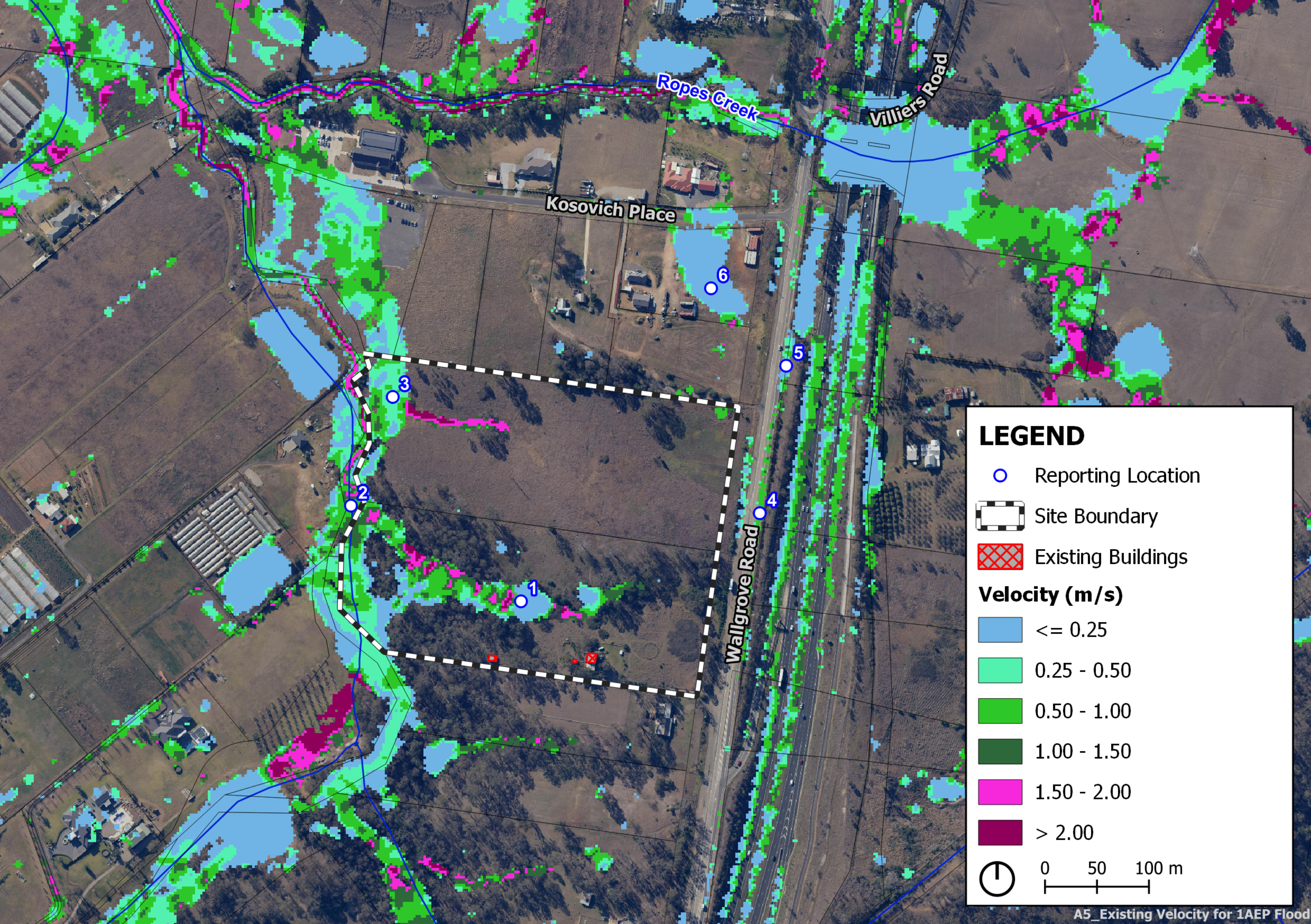
nettletontribe

nettleton tribe partnership pty ltd ABN 58 161 683 122
117 Willoughby Road, Crows Nest, NSW 2065
t +61 2 9431 6431
e: sydney@nettletontribe.com.au w: nettletontribe.com.au

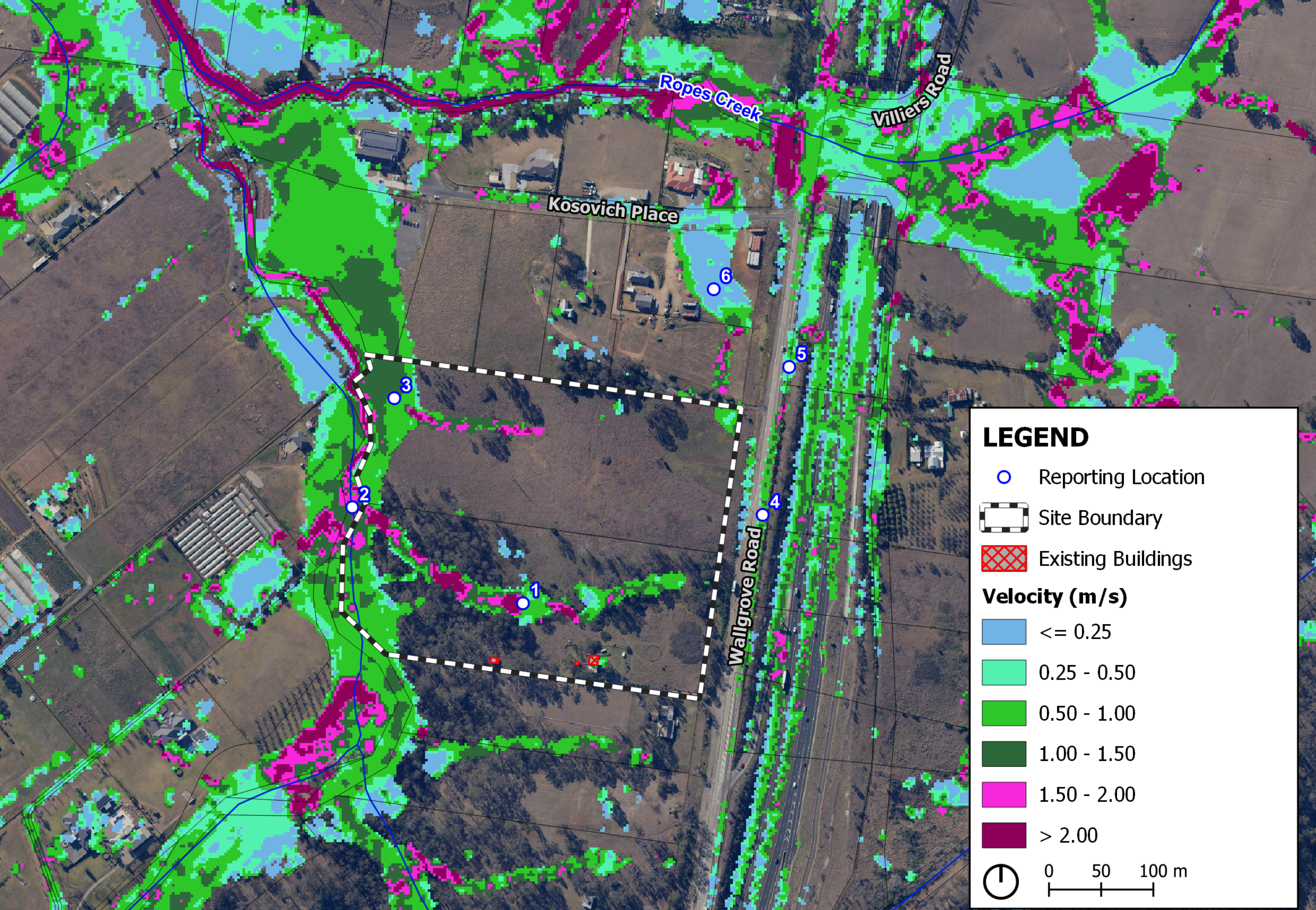
Appendix D: Flood Mapping and results by CSS



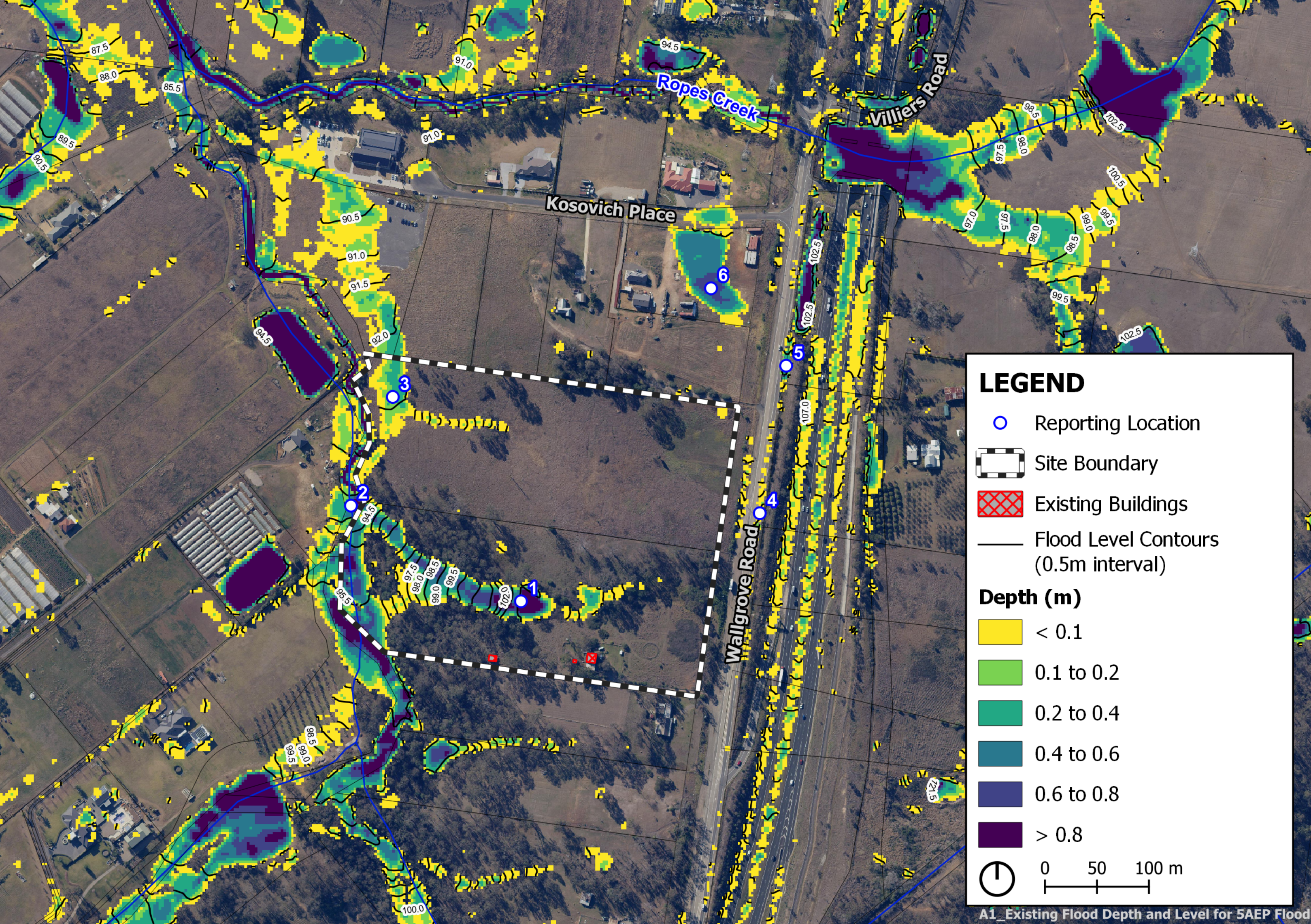
Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Existing Buildings
Velocity (m/s)
<= 0.25
0.25 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
> 2.00
0
50
100 m
A2_Existing Velocity for 5AEP Flood

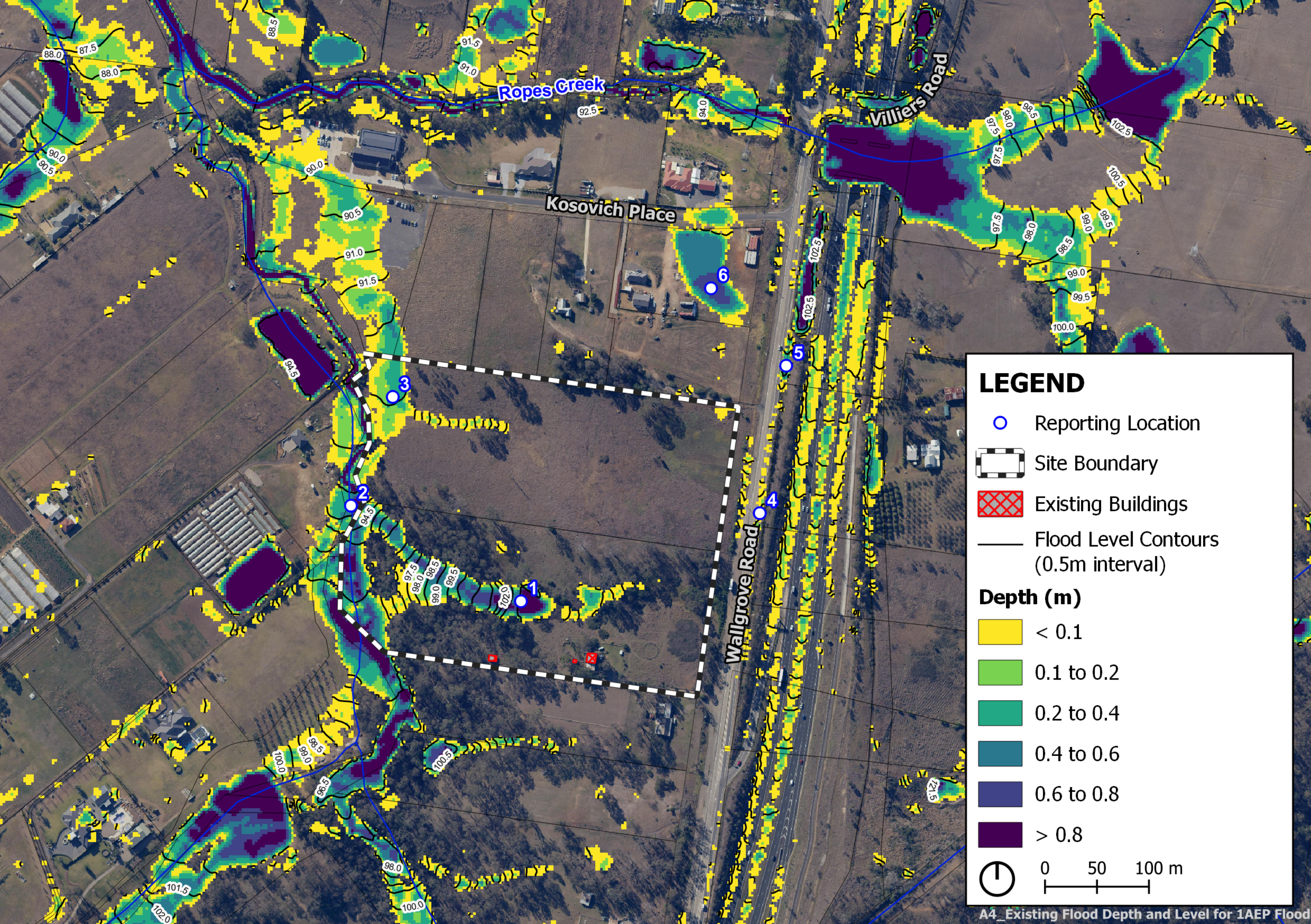


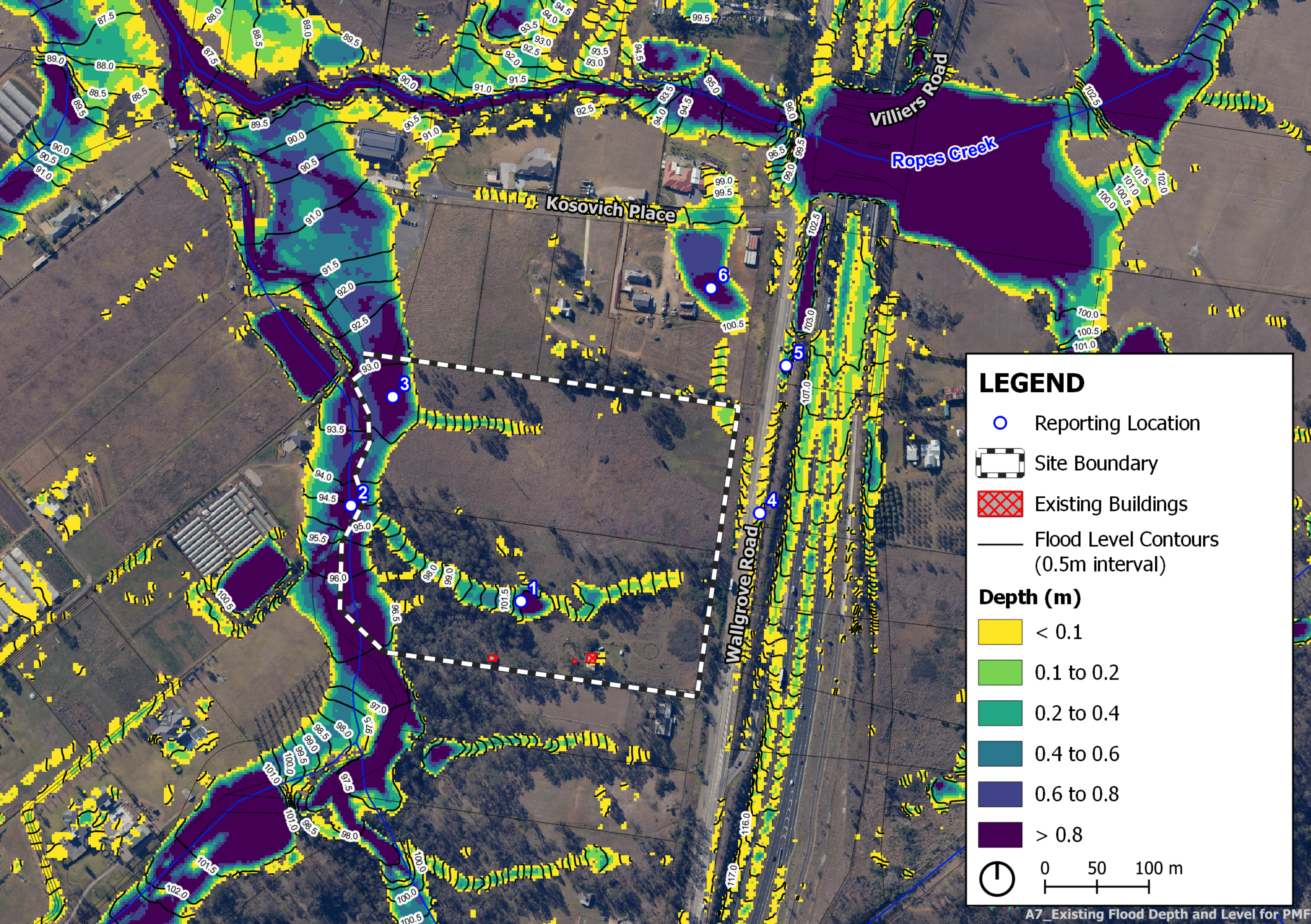
Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Existing Buildings
Velocity (m/s)
<= 0.25
0.25 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
> 2.00
0
50
100 m
A5_Existing Velocity for 1AEP Flood

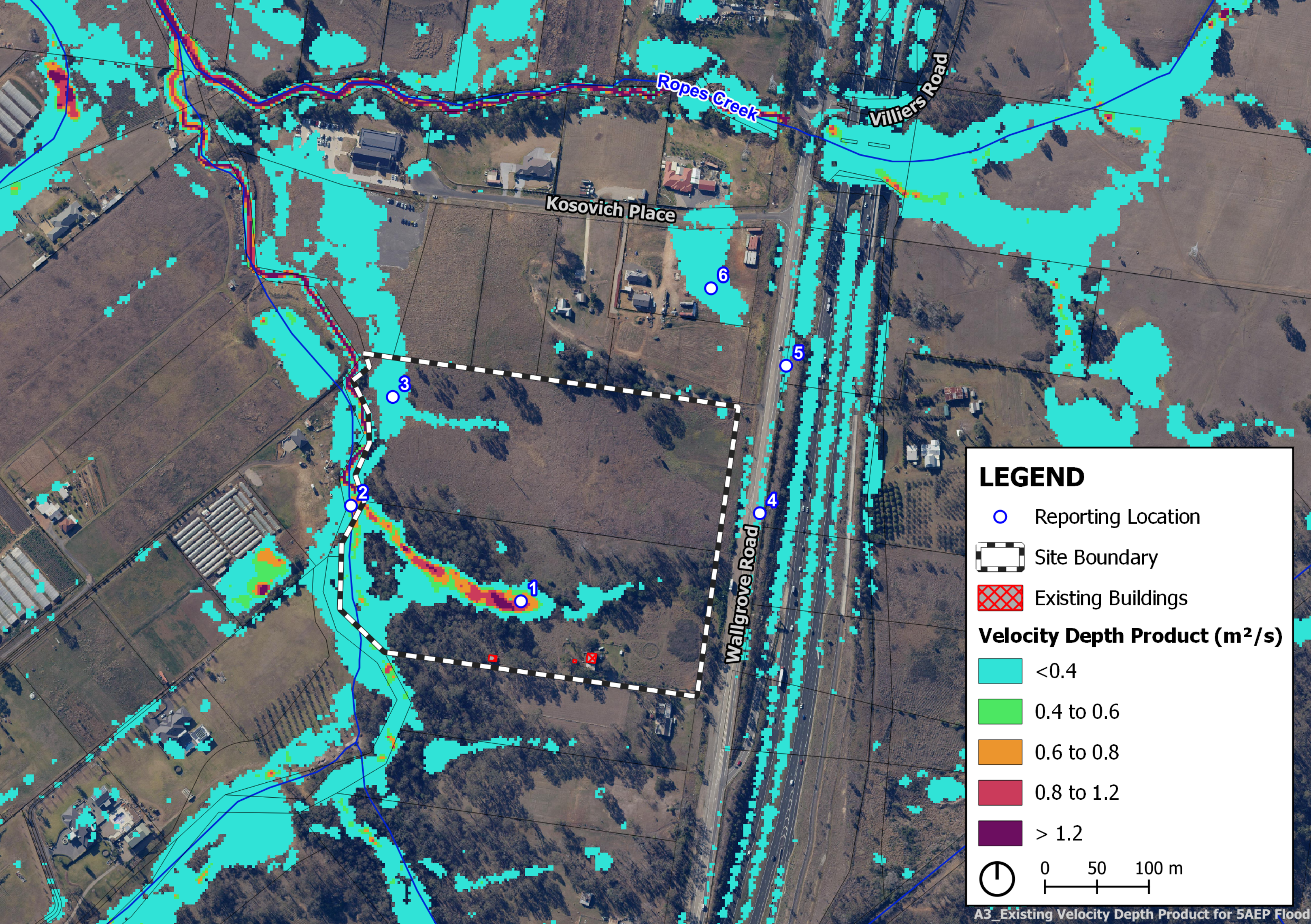


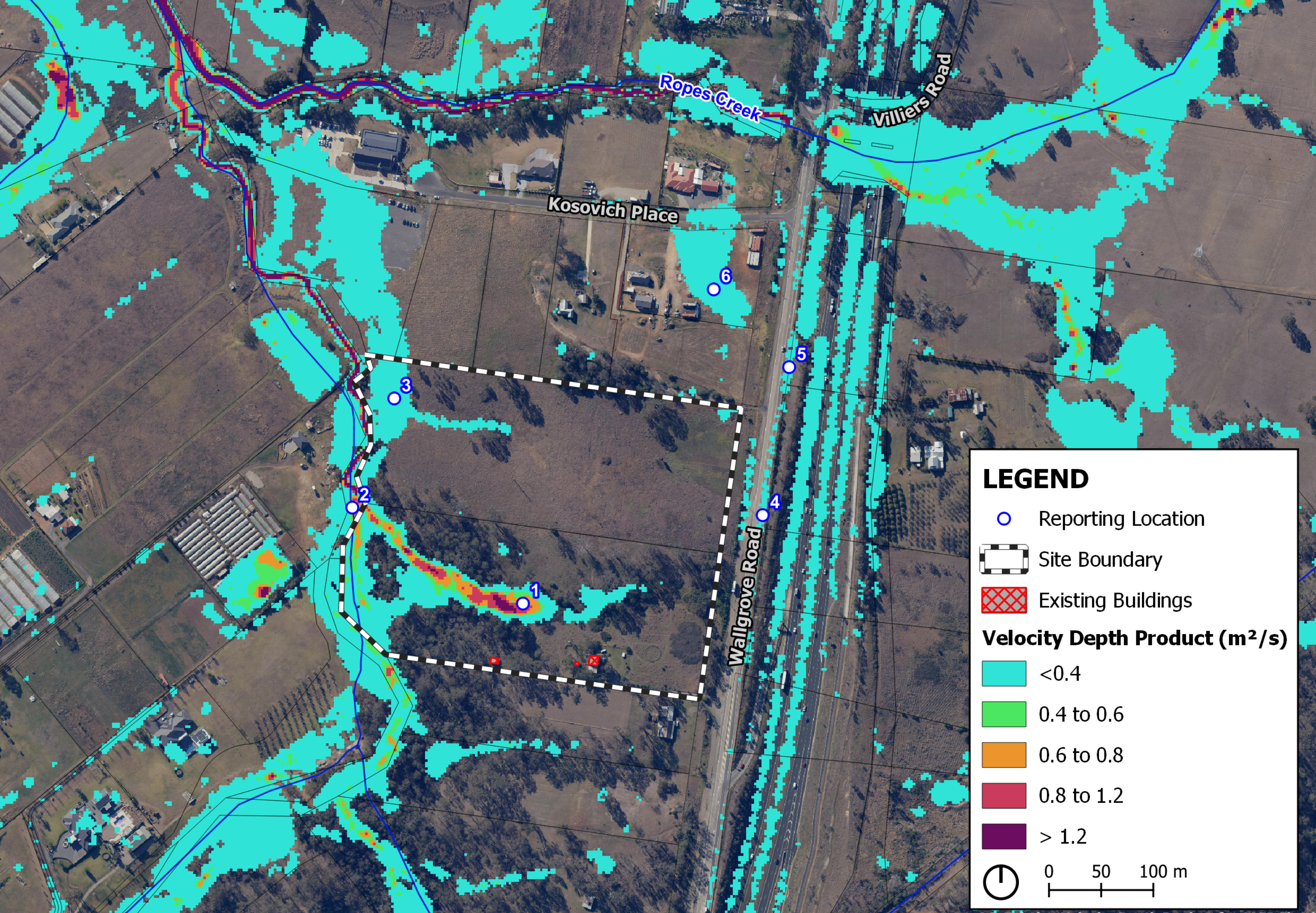
A8_Existing Velocity for PMF


Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Existing Buildings
Flood Level Contours
(0.5m interval)
Depth (m)
< 0.1
0.1 to 0.2
0.2 to 0.4
0.4 to 0.6
0.6 to 0.8
> 0.8
0
50
100 m
A1_Existing Flood Depth and Level for 5AEP Flood

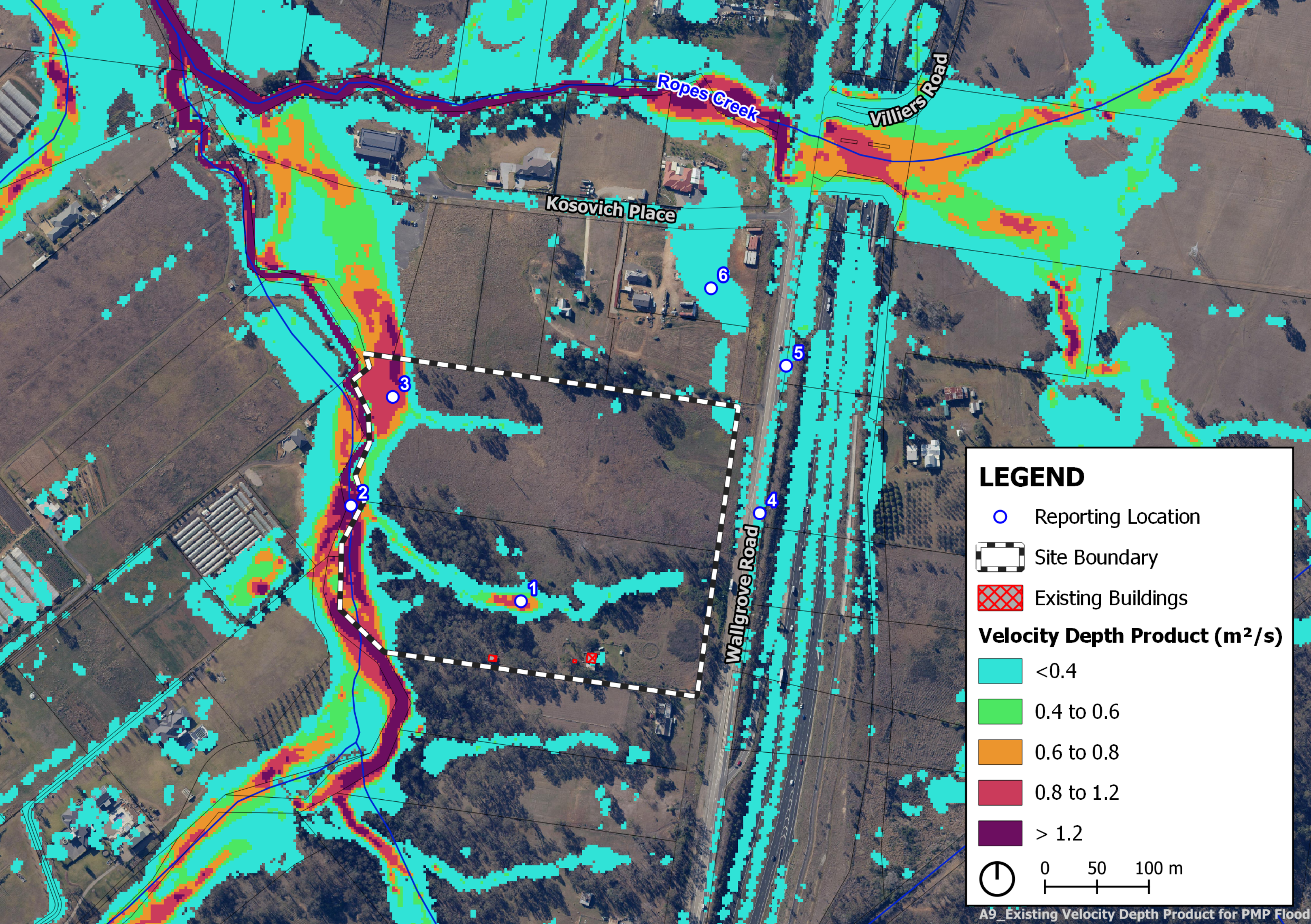

Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Existing Buildings
Flood Level Contours
(0.5m interval)
Depth (m)
< 0.1
0.1 to 0.2
0.2 to 0.4
0.4 to 0.6
0.6 to 0.8
> 0.8
0
50
100 m
A4_Existing Flood Depth and Level for 1AEP Flood

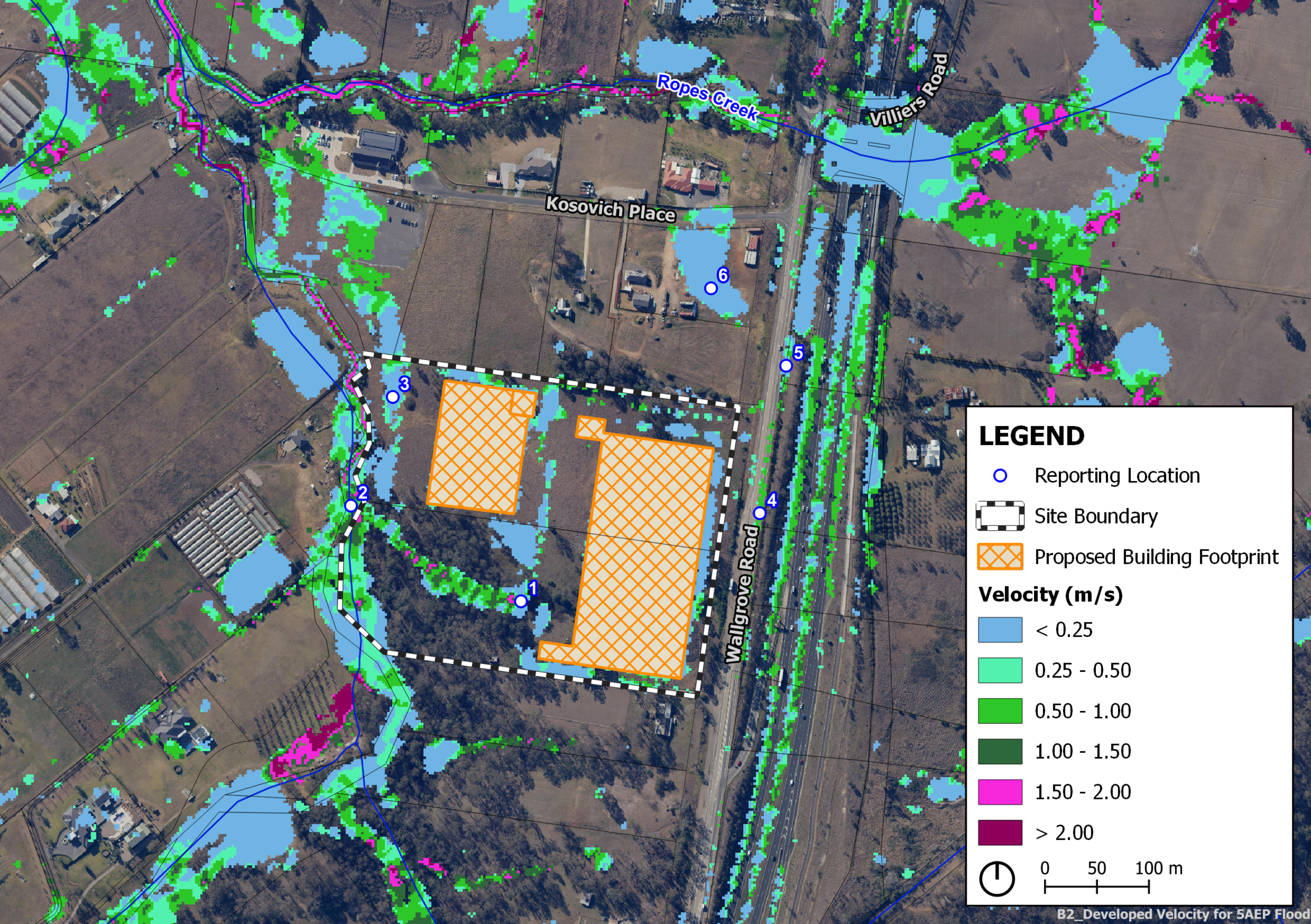

Villiers Road
Ropes Creek
Kosovich Place
Wallgrove Road
LEGEND
Reporting Location
Site Boundary
Existing Buildings
Flood Level Contours
(0.5m interval)
Depth (m)
< 0.1
0.1 to 0.2
0.2 to 0.4
0.4 to 0.6
0.6 to 0.8
> 0.8
0 50 100 m
A7_Existing Flood Depth and Level for PMF


Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Existing Buildings
Velocity Depth Product (m²/s)
<0.4
0.4 to 0.6
0.6 to 0.8
0.8 to 1.2
> 1.2
0
50
100 m
A3_Existing Velocity Depth Product for 5AEP Flood

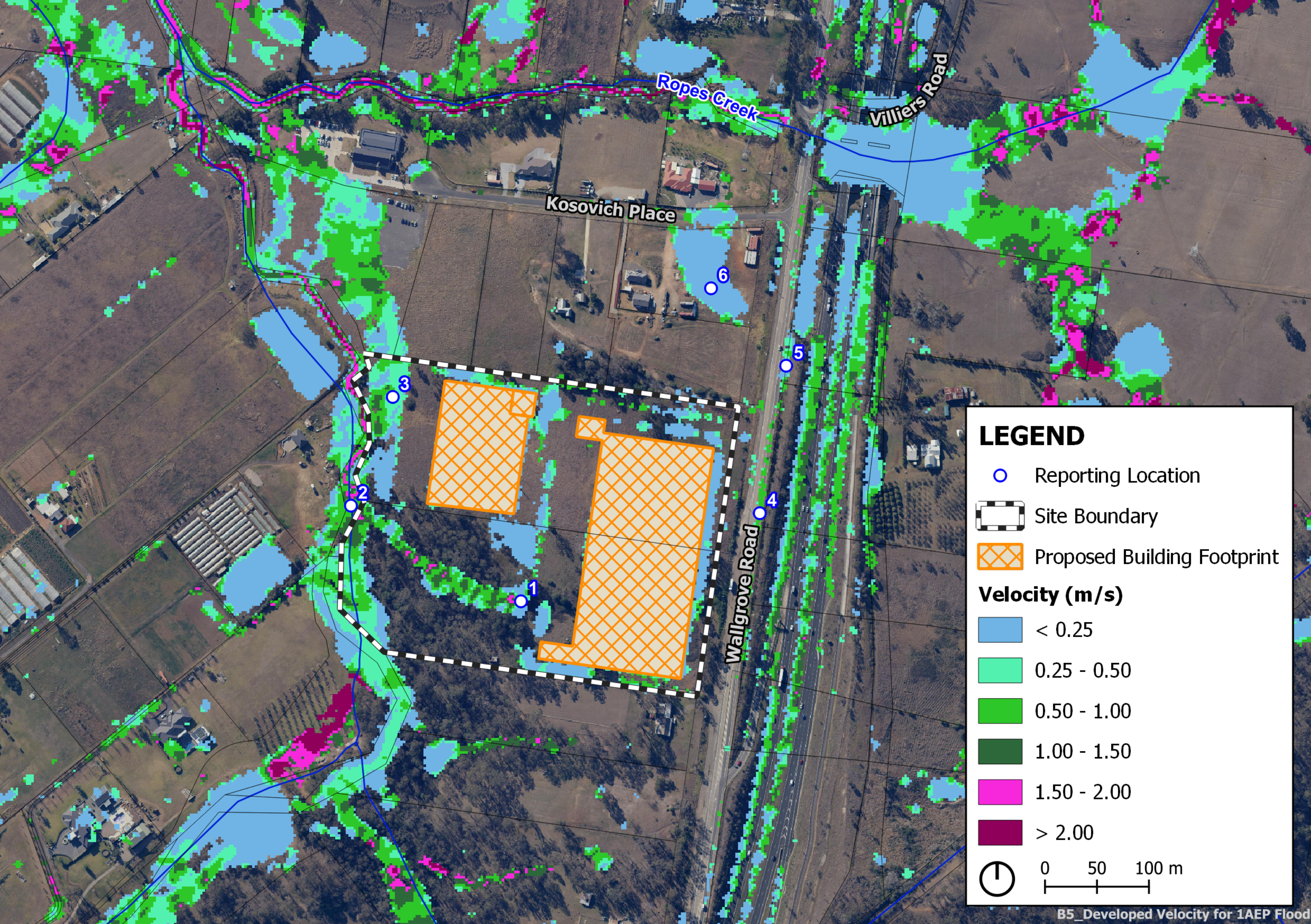


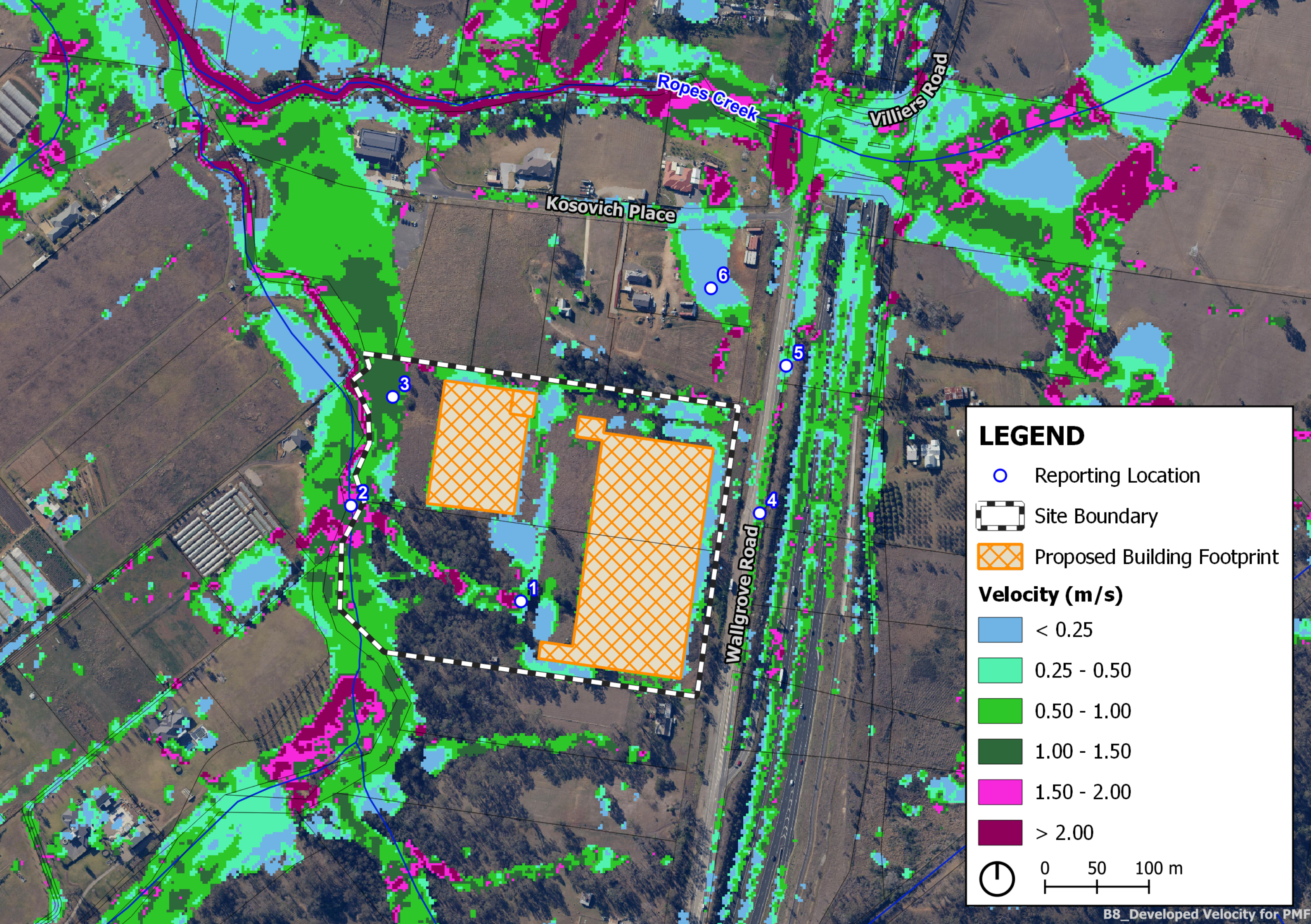
A6_Existing Velocity Depth Product for 1AEP Flood


Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Existing Buildings
Velocity Depth Product (m²/s)
<0.4
0.4 to 0.6
0.6 to 0.8
0.8 to 1.2
> 1.2
0
50
100 m
A9_Existing Velocity Depth Product for PMP Flood

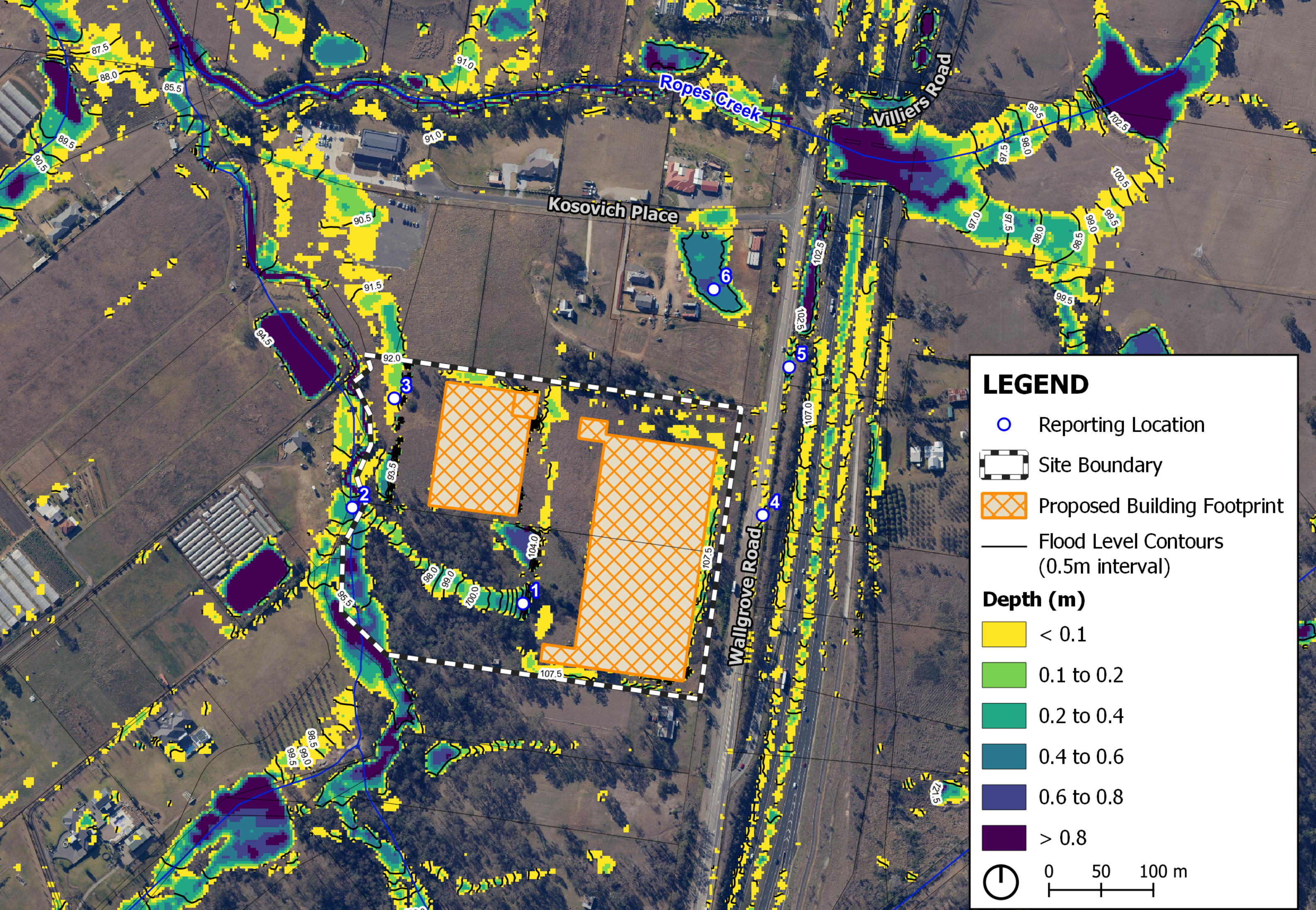


Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity (m/s)
< 0.25
0.25 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
> 2.00
0
50
100 m
B2_Developed Velocity for 5AEP Flood

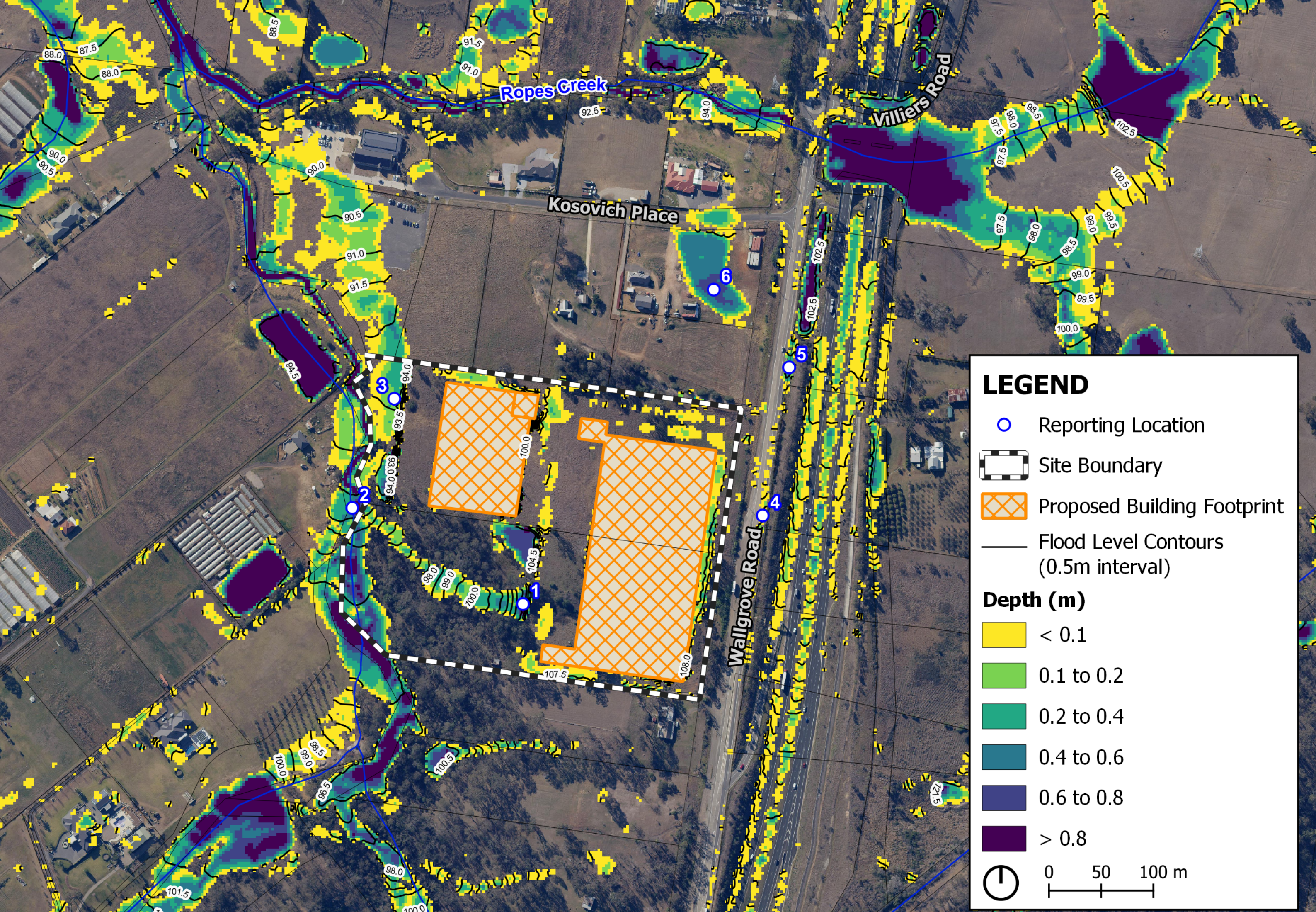

Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity (m/s)
< 0.25
0.25 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
> 2.00
0
50
100 m
B5_Developed Velocity for 1AEP Flood



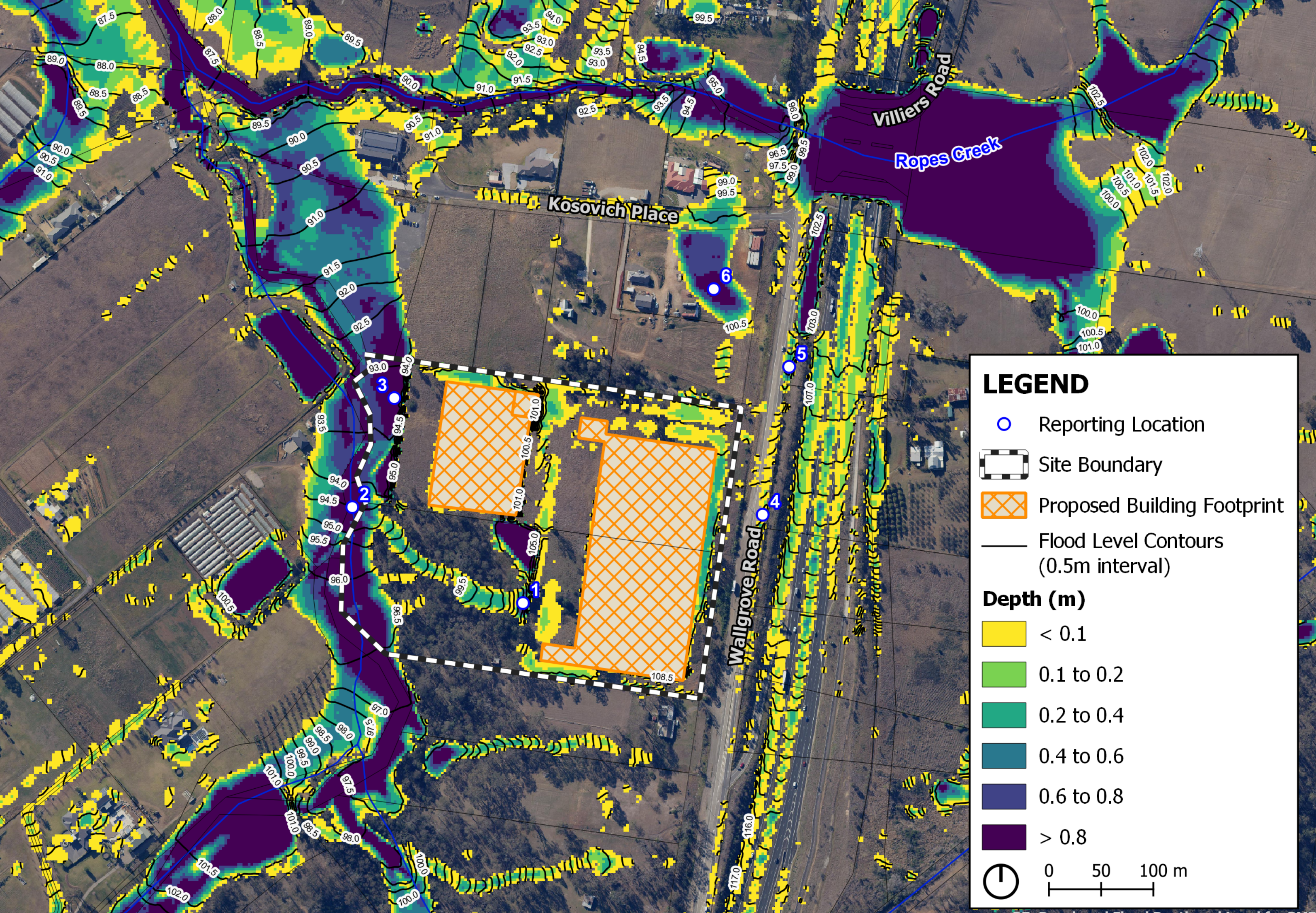
Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity (m/s)
< 0.25
0.25 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
> 2.00
0
50
100 m
B8_Developed Velocity for PMF



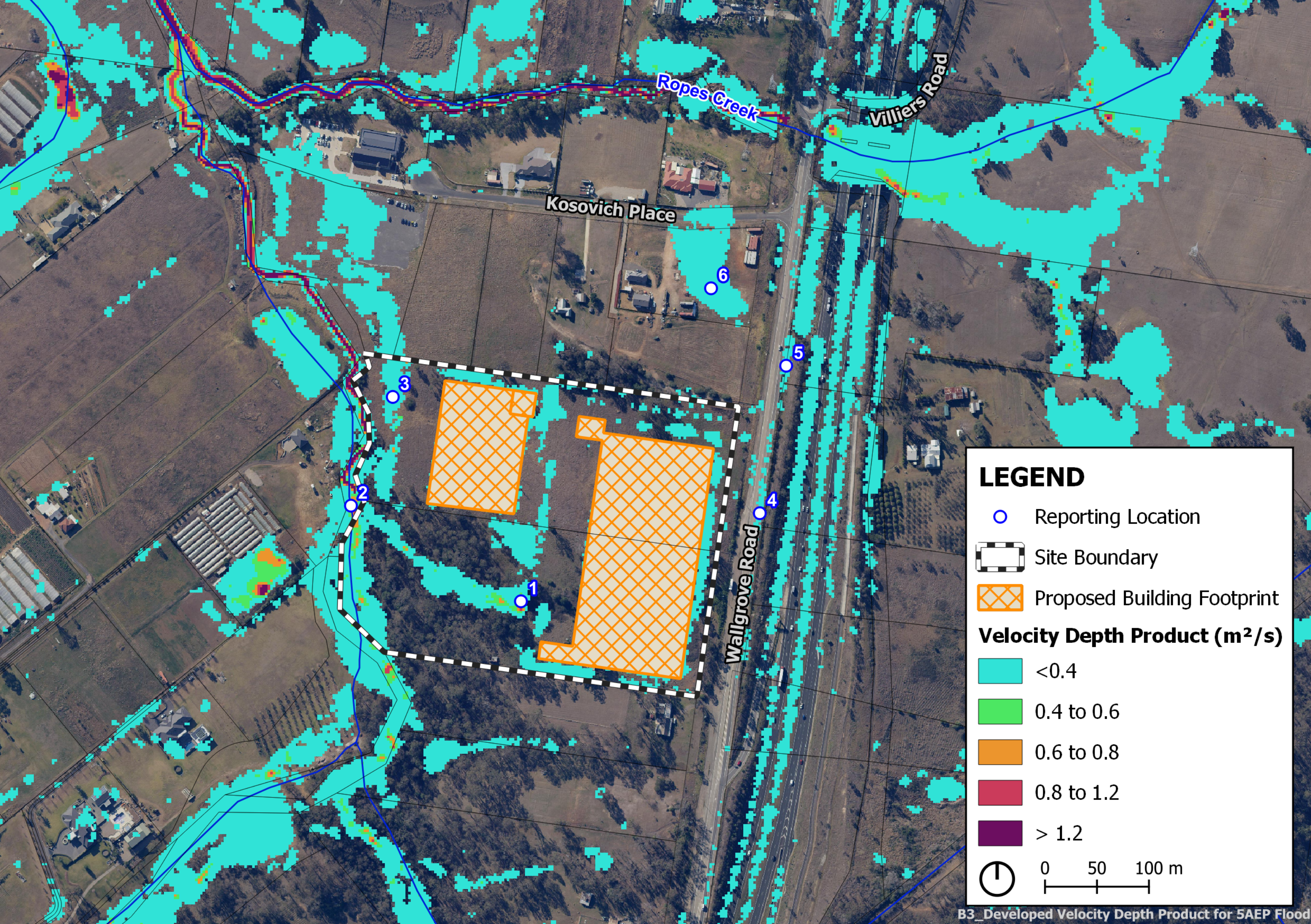
B1_Developed Flood Depth and Level for 5AEP Flood

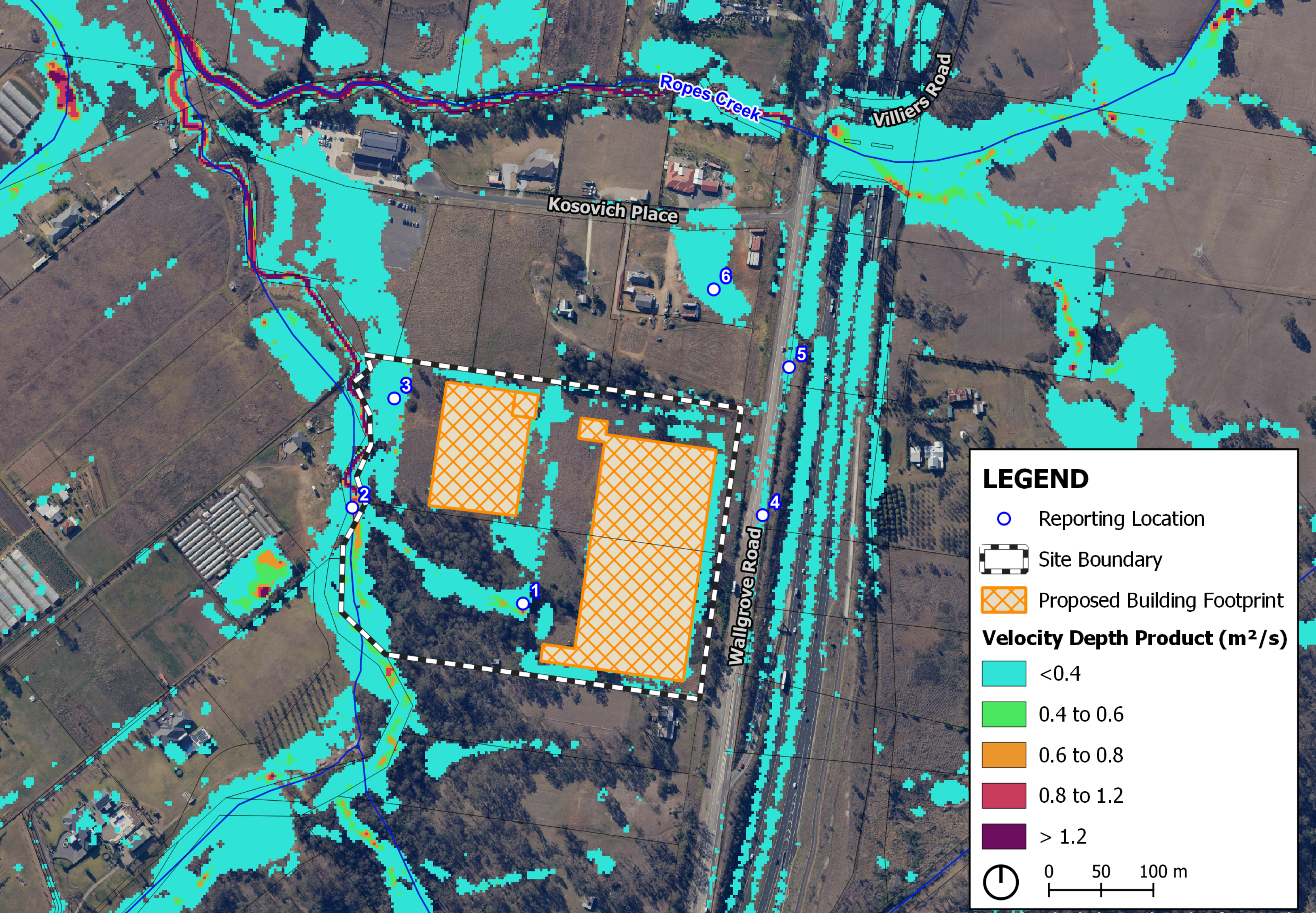


B4_Developed Flood Depth and Level for 1AEP Flood

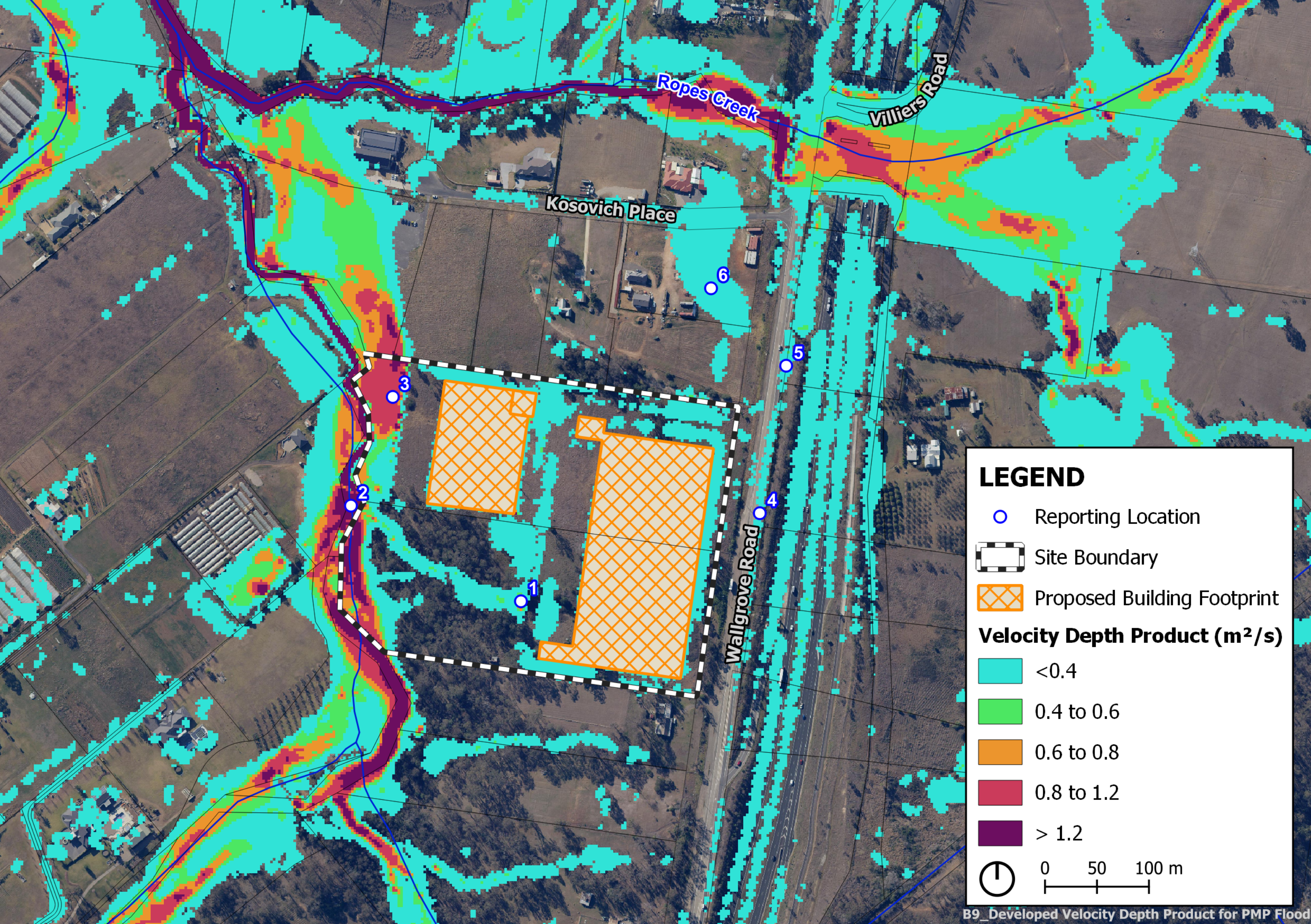


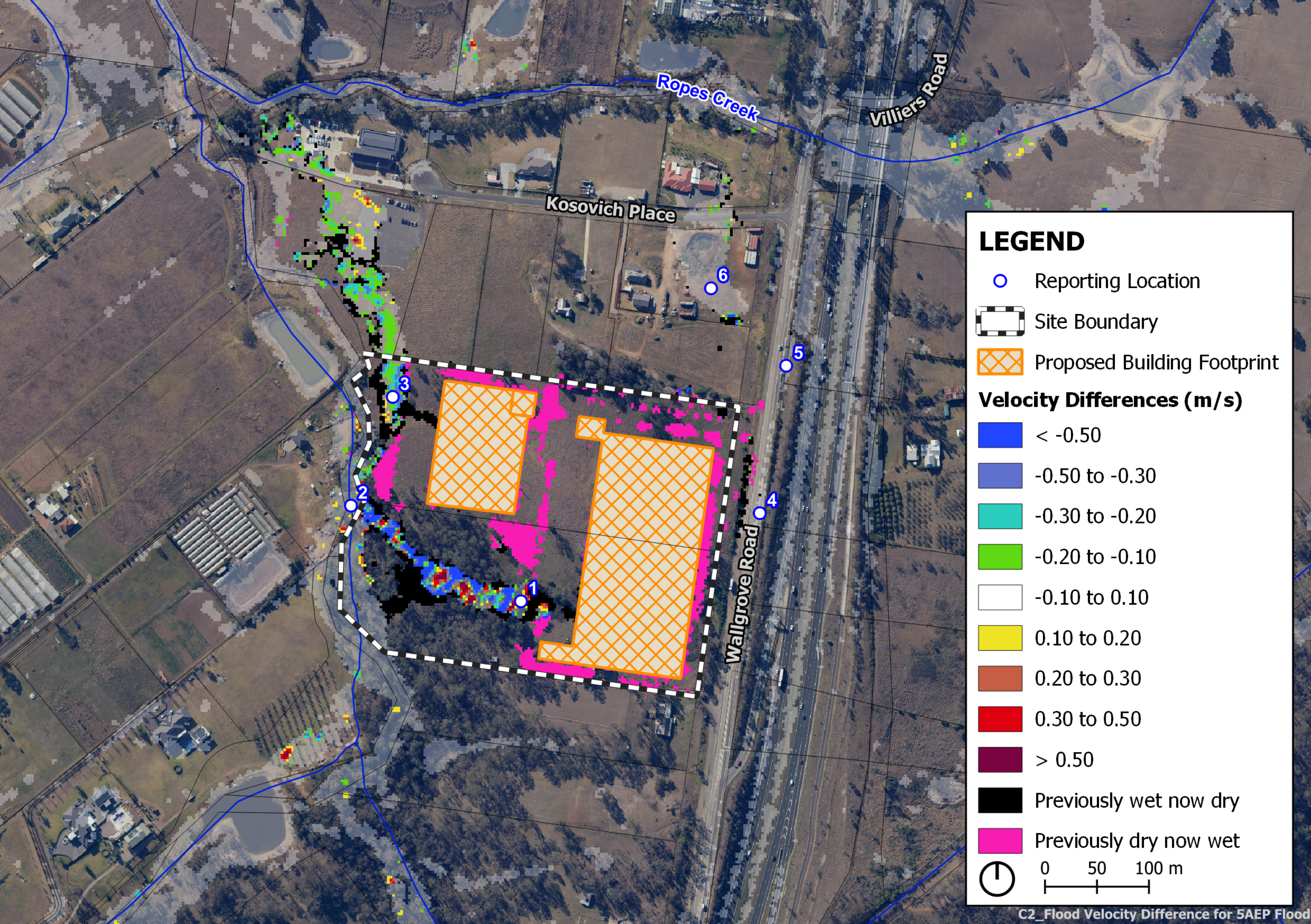
B7_Developed Flood Depth and Level for PMF

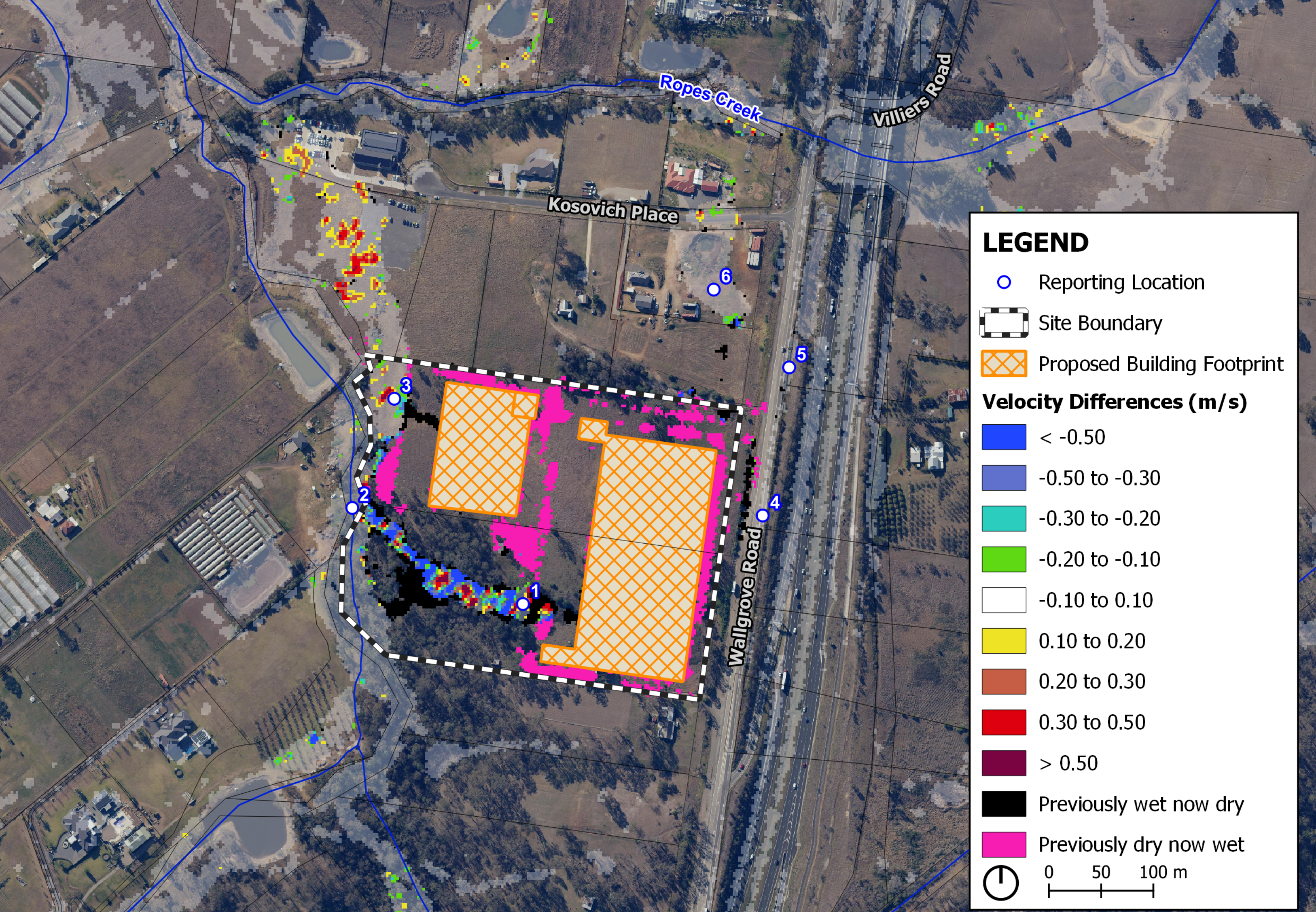

Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity Depth Product (m²/s)
<0.4
0.4 to 0.6
0.6 to 0.8
0.8 to 1.2
> 1.2
0
50
100 m
B3_Developed Velocity Depth Product for 5AEP Flood



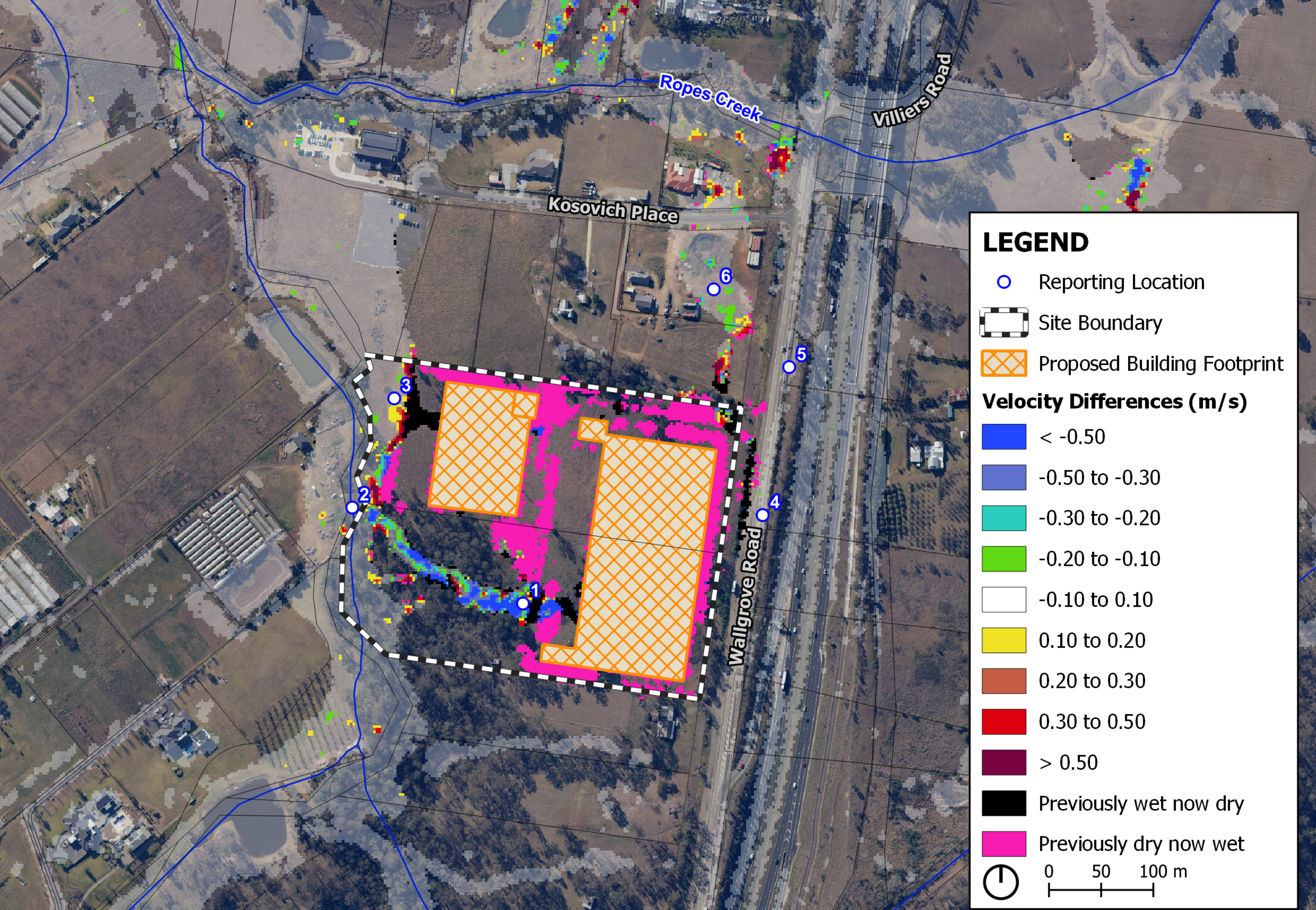
B6_Developed Velocity Depth Product for 1AEP Flood


Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity Depth Product (m²/s)
<0.4
0.4 to 0.6
0.6 to 0.8
0.8 to 1.2
> 1.2
0
50
100 m
B9_Developed Velocity Depth Product for PMP Flood

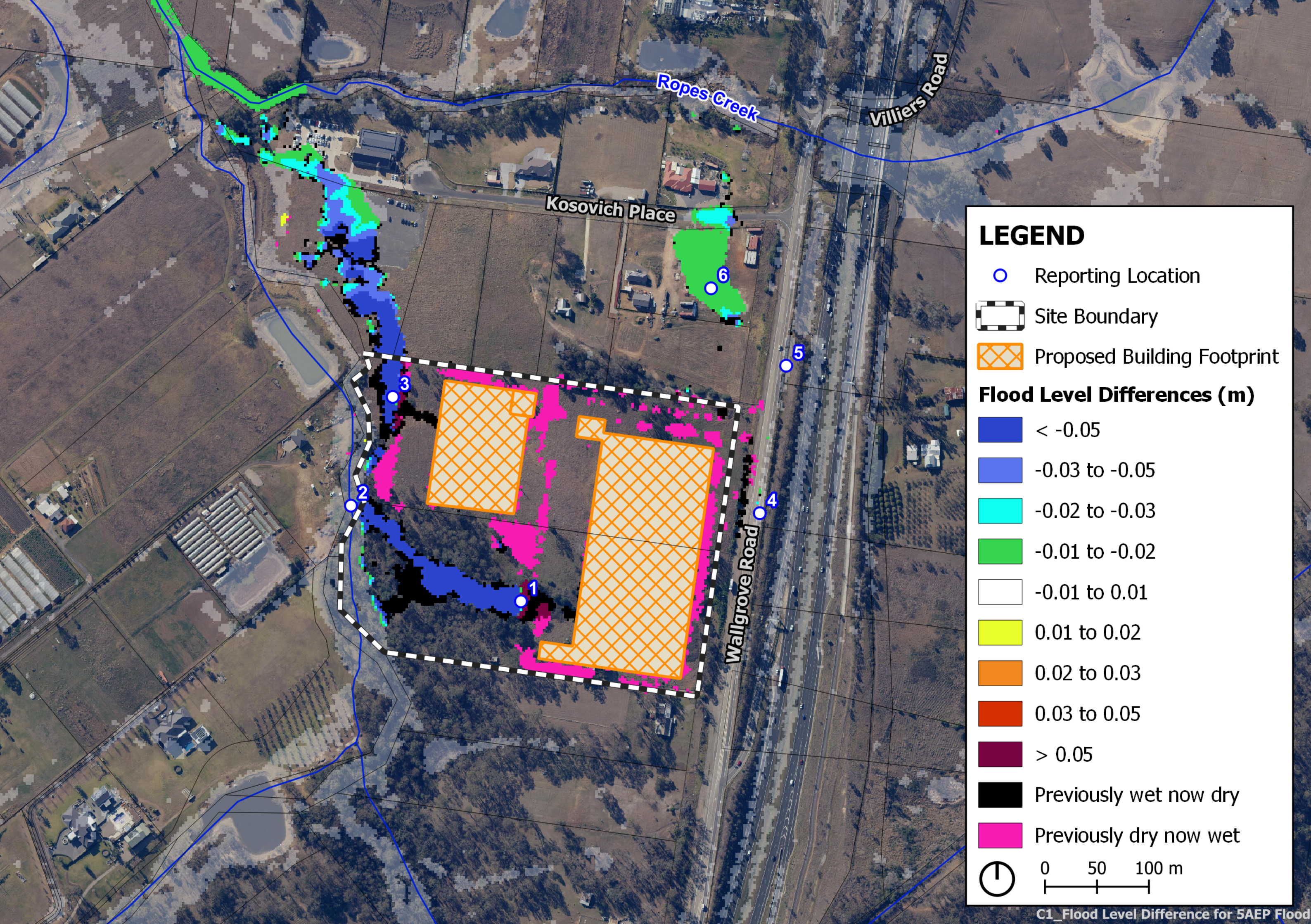

Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity Differences (m/s)
< -0.50
-0.50 to -0.30
-0.30 to -0.20
-0.20 to -0.10
-0.10 to 0.10
0.10 to 0.20
0.20 to 0.30
0.30 to 0.50
> 0.50
Previously wet now dry
Previously dry now wet
0
50
100 m
C2_Flood Velocity Difference for 5AEP Flood

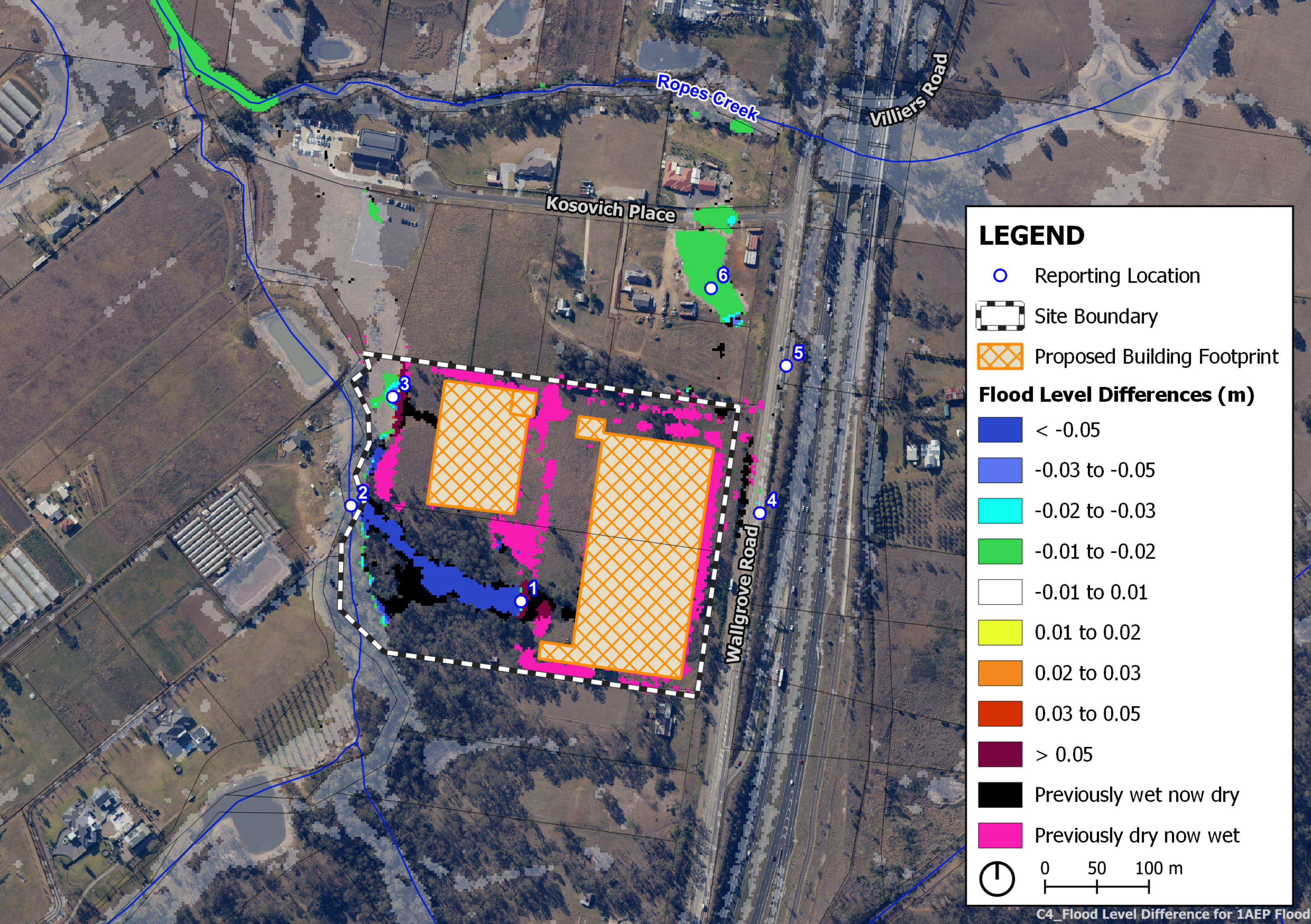


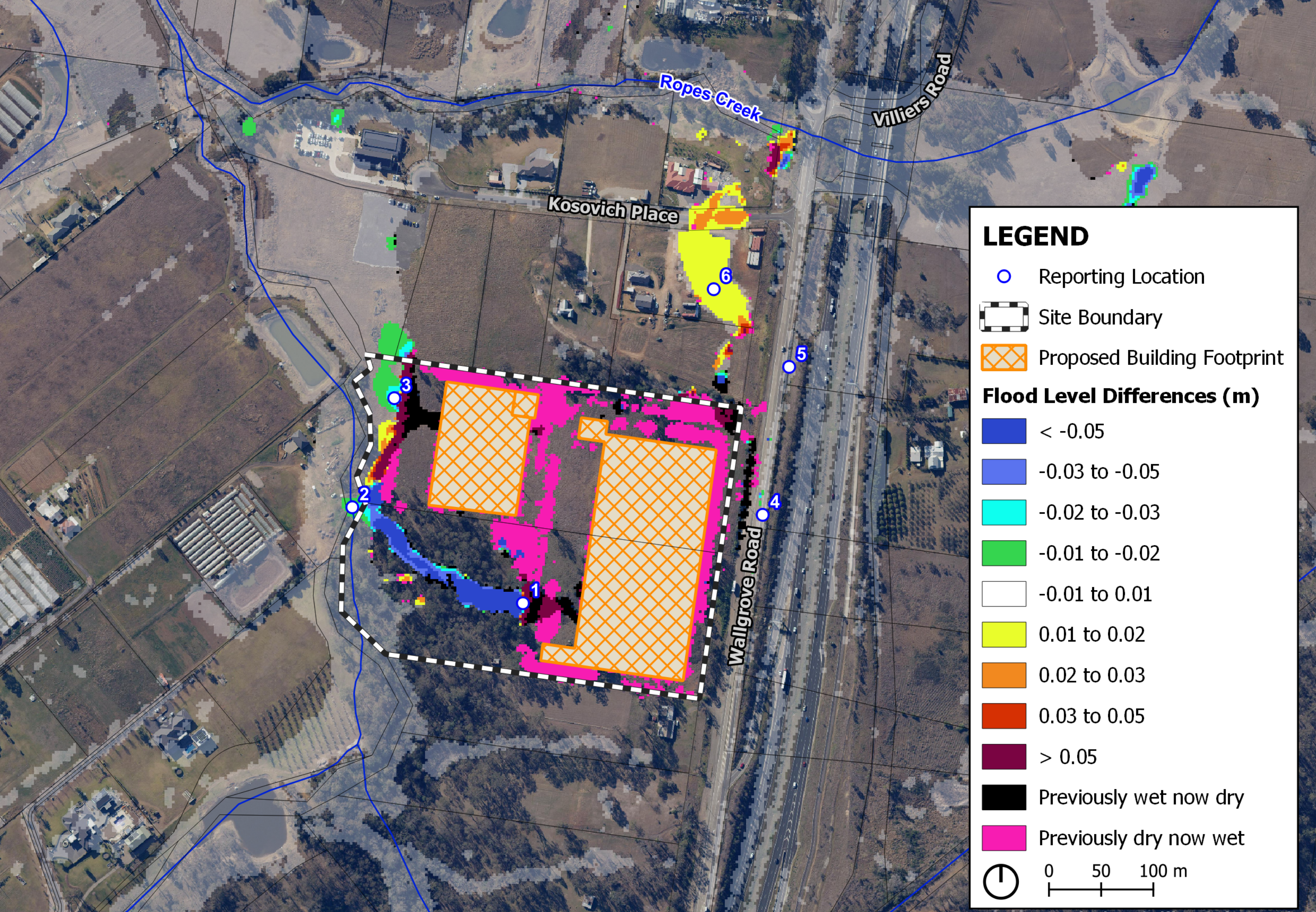
C5_Flood Velocity Difference for 1AEP Flood



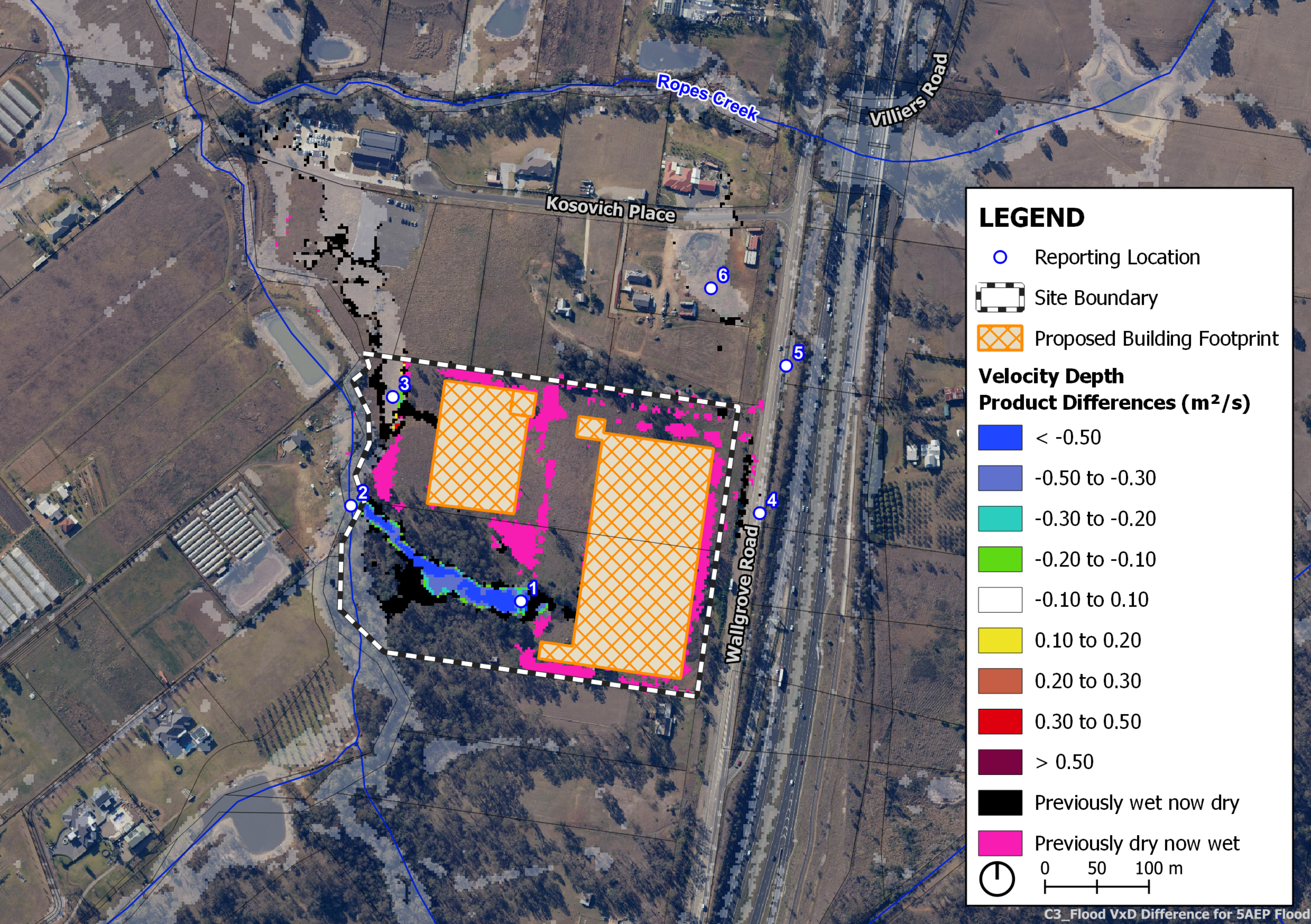
C8_Flood Velocity Difference for PMP Flood


Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Flood Level Differences (m)
< -0.05
-0.03 to -0.05
-0.02 to -0.03
-0.01 to -0.02
-0.01 to 0.01
0.01 to 0.02
0.02 to 0.03
0.03 to 0.05
> 0.05
Previously wet now dry
Previously dry now wet
0 50 100 m
C1_Flood Level Difference for 5AEP Flood

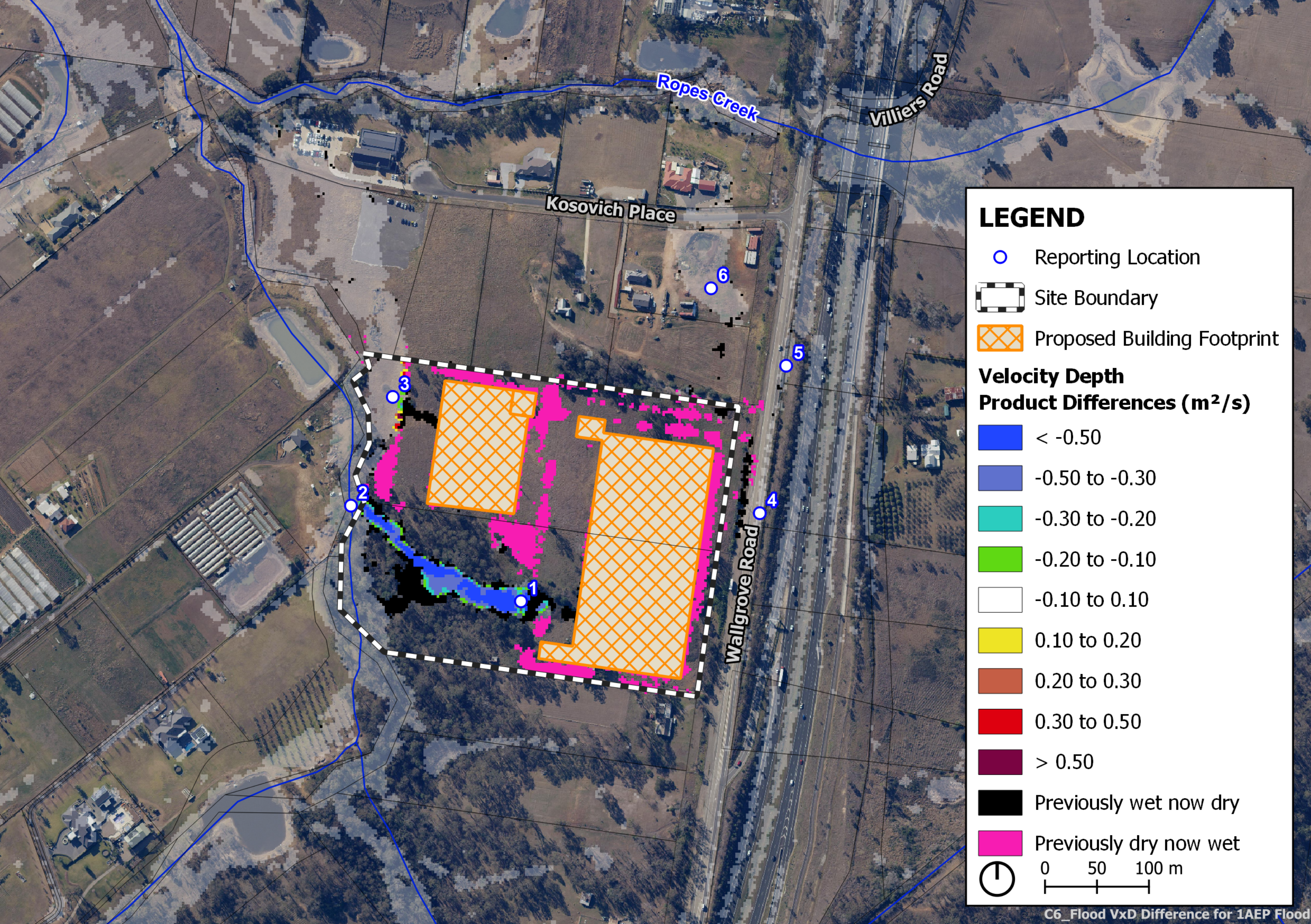

Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Flood Level Differences (m)
< -0.05
-0.03 to -0.05
-0.02 to -0.03
-0.01 to -0.02
-0.01 to 0.01
0.01 to 0.02
0.02 to 0.03
0.03 to 0.05
> 0.05
Previously wet now dry
Previously dry now wet
0 50 100 m
C4_Flood Level Difference for 1AEP Flood

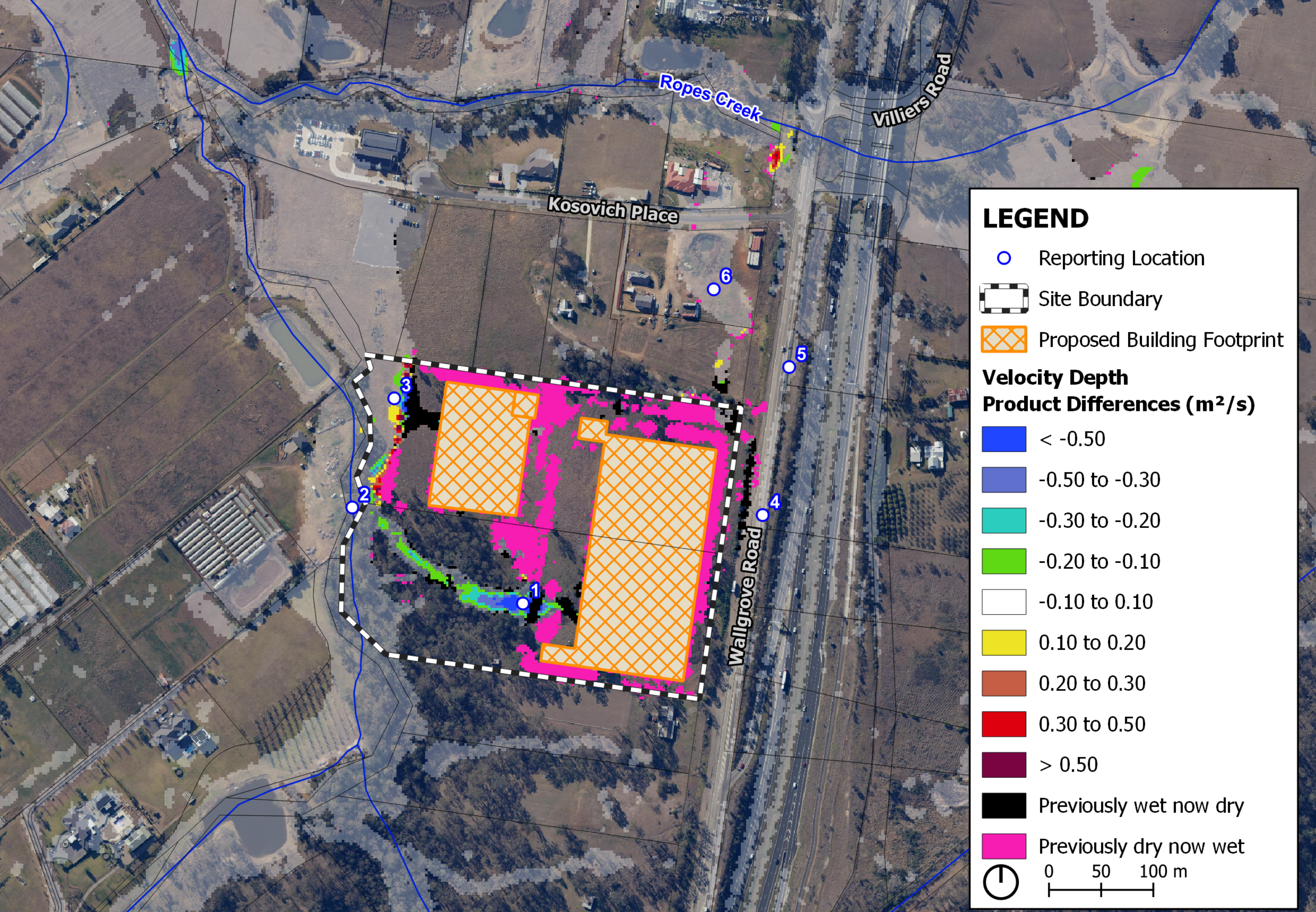


C7_Flood Level Difference for PMP Flood



Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity Depth
Product Differences (m²/s)
< -0.50
-0.50 to -0.30
-0.30 to -0.20
-0.20 to -0.10
-0.10 to 0.10
0.10 to 0.20
0.20 to 0.30
0.30 to 0.50
> 0.50
Previously wet now dry
Previously dry now wet
0
50
100 m
C3_Flood VxD Difference for 5AEP Flood


Ropes Creek
Villiers Road
Kosovich Place
Wallgrove Road
1
2
3
4
5
6
LEGEND
Reporting Location
Site Boundary
Proposed Building Footprint
Velocity Depth
Product Differences (m²/s)
< -0.50
-0.50 to -0.30
-0.30 to -0.20
-0.20 to -0.10
-0.10 to 0.10
0.10 to 0.20
0.20 to 0.30
0.30 to 0.50
> 0.50
Previously wet now dry
Previously dry now wet
0
50
100 m
C6_Flood VxD Difference for 1AEP Flood



C9_Flood VxD Difference for PMP Flood

Appendix E: E-mail correspondence with Water NSW

To: Nick Wetzlar <nwetzlar@hhconsult.com.au>
Subject: RE: Closing out WaterNSW consultation - Wallgrove Road Business Hub (SSD-50972718)

Hi Nick,

The planner has asked that this is included in the civil report, if you could please update.

Thanks
Rod

From: Nick Wetzlar <nwetzlar@hhconsult.com.au>
Sent: Monday, March 4, 2024 2:09 PM
To: Rod Pascoe <rod.pascoe@gsp.nsw.gov.au>
Subject: FW: Closing out WaterNSW consultation - Wallgrove Road Business Hub (SSD-50972718)

Rod,

Please see consultation close out with WaterNSW below.

Please let me know if you need any further confirmation (or if you need this added to the civil report).

Regards,

Nick Wetzlar
Partner - Senior Civil Engineer
Mobile: 0478 350 048
Phone: 02 9417 8400
Suite 2.01, 828 Pacific Highway
Gordon NSW 2072
nwetzlar@hhconsult.com.au | www.henryandhymas.com.au

henry&hymas
Sydney|Brisbane|Hunter

From: Alison Kniha <Alison.Kniha@waternsw.com.au>
Sent: Monday, March 4, 2024 2:03 PM
To: Nick Wetzlar <nwetzlar@hhconsult.com.au>
Subject: RE: Closing out WaterNSW consultation - Wallgrove Road Business Hub (SSD-50972718)

Hi Nick

Thank you for your email. I can confirm our response to the SEARs request remains relevant and that WaterNSW will not be impacted by the proposed development. As such we consider adequate consultation has occurred.

Regards,

Alison Kniha
Environmental Planning Assessments & Approvals Manager
Please note: I am working remotely. Please contact me by email.

PO Box 398, Parramatta NSW 2124
Level 14, 169 Macquarie Street
Parramatta NSW 2150
alison.kniha@waternsw.com.au
www.waternsw.com.au

From: Nick Wetzlar <nwetzlar@hhconsult.com.au>
Sent: Monday, March 4, 2024 1:15 PM
To: Environmental Assessments <Environmental.Assessments@waternsw.com.au>
Subject: [EXTERNAL] Closing out WaterNSW consultation - Wallgrove Road Business Hub (SSD-50972718)

Hi Alison,

Thankyou for your time on the phone.

As discussed, we are seeking confirmation to close-out consultation for the Wallgrove Road Business Hub (SSD-50972718) project. Water NSW reference D2022/160577. As noted, we have received agency advice from WaterNSW that does not make any comments or any particular requirements as it appears WaterNSW assets are not impact by the development.

Please see attached aforementioned agency advice (WaterNSW) and SEARs (refer Pg.5 consultation section for reference).

Could you please provide an email confirming adequate consultation has occurred given the commentary provided in the agency advice.

Appreciate your assistance on this one.

Regards,

Nick Wetzlar
Partner - Senior Civil Engineer
Mobile: 0478 350 048
Phone: 02 9417 8400
Suite 2.01, 828 Pacific Highway
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nwetzlar@hhconsult.com.au|www.henryandhymas.com.au

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