H&H Consulting Engineers Pty Ltd *(trading as Henry & Hymas)*
ABN 77 091 243 355 ACN 091 243 355

Address
Suite 2.01, 828 Pacific Highway Gordon New South Wales 2072

Telephone +61 2 9417 8400
Facsimile +61 2 9417 8337

Email email@hhconsult.com.au
Web www.henryandhymas.com.au

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CIVIL ENGINEERING REPORT

BURRAH PARK

ELIZABETH DRIVE, BADGERYS CREEK, NSW

Revision 1.7

April 2026

henry&hymas

Our Ref No. 240518

Henry & Hymas
Suite 2.01, 828 Pacific Highway
Gordon NSW 2072
Our Ref: 240518
Tel: (02) 9417 8400 Fax: (02) 9417 8337
E-mail: email@hhconsult.com.au

henry&hymas

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	Name
Prepared By	Nicholas Wetzlar
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Preface

This Civil Engineering Report has been prepared by Henry & Hymas Consulting to accompany a State Significant Development Application (SSDA) for a Concept and Stage 1 (Planning) SSDA for a Warehouse and Logistics Estate at 1953-2109 Elizaeth Drive, Badgerys Creek. The site is legally described as Lot 1 in Deposited Plan 1306448.

The applicant, the trustee for Burra Park Prop Trust 1 is a joint venture entity, with ISPT Core Fund and UniSuper each holding an equal share. HB&B and ISPT have been appointed as the development team to oversee the project's delivery. By leveraging the expertise of both organisations, the venture is well-positioned to maximise Burrah Park's value to the community.

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.
- Summary of proposed development.
- Staging of proposed development.
- Site works;
    - Earthworks and grading
    - Retaining walls and Embankment Stability
- Roads and Transportation;
    - Site Access
    - Internal Road Network
    - Pavements
- Stormwater management;
    - Strategies for compliance with Water Quality controls.
    - Strategies for compliance with Wianamatta–South Creek stormwater management targets.
    - Trunk Drainage Systems.
    - Regional WSUD infrastructure.
    - Stormwater detention infrastructure.
    - Stormwater and rainwater reuse.
    - Site Water Balance
- Soil and Water Management
- Utilities and services.

The Report has been prepared in conjunction with a set of preliminary Civil Engineering Drawings which show the concept civil design and stormwater management strategy for the development. The drawings are included in Appendix A of this Report.

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

- A design philosophy sympathetic to the site constraints, environment, terrain, and landform.
- 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.

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

- Aerotropolis Phase 2 DCP, Department of Planning and Environment, 2022. (DPE1,2022)
- Western Sydney Aerotropolis Precinct Plan.

- Technical guidance for achieving Wianamatta- South Creek stormwater management targets (DPE2, 2022).
- Western Sydney Aerotropolis (Initial Precincts) Stormwater and Water Cycle Management Study (Sydney Water [SW], 2021). (SWC1, 2021)
- Relevant policies from Penrith City Council DCP.
- The Guidelines for Riparian Corridors on Waterfront Land prepared by the Department of Planning and Environment (DPE3,2022).

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD- 70316465). In addition to providing a general summary of civil engineering aspects of the project, this report addresses the following relevant SEARs items. Details on how these SEARs items have been addressed can be found in Chapter 1.1 of this report.

As the development is deemed a State Significant Development (SSD), the consenting authority is the NSW Department of Planning, Industry and Environment. The development is located within the local government area of Penrith City Council as well as the Aerotropolis Precinct. The site is zoned as ENT – Enterprise zone under the State Environmental Planning Policy (Western Sydney Aerotropolis) 2020 and as such is subject to the controls outlined within the Western Sydney Aerotropolis Development Control Plan 2020 as well as the Western Sydney Aerotropolis Precinct Plan. Compliance tables for the proposed civil and stormwater related mitigations strategies for the development are available and presented in Chapter 3.3 of this report.

Whilst the Penrith City Council Development Control Plans (DCP) does not apply to the development, the DCP, policy requirements and Engineering Guidelines were considered in the design.

In response the DPHI test of adequacy (ToA), all rock headwalls and scour protection works have been relocated to be wholly contained within the northern property boundary. These details can be found on the updated civil drawing 240518_DA_C125.

This report has been updated to provide responses to the various submissions raised during Exhibition of the project (SSD- 70316465). Responses to the civil related submissions are provided in Chapter 1.2 below. A Summary of key changes to the proposed civil and stormwater works (civil engineering package) is listed below. Please note the list below is not exhaustive and seeks to highlight major changes to the package.

- Civil and Stormwater
    - Central trunk drainage channel and location of precinct basins networks realigned following SWC agency advice and ongoing coordination with Sydney Water.
    - Several lot levels and layouts amended following agency advice and in response to stormwater infrastructure realignment (Lots 5.2,5.3,5.4,5.5,3.1,3.2,3.3, 1.7,2.2,2.1,2.3,2.5,2.7).
    - Stormwater management plan amended to provide drainage connection from Elizabeth Drive and M12 to the precinct basin network, coordinated with upstream discharge locations, following SWC agency advice.
    - Intersection and Elizabeth Drive upgrade stormwater designs by ARCADIS coordinated with the site stormwater system.
    - M12 stormwater system coordinated with Basin C/NG_CC15 inlets and outlets.
    - Retaining walls fronting the naturalised trunk drainage channel removed where possible through grading and layout design.
    - Central naturalised trunk drainage channel extended to Elizabeth Drive.

  - Connection to the 'purple pipe' included in the precinct stormwater management plan
  - Drainage system amended to include low-flow stormwater harvesting line.
  - Regional stormwater basin design amended to remove OSD storage over stormwater treatment basins and include the full treatment train for each sub-catchment, following SWC agency advice.
  - On-site detention storage incorporated into central naturalised trunk drainage channel (green/blue corridor), aligning with the Western Sydney Aerotropolis DCP (2022) and principles of the Sydney Water's Initial Precinct Plan.
  - Basins sized to ensure discharges do not exceed pre-development levels, preventing adverse flooding impacts.
  - Basin C NG_CC15 relocated to the northeast corner for improved drainage outcomes and interface with the M12 (active transport, visual etc.).
  - The updated civil design aligns with Elizabeth Drive upgrade.
  - Landscape batters have been included to better manage elevation differences in the road reserve.
- Swept Paths
  - Additional Swept paths have been provided demonstrating the 14.5m rigid bus turning movements throughout the proposed bus route.
  - Additional swept paths have been provided for vehicles exiting and entering Lots 1.1, 1.2 and 3.1.

Through ongoing consultation with Sydney Water following the RTS phase of the development approval (June 2025 to December 2025) the following changes have been made to the civil engineering package (refer Chapters 6 for additional details):

- Coordination between the Burrah Park development and Integrated Stormwater Scheme Water Quality and Flow Target model (MUSIC modelling). Refer Chapter 6.4, 6.5 and 6.6.
- Adoption of Integrated Stormwater Scheme's regional basins design undertaken by Sydney Water's external technical consultant Civille and coordination of the site civil works to accommodate the regional basin.
- Incorporation of detailed staging in regard to delivery of Integrated Stormwater Scheme infrastructure. Refer Chapter 6.7.

Through ongoing consultation with surrounding landowners following the RTS phase of the development approval (June 2025 to December 2025) the following changes have been made to the civil engineering package. Refer 4.2.

- Coordination of active transport links between the Burrah Park shared path infrastructure and the M12 and Elizabeth Drive shared path/cycleway infrastructure. Refer landowners consent form TfNSW submitted in complement to this report.

1. Introduction

This report has been prepared to accompany an SSDA at 1953-2109 Elizabeth Drive, Badgerys Creek (SSD- 70316465). The application seeks consent for a concept plan including future development lots and building footprints. The development also seeks consent for the Stage 1 works which will include bulk earthworks across the site, infrastructure delivery, road access/intersections, internal road construction, civil infrastructure and utilities, stormwater infrastructure works and the construction of three (3) warehouse buildings.

Specifically, development consent is sought for

- Concept Plan
    - Concept Masterplan for the Burrah Park comprising warehouse buildings, internal road network layout, building locations, GFA, car parking, concept landscaping, building heights, setbacks, signage strategy, public art strategy, design excellence strategy and Connection with Country framework.
    - Developable area 131.06ha.
    - Total approximate GFA 63.37ha.

- Stage 1 (Planning) – site preparation works
    - Demolition and removal of existing structures and vegetation.
    - Heritage salvage works (if applicable).
    - Construction of roads, access infrastructure, including a signalised intersection with Elizabeth Drive.
    - Dam de-watering and de-commissioning.
    - Bulk earthworks, cut and fill, benching, battering and retaining walls.
    - Lead in infrastructure, utilities and servicing.
    - Stormwater infrastructure including construction of Sydney Water basins and Water Sensitive Urban Design (WSUD) elements.

- Stage 1 (Planning) – Development (Lots 1.1, 1.2 and 3.1 referred to as Development Stage 2).
    - Construction and fit out of 3 warehouse buildings and ancillary office space.
    - Stormwater management, fencing and landscaping.
    - Internal road network, active transport network, public domain and open space.
    - Subdivision, and
    - Estate and on lot signage.
    - Total approximate GFA 85,864sqm
        - Warehouse 1.1 – 26,855sqm
        - Warehouse 1.2 – 31,430sqm
        - Warehouse 3.1 – 27,561sqm

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 22 May 2024 and issued for the SSDA (SSD-70316465). Specifically, this report has been prepared to respond to the SEARs requirement issued below.

1.1 Addressing SEARS

Table 1. Summary of Addressing SEARs.

Item	Description of requirement	Section reference (this report)
Traffic and Transport	– details and plans of the site access and proposed internal road network, loading docks, pedestrian and cycling facilities and on-site parking in accordance with the relevant Australian Standards, Precinct Plan and Phase 2 DCP; – details of the largest vehicle anticipated to access and move within the site, including swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site and at key intersections;	Vehicle swept paths shown on civil engineering drawing DA_C651-C676 for subdivision works and D1_C650-C652 for Lots 1.1,1.2 and 3.1 in Appendix A
Soils	– an assessment of potential impacts on soil resources and riparian land on and near the site, including: • impacts on soil erosion, salinity and acid sulfate soils. • an assessment of site topography and justification demonstrating the proposed earthworks are contextually appropriate, minimise cut and fill volumes, and consider the interface with open space and public domain • Erosion and Sediment Control Plan prepared in accordance with Department's 'Technical guidance for achieving Wianamatta–South Creek stormwater management targets' (2022).	Refer Section 5.1, 5.2 & 7. Refer geotechnical investigations and reporting for salinity and acid sulphate soils.
Water Management	Water Management – a Water and Stormwater Management Plan prepared in accordance with Department's 'Technical guidance for achieving Wianamatta–South Creek stormwater management targets' (2022) and 'MUSIC modelling toolkit for Wianamatta–South Creek', including: a detailed site water balance including a description of the water demands and breakdown of water supplies, measures to minimise water use and any water licensing requirements a description of groundwater and surface water conditions and all works/activities that may intercept, extract, use, divert or receive surface water and/or groundwater (both temporary and permanent) an assessment of potential surface and groundwater impacts (both quality and quantity) associated with the development, including potential impacts on watercourses, riparian areas, groundwater, and groundwater-dependent communities nearby in accordance with relevant water quality guidelines and the Department of Climate Change, Energy, the Environment and Water - Water Group (DCCEEW-Water) Groundwater Toolkit	Refer Section 6. Refer geotechnical investigations for groundwater related items.

	details of the proposed stormwater/wastewater drainage design including the capacity of onsite detention system(s), onsite sewage management and measures to treat, reuse or dispose of water – details of how the proposed stormwater drainage system will connect to Sydney Water's regional stormwater scheme, including details of any interim solution, consistent with the Department's 'Technical guidance for achieving Wianamatta–South Creek stormwater management targets' (2022) – where water and drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards, the local council or other drainage or water authority a surface water discharge assessment in accordance with relevant EPA guidelines, including an assessment of potential impacts on watercourses and riparian areas, and characterisation of water quality at the point of discharge against the relevant water quality criteria using a MUSIC water quality model – details of any surface or groundwater mitigation, management and monitoring activities and methodologies.	
Infrastructure Requirements	Infrastructure Requirements – an infrastructure delivery, management and staging plan that includes: – an assessment of impacts of the development on existing utility infrastructure and service provider assets surrounding the site – a detailed written and/or graphical description of infrastructure required on the site details of the existing capacity of the site to service the proposed development and any extension or augmentation, property tenure or staging requirements for the provision of utilities, including arrangements for electrical network requirements, drinking water, wastewater and recycled water a description of how any upgrades will be co-ordinated, funded and delivered on time and be maintained to facilitate the development identification of any existing infrastructure or easements on or off the site which may be impacted by construction or operation of the development and details of measures to be implemented to address any impacts.	In part addressed in Section 3 and Section 8. Refer infrastructure report by Urbis for additional details.

1.2 Response to Submissions – Additional Submission (2nd Round)

This report has been updated to provide responses to the various submissions raised following the initial exhibition period, generally between June and December 2025. Responses to the civil related submissions are provided in Table 2.1 below.

No	DPHI	Applicant Response
8	Further to the above, strong consideration must be given to amending parts of the proposed roads and supporting earthworks that encroach within the Environment and Recreation zone (ENZ), 1% AEP flood extent and riparian corridors, to address concerns raised by the Water and CPHR Groups of DCCEEW. In addition, battering within the ENZ and 1% AEP flood extent on Lot 6.1 should be moved out of this area.	In line with agency comments the road has been significantly realigned to the east to minimise encroachment in ENZ and 1% AEP Flood Extent. The road was realigned to retain the existing watercourse to the west of the proposed realigned road. The road alignment shift is shown below on civil drawing C123. Built form within Lot 6.1 has been removed from the ENZ zoned land - Refer Architectural drawings. The minor encroachment of the Lot 6.1 area and road batters within the 1% AEP has been assessed in the updated Flood Impact Assessment with no adverse impacts noted from the revised landform, refer to the updated FIA by Arcadis. Civil engineering drawings show a maintenance path extending to the existing underpass and is fixed in terms of boundary alignment (refer below). Minor earthworks are proposed to achieve suitable maintenance paths grades.
10	The Department notes concerns raised by Council regarding the extent of cut in the south-east of the site and the ability to continue Estate Road 2 into the adjoining property when it is re-developed in future. Please provide further details, including an indicative extended section of Road 2 into that site, to demonstrate that the delivery of this road and suitable development levels will be achievable on this land to the east should the proposed earthworks be undertaken.	Preliminary road alignment and longsections have been produced to investigate the continuation of the Estate Road 2 into the adjoining property. Refer to drawings 240518_SK_011 - 013. The road design is suitable given the existing topography and the proposed road grades are consistent with the amended integrated stormwater scheme catchment prepared by Sydney Water (understood to be rationalised for lot boundaries). It is understood that landowner's consent has been obtained from the neighbouring landowner (Sydney University). As noted in previous RTS responses, the significant level difference within

No	DPHI	Applicant Response
		the Sydney University lands (in conjunction with temporary works by TfNSW – already undertaken) will require significant cut and filling to produce lots suitable for the zoning. Cutting on the boundary will be a key part of achieving a suitable earthworks design for the adjacent lot especially considering the unique constraints of the landholding – Airport OLS. It should also be noted that Sydney University intends to develop their site in the future which will require cutting to achieve standard warehouse ridge heights that comply with the WSIA flight path height restrictions.
12	Confirm how and when active transport connections to Elizabeth Drive and the M12 corridors, as shown in the civil and architectural and Landscape Strategy, will be delivered and provide any necessary landowner's consent.	Refer Chapter 6.7 and civil drawings C171-176 of detailed staging plans including the delivery of active transport connection. It is understood landowners' consent and agreement on access location have been achieved from TfNSW. Refer landscape drawings for landscape treatment of active transport connections.
14	Provide further information on the design and delivery of the stormwater management system to address the issues raised by Sydney Water and CPHR, including a staging plan that: o Details the completion timeline for each regional stormwater basin and demonstrates how each basin aligns with the corresponding development stage it is intended to service o Includes details of the components of the stormwater system and MUSIC model for each of these development stages o Ensures consistency across the MUSIC modelling and the civil design plans.	Refer Chapter 6.7 and civil drawings C171-176 that provide a detailed breakdown of the regional basin infrastructure to be delivered by a given stage. Chapter 6.7 and civil drawings C171-C176 also include a breakdown of road infrastructure and corresponding development for each stage. Refer Chapter 3.2 for stage timing. Refer Chapter 6.7 for water quality and flow target (MUSIC) modelling results. MUSIC model is consistent with the updated civil drawings. Refer Chapter 6.4 for details regarding coordination of Integrated Stormwater Scheme model and amended civil drawings.
15	As requested previously, confirmation is required that Sydney Water is supportive of the co-use of stormwater infrastructure maintenance tracks and active transport corridors. Sydney Water's advice on the RTS identifies that the 'safety in design of the active transport corridor along Sydney Water infrastructure needs to be validated for public access.'	It is understood that Sydney Water is supportive of the co-use of maintenance tracks and active transport links provided maintenance tracks are delivered to Sydney Water's Stormwater Scheme Infrastructure Design Guidelines (2024). Refer landscape drawings for portion of maintenance tracks proposed to be used as 'co-use'. It is understood that safety in design will be completed as part of the detailed design phase of the regional basins and naturalised trunk drainage channel undertaken as co-design (under the developed works agreement) between the applicant and Sydney Water.

No	DPHI	Applicant Response
38	c) It is noted that the proposed stormwater management strategy modelling relies upon the inclusion of passive street trees, however it is considered that more conservative modelling should be adopted in case more simplistic passively irrigated street trees are installed, to ensure that the waterway health outcomes are achieved.	Please refer to Sydney Water Responses (below) and Chapter 6.4. The applicant has adopted the Integrated Stormwater Scheme design and modelling provided by Sydney Water. The proposed street trees and supporting modelling is as per Sydney Water's model and coordinated as part of with the greater Integrated Stormwater Scheme model.
40	e) It is noted that mapped waterways are located on the site and any works in the vicinity of such will need to be undertaken in accordance with the Water Management Act 2000 and requirements of the Department of Climate Change, Energy, the Environment and Water.	Noted. Works within mapped waterways are designed and specified in accordance with Water Management Act (2000) and the Department of Climate Change, Energy, the Environment and Water requirements.
41	f) In accordance with the integrated water cycle management provisions of the Western Sydney Aerotropolis Development Control Plan 2022, high efficiency sediment basins are to be provided as part of the construction phase of the overall development. Associated Conditions should be imposed on any associated Development Consent to ensure the use of high efficiency sediment basins during construction works and that such satisfy the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets.	Noted. High efficiency sediment basins have been specified as part of the Soil and Water Management Strategy. Refer to Chapter 7 and civil drawings SE01-SE14. The applicant acknowledges and agrees to the conditions regarding the specification of high efficiency sediment basins.

No	CPHR	Applicant Responses
9	Clarification is required on the timing and method of delivery for the Sydney Water infrastructure necessary to ensure full supply of harvested stormwater to the proposal via the reticulated pipe system (including pumps, reservoirs, and treatment plants). The applicant must identify which components of the stormwater system will be delivered as part of the current proposal and which components would rely on future works by Sydney Water. If the stormwater harvesting system will not be operational at Stage 1, the applicant must provide detailed interim measures including any revised modelling to demonstrate how stormwater flow and irrigation objectives will be met at each stage. Any residual lots that will remain undeveloped for irrigation purposes, until the full Sydney Water system is operational, must also be clearly identified. Recommended actions: • A staging plan must be provided to show the completion timeline for each Sydney Water trunk basin and demonstrate how each basin aligns with the corresponding development stage it is intended to service. • Details of the components of the stormwater system and MUSIC Model must be submitted for each development stage.	Refer to Chapter 6.7 and civil drawings C171-176 that provide a detailed breakdown of the regional basin infrastructure to be delivered including the scope of infrastructure and timing. Modelling (MUSIC modelling) has been undertaken for every Stage (1-6). Modelling demonstrates water quality and flow targets can be achieve for Stages 1-5. Stage 6 water quality and flow targets can be achieved subject to further coordination of reuse rates with Sydney Water. Details regarding irrigation area requirements to meet water quality and flow targets are included for every stage. The plans detail the corresponding development to each stage intended to be serviced as well as any associated infrastructure to be delivered. MUSIC modelling will be submitted for each development stage in addition to this report.
11	The current civil design plans show that treated/pipe flows from the wetlands are discharged directly to the trunk drainage channel, while the MUSIC model indicates these flows are directed to bioretention basins. This inconsistency must be resolved. If the reticulated Sydney Water stormwater harvesting and reuse system will not be operational at Stage 1, revised calculations must be submitted to support an interim reuse strategy for example, land irrigation. The interim strategy should clearly identify irrigation areas required for each development stage, including any land that must remain undeveloped for this purpose. Further detail is required for the proposed passively irrigated street trees. The applicant must demonstrate that the MUSIC modelling approach is appropriate and accurately represents the intended system functions. If these trees are modelled as bioretention systems with extended detention, this must be reflected in the engineering plans by including surface water delivery, filter media and sub-soil	Refer above to Response 9 for return comments regarding staging. Please refer to Sydney Water responses (below) and Chapter 6.4. The applicant has adopted the Integrated Stormwater Scheme design and modelling provide by Sydney Water. The design of the basins (3d linework) and precinct cluster of Integrated Stormwater Scheme model was provided to the applicant by Sydney Water. The civil design (and development proposal in general) has been amended to match Sydney Water's design. The amended MUSIC models accurately represent the configuration of treatment infrastructure and are consistent with the Integrated Stormwater scheme model (as the modelling has been prepared by Sydney Water and provided to the applicant). Refer above (DPHI response 38) in regards to street tree modelling. A revised Street Trees detail consistent with Sydney Water's modelling is provided on civil drawing C211.

	drainage infrastructure. Recommended actions: • Update the MUSIC model to be consistent with the civil design plans, including specifically for the connection between wetlands and bioretention basins. • Provide additional details on the proposed street trees demonstrating they are appropriate in the MUSIC model.	
12	As previously discussed, the proposed connection between the wetland and bioretention systems is inconsistent with the configuration used in the MUSIC model. This discrepancy must be resolved to ensure alignment between the design documentation and modelling. Civil design plans must be provided for the proposed passively irrigated street trees. If the system is to be implemented as an unlined gravel trench, there is a significant risk of tunnel erosion due to the dispersive nature of the subject land's soils. Additionally, this design approach appears inconsistent with the MUSIC model, which represents these systems as bioretention nodes. Several of the proposed wetlands exhibit low hydraulic efficiency, as indicated by short length-to-width ratios and multiple inflow points. To ensure accurate performance modelling, CPHR recommends either the hydraulic efficiency of these wetlands be improved or reduce the number of Continuous Stirred Tank Reactor cells used in the MUSIC model to better reflect actual conditions. Recommended actions: • Submit updated treatment system design plans. • The updated treatment systems from the revised design plans must be modelled in the MUSIC demonstrating compliance of waterway health targets.	Refer comments above. The civil design has adopted the design of regional basins and associated MUSIC modelling from Sydney Water. Amending the basins for the adjacent comments would deviate from Sydney Water's design. A revised Street Trees detail consistent with Sydney Water's modelling is provided on drawings C211.
13	CPHR highlights the Stage 1 civil design plans were missing the on-lot gross pollutant traps (GPT's). These plans must also include the Sydney Water trunk basins and any interim irrigation areas required to service this development stage. Recommended actions: • Submit Stage 1 design plans that include on-lot GPT's, Sydney Water trunk basins and interim irrigation areas.	Stage 2 (former Stage 1) drawings have been amended to includ required on-lot gross pollutant traps (GPT's). Modelling (MUSIC modelling) has been undertaken for every Stage (1-6) - refer Chapter 6.7. Modelling demonstrates water quality and flow targets can be achieved at every stage. Details regarding irrigation area requirements to meet water quality and flow targets is included for every stage.

No	Sydney Water	Applicant Responses
	Stormwater Servicing • Sydney Water requests additional information for assessment on matters relating to stormwater. Attachment 1 provides details on what actions are required to meet these requirements. • Sydney Water will continue to meet with the proponent to progress the functional stormwater design.	Noted. Refer to response to Attachment 1 below. The Applicant is committed to continue ongoing coordination to progress the functional stormwater design.
11	Water, Wastewater and Recycled Water Servicing • The area is supplied via a rural drinking water supply with limited capacity to service growth and there are currently no wastewater or recycled water services available. • Sydney Water understands the concept plan will facilitate a range of building sizes for standard warehouse-style building envelopes, as well as smaller, office dominant envelopes to support uses such as high technology, pharmaceutical, advanced manufacturing and robotics. Other land uses may include industrial, manufacturing and recreational/sports land uses, and will be facilitated through future development applications and modifications. • While future land uses are unlikely to be confirmed at this stage, it is critical for potential high-water users such as data centres to be accounted for in Sydney Water's planning for the area. • Sydney Water requests that indicative water, wastewater and recycled water flow demand breakdowns are provided either in response to SSD-70316465, a new Feasibility application, or via discussions with Christian McNally, Manager Developer Partnerships.	Refer to Staging Plans C171-C176 for a detailed breakdown of recycled water for each stage. Refer to infrastructure staging report from URBIS for additional details.
	Next steps • The Department is advised to defer approval of SSD-70316465 and re-refer the application to Sydney Water for review once stormwater concerns have been addressed. • The proponent is to address the comments in Attachment 1. • Sydney Water will continue to meet with the proponent to progress the functional stormwater design. • The proponent should provide indicative flow rates for the concept plan and continue liaising with Sydney Water to progress water, wastewater and recycled water servicing investigations	Noted. Refer to response to Attachment 1 below.

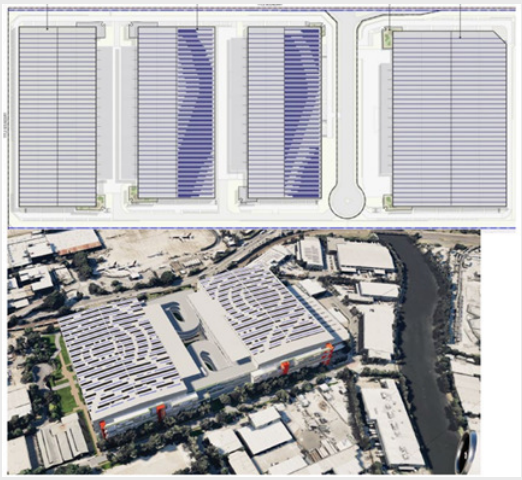
	Attachment 1 1.As part of the Response to Submissions, Sydney Water expects that a functional design of 50%-70% of the stormwater infrastructure is provided. The checklist of information to provide is available at: https://www.sydneywater.com.au/content/dam/sydneywater/documents/appendix-c-engineering-requirements-checklist.pdf Stormwater infrastructure design must also comply with the Standard Design Guideline available at: https://www.sydneywater.com.au/content/dam/sydneywater/documents/stormwater-scheme-guideline-western-sydney.pdf As part of the checklist to be completed, it is noted that: a) Sinuosity of the low-flow channel of the 3 trunk drainages to be documented on the civil drawings. b) Long section of the blue stormwater drainage pipelines to be provided including grade, required off take flow rate, velocity, trench depth. c) Peak flow rate to sedimentation basin to be documented. d) Inlet and outlet of the different basins must be located as further apart as possible (Example: Drawing 240518_DA_C221 from Appendix Dii Updated Civil Plans (Concept)) e) Wetland must be designed according to Sydney Water standards without an outlet pool.	Noted. Refer to Chapter 6.4, The applicant has adopted the Integrated Stormwater Scheme design and modelling provided by Sydney Water. It is understood that numerous items in Attachment 1 are redundant following the supply of the design of the basins (3D linework) and precinct cluster of Integrated Stormwater Scheme model as well as the several coordination sessions held between the applicant, Sydney Water and Sydney Waters Technical Consultant. Responses are provided below with more recent design resolutions following consultation discussed where required. A. Detailed channel alignments which include meandering are shown on GA C101-C121 and civil channel drawings C240-C243. Sinuosity calculations are included on civil drawings C240_C243. b. Longsections for major low flow diversion lines are shown on civil drawings C260-C284. C. It is understood this is satisfied via supply of 3d Linework from Sydney Water. 4EY flows are provided on basin drawings C221 and C228. d. Basin shape is understood to be fixed by supply of 3d linework by Sydney Water. Inlets and outlets have been separated where practical and not resulting in significant additional in-ground stormwater infrastructure. e) Noted. Outlet pool has been removed.
	2.The civil drawings are showing that several maintenance tracks will be also active transport corridors. Safety in design of the active transport corridor along Sydney Water infrastructure needs to be validated for public access.	Noted. Safety in design is understood to be incorporated into detailed design of the naturalised trunk drainage and regional basins. It is understood that additional measures may be required e.g. fencing, planting and gates etc. Refer landscape drawings for tracks intended for Co-use.
	3. Sydney Water acknowledges that Transport for NSW (TfNSW) runoff will be treated on its infrastructure provided that spill protection is correctly implemented. It is likely that the space reserved on Elizabeth Drive for stormwater treatment will be reduced in the future as Sydney Water stormwater infrastructure will handle most of the treatment. Further communication with TfNSW should clarify how much land is required for TfNSW stormwater treatment.	Noted. It is understood that Sydney Water is in close consultation with TfNSW on this matter. Refer to Chapter 6.4, the design accommodates for upstream catchments as per the supplied Integrated Stormwater Scheme cluster model and amended Elizabeth Drive catchment discussed Dec 25'. OSD, water quality and flow targets consider the agreed external catchments. It is understood sufficient land is available for spill protection or other stormwater facilities in the current design with potential to reduce basin areas if required. Subject to future coordination with TfNSW.
	4. Interface between the M12 bio-retention basins and future basin C to be further documented. See picture below for location of	It is understood this comment has been resolved. The M12 bioretention basin (sediment basin on-ground) has already been decommissioned.

	the M12 bio-retention basins	
	5. MUSIC modelling of the ultimate infrastructure will be refined over further collaboration meetings between the proponent and Sydney Water In particular, • Road catchments to be included as a node • Street trees to be included • Flow curve duration to be validated.	Refer to Chapter 6.4, The applicant has adopted the Integrated Stormwater Scheme design and modelling provide by Sydney Water. It is understood this item is satisfied by the adoption of the Integrated Stormwater Scheme modelling. Update flow curves have been resubmitted for assessment.
	6. Sydney Water will only acquire land necessary to provide the stormwater basin infrastructure. It has been noted that several patches of land next to the stormwater infrastructure have been reserved for extended landscaping. Sydney Water can consider maintenance for these but will not acquire any land related to landscaping. For clarity, the 6 areas of concern have been circled in red in Drawing 240518_DA_C295 from Appendix Dii Updated Civil Plans (Concept) below.	Noted. Refer to civil staging drawings C171-176 and acquisition drawings by Nettleton Tribe (drawing 14020_SK034G) for additional details.
	7. Layout of the harvesting network to be documented in the civil drawings, including connection to the harvesting main. See following sketch of the harvesting network mains for reference	Layout of harvesting network is shown on detailed plans. Amendments to the routes have been undertaken as per consultation with Sydney Water and Sydney Water's technical consultants.
	8. Staging for the ultimate stormwater infrastructure must apply the following principles: • Careful consideration must be taken when constructing an Interim basin on the reserved location for the ultimate stormwater basins, as TSS targets must be met at all times. • Permanent stormwater infrastructure cannot service earthwork run-off. • It is advised that stormwater infrastructure is built at the same time than the development located in its catchment, as permanent infrastructure needs some run-off to start building-up the vegetation and the water cycle within the infrastructure. It may be possible to accommodate for an anticipated construction of the ultimate stormwater infrastructure under the condition that: • Runoff received is of acceptable quality and pre-treated in Interim basin including flocculation treatment. • Deterioration due to lack of water and accumulation of debris are maintained by the developer. • The two years establishment period for stormwater infrastructure will be determined at Sydney Water's discretion	Noted. Refer to Staging Plans C171-C176 and Chapter 6.7 for additional details. The intention is to deliver the ultimate stormwater infrastructure with stringent Soil and Water Management to prevent disruption to the regional basins. During construction appropriate Soil and Water Management is proposed such that basin infrastructure is protected. Refer SE01-SE14. High performance Type B sediment basins with automatic flocculation treatment systems are proposed to maintain acceptable water quality as the Wianamatta South Creek Construction water quality targets. Noted regarding deflects liability and establishment period.

1.3 Response to Submissions – Initial Submission

This report has been updated to provide responses to the various submissions raised during the initial exhibition of the project (SSD- 70316465). Responses to the civil related submissions are provided in Table 2.2 below.

Table 2.2: Summary of responses to submissions

No	DPHI	Applicant Response
26	• Confirm whether there is part of a sediment basin for the M12 construction works located in the north of the site and how this will be managed as part of the construction of the development.	TfNSW have advised that the basin is there for the M12 works and will be removed by July 2025. The basin will be removed prior to development of the subject site.
43	• Provide further detail on how the development interface has been designed to be integrated with the completed M12 and upgraded Elizabeth Drive, including levels, any boundary retaining walls and landscape species and sizes. Landscaped setbacks should be in accordance with the DCP requirements and provide a buffer to screen the development from these major roads. 	▪ The design is integrated with the M12. Revised basin and lot layout has been provided to relocated Basin C/ NG_CC15 to the NE corner of the site to; Improved outlook from M12 and connection of open spaces and public art, locate closer to M12 drainage to collect and redirect low flows through Basin C/ NG_CC15 system, Improve connectivity with the M12. As-built levels of the M12 have been incorporated into the grading design and landscape batters and retaining walls (where required) are shown on the amended civil drawings Appendix Dii. ▪ The amended civil design is coordinated with Elizabeth Drive upgrade. It is noted that the development proposed includes upgrade of the Elizabeth Drive along the frontage of the development. Level differences between existing levels are treated by the landscape batters within the road reserve such that existing levels within the site are not affected. ▪ Active transport links have been provided to the boundary interface with Elizabeth Drive. Following agency advice from Sydney Water, the proposed stormwater management infrastructure has been designed to accommodate stormwater from Elizabeth Drive and M12. ▪ The stormwater management system for the subject site has been coordinated with the discharge location for the upstream stormwater connections. Stormwater designs for the proposed intersection with Elizabeth Drive and the Elizabeth Drive upgrade prepared by ARCADIS have been coordinated with the site stormwater system. It should be noted both designs are at a 'functional design level'. The level of the as-built M12 drainage channel and

No	DPHI	Applicant Response
		culverts has been coordinated with Basin C/ NG_CC15 inlets and outlet levels. ▪ A concept Bubble Diagram will be included in the landscape set that illustrates indicative layered and structured planting to the landscape setbacks along Elizabeth Drive (Subject to Future DAs). ▪ An indicative section will be included in the landscape set that shows the interface between Lot 6.1 and the M12. Listing indicative planting
45	• The landscape plans and strategy must be reconciled with the civil infrastructure drawings so that there is no conflict with proposed infrastructure and sufficient deep soil is available for proposed planting, including in areas adjoining retaining walls, swales and underground pipes.	▪ The amended landscape design has been conceptually coordinated with the civil design to ensure alignment of landscape treatments around retaining walls, swales, and underground services. Further coordination will be required to occur during the detailed design stage to ensure tree placement accounts for service infrastructure, light poles, electrical substations, driveways, pedestrian crossings, and the necessary offsets from each. At that stage, tree spacing and canopy cover targets within the Asset Protection Zone (APZ) buffers— in relation to bushfire requirements—will also be integrated into the design. ▪ The civil design has been coordinated with the landscape design by Geoscapes to include civil detailing of the proposed landscaping treatment around retaining walls, swales and underground pipes. ▪ This process has ensured there is no adverse impact or conflict with proposed infrastructure and 15% of deep soil landscaping is maintained on the site. ▪ A condition of consent is recommended to ensure the landscape package be further coordinated with the civil stormwater infrastructure as part of detailed design.

No	DPHI	Applicant Response
46	• The shared cycle ways and pedestrian paths shown in the landscape plans are not reflected in the civil drawings. Confirmation is required that these paths are practical when located around stormwater infrastructure or relying on joint use of basin maintenance tracks, including endorsement from Sydney Water. Ensure proposed earthworks and retaining walls, including those along the southern end of the central riparian/trunk drainage corridor, will not impede the location of these active transport paths.	▪ Amended civil drawings have been coordinated with Geoscapes' landscape design to include shared cycle ways and pedestrian paths. It is understood that key active transport links rely on joint use of maintenance tracks. ▪ Active transport links reliant of maintenance paths have been appropriately designed in accordance with Stormwater Scheme Infrastructure Design Guideline by Sydney Water. Guideline documentation for the design of the stormwater management infrastructure, practically naturalised trunk drainage channel, actively encourage the use of pathways as active transport links. ▪ Agency advise from Sydney Water note the dual purpose of the paths and reference further development with Sydney water will be required as it is understood refinement of path design will be required during detailed design. ▪ Following agency advice from Sydney Water, the proposed stormwater management infrastructure has been designed to accommodate stormwater from Elizabeth Drive and M12. ▪ Active transport links have been provided to the boundary interface with Elizabeth Drive and will not be impeded by the retaining walls and bulk earthworks. Rationalisation of the paths has been provided such that maintenance paths not associated with the key active transport links will be appropriately managed (fenced / gated) and restricted to the general public. Refer landscape drawings by Geoscapes which shows the location of different path uses.
47	Confirm that Sydney Water is supportive of the access road to the sports field to the north of Lot 3.1 utilising the access track for the basin to the west of Lot 3.1 or provide suitable alternate access to this area.	▪ The proposed access road and sports field has been removed from the development proposal. Access to the opens space is provided from the active transport link from the town centre. Town centre level has been amended to meet the level of the riparian corridor and central basin network. ▪ The sports fields and associated access road have been removed. Access to the north of Lot 3.1 is achieved through the shared pathway network which ultilises the maintenance pathways around the exterior of the Sydney Water Basins.

No	DPHI	Applicant Response
63	• Provide further justification as to how the proposed earthworks and lot/pad sizes respond to the natural topography, as required by the Precinct Plan and DCP, noting proposed cut along the central ridgeline and fill in areas fronting Cosgroves Creek.	▪ Proposed earthworks strategy has been developed to create suitable pads that respond to the end user and provide flexibility to cater for a range of development within the Enterprise Land Zoning. Level pads have been formed for operational and function requirements of the end user with pad sizes reflective of current market requirements. Road layout and lot shape and form has been orientated to respond the natural topography and with optimisation of lot shape and form with natural topography. ▪ Following agency advise the following lot levels have been amended to better respond to the natural topography; (5.2,5.3,5.4,5.5,3.1,3.2,3.3, 1.7,2.2,2.1,2.3,2.5,2.7). Lots which require considerable level difference at opposing extents are proposed to prepared with split levels to promote development in accordance with the Urban Design guidelines whereby level differences are treated internally within lots not a lot boundaries. Examples include 3.2, 3.3, 5.5. Basin C/ NG_CC15 has been relocated at the existing dam location. In accordance with agency advise from Sydney Water the central naturalised drainage alignment has been amended to better reflect the natural topography. ▪ Proposed levels of the central naturalised drainage channel to match that of the existing unformalised drainage depression and minimise soil disturbance. Filling adjacent to creek locations is inevitable to achieve a suitable drainage outcome to direct stormwater generated by the development to the precinct basins in accordance with Sydney Water's Agency responses. ▪ Filling has been minimised against key interfaces such as Cosgroves Creek and central naturalised trunk drainage. Where filling is required, considerable level differences are proposed to be treated via internal terracing rather than lengthy batters or large retaining walls. Refer Chapter 5.1 of engineering report for additional commentary. Refer Urban Design guidelines for further guidance on internal terracing strategies.

No	DPHI	Applicant Response
64	• Outline how suitable interfaces with Cosgroves Creek and the central riparian corridor will be achieved when detailed applications are submitted for the lots adjoining these areas, particularly in areas where battering is currently proposed along lot boundaries.	▪ Suitable level differences are proposed to be treated via two main methods. Firstly, subdivision design. Where possible, large level differences have been avoided during subdivision design through naturalised channel design and levels, lot layout and grading and road layout and grading. ▪ The naturalised trunk drainage has minimal flows due to negligible upstream catchment which allows for considerable flexibility in grading within the riparian corridor due to the minimal width of flow. ▪ Generally, and where applicable, lot levels fronting the riparian corridor have been designed to meet levels within the riparian corridor. Considerable level differences are proposed to be treated via terracing rather than lengthy batters or large retaining walls typically through the use of active transport link, planted earthen batters and minor aesthetic (Quarry log) landscape retaining walls. ▪ Urban Design Guidelines have been prepared to require level differences be treated internally within lots not a lot boundaries (interfaces with Cosgroves Creek and central naturalised trunk drainage channel. Select lots with prominent outlooks to the central riparian corridor (3.2,3.3) are proposed to be benched in preparation for internal terracing and grading in preparation for internal terracing. Refer Urban Design guidelines for further guidance on internal terracing strategies.
65	• A retaining wall over 4m in height is proposed along the western boundary of Lot 1.5 facing Basin F and the open space along Cosgroves Creek. This presents a poor interface towards this area and for the shared cycle path shown in this location on the landscape plans.	In response to agency comments the following design amendments have been made to improve the active transport interface with Lot 1.5: 1. Raising the level of basin system and thus the level of the adjacent shared path. 2. Lowering of Lot 1.5 by 1.55m. 3. Introduction of a 5m wide planting offset to provide a visual buffer. The above results in a boundary level difference of 970mm. Furthermore, the Urban Design Guidelines promote the treatment of level difference internally rather than at boundaries. It is expected that boundary retaining walls will not be included in the civil design for detailed DAs for Lot 1. as this is in contrast to the Urban Design Guidelines.

No	DPHI	Applicant Response
66	As also raised by Council, provide further information to confirm that the road connection to the property to the east (Sydney University) will be achievable, particularly for the future extension of Estate Road 2. Please also provide further detail to confirm that the extent of cut proposed on the eastern site boundary will not impede or constrain development of the adjoining land to the east.	The proposed lot level 2.8 has been specified in consideration of the unique constraints of the nearby airport and to achieve positive development outcomes for both Burrah Park and the adjacent Sydney University Lands. Both Lot 2.8 and the adjacent lands are located beneath the Obstacle Limitation Surfaces (OLS). To achieve a developable envelope within Lot 2.8 (and adjacent land) significant cutting is required to achieve a sufficient height beneath the OLS. It should be noted that the interface with Lot 2.8 and the adjacent lands is pronounced local ridge that would require significant treatment regardless if located in the interface between two landowners. Furthermore existing topography and the progression of surrounding transportation corridors (M12 and Elizabeth Drive Upgrade) result in a level difference of 17m between the upper westernmost and lower eastern most extent of the Sydney Uni lands to the east. to achieve efficient development outcome and on the adjacent land to the west, irrespective of the OLS, would require significant cutting at the interface with Burrah Park. It should also be noted that the level of Elizabeth Drive at the interface between Burrah Park and Sydney Uni are approximately equal to the proposed lot 2.8 level (and likely pad level of adjacent lot. Refer architectural sections which shows the adjacent land levels and the OLS. Lot 2.8 and adjacent road levels do not adversely impact the development potential of the adjacent lots but in fact enable development. Lot 2.8 topography is such the level difference is proposed to be terraced internally via landscape batters, minor retaining walls and fire access road grading. Requirements and guidelines for the treatment of level differences are provided in the Urban Design Guidelines. Refer architectural sections which shown a potential boundary interface treatment within Lot 2.8. Refer drawing BE30 and BE31 for typical earthworks sections showing the treatment at this location. The treatment allows for both development scenarios by the adjacent landowner.
67	• Retaining walls must be minimised where possible within or adjoining the naturalised trunk drainage channel/riparian corridor.	Reference Sydney Water guidelines which require minor retaining walls at basin edges. Central naturalised trunk drainage channel alignment has been amended to comply with Sydney Water agency advise. Retaining walls fronting the channel have been removed via grading and layout design where possible.

No	DPHI	Applicant Response
68	• Provide evidence of endorsement from Sydney Water for all proposed regional stormwater infrastructure and amendments to mapped locations in the WPC SEPP and Precinct Plan, including resolution of the design issues raised in their advice on the EIS.	The regional stormwater management infrastructure is proposed to be designed and delivered under the developer works agreement with the relevant stormwater authority (Sydney Water). Sydney Water has been and will continue to provide significant co-design, design reviews, cooperation throughout the detailed design of the precinct basins. Refer to responses to agency advice from Sydney Water. Meetings have been held to discuss the Sydney Water's RTS commentary, refer meeting minutes. Most representative of the input and level of coordination of Sydney Water on the Burrah Park project is the recent draft scheme plans which generally reflect the EIS design and more so the revised RTS design submission. Refer response to SWC agency comments for further commentary. Final endorsement will be provided as part of the cooperative detailed design within the developer works agreement with Sydney Water.
69	• As also requested by Sydney Water and DCCEEW Water, extend the central riparian corridor/trunk drainage channel to the Elizabeth Drive boundary and coordinate the civil plans with the landscape/active transport network and Elizabeth Drive stormwater basins.	Central naturalised trunk drainage channel has been amended to extend to Elizabeth Drive. A 3.5m shared path has been provided at the length of the central naturalised trunk drainage channel and extends to the active transport network at Elizabeth Drive. Central naturalised trunk drainage sizing and levels have been coordinated to accommodate for stormwater discharging from the Elizabeth Drive stormwater basins. In accordance with agency advice from Sydney Water, the precinct stormwater basins within Burrah Park are design to accommodate for stormwater generated by the Elizabeth Drive catchment. Notwithstanding future detailed design development it is understood the design of the subject site stormwater system is appropriately sized to accommodate upstream catchments with no adverse impacts.
70	• Provide a copy of the MUSIC modelling undertaken and all other information required to be submitted as part of a development application under Chapter 2 of the 'Technical guidance for achieving Wianamatta–South Creek stormwater management targets.'	MUSIC model will be included as part of the RTS submission. Accompanying spreadsheet demonstrating compliance with the Wianamatta–South Creek stormwater management targets is included in Appendix A of the Civil Engineering Report.
71	It is noted that the Flood Planning Map under section 4.24 of the WPC SEPP identifies other areas within the site, not just along Cosgroves Creek, as within the 1 in 100 AEP flood extent. Further justification is required for development within these areas or why these areas have not been considered in the flood assessment.	Internal flood-prone areas and drainage within the site are outside the scope of this flood assessment. These have been addressed separately by Henry & Hymas through internal stormwater drainage design. The internal stormwater drainage design has been extensively coordinated with Sydney Water. Refer responses to Sydney Water Submission. Refer Civil Engineering Drawings in Appendix A and Chapter 6.1 and 6.2 for additional details.

No	TfNSW	Applicant Responses
7	Comment The Western Sydney Aerotropolis Precinct Plan identifies most of the internal roads within the concept plan site that would accommodate bus routes as “Collector Road”. Recommendation For roads planned to accommodate bus routes these be designed as Collector Road, which requires two lanes in each direction with the kerbside lane needing to be 4.2m wide. The design should be in accordance with Austroads Guide to Road Design Part 3, (Table 4.3 – Urban Arterial Road Widths) Western Sydney Aerotropolis DCP (3.5m wide through lanes and 4.2m wide kerbside lanes) and bus stop locations identified and designed to support 14.5m rigid bus.	The internal collector road corridors within the site allow sufficient width to provide 4.2-metre kerbside lanes and 3.5-metre through lanes to accommodate future potential bus routes. The bus stop locations will be determined as the site design progresses and tenants are confirmed to ensure the bus stops allow for anticipated demand for the site. The identification of future bus stop locations will be done in consultation with local bus operators and TfNSW.
8	Comment It needs to be clarified if kerbside lanes are proposed to be used for parking. Recommendation The carriageway cross section should be designed to be in accordance with the Western Sydney Aerotropolis DCP and kerbside lane usage identified. Where kerbside lanes are expected to accommodate high traffic volumes (i.e. two through lanes in each direction) are to be provided.	Kerbside parking is proposed in industrial local roads. Kerbside parking is not proposed on collector roads.
9	Comment A number of the roads within the concept plan have curvatures along their lengths, and the development identifies bus routes that could use these roads. What lane widths are proposed for these roads need to be clarified. To prevent centre line crossing, particularly for 14.5m rigid buses, which is TfNSW design vehicle. A 3.5m wide through lane each way will be of insufficient width for all curved sections. Accordingly, the road reserve should provide through lanes wider than 3.5m in each direction on curved sections. Recommendation At road curvatures, lane widths greater than 3.5m are required for 14.5 m rigid buses. The cross section of all roads planned to support bus services should have a minimum 800mm recess of any fixed object from the kerb face at all bus stops and along all bus routes. Height of clearance from roadway is to be 4.5m. Note - tree type needs to be considered to ensure it does not encroach into bus clear zone requirements as trees generally encroach into this clearance zone as they grow. The camber of the road at “bus	Our collector roads have 4.2m wide kerbside lanes and 3.5m wide through lanes. Refer response to Comment 7. Vehicle swept paths are provided that demonstrate 14.5m rigid bus stays within the lane. Refer civil engineering drawing at Appendix A. Noted regarding detailed design requirements.

No	TfNSW	Applicant Responses
	stop" location should be considered when determining the clear zone. See State Transit Bus Infrastructure Guide for more information - https://nacto.org/docs/usdg/bus_infrastructure_guide_nsw.pdf	
10	Comment: Roundabouts are proposed within the concept plan. Recommendation: The concept plan is to support 14.5m rigid bus and the design is to show swept paths for buses that are not required to traverse or overhang over any part of the roundabout device (central islands, median islands and splitter islands) or the intersection corners. Where this cannot be achieved, it is acceptable to design the central island such that in can be traversed for right-turn and straight through movements. To ensure this, the central island should: • Be constructed to a height no greater than 50mm. • Be clear of obstructions such as traffic signage or plantings. The nature-strip and or kerb island on the departure side of the intersection should be designed to a height such that the front of the bus can overhang the face of kerb and should be kept clear of obstructions such as traffic signs and plantings.	Additional swept paths have been provided demonstrating the 14.5m Rigid bus turning movements. Refer civil engineering drawings C671-C676.
11	**Swept paths** Comment The swept path assessment within the Civil Engineering Plans shows that there are some swept path conflicts from vehicles traveling in opposite directions concurrently on road bends. Further, the swept path assessment shows that the swept path of vehicles covers two lanes around the roundabout, having the potential to impact vehicles in adjacent lanes. Recommendation The swept paths assessment needs to show trucks/buses entering and exiting site access as per Austroads.	Additional swept paths have been provided in accordance with TfNSW agency advice for vehicles exiting and entering Lots 1.1, 1.2 and 3.1. Refer civil engineering drawing D1_C650-C652

No	Sydney Water	Initial / Consultant Comments
10	4. Stages of the implementation of the Regional Stormwater basins and trunk drainage is to be clarified to align with the development stages of the site. Interim stormwater solutions cannot preclude the efficient delivery of Regional Scheme as determined by Sydney Water.	Development of Regional Stormwater basins and trunk drainage in relation to the respective development stage has been included in Civil Engineering Drawings in Appendix A and Chapter 6 of the engineering report.
11	5. Connection to the purple pipes for recycled water supply is required as part of the connection to the Regional Scheme.	Noted. Connection to the 'purple pipe' is proposed as part of the precinct stormwater management plan.
12	6. Civil Infrastructure Estate Plan: Internal water reuse is to be clarified for interim stages.	Refer to Chapter 6.9 of the engineer report which provides a detailed breakdown of the internal water reuse in respect to stage and lot.

13	7. Civil Infrastructure Report: Sydney Water does not support the combined location of detention on top of water quality basins.	Noted. The regional stormwater basin design has been amended to remove OSD storage over treatment basins.
14	8. Civil Infrastructure Estate Plan & Civil Infrastructure Report: The full treatment train is to be designed and implemented for the five Regional stormwater treatment systems located in Burrah Park as documented in the Design Guideline Aerotropolis stormwater development requirements. The full treatment train includes sedimentation basin, wetland, bioretention and storage ponds. Please refer to Figure 7 below for trunk drainage re-alignment and location of the stormwater basins in relation to the post-development catchments.	Noted. The regional stormwater basin scheme has been amended to include the full treatment train for each sub catchment.
15	9. Civil Infrastructure Estate Plan: Longitudinal section of the central trunk drainage/creek shows that • Grade regularly exceeds 2% • Velocity regularly exceeds the limit of 1.4 m3/s Shear stress map is required to assess the stability and erosion risk of the trunk drainage. Drop structure may need to be constructed for energy dissipation as per Design Guideline Section 6.4.2	Provided grade could be reduced to less than 2% and velocity reduced in the naturalised trunk drainage channel and due to the insignificant upstream catchments it was determined in consultation with Sydney Water that sheer stress mapping could be deferred to detailed design.
17	11. Flood Impact Assessment: Flood mapping indicates that there is significant flow attenuation from the quarry located at 275 Adams Road. It may be worth checking the flooding scenario when this quarry will be filled in the coming years. The Oaky creek culvert crossing under Elizabeth drive will then have a significant impact on whether Elizabeth Drive and subsequently Burrah Park will be flooded at 1% AEP from the stormwater discharge coming from the Western Sydney Airport.	The flood model has been conservatively configured assuming the quarry is already filled with water prior to simulation. This ensures future filling will not affect flood outcomes. Flood impacts on Elizabeth Drive and Burrah Park, including contributions from Western Sydney Airport stormwater, have been accounted for. The flood assessment does not rely on any flow attenuation caused by the quarry. The TUFLOW model has been conservatively configured with an initial water level that assumes the quarry area is already filled with water prior to the simulation. This approach ensures that the potential future filling of the quarry will not change the flooding outcomes presented in the assessment. As a result, the flood impacts on Elizabeth Drive and Burrah Park during the 1% AEP event, including contributions from the Western Sydney Airport stormwater discharge, have been fully considered and appropriately addressed.
18	15. GPTs to be owned and managed by the proponent.	Gross pollutant traps (GPTs) have been provided as part of the regional stormwater management system in accordance with advice from Sydney Water. GPTs have been specified On-Lot, therefore the GPTs will be owned and managed by the proponent.
19	**Natural waterways at Burra Park** A principle being applied as per the DCP is for	Extension of the naturalised trunk drainage channel through the development is proposed to intersect with the existing watercourse

	the retention of natural waterways. The performance objective in DCP Section 2.3.1 Waterway Health and Riparian Corridor is "PO1 Development retains and restores native vegetation and riparian corridors." Similarly, a requirement listed in Precinct Plan Section 4.5.2 Riparian Corridors is "BG1 Waterways and riparian corridors of Strahler Order 2 (refer to Figure 5) and higher are to be retained and rehabilitated to a natural state (unless minor realignment can be justified), in accordance with the requirements of the Guidelines for Riparian Corridors on Waterfront Land published by the Department of Primary Industries (Office of Water), or other relevant guidelines adopted and in operation at the time". We have reviewed the waterways on the site through a desktop analysis. The second order waterways on the site according to hydroline mapping are highlighted in Figure 1. From review of a 1955 aerial image (Figure 2) it appears that the northern portion of the central watercourse is remnant natural waterway. Figure 3 shows that the current design for Burrah Park has a road and roundabout encroaching into the VRZ of the remnant second order waterway. Consistent with the DCP, this waterway should be retained and rehabilitated.	approx. 70m north of the location shown the on the scheme plan. Detailed field investigations have been undertaken by the project ecologist, Ecological, to determine the suitability of the revised intersection point for further commentary and photographs of the existing watercourse condition, submitted with the revised engineering report. Ecological note, the revised intersection point is noted as a minor inconsistency that is compensated by the trunk drainage channel providing a greater area of aquatic habitat. Furthermore, the revised intersection point permits an intersection (round-a-about) location that provides more suitable and efficient road alignments for future connections to Luddenham Road to the west and to the M12 underpass to the north.
20	Second order waterway and trunk drainage As shown in Figure 1 the central second order waterway is indicated by the hydroline mapping as extending all the way to Elizabeth Drive. However the trunk drainage corridor in the proposed Burrah Park arrangement appears to end around 140m north of Elizabeth Drive (refer Figure 5). The trunk drainage corridor should extend to Elizabeth Drive, and be coordinated with the stormwater basins being delivered as part of the Elizabeth Drive upgrade project. Additionally, a performance objective in DCP Section 2.3.1 Waterway Health and Riparian Corridor is "PO3 Development provides increased connectedness to high quality passive open space and the blue-green grid." The complete length of the central trunk drainage corridor that runs through the site is identified as a route for active transport. The design of the roads and drainage infrastructure should allow for a continuous path of travel for pedestrians, cyclists (and maintenance vehicles) from Elizabeth Drive to Cosgroves Creek. The Precinct Plan also shows that a continuous active transport path should also be provided along the western edge of the development, adjacent to Cosgroves Creek. Details of the	The design of the Naturalised Trunk Drainage Channel has been amended to correspond to the alignment proposed in Figure 7 (of SWC submission). Active transport links have been provided to the boundary interface with Elizabeth Drive. Continuous active transport link is also provided along the western interface with Cosgroves Creek. Noted re: future coordination regarding final path specification with SWC.

	tracks/paths are to be developed with SWC. Recommendation: The central second order waterway should extend up to Elizabeth Drive, and include an active transport pathway if supported by Penrith Council. We recommend that the alignment of this waterway be further considered with an opportunity to realign for better overall development outcomes (See Figure 7).	

21	The basins and trunk drainage corridor currently proposed for Burrah Park are shown in Figure 5. It has previously been agreed with SWC that the preliminary SWC basin NG_CC15 (shown in red in Figure 6) could be relocated to the northern side of the development adjacent to the M12 ('treatment system C' in Figure 5), to better align with the catchment and development extent. Figure 6 also shows that the preliminary arrangement of SWC basins was influenced by the preliminary road alignment (shown as red lines). With changes to the proposed road alignment it follows that the stormwater infrastructure arrangement should be modified to match the proposed development layout. In general, the current design has been completed following the SWC stormwater scheme infrastructure design guidelines. Note that the SWC design guidelines are currently being further developed and updated. Each of the five stormwater treatment system needs to have all four components of the treatment train, sediment basin, wetland, bioretention and storage pond. The developer's engineer may further review whether any of the treatment systems could be further consolidated, for example, with treated stormwater from two treatment systems flowing into a single combined storage pond. Recommendation: It is considered acceptable that stormwater basin layout locations be modified to match the current development layout. It is recommended that the current layout should be further optimised and developed in consultation with SWC.	The proposed regional stormwater management infrastructure design has been amended to ensure all five stormwater treatment system have all four components of the treatment train: sediment basin, wetland, bioretention and storage pond. all components of the treatment train have been designed in accordance with the Stormwater Scheme Infrastructure Design Guideline by Sydney Water.

22 23 24	Updates to treatment system layout, diversions, catchments A plan for further discussion showing stormwater systems at Burrah Park layout is provided in Figure 7. A design principle that is included with the updates suggested in Figure 7 is that wherever possible stormwater 'low flows' (i.e. the flow diversion rate required to meet the modelling thresholds) should be diverted to the treatment system via a pit and pipe system, rather than wit h a diversion from the trunk drainage corridor such as an online sediment basin. This approach is intended to protect the ecological values of the rehabilitated second order creek, imp rove the maintainability of the assets, and co-locate the major stormwater treatment components on a SWC-owned lot (trunk drainage corridors will remain owned by the developer). Instead of a small treatment system that was proposed to treat only the runoff from 'Lot 3.1' it is instead recommended that this lot is directed to 'Treatment System E'. A key proposed update is for the retention of the downstream portion of the second order waterway. The trunk drainage corridor is also suggested to be aligned to suit the revised treatment systems configuration. A summary of recommendations for the stormwater treatment layout as shown in Figure 7 is outlined as follows. Please note the following regarding the items shown in Figure 7: - Levels of pipes and treatment systems are still to be verified. - All shapes for sediment basins, bioretention, wetlands and ponds are indicative only. Engineer may revise and adjust to optimise with site arrangement and with consideration of batter slopes etc.	Response to point 22,23,24. Updates to treatment system layout, diversions, catchments has been generally adopted as per SWC agency advice as shown in Figure 7 and specified on the associated sizing and comment table below. The following minor variations are proposed. 1. extension of naturalised trunk drainage channel and shift in intersection point with mapped watercourse (refer response 19 above). 2. In response to agency responses from other stakeholders and to achieve a better engineering and aesthetic outcome the location of Basins C (NG_CC15) is proposed to be relocated to the east of the location shown on the Cosgroves Creek Stormwater Scheme Plan. Key reasons include: Improved outlook from M12 and connection of open spaces and public art. Locate closer to M12 drainage to collect and redirect low flows through Basin C/ NG_CC15 system. Improve connectivity with the M12 Locate proposed stormwater basin closer to existing dam locations. 3. Catchments: Lot 3.1 directed to Basin D.1(NG_CC14). Due to proposed level driven by other authority agency comments not allowing for Lot 3.1 to drain to Basin E (NG_CC11). 4. Lot 6.2 and Lot 5.3 are proposed to drain wholly to Basin C (NG_CC15). This is proposed to maintain existing catchment size given the rationalise of Basin C catchments (Sydney University Lands) now draining to Badgerys Creek (NG_BC02). It should be noted that minor variations in the specified approximate areas listed in the adjacent table are proposed due to minor adjustment to catchment area, site layout constraints and site grading. Low flow diversion lines have been included in the amended design. Refer to amended civil drawings and civil engineering report Chapter 6 for additional details and commentary.

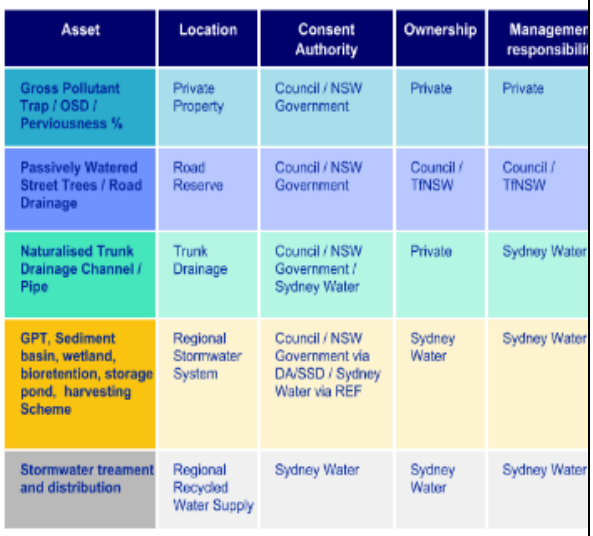
25	**OSD** Note catchments C, D and F are already proposed to have on-lot OSD. We support this use of on lot OSD for these catchments. An OSD basin is proposed in the trunk drainage corridor lot between 'Lot 2.2 and 'Lot 4.1'. This is consistent with the Waterfront Land Guidelines and should be further discussed with the DCCEEW Water and Licencing group. An OSD has also been proposed in the vicinity of the existing large central dam. This OSD is not supported, as it is unlikely to be feasible with the suggested updates to the treatment systems layout. Parameters in the DRAINS modelling require further review. Extended detention in stormwater treatment systems should not be included as part of the OSD volume.	The OSD strategy has been amended to incorporate the changes shown in Figure 7 of the agency response. Concept on-site detention basins have been placed at strategic locations throughout the site consistent with the principles of the precinct plan and Sydney Waters Initial Precinct Plan. Basins have been sized through an iterative design and modelling process to ensure that discharges from the site do not exceed the pre-development scenario results and to ensure that no adverse flooding impacts are placed on neighbouring properties. A total of 3 online detention basins proposed along the green/blue corridor. The basin design has been undertaken utilising the guidance set out in the Western Sydney Aerotropolis DCP (2022) and the Guidelines for Controlled Activities on Waterfront Land (DPE, 2022). The detention storage has been achieved primarily with "passive" storage created by letting water back up in the creek corridors, utilising the proposed road embankments and culverts for attenuation. On-lot OSD has been retained within catchment C/ NG_CC15, D.2/ NG_CC13, F/ NG_CC10, E/ NG_CC11. Additional lots within catchment D.1 and AB are proposed to be required on-lot OSD as part of the detention strategy for the development. The online OSD Basin (OSD 2) has been retained as per the EIS design which is understood to be approved in principle. Further modification to the central basin network has been undertaken such that a OSD basin (OSD 1) has been formed 'on-line' upstream of the basin networks for catchments D.1/ NG_CC14 and AB/ NG_CC12. It should be noted that hydraulic investigations have been undertaken to ensure the OSD does not affect the hydraulics of the adjacent basins. An additional OSD storage area (OSD3) is located between lots 2.3 and 2.5. OSD detention storage over water quality/flow target facilities has been removed in response to agency advice and has not been included/quantified in the detention modelling. Supporting DRAINs model will be included as part of the RTS submission.
27	Harvesting 'Daisy Chain' System The storage ponds are to be linked such that all ponds are utilised as a scheme-wide storage volume. An additional figure showing 'daisy chain' links will be provided by SWC.	Scheme- wide storage has been adopted as per SWC guidelines.

No	Penrith City Council (PCC)	Applicant Responses
5	e) It is unclear what has informed the overall proposed / finished site levels. The Department will need to carefully consider such, as well as the resulting interface outcomes and whether the overall earthworks, suitably respond to and build on the natural topography of the site.	Road layout and lot shape and form has been orientated to respond the natural topography and allow steeper natural fall along the short length and shallower natural fall through the longer length. Following agency advice the following lot levels have been amended to better respond to the natural topography; (5.2,5.3,5.4,5.5,3.1,3.2,3.3, 1.7,2.2,2.1,2.3,2.5,2.7). Lots which require considerable level difference at opposing extents are proposed to prepared with split levels to promote development in accordance with the Urban Design guidelines whereby level differences are treated internally within lots not a lot boundaries. Examples include 3.2, 3.3, 5.5. Basin C/ NG_CC15 has been relocated at the existing dam location. In accordance with agency advise from Sydney Water the central naturalised drainage alignment has been amended to better reflect the natural topography. Proposed levels of the central naturalised drainage channel to match that of the existing unformalised drainage depression and minimise soil disturbance. Filling adjacent to creek locations is inevitable to achieve a suitable drainage outcome to direct stormwater generated by the development to the precinct basins. Filling has been minimised against key interfaces such as Cosgroves creek and central naturalised trunk drainage. Where filling is required, considerable level differences are proposed to be treated via terracing rather than lengthy batters or large retaining walls. Refer Chapter 5.1 of engineering report for additional commentary.
6	f) Concern is raised regarding the considerable level changes / earthworks associated with the proposed building pads (finished ground levels) at Lots 5.5, 4.4, 2.8, 1.1B, 1.3, 1.8A and 1.7.	Following agency advice the following lot levels have been amended to better respond to the natural topography; (5.2,5.3,5.4,5.5,3.1,3.2,3.3, 1.7,2.2,2.1,2.3,2.5,2.7). Lot levels for 1.1,1.3,1.8,4.4 and 2.8) have been retained in accordance with the rationale detailed above and outlined in the Chapter 5.1 of the engineering report.
29	a) The application provides inconsistent information regarding the staging of subdivision works. The Civil Engineering Report (in Figure 6) shows a staging plan which differs from other documentation, in particular, within relation to the timing for the delivery of estate infrastructure and the extent of the 'Stage 1 works'.	Staging plan has been updated to be consistent with other documentation. Refer Chapter 3.2 of the updated civil engineering report.
30	b) The Staging Plan indicates that the staged construction of Lots 1.1, 1.2 and 3.1, occurs with only a partial construction of 'Estate Road 3'. In addition, there are multiple temporary end-of-road arrangements proposed throughout the subdivision. Any temporary end-of-road	Noted. A detail for construction of a temporary end of road arrangement (temporary cul-de-sac) has been provided on Engineering Drawing C129.

	arrangements should be constructed with a temporary turning facility.	
31	c) The Staging Plan does not specify the timing for the delivery of the interim and final intersection with Elizabeth Drive, the delivery of the western connection to Luddenham Road, nor the delivery of the underpass under the M12 Motorway and road connection to the north. The party responsible for the delivery of this infrastructure should be clearly specified and conditioned as part of any Development Consent which may be granted.	The interim intersection is the same layout as the ultimate, the interim design just ties into the existing Elizabeth Drive 2 lane configuration, while the ultimate is designed for when TfNSW upgrade Elizabeth Drive west so it can connect into the full 4 lane configuration. The proponent is proposing to upgrade sections of Elizabeth Drive east to the M12 and west to Oakey Creek, refer Appendix A in the Traffic Modelling Addendum Report. The interim design will be delivered by 2028.
32	d) It is considered that the upgrade of the Elizabeth Drive intersection should occur with the 'Stage 1 works' and such should be appropriately conditioned as part of any Development Consent which may be granted. Furthermore, consideration should be given to upgrading Elizabeth Drive to four lanes for the full property frontage, and how works tie into existing and new road infrastructure.	The Elizabeth Drive intersection will be delivered as part of the stage 1 works. Further consideration has been given to the Elizabeth Drive upgrade and the proponent is willing to upgrade Elizabeth Drive to four lanes for the full property frontage. The upgrade works will extend out to Oakey Creek to the West and will tie into the M12 works to the east. Please refer to the Appendix E in the Addendum Traffic Modelling Report.
37	i) The application proposes variations to the Water Cycle Management Plan, shown in the Western Sydney Aerotropolis Precinct Plan 2024. The application indicates that consultation has occurred with Sydney Water, however it is expected that associated specific endorsement be provided in this regard.	Regional stormwater infrastructure (basin and naturalised trunk drainage channel) is proposed to be delivered under a developer works agreement with Sydney Water with considerable coordination, co-design and cooperation throughout the design development and delivery process. Further refinement of the regional stormwater basins has occurred in response to Sydney Water agency advice. Regional stormwater basin allocations have been significantly coordinated with Sydney Water. Refer response to Sydney Water agency advice. Refer to integrated stormwater draft scheme plans by Sydney Water which show the proposed draft basin locations (RTS submission) coordinating with basin locations in the scheme plans. Refer to response to Sydney Water agency advice for further commentary including recent coordination meeting minutes. Final endorsement will be provided as part of the cooperative detailed design within the developer works agreement with Sydney Water.
40	It is noted that the 'Stage 1 works' on Lots 1.1, 1.2 and 3.1, propose on-lot stormwater detention basins in accordance with the estate stormwater management strategy. It is expected that any such Development Consent which may be granted, include conditions of positive covenants and restrictions as to use, for the maintenance of stormwater infrastructure on private land in perpetuity.	Lots 3.1 and 1.1 are proposed to have on-lot stormwater detention basins. Lot 1.2 drains to the regional detention basin. Noted regarding positive covenants and restrictions of use.

41	m) Swept path diagrams for the development of Lots 1.1, 1.2 and 3.1, have not been provided for review. It is expected that careful consideration be given to overall vehicle circulation and maneuvering matters, having regard to applicable provisions (including of Part 3.2 of the Western Sydney Aerotropolis Development Control Plan 2024).	Noted. Additional swept paths have been provided in accordance with TfNSW agency advice for vehicles exiting and entering Lots 1.1, 1.2 and 3.1. Refer civil drawing DA_C650-C652.
42	n) The Civil Engineering Plans show a design level difference of 7.7m between proposed Lot 2.8 and the adjoining property to the east. Concern is raised regarding potential impacts on future possible road designs and the developability of the adjoining lands.	The proposed lot level 2.8 has been specified in consideration of the unique constraints of the neighbouring airport and to achieve positive development outcomes for both Burrah park and the adjacent Sydney University Lands. Both Lot 2.8 and the adjacent lands are located beneath the Obstacle Limitation Surfaces (OLS). To achieve a development within lot 2.8 (and adjacent land) significant cutting is required to achieve a developable envelope beneath the OLS. It should be noted that the interface with Lot 2.8 and the adjacent lands is pronounced local ridge that would require treatment regardless if located in the interface between two landowners. Furthermore existing topography and the progression of surrounding transportation corridors (M12 and Elizabeth Drive Upgrade) result in a level difference of 17m between the upper westernmost and lower eastern most extent of the Sydney Uni lands to the east. to achieve efficient development outcome on the adjacent land to the west, irrespective of the OLS, would require significant cutting at the interface with Burrah Park. It should also be noted that the level of Elizabeth drive at the interface between Burrah Park and Sydney Uni are approximately equal to the proposed lot 2.8 level. It should be noted that the Sydney University lands have been utilised as a construction compound and laydown area for construction of the M12 by TfNSW and significant works have already been undertaken (including the lowering of existing levels on the existing ridge). Generally, levels at the top of the site have been lowered to accommodate for construction of haul roads and site compounds. Refer architectural sections which shows the adjacent land levels and the OLS. Lot 2.8 and adjacent road levels do not adversely impact the development potential of the adjacent lots but in fact enable development. Lot 2.8 topography is such the level difference is proposed to be terraced internally via landscape batters, minor retaining walls and fire access road grading. Refer Engineering Drawings BE30 and BE31 for samples of internal treatment. Requirements and guidelines for the treatment of

		level differences are provided in the Urban Design Guidelines.
43	o) It is expected that the Applicant provide concept design drawings (i.e. road design with long sections and a balanced cut / fill plan) for the land to the east, demonstrating that a satisfactory built form / subdivision and road network can be delivered.	A indicative road alignment and longsection has been provided on Engineering Drawings in Appendix A (SK_011-SK_013). The section demonstrates a suitable road layout, level and grades is achievable in the neighbouring lot. Although a balanced earthworks outcome is preferable, It should be noted that similarly with Burrah Park, site levels are driven by a variety of often competing outcomes such as OLS, boundary interfaces, adjacent road levels and access locations, regional stormwater scheme and natural topography. Given a significant portion of the land to the west is affected by the OLS, subject to a natural level difference of 17m due to the pronounced ridge, and surrounded by transportation corridors, suitable site levels are likely driven by these outcomes more so than a balanced earthworks result.
58	c) While the proposal includes the provision of gross pollutants traps, naturalised trunk drainage and a series of stormwater management basins, and the connection of the proposed buildings to Sydney Water's drainage network, it is noted that no MUSIC modelling has been made available.	MUSIC model will be included as part of the RTS submission.
59	d) It is expected that controls are met in terms of compliance with the stormwater and waterway health targets (for both the construction and operational stages), and that the design of temporary stormwater infrastructure is in accordance with the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets.	A spreadsheet demonstrating compliance with the Wianamatta–South Creek stormwater management targets is included in Appendix A of the Civil Engineering Report.
60	e) The application indicates that gross pollutants traps and other stormwater treatment infrastructure has been prepared in consultation with Sydney Water. It is expected that any associated Development Consent which may be granted require detailed designs to be approved by Sydney Water prior to the commencement of any works. It is also noted that no stormwater treatment infrastructure should be dedicated to Council and that the maintenance of the on lot gross pollutant traps and associated infrastructure will be the responsibility of the developer / property, and it is expected that any associated Development Consent which may be granted confirm this.	It is understood that assets ownership will be in accordance with the Asset Ownership Matrix Framework detail in Stormwater Scheme Infrastructure Design Guideline by Sydney Water. Passively irrigated street trees are understood to be owned by Council. Noted regarding detailed design approval by Sydney Water.

		Figure 4: Asset Ownership Matrix Framework  **Asset** / **Location** / **Consent Authority** / **Ownership** / **Managemer responsibili** Gross Pollutant Trap / OSD / Perviousness % — Private Property — Council / NSW Government — Private — Private Passively Watered Street Trees / Road Drainage — Road Reserve — Council / NSW Government — Council / TfNSW — Council / TfNSW Naturalised Trunk Drainage Channel / Pipe — Trunk Drainage — Council / NSW Government / Sydney Water — Private — Sydney Water GPT, Sediment basin, wetland, bioretention, storage pond, harvesting Scheme — Regional Stormwater System — Council / NSW Government via DA/SSD / Sydney Water via REF — Sydney Water — Sydney Water Stormwater treament and distribution — Regional Recycled Water Supply — Sydney Water — Sydney Water — Sydney Water
62	g) It is expected that any associated Development Consent which may be granted include conditions which ensure that all temporary infrastructure is maintained until regional stormwater infrastructure is available. Furthermore, sufficient undeveloped land will also be required to be provided, to ensure that future development on the site achieves compliance with the Integrated Water Cycle Management provisions of the Western Sydney Aerotropolis Development Control Plan 2024 and in accordance with the Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets (NSW Government, 2022).	Noted. Temporary regional stormwater management infrastructure is not proposed as part of the application.
63	h) It is expected that any associated Development Consent which may be granted include conditions which ensure that adequate land is reserved for the treatment and management of stormwater during the initial stages of the development (i.e. the irrigation of undeveloped land), in the case the ultimate stormwater infrastructure not being available for connection.	Noted
63	i) It is expected that any associated Development Consent which may be granted include conditions which ensure that all stormwater infrastructure, including gross pollutant traps, irrigation systems, ponds, wetland and bioretention systems etc., remains under the ownership, control, and care of the registered proprietor of the lots, or until they are dedicated to Sydney Water for ongoing operation and maintenance. It is suggested that positive covenants and restrictions of use should also be in place, to ensure that all privately owned systems will be maintained in	Noted

	perpetuity. Conditions may also need to be imposed to manage the transition and decommissioning of the infrastructure, once connection to the regional infrastructure is available.	
65	j) With respect to waterways, it is noted that mapped waterways are located on the site. Any associated works will need to be undertaken in accordance with Water Management Act and the Department of Climate Change, Energy, the Environment and Water requirements.	Noted. Works within mapped waterways are design and specified in accordance with Water Management Act and the Department of Climate Change, Energy, the Environment and Water requirements.
66	k) In relation to the trunk drainage, it is noted that naturalised channels are to be provided, and it is important that such is designed in accordance with Sydney Water requirements and technical guidelines.	Naturalised trunk drainage channel as design in accordance with Stormwater Scheme Infrastructure Design Guideline by Sydney Water and specific agency advice provided by Sydney Water.
67	l) High efficiency sediment basins are to be provided for the construction phase to meet the Integrated Water Cycle Management provisions of the Western Sydney Aerotropolis Development Control Plan 2024.	High efficiency sediment basins are proposed as part of the Erosion and Sediment Control Plan (ESCP) for the development. In accordance with agency advice from BCS, basin specification has been updated to be Type B basins. Refer ESPC documented on civil engineering drawings SE01-SE14.

No	Liverpool City Council	Applicant Responses
2	Stormwater Management The proposal must demonstrate that the stormwater management provided will not result in any upstream impacts on Elizabeth Road or neighbouring properties. Additional commentary from Council's Flood Plain Engineering team will provide more detail in this regard.	Following agency advice from Sydney Water, the proposed stormwater management infrastructure has been designed to accommodate stormwater from Elizabeth Drive and M12. The stormwater management system for the subject site has been coordinated with the discharge location for the upstream stormwater connections. Stormwater designs for the proposed intersection with Elizabeth Drive and the Elizabeth Drive upgrade prepared by ARCADIS have been coordinated with the site stormwater system. It should be noted both designs are at a 'functional design level'. The level of the as-built M12 drainage channel and culverts has been coordinated with Basin C inlets and outlet levels. Notwithstanding future detailed design development and further coordination it is understood the design of the subject site stormwater system is appropriately sized to accommodate upstream catchments with no adverse impacts.

No	Liverpool City Council	Applicant Responses
8	3- Flooding a- The proposed development site is located within the Western Sydney Aerotropolis (WSA) Precinct. Therefore, it must meet the stormwater, water-sensitive urban design, integrated water, and flood management objectives and targets outlined in Sections 2.3 and 2.5.1 of the WSA Phase 2 Development Control Plan (DCP) 2022. b- Sydney Water, acting as the Regional Stormwater Authority for the Western Sydney Aerotropolis Precinct, plans to establish a network of regional water quality basins within the precinct. However, the proposed development has encroached significantly on land designated for future stormwater infrastructure. According to the masterplan, this development will substantially reduce the size of the regional basins, potentially hindering the achievement of water quality targets for both current and future developments within the Liverpool LGA. All developments in the Western Sydney Aerotropolis Precinct must align with the regional basin delivery plan, and the proposal must be amended accordingly. It is recommended that the applicant liaise with Sydney Water to address these concerns. c- The proposed development involves filling within the floodplain, resulting in a loss of flood storage volumes. However, the flood impact assessment report by Arcadis Pty Ltd does not indicate how this loss will be compensated. To meet Performance Outcome PO8, 2.5.1 (Flood Management) of the DCP, compensatory excavation must be provided to ensure no loss of flood storage volume for all flood events, including the Probable Maximum Flood (PMF) event. The flood impact assessment report should include cut and fill volume calculations, as well as plans and sections of earthworks required for flood compensatory excavation. d- The PMF flood impact map indicates that the proposed development will raise flood levels along Cosgroves Creek. Therefore, the development must incorporate suitable flood mitigation measures to ensure there is no increase in the creek's peak water level during all flood events, including the PMF event. e- A revised assessment for climate change scenarios and their impacts should be conducted, following the recommendations of Australian Rainfall and Runoff 2019, Version 4.2.	A) Noted. B) further refinement of the regional stormwater basins has occurred in response to Sydney Water agency advice. Regional stormwater basin allocations have been extensively coordinated with Sydney Water. Refer response to Sydney Water agency advice. We acknowledge the requirement in PO8 of the DCP for no net loss of flood storage across all events, including the PMF. Our flood impact assessment demonstrates that the proposed filling does not result in adverse impacts up to the 1% AEP, which aligns with established flood assessment practices. Based on past assessments within this precinct, minor impacts on events above the 1% AEP have been deemed acceptable where there is no material change in flood extent, hazard, or risk. That was our basis to avoid balancing flood storage to the PMF. However, to further support our assessment and ensure alignment with the intent of the DCP, we can investigate options for compensatory earthworks outside the development footprint, particularly in areas adjacent to Cosgroves Creek. This would help maintain flood storage capacity while minimising any potential impacts on flood behaviour. We can provide further details on potential mitigation measures following additional investigation.

No	Liverpool City Council	Applicant Responses
		The PMF is primarily used to define the upper flood limit for emergency management, and the NSW Flood Risk Management Manual does not specify acceptable afflux limits for PMF events. However, in the context of PO2 of the Aerotropolis DCP, which requires that development has minimal impact on flood behaviour, we have assessed the flood level changes and demonstrated that: The increase in peak water levels along Cosgroves Creek is small and localised. There is no significant change in flood hazard categories or flow velocities. The flood extent remains largely unchanged. Given that similar minor PMF impacts have been accepted in other developments within this precinct, we consider the impact to be negligible and within the intent of the DCP. However, if necessary, we can explore additional mitigation measures to further minimise impacts. The initial assessment was conducted based on the applicable ARR guidelines at the time. We acknowledge that ARR 2019, Version 4.2 includes updated recommendations for climate change scenarios. We are able to update our calculations to assess the development's performance under these revised climate change parameters and ensure alignment with best-practice flood risk assessment. c) The flood assessment has been updated to include a detailed flood storage volume analysis, demonstrating that the proposed development does not result in any net loss of flood storage for all relevant flood events, including the PMF.

No	Liverpool City Council	Applicant Responses
		d) The updated assessment confirms minor increases in PMF peak flood levels (generally less than 100 mm), which are confined to localised areas within the existing flood extent. These changes do not alter hazard classifications or flood behaviour and are considered acceptable given the extreme rarity of the PMF. No adverse effects on evacuation or safety are expected. e) A revised climate change assessment consistent with ARR 2019 Version 4.2 has been completed. Results indicate a slight reduction in peak flood levels due to earlier peak flows under the developed case. No adverse effects on surrounding properties are anticipated

No	BCS	Applicant Responses
11	Stormwater Strategy The design details provided in relation to the proposed regional water management infrastructure are sparse and inadequate for a proper assessment of compliance with the DCP stormwater targets to be made. Recommended actions: The proponent either provides correspondence from Sydney Water accepting full responsibility for ensuring the system achieves the DCP stormwater water quality and flow targets, or submits the full details as required by the Technical guidance for achieving Wianamatta–South Creek stormwater management targets, including: - MUSIC Model - flow duration Excel spreadsheet - functional design drawings for each of the basin systems (clear plans and sections for each) - wildlife hazard assessment for each waterbody. The proponent also includes a 'references' section to the Civil Engineering Report, providing full details of the references cited in the report. Pre-determination - This issue must be addressed during Response to Submissions stage.	Further details are provided in relation to the proposed stormwater management infrastructure including: MUSIC model, flow duration Excel spreadsheet, functional design drawings for each of the basin systems (refer civil engineering drawings C220-C228) .Further information demonstrates compliance with the DCP stormwater water quality and flow target A Wildlife Hazard Assessment Report has been prepared by Ecological which includes an assessment of the revised basin layout. A references chapter is included in the Civil Engineering Report. Furthermore, Refer agency response to Sydney Water for correspondence regarding the proposed regional water management infrastructure.

12	Stormwater Harvesting and Reuse BCS requests the proponent provide a plan detailing the irrigation areas assumed for reuse of harvested stormwater, including any 'residual areas' factored into the reuse demand calculations. Recommended action: - The proponent reviews the model and reporting to ensure consistency with the above. Pre-determination - This issue must be addressed during Response to Submissions stage.	An irrigation plans has been included in the civil engineering documentation, refer Drawing C290. Irrigation areas and rates have been applied in accordance with Stormwater Scheme Infrastructure Design Guideline by Sydney Water.
13	Erosion and Sediment Control The Erosion and Sediment Control Plan (ESCP) is only applicable once final lot levels are reached and the road stormwater drainage network is in place. Otherwise, drains need to flow several metres uphill and treated water discharged from basins will be recontaminated. BCS requests the proponent provide: - an additional ESCP based on existing levels at the start of bulk earthworks - a methodology for constructing the several waterway crossings, which manages both baseflows and storm event flows - consideration of Type-B basins as an alternative to Type-A basins, which although are a recognised control measure, present a number of compliance risks. The climate of Western Sydney results in Type-A basins being significantly smaller than Type-B basins, which is different to other locations in Australia where both types of basins have been successfully implemented and are of similar size. Type-A basins are also more complex and have additional potential points of failure compared to Type-B basins. - diversion/catch drain sections and notes that recognise the highly dispersive nature of soils and include details to manage this. Recommended action: Provide an updated ESCP set that addresses the above. Pre-determination or the Department includes as conditions of approval.	Further Erosion and Sediment Control Plan (ESCP) are provided in accordance with agency advice. Additional ESCPs have been provided detailing early earthworks prior to the formation of building pads (refer civil engineering drawings SE11-SE14). Methodology and details regarding temporary waterway crossing has been provided, refer drawing SE08. Agency advice regarding the use of Type B basins has been adopted. Sediment basins have been specified as Type B basins. ESCPs and details have been updated accordingly, refer drawing SE07. Additional notes and details regarding the highly dispersive nature of soils has been added to the ESCP, refer drawings in Appendix A.

2. The Site

Figure 1 provides regional context and Figure 2 shows an aerial of the developable area be developed as part of this SSD.

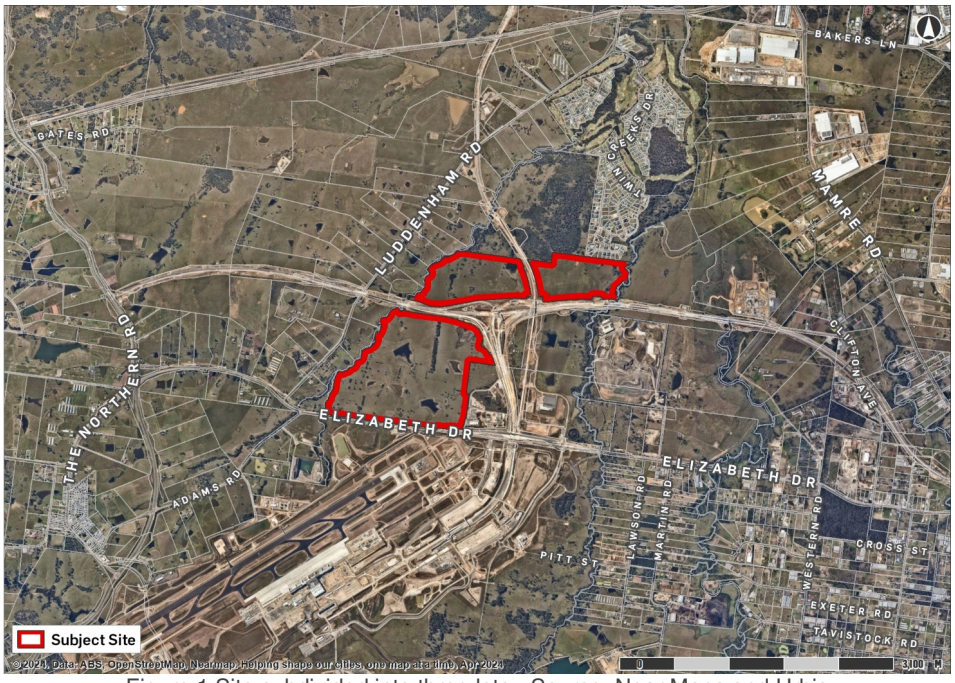


Figure 1 Site subdivided into three lots - Source: Near Maps and Urbis

Figure 2 Site Context – Development Area - Source: Near Maps and Urbis

Key features of the site and locality are detailed in Table 3. Items related to the feasibility application, particularly stormwater management, are covered in further detail later in the report.

Table 3. Key site features

Descriptor	Site Detail
Land Configuration	The site is legally described as Lot 1 in Deposited Plan 1306448. The site area is 171.84ha. The site generally slopes from high points adjacent to Elizabeth Drive (RL 75) to low points in the northeast corner (RL 40). Topography is characterised by a central ridgeline running from the central portion of the southern boundary towards the northeast.
Surrounding Land Use	Surrounding land uses include: ▪ M12 Motorway and Metro (under construction) to the north and east with predominantly rural uses beyond ▪ Western Sydney Airport is under construction opposite the site on the southern side of Elizabeth Drive, ▪ Rural residential uses on the opposite side of Cosgroves Creek to the west.
Site Access and road network	The site is accessible from Elizabeth Drive, a State arterial road aligned in an east-west direction adjacent to the southern boundary.
Easements and Covenants	An easement for electricity purposes is located on the northern side of the site.
Services	The site has power and water available.
Acid Sulfate Soils	Not mapped.
Contamination	The site has the potential to be contaminated, due to the current agricultural land use. A Detailed Site Investigation will be submitted as part of the SSDA lodgment. As per previous Detailed Site Investigation prepared by Douglas Partners, the site is appropriate for proposed development subject to remediation works being undertaken.
Stormwater and Flooding	As indicated in the *Wianamatta (South) Creek Flood Study – Existing Conditions (Prepared by Advisian for Infrastructure NSW, November 2020)* the site is subject to 1:100 ARI (average recurrence interval) along the main creek lines of Cosgroves and Badgerys Creek.
Bushfire Prone Land	The site is classified as bushfire prone land. A bushfire report will be submitted with the SSDA.
Flora and Fauna	The site currently consists of cleared rural land with the occasional scattered Cumberland Plain Woodland, trees, weeds, and shrubs. Most of the site is certified under the Cumberland Plain Conservation Plan (CPCP)
Riparian Corridor	Cosgroves Creek and Oakey Creek run along the western part of the site, while Badgerys Creek runs along the eastern side. The proposed development is designed to generally avoid land zoned ENZ. The site contains multiple hydrolines and dams.
Aboriginal Heritage	Aboriginal objects have been identified along the Oakey Creek – Cosgroves Creek corridor along the entirety of the western study area boundary.
European Heritage	The site does not contain any State or locally significant heritage items.

Descriptor	Site Detail
	The site does form part of the former CSIRO McMaster Field Station which is identified as a potential heritage item under the Precinct Plan. The site is adjacent to the McGarvie Smith Farm which is identified as a local Heritage Item under the *State Environmental Planning Policy (Precincts—Western Parkland City) 2021*.

2.1 Existing Topography and Catchments

The Site in its existing condition generally grades from southeast to northwest towards Oakey Creek and Cosgroves Creek. The site generally has slopes between 2% and 6%, with steeper sections of around 15% in the north-eastern portion of the site adjacent to Badgerys Creek. Natural ridges, valleys and anthropogenic dam structures generally form four (4) sub catchments that drain to the Oakey/ Cosgroves Creek system. For the purpose of this study, the predeveloped sub catchments onsite are well represented by the catchment delineation performed by Sydney Water as part of the Western Sydney Aerotropolis (Initial Precincts) Stormwater and Water Cycle Management Study (SW, 2021). A pre-development catchment plan is included in Appendix A of this report and presented below in Figure 3. A feature survey showing the existing topography onsite has been prepared by LTS Surveyors as included in Appendix B of this report.

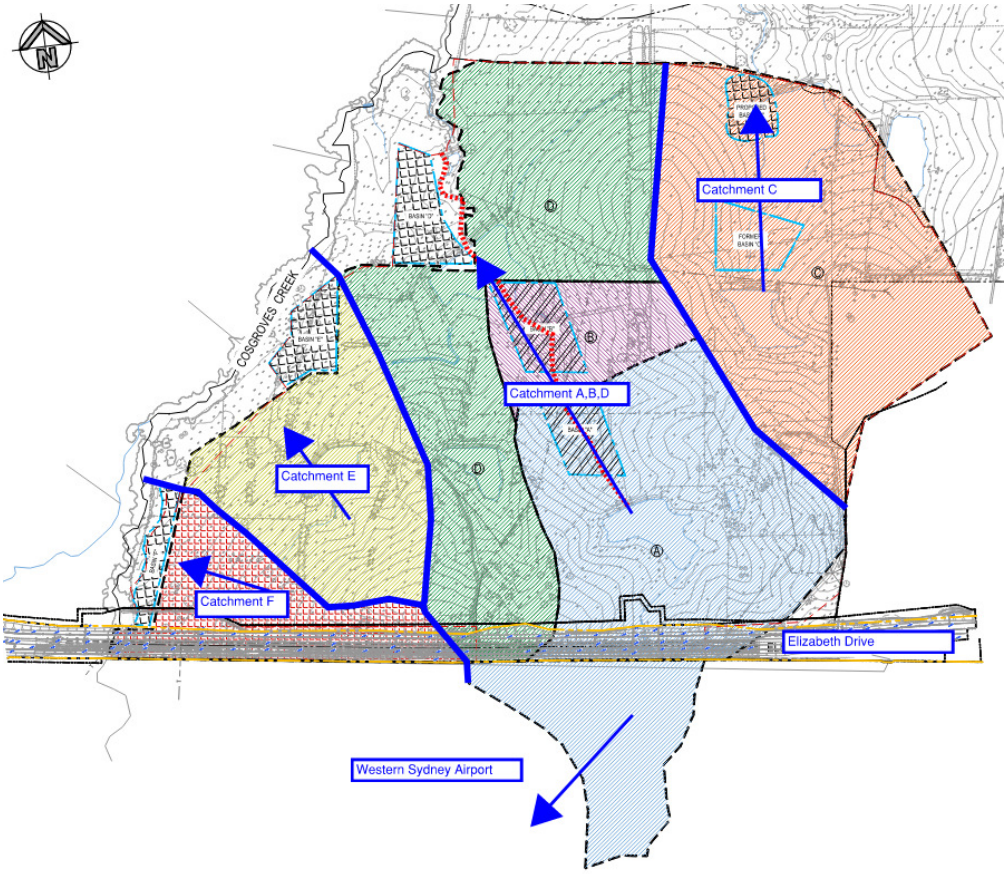


Figure 3: Predeveloped Catchments - Source: Sydney Water and Henry & Hymas

The four predevelopment catchments are denoted below.

- Catchment F (Red) – 13.25 Ha
- Catchment E (Yellow) – 20.26 Ha
- Catchment C (Orange)– 42.58 Ha
- Catchment A,B,D (Blue, purple and green respectively) – 98.41 Ha

Due to ongoing development surrounding the subject site modifications to predeveloped catchments as represented by the 2019 mapping have occurred, refer below:

- It is understood the Western Sydney Internation Airport (WSI) portion of Catchment A drains internally into WSI site and not through the exiting watercourse to Basin A. The removal of the upper portion of sub-catchment A will result in an significant overall reduction in a post developed catchment size for catchment A,B,D.
- Preliminary Elizabeth Drive upgrade drawings from ARCADIS indicate a portion of the road's catchment will be drained through the development.
- Preliminary Elizabeth Drive upgrade drawings from ARCADIS indicate a portion of the road's catchment will be drained directly to Cosgroves Creek. Refer catchment plan on C250 and C251 in Appendix A. It should be noted that low flows will be directed to the Burrah Site stormwater basin network.
- As portion of the Sydney University Lands currently drains through the subject site. It is understood through ongoing discussions with Sydney Water this catchment is proposed to be redirected to the east towards Badgerys Creek as part of catchment rationlisation within the updated Aerotropolis scheme Plans.

The significance of the amended predeveloped catchments for the development is detailed in Section 6.

3. Proposed Development

3.1 Concept Masterplan

As part of this development application, approval is also sought for site preparation works and Stage 1 development, which comprises of:

Stage 1 (Planning) – site preparation works

- Demolition and removal of existing structures and vegetation.
- Heritage salvage works (if applicable).
- Construction of roads, access infrastructure, including a signalised intersection with Elizabeth Drive.
- Dam de-watering and de-commissioning.
- Bulk earthworks, cut and fill, benching, battering and retaining walls.
- Lead in infrastructure, utilities and servicing.
- Stormwater infrastructure including construction of Sydney Water basins and Water Sensitive Urban Design (WSUD) elements.

Stage 1 (Planning) – Development

- Construction and fit out of 3 warehouse buildings and ancillary office space – (Lots 1.1, 1.3 and 3.1 referred to as Development Stage 2).
- Stormwater management, fencing and landscaping.
- Internal road network, active transport network, public domain and open space.
- Subdivision, and Estate and on lot signage.

Architectural concept plans can be found in Appendix C of this report, and excerpt of the concept masterplan and development stage concept plan are shown below in Figure 4 and 5 respectively.

Figure 4: Concept Masterplan. Nettletontribe 2025

Figure 5: Development Stage 2 Concept plan. Nettletontribe 2025

3.2 Development Infrastructure and Constructing Staging

Project staging can be divided into infrastructure and construction. Infrastructure staging, which includes the provision of key infrastructure and formation of pad sites is shown in Figure 6 below. Construction Staging which shows the development of the individual lots is shown in Figure 7 below. The delivery of civil and stormwater related infrastrucuture is detailed on drawings C171-C176 in Appendix A and Chapter 6.7. Refer Infrastrucuture staging and delivery plan by URBIS for additional details. It should be noted that the stages referenced below do not correspond to the planning stages detailed in Chapter 3.1.

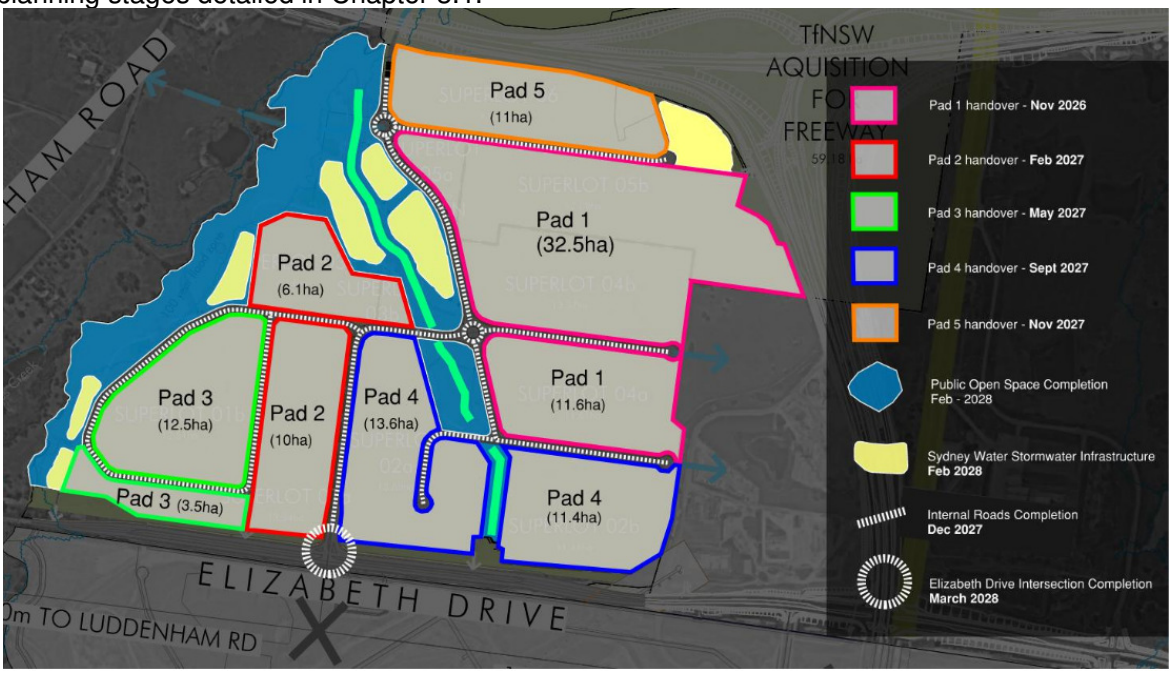


Figure 6: Development infrastructure Staging Plan (HB&B Property PTY LTD)

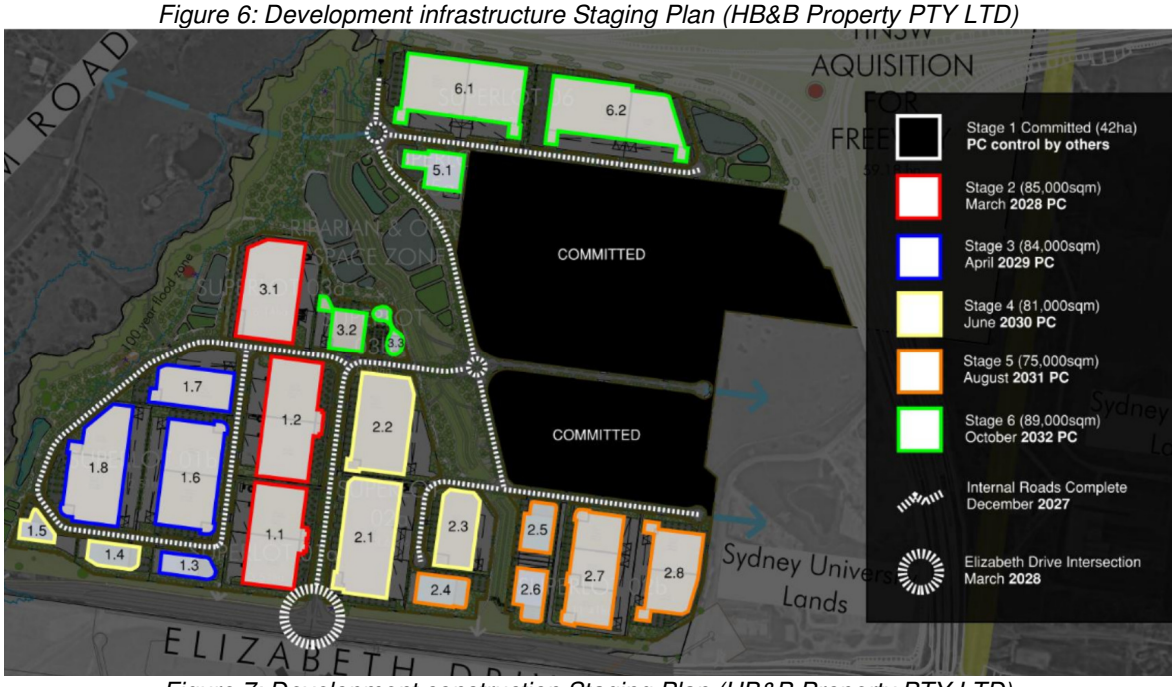


Figure 7: Development construction Staging Plan (HB&B Property PTY LTD)

3.3 Planning Considerations

Western Sydney Aerotropolis Development Control Plan 2022

The Aerotropolis Phase 2 DCP lists the following requirements for civil design and stormwater management and flooding, refer Table 4 below.

<table>
<tr><th>Performance Outcome</th><th>Benchmark Solution</th><th>Assessment</th></tr>
<tr>
<td>PO1 Development applications must demonstrate compliance with the stormwater quality targets at all times through interim stormwater management measures incorporated within the development, or by connection to the regional stormwater system once operational.</td>
<td>
1. Compliance with the water quality targets below are satisfied where development applications demonstrate:
a. To the satisfaction of the Stormwater Management Authority and the consent authority that stormwater discharge from the development will flow into the regional stormwater system; and
b. The requirements of PO4 in Section 2.3.2 are met.
2. Where the Stormwater Management Authority indicates that the regional stormwater system will not be in place to service the development interim measures must be included to achieve the waterway health objectives of the Aerotropolis Precinct Plan. Interim stormwater management measures are to be designed to achieve the stormwater quality targets listed in the table below:
Note: A proponent may opt to undertake works-in-kind to deliver the regional stormwater system in accordance with the Stormwater Management Authority's requirements.
<table>
<tr><th>Parameter</th><th>Stormwater Quality Target – Operational Phase</th></tr>
<tr><td>Option 1: Annual Load Reduction</td><td></td></tr>
<tr><td>Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)</td><td>90%</td></tr>
<tr><td>Total Suspended Solids (TSS)</td><td>90%</td></tr>
<tr><td>Total Phosphorus (TP)</td><td>80%</td></tr>
</table>
</td>
<td>The applicant is in close consultation with the Stormwater Management Authority (Sydney Water) and proposes to deliver the regional stormwater management system under the Stormwater Developer Works Policy. A Feasibility Application has been submitted to Sydney Water to enter into a Flexible Planning Agreement for the delivery of regional stormwater assets within the Burra Park development.

All works are proposed to be completed in accordance with Sydney Water requirements.

The proposed stormwater management system (detailed in section 6) has been designed to meet the specified Stormwater Quality Targets, refer Section 6.4 for additional details.</td>
</tr>
</table>

Total Nitrogen (TN)	65%	
Option 2: Allowable Loads		
Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	< 16 kg/ha/y	
Total Suspended Solids (TSS)	< 80 kg/ha/y	
Text Total Phosphorus (TP)	< 0.3 kg/ha/y	

<table>
<tr>
<td>PO2 Development applications must demonstrate compliance with the stormwater flow targets at all times through interim stormwater management measures incorporated within the development, or by connection to the regional stormwater system once operational.</td>
<td>
1. Compliance with the stormwater flow targets below are satisfied where development applications demonstrate:
a. To the satisfaction of the Stormwater Management Authority and the consent authority that stormwater discharge from the development will flow into the regional stormwater system, and
b. The requirements of PO4 Section 2.3.2 are met.
2. Where the Stormwater Management Authority indicates that the regional stormwater system will not be in place to service the development interim measures must be included to achieve the waterway health objectives of the Aerotropolis Precinct Plan. Interim stormwater management measures to be designed to achieve the following stormwater flow targets:
<table>
<tr><th>Parameter</th><th>Stormwater Flow Target – Operational Phase</th></tr>
<tr><td>Option 1: Mean Annual Runoff</td><td></td></tr>
<tr><td>Mean Annual Runoff Volume (MARV)</td><td>≤ 2 ML/ha/year at the point of discharge to the local waterway</td></tr>
<tr><td>90%ile flow</td><td>1,000 to 5,000 L/ha/day at the point of discharge to the local waterway</td></tr>
<tr><td>50%ile flow</td><td>5 to 100 L/ha/day at the point of discharge to the local waterway</td></tr>
<tr><td>10%ile flow</td><td>0 L/ha/day at the point of discharge to the local waterway</td></tr>
<tr><td>Option 2: Flow Duration Curve Approach</td><td></td></tr>
<tr><td>95%ile flow</td><td>3,000 to 15,000 L/ha/day at the</td></tr>
</table>
</td>
<td>The applicant is in close consultation with the Stormwater Management Authority (Sydney Water) and proposed to deliver the regional stormwater management system under the Stormwater Developer Works Policy. A Feasibility Application has been submitted to Sydney Water to enter into a Flexible Planning Agreement for the delivery of regional stormwater assets within the Burrah Park development.

All works are proposed to be completed in accordance with Sydney Water requirements.

The proposed stormwater management system (detailed in section 6) has been designed to meet the Stormwater Flow Targets, refer section 6.5 for additional details.</td>
</tr>
</table>

		point of discharge to the local waterway	
		90%ile flow: 1,000 to 5,000 L/ha/day at the point of discharge to the local waterway	
		75%ile flow: 100 to 1,000 L/ha/day at the point of discharge to the local waterway	
		50%ile flow: 5 to 100 L/ha/day at the point of discharge to the local waterway	
		Cease to flow: Cease to flow to be between 10% to 30% of the time	
PO3 Development applications must include a Water Management Strategy (WMS)	1. The WMS is to provide details of: a. The approach to WSUD (including conceptual design details of the stormwater drainage, WSUD systems and on site detention) and how the approach will be implemented, including detail of ongoing management and maintenance responsibilities. This includes if the system is to be fenced, landscaped and maintained for the entirety of the operation of the system. b. Where required under PO1 and PO2, how the approach to WSUD complies with the water quality and flow objectives and targets consistent with the Technical guidance for achieving Wianamatta-South Creek stormwater management targets (DPE, 2022).	Details of the specified WSUD systems and stormwater drainage design are provided in Section 6. Section 6 details the stormwater management strategy, approach and maintenance responsibilities. The WSUD Systems have been designed to meet the requirements listed under PO1 and PO2. Refer Section 6.4 and 6.5. The WSUD systems are consistent with the objectives and are of a typology detailed in the Technical guidance for achieving Wianamatta-South Creek stormwater management targets (DPE, 2022).
PO4 The regional stormwater system includes requirements for on lot as well as streetscape measures to ensure the Targets in PO1 and PO2 are met.	**1.** Development includes the following stormwater management measures within each lot created by the development: a. Minimum pervious areas to meet the requirements of PO8. b. Gross pollutant traps (GPTs) designed in accordance the Regional Stormwater Authority technical guidance. c. Passively irrigated street trees are provided in accordance with the provisions of clause 2.4.5 of this DCP.	Minimum pervious areas under requirement PO8 have being met, refer section 6.7. Refer architectural concept package for detailed area calculations. Gross pollutant traps (GPTs) have been provided as part of the regional stormwater management system in accordance with advice from Sydney Water during the EIS period. GPTs have been specified On-Lot. Provision for passively irrigated street trees has been made in the road carriage way and road drainage design. Refer Section 6.6.
PO6 Development must not increase existing urban salinity	**1.** A salinity and or sodicity hazard assessment is required to ensure no impacts to both the waterways and built infrastructure.	Refer salinity and or sodicity hazard assessment by Development Risk Management Pty Ltd for additional

or result in increased salt loads in waterways, wetlands, drainage line or soils	**2.** All WSUD systems must incorporate an impervious liner, unless a detailed Salinity and Sodicity Assessment demonstrates infiltration of stormwater will not adversely impact the water table and soil salinity (or other soil conditions).	details. All WSUD systems have been design in consideration of the salinity and sodicity hazard assessment and will include an appropriately designed impervious liner to not adversely impact the water table and soil salinity (or other soil conditions) by the hydraulic functions of the given WSUD system.
P07 Drainage is designed to safely convey overland flows	**1.** Designs shall ensure that flows are safely conveyed to avoid unsafe conditions for pedestrians and vehicles and to meet the requirements of Australian Rainfall & Runoff Guidelines 2019. **2.** Trunk drainage capable of conveying 1% AEP flow shall be designed as naturalised channels connecting to the existing stream system. **3.** Trunk drainage is to be located through natural creek lines or constructed natural drainage channels to help detain flows and contribute to biodiversity, public amenity and safety. **4.** Naturalised trunk drainage channels will commence when 15 ha of catchment contribute runoff flows.	Stormwater drainage has been undertaken in accordance with relevant standards (including Australian Rainfall & Runoff Guidelines 2019) and appropriability designed to convey stormwater through the site in a manner that is safe and will not adversely impact pedestrians, vehicles or habitable spaces. Refer section 6.2 for details. The central trunk drainage system has been designed to convey the 1% AEP flow. Refer Section 6.1 for details. The central trunk drainage has been designed in accordance with Regional Stormwater Authority guidelines. “Draft - Stormwater Scheme infrastructure Design Guidelines” Sydney Water 2020 and the Guidelines for Riparian Corridors on Waterfront Land prepared by the Department of Planning and Environment (DPE,2022). The design of the central trunk drainage system has been undertaken to maximise benefit to waterway health, biodiversity and social amenity. Refer Section 6.1 for details. Naturalised trunk drainage channels have been provided where contributing catchment exceed 15Ha. Refer engineering drawings in Appendix A for details.

PO8 Lots achieve minimum perviousness to meet stormwater drainage manager requirements and green and cooling objectives	**1.** Development is to demonstrate that the perviousness rates identified below are achieved. Development in the Mixed Use Zone: i. Mixed Use Centre (over 2:1 FSR) – 30% ii. Mixed Use Centre (up to 2:1 FSR) – 35% Development in the Enterprise and Agribusiness Zone: iii. Employment – business, commercial, light industrial (three storeys and above) – 30% iv. Employment – Large format industrial and light industrial (up to two storeys) – 15% *Note 1: If there is more than 1 building on a lot, the number of storeys for the purposes of this clause must be determined in accordance with the Business Zone Design Guide dated December 2021 and published on the NSW planning portal (see Figure 4).* *Note 2: Where an application includes the delivery of streets, streets are to be included in the pervious surface area calculations.* **2.** The site area pervious requirement is to be calculated in accordance with the following index: • Deep soil (one metre or more in depth, connected subsoil) – 100% • Shallow soil (less than one metre in depth, not connected to subsoil) – 75% • Permeable pavement – 50% Hardstand – 0% *Note: as an example of application of the above ratios:* *i. Site area (comprising development lots and streets) is 1,000 square metres in a large format industrial area (up to 2 storeys)* *ii. 150 square metres of pervious area would be required if it is 100% deep soil* *iii. 300 square metres of pervious area would be required if it is 100% permeable pavement* *areas of deep soil, shallow soil and permeable pavement can be used in combination to achieve the equivalent required pervious area.*	Minimum pervious areas under requirement PO8 have being met, refer section 6.7. For in-depth analysis of site areas, refer architectural concept package by Nettletontribe.

Performance Outcome	Benchmark Solution	Assessment
P01 Regional infrastructure Stormwater assets (including land and infrastructure) are managed and maintained by the stormwater drainage manager.	**1.** Where land for regional infrastructure stormwater assets (including open drainage corridors as a part of riparian streets) are not identified for acquisition on the Land Reservation Acquisition Map in State Environmental Planning Policy (Precincts – Western City) 2021 development is to: a. Provide an allocation of sufficient, suitably located land area to allow for stormwater assets in agreement with the stormwater drainage manager. b. Where stormwater assets are not dedicated to Sydney Water, appropriate legal access rights are required for ongoing management and maintenance. The legal right of access must be undertaken in consultation with the Regional Stormwater Authority, Sydney Water. c. All costs associated with the value of land and easement creation are to be borne by the developer.	The applicant is in close consultation with the Stormwater Management Authority (Sydney Water) and proposes to deliver the regional stormwater management system under the Stormwater Developer Works Policy. A Feasibility Application has been submitted to Sydney Water to enter into a Flexible Planning Agreement for the delivery of regional stormwater assets within the Burra Park development. Details such as allocations, legal access rights and costs associated with the development will be resolved as part of the aforementioned process.
P02 Development provides management access to the stormwater drainage manager.	**1.** The design of development shall ensure where a riparian zone is identified in the Riparian Plan or Drainage Scheme Plan the landowner is to provide a legal right of access for the stormwater drainage manager to undertake required revegetation, management, and maintenance works. **2.** The maximum area of land to be designated for access for this purpose is the vegetated riparian zone or the 1% AEP, whichever the greater, for all waterways. All costs associated with the value of land and easement creation are to be borne by the developer. *Note: The stormwater drainage manager will only be responsible for undertaking defined waterway, stormwater, and riparian zone management activities on this land.*	Refer response to P01 above.
4.1.1 Street design		
Performance Outcome	**Benchmark Solution**	**Assessment**
PO 1 The design, functionality and safety of Collector and Local roads within Centres is consistent across the Aerotropolis.	1. Road design for Collector and Local roads within as identified on the Aerotropolis Precinct Plan are to be consistent with the typical arrangements shown in Figures 13 to Figure 16. Note: All street cross-sections illustrate minimum requirements. In certain circumstances these may need to increase to respond to site specific conditions such as topography and the retention of remnant vegetation.	Roads designs for the internal road network are consistent with the typical dimensions shown in the Aerotropolis DCP. Refer section 4.2 for details.

2.17 Subdivision design		
Performance Outcome	**Benchmark Solution**	**Assessment**
PO2 To respond to the natural topography and physical characteristics of the land and minimise the need to cut and fill.	1. Subdivision design shall balance cut and fill as far as practicable. Development proposals must include an Earthworks Plan, detailing the proposed cut and fill strategy, how the design minimises cut and/or fill, and justification for the proposed changes to the landform. 2. The impact on environmental values of any earthworks proposed are to be mitigated through the construction of physical barries and sediment controls 3. Where a proposal is for subdivision of land only, benching is limited to road layouts and to within 15m of each newly created or proposed lot.	Refer Section 5.1. The proposed earthworks strategy has significantly reduced site shortfall from previous proposals to 19,800 m^3 net fill (import). It is understood once service trenching is undertaken this will reduce and efficiency balance the site, especially when considering the scale (area) of the development. Refer Section 7 for Soil and Water management. A sediment and erosion control plan is proposed that mitigates the impact of construction and earthworks on the surrounding environment.

2.18 Earthworks and retaining walls		
Performance Outcome	**Benchmark Solution**	**Assessment**
PO1 To ensure site planning considers the stability of land, its topography, geology and soils.	1. Site planning is to respond to the natural topography of the site and protect vegetation, particularly where it is important to site stability. 2. A Geotechnical Report is to be submitted with applications proposing to change site levels. 3. Excavation and fill shall be adequately retained and drained in accordance with the Western Sydney Engineering Design Guidelines.	Refer Section 5.1. Responding to the natural topography is a key outcome of the proposed grading and earthworks strategy. Earthworks, earthworks battering (temporary and permanent), and retaining structures have been designed in accordance with relevant guidelines and policies and in accordance with geotechnical investigations and reporting prepared for the development. Refer Section 5.2. All excavation and fill is adequately drained in both the temporary and long-term scenarios. Refer Geotech Reporting by Development Risk Management for additional details.
PO2 To ensure that earthworks and retaining wall construction is suitably designed and landscaped to ameliorate its visual presentation to and from the public domain and adjacent properties.	1. Level transitions must be managed between lots and not at the interface to the public domain. 2. Finished ground levels adjacent to the public domain or public road shall be no greater than 1.0m above the finished road level (or public domain level). 3. Where a level difference must exceed 1.0m and adjoins the public domain or public road, the retaining wall must be tiered. Each retaining wall tier element shall be no more than 2.0m. A 1.5m wide deep soil zone with suitable landscaping is to be provided between each tier. The maximum cumulative height of any retaining walls adjoining the public domain is 6.0m. 4. The toe (fill retaining wall) or top (cut retaining wall) of all retaining walls are to be setback 2.0m into the property boundary and the setback is to be suitably landscaped. 5. On sloping sites, site disturbance is to	Significant coordination between the project architect, landscape architect and civil engineers (author) was undertaken to develop strategies to ensure level transitions across the site are appropriately managed. Generally, retaining walls to the public domain have been minimised onsite by adopting strategies such as terracing the site away from the public domain, providing split level buildings and incorporating vegetated batters into the site layout. Where retaining walls are unavoidable, retaining walls have been provided in accordance with the specified requirements. Refer Section 5.2 for additional details. Refer Urban design guidelines prepared by Nettleton Tribe and Landscape Concept Plan by Geoscapes for additional details.

	be minimised by using split level or pier foundation building designs. **6.** Retaining wall design and materials shall complement architectural and landscape design.	
PO3 To encourage reuse of fill material from within the Aerotropolis Precinct.	**1.** Imported fill it is to be Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM) and validated by a suitably qualified person. **2.** Where possible, fill material should be sourced from within the Aerotropolis Precinct. **3.** Topsoil should be preserved on site and suitably stockpiled and covered for re-use.	Noted. It should be noted that the proposed earthworks strategy has significantly reduced site shortfall from previous proposals to 66,400m³ net fill (import). After taking into account service trenching, which will effectively balance the site from an earthwork's perspective, the importation of significant quantities of fill is not expected. Refer section 5.1. The stockpiling of site won materials (and earthworks in general) is proposed to be undertaken in a manner such that native soils (topsoil included) are appropriately stockpiled, covered and stored onsite. When reused, stockpiled soils are proposed to be placed in a sequence that generally matches the existing soil horizons

Western Sydney Aerotropolis Precinct Plan

The Aerotropolis Precinct Plan lists the following requirements relevant to civil design and stormwater management, refer Table 5 below.

4.5.1 Total water cycle management	
Requirement	**Assessment**
BG1 Development applications are to demonstrate how the following performance criteria for ambient water quality objectives for waterways and waterbodies are to be met either by: a. On-lot or on-street measures; or b. As part of a regional stormwater approach demonstrating that the development will connect to the stormwater infrastructure shown on Figure 6.	The applicant is in close consultation with the Stormwater Management Authority (Sydney Water) and proposed to deliver the regional stormwater management system under the Stormwater Developer Works Policy. A Feasibility Application has been submitted to Sydney Water to enter into a Flexible Planning Agreement for the delivery of regional stormwater assets within the Burrah Park development. The regional stormwater proposed to be delivered under the agreement are featured in Figure 6 of the Western Sydney Aerotropolis Precinct Plan. Refer Section 6 for additional details.
BG2 Development applications are to demonstrate how the following performance criteria relating to water flow objectives are to be met either by: a. On-lot or on-street measures; or b. As part of a regional stormwater approach demonstrating that the development will connect to stormwater infrastructure shown on Figure 6.	Noting the response to BG1, The proposed stormwater management system (detailed in section 6) has been designed to meet the Stormwater Flow Targets (refer section 6.5) required by the Stormwater Management Authority (Sydney Water) which are detailed in the Western Sydney Aerotropolis Development Control Plan 2022 (which are consistent with Wianamatta-South Creek stormwater management targets (DPIE, 2022).
BG3 Where development uses on-lot or on-street measures to achieve the performance criteria for ambient water quality and the flow objectives, the development application must demonstrate, to the satisfaction of the consent authority, the ability to connect the development to regional stormwater infrastructure when it is available.	Refer response to BG1. The applicant is proposing to deliver the regional stormwater infrastructure in partnership with the Stormwater Management Authority. The regional stormwater infrastructure is proposed to be codesigned to meet the performance criteria for ambient water quality and the flow objectives. Concept design (presented in Chapter 6 and Appendix A) meets the ambient water quality and the flow objectives of the Stormwater Management Authority.
BG4 Compliance with the ambient water quality and flow objectives must be consistent with the NSW Government Technical guidance for achieving Wianamatta-South Creek stormwater management targets (DPIE, 2022).	Refer response to BG1. The ambient water quality and flow objectives detailed in the NSW Government Technical guidance for achieving Wianamatta-South Creek stormwater management targets (DPIE, 2022) are achieved. Refer section 6.5.
BG5 Multifunctional stormwater assets are to be located generally as shown on Figure 6.	Proposed Multifunctional stormwater assets are proposed to be located generally as per Figure 6. Any modification will be approved by the relevant Stormwater Management Authority as part of the Flexible Planning Agreement.
BG6 Multifunctional stormwater assets are to integrate with the Open Space Network to support multifunctional open space areas for recreation, urban cooling and water management.	Multifunctional stormwater assets are designed to Stormwater Management Authority's guidelines of which a key design consideration is the integration with open spaces and to provide social amenity. Refer section 6.6. Refer landscape concept by Geoscapes for additional information.

BG7 The multifunctional detention basins (as shown on Figure 6) are to be designed in accordance with the regional stormwater management strategy and recycled water network developed by the relevant stormwater authority.	Refer response to BG1. The multifunctional detention basins are co-designed under the developer works agreement with the relevant stormwater authority (Sydney Water). A recycled water network is proposed through the site and is developed in consultation with the relevant Stormwater Management Authority. Refer Section 6.3 for Detention and Sections 6.6 and 6.9 for details regarding the recycled water network.

4. Roads and transportation

4.1 Proposed Site Access

The proposed primary access to the site is via Elizabeth Drive. Elizabeth Drive is a state arterial road running along the southern boundary of the site. Currently, Elizabeth Drive is a two-lane road, with no footpaths or median and a speed limit of 80km/h. It should be noted that the TfNSW intends to upgrade Elizabeth Drive between the M7 motorway and The Northern Road, at the time of this report.

Access is proposed to the development from Elizabeth Drive at a signal controlled three-legged intersection. Arcadis is undertaking design of the intersection in consultation with TfNSW. The design will comprise three approaches with:

- Eastern approach
  - Two through lanes on the Elizabeth Drive eastern approach
  - Two dedicated right turn lanes on the Elizabeth Drive eastern approach, extending about 350 metres and 360 metres
- Western approach
  - One through lane on the Elizabeth Drive western approach
  - One short approach lane on the Elizabeth Drive western approach, about 300 metres long
  - One dedicated left-turn slip lane on the Elizabeth Drive western approach, about 150 metres
  - One short exit lane on the Elizabeth Drive western approach, about 200 metres long
- Development access road
  - Two entry lanes
  - Two dedicated right-turn lanes on the development access road, including:
    - One full-length lane
    - One short lane, about 80 metres
  - Two dedicated signalised left-turn slip lanes on the development access road, including:
    - One full-length lane
    - One short lane, about 85 metres
- Pedestrian crossings will be provided on all approaches.

A function layout of the intersection with Elizabeth Drive is shown below in Figure 8.

In conjunction with the upgrades at Elizabeth Drive / development access road intersection, the proposed signalised intersection extent has increased to the east and west to interface with the ultimate design layout for the upgraded four lane Elizabeth Drive configuration along the frontage of the development. To the east, the design has been updated to tie into the M12 works (currently under construction) to ensure two through traffic lanes (in each direction) are provided between the development site and the M12. To the west, the design has extended approximately 250m and provides a safe transition back to the existing two lane (one in each direction) Elizabeth Drive prior to Oakey Creek.

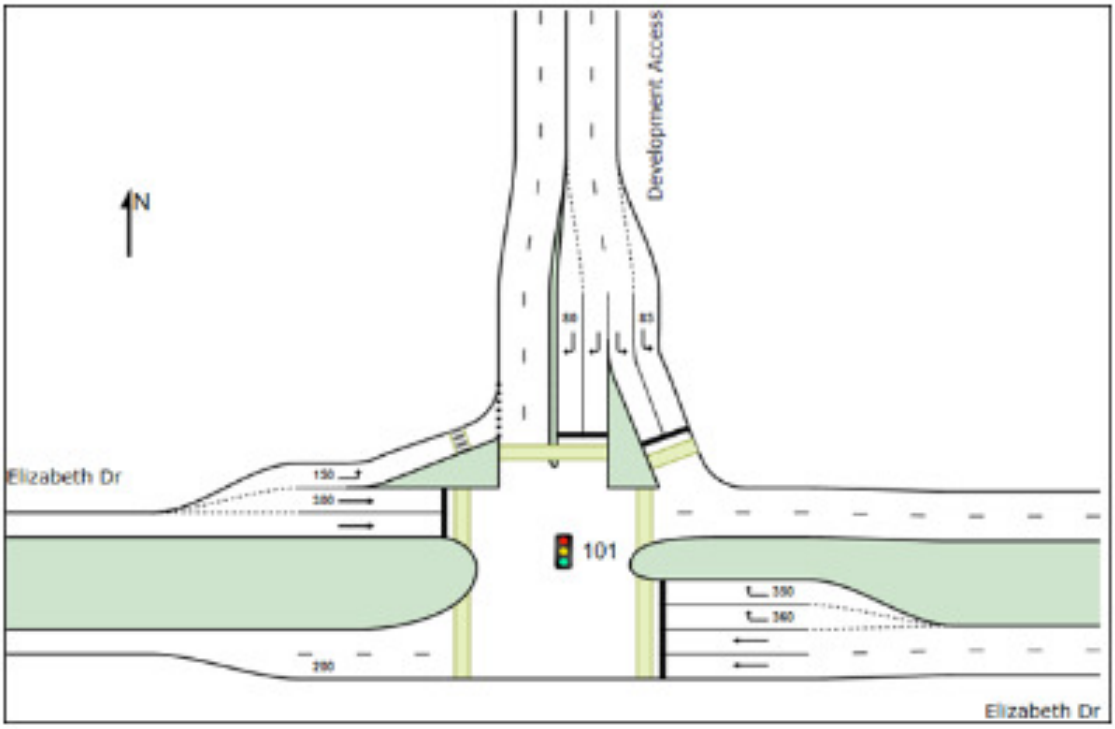


Figure 8: Functional Layout of intersection with Elizabeth Drive (ARCADIS)

4.2 Internal Road Network

The proposed road network has been developed by Arcardis and Nettlontribe. The proposed road network and hierarchy differs slightly from that in the Precinct Plan with the updated proposed network is shown in Figure 9. Throughout the planning of the site, it is understood that Arcadis has been in consultation with key stakeholders regarding refinement of the internal road network.

The internal road network has been developed with a strong focus on improving accessibility to key site features, such as the interface with Cosgroves/Oakey Creek and the proposed central riparian corridor. The internal road layout has been designed to meet with future connections to surrounding developments, namely;

- Consideration for the future M12 underpass to connect to potential future developments on the north of the M12.
- Two connections to the future Sydney University land on the east of Burrah Park.
- Consideration for a future bridge connection towards the west, to intersect with Luddenham Road. It should be noted this connection is outside the scope of this development application.

For detailed information regarding the evolution of the proposed internal road layout and additional information regarding site access and levels of service, please refer to the Traffic Impact Assessment by Arcadis.

The internal road network of the site has two different road typologies; the 'Local Industrial Road' and 'Collector Road'. The main north-south spine road is a collector road with a width of 25.6 metres (shown green in Figure 9). The remaining roads on site are 24-metre wide industrial roads (shown in grey on Figure 9).

Figure 9: Internal road layout and heirachy

The internal road network will be designed and constructed in accordance with the Penrith City Council design and construction specifications with dimensions consistent with the Aerotropolis DCP. The design vehicle designed for 30m Performance Based Standards (PBS) Level 2 Type B vehicles with a design speed of 60km/hr through the internal road networks, with the check vehicle being the 36.5-metre PBS Level 3 Type A vehicles. Cul-de-sacs will also be designed and

constructed in accordance with the Council guidelines requiring a 16.5m radius on the turn heads and to accommodate 36.5-metre PBS Level 3 Type A vehicles.

In accordance with agency comments, collector roads and local roads with bus routes have been designed to accommodate a 14.5m Rigid Bus.

In accordance with Austroads guidelines (Austroads Design Vehicles and Turning Path Templates Guide) and equivalent prescriptive vehicle configuration was used to undertake vehicle swept paths. For the 30m Performance Based Standards (PBS) Level 2 Type B vehicles a 26m -B-Double swept path template was utilised, as a 30m PBS level performs equal to or better than 26m B-Double. Similarly, for the 36.5-metre PBS Level 3 Type A vehicles a 36.5m B-Triple swept path template was used. Refer engineering drawings C651-C676 for swept path analysis.

Two main road typologies are shown below in Figure 10 and 11. Further information regarding the road is shown below in Table 6.

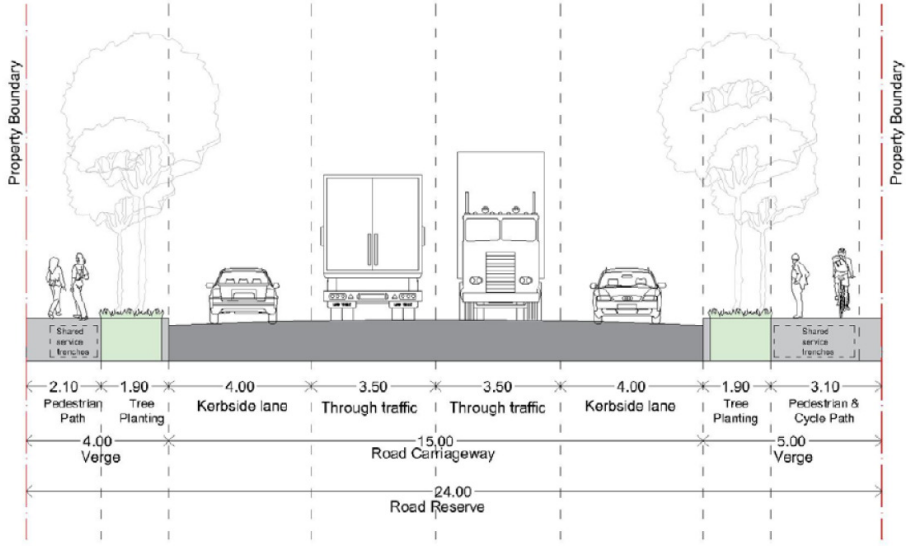


Figure 10: Local Industrial Road Cross Section

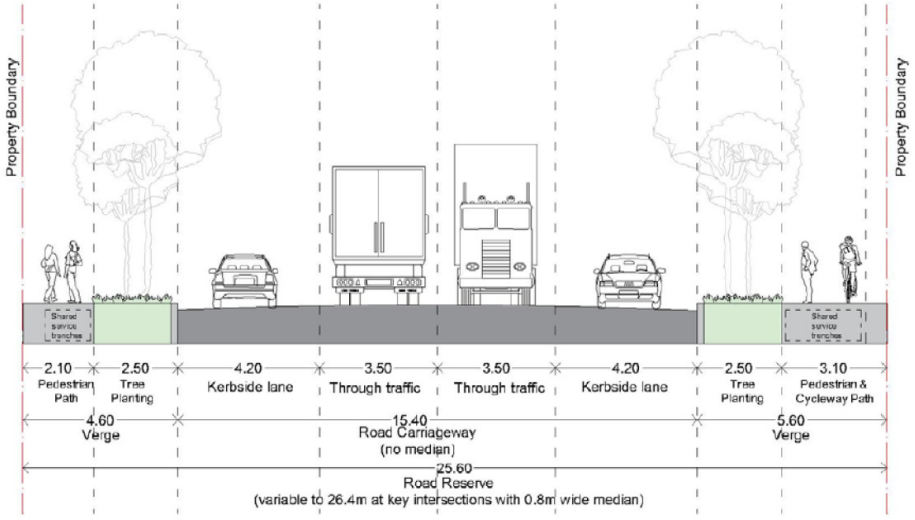


Figure 11: Collector Road Cross Section

Road Typology	Collector Road	Local Indstrial Road
Road designations	Estate Road 1	Estate Road 2-5
Road reserve	25.6m	24.0m
Design Speed	Design 60 km/h (signposted 50 km/h)	Design 60 km/h (signposted 50 km/h)
Pedestrain Facilities	Footpath = 1.5m Shared Path = 2.5m	Footpath = 1.5m Shared Path = 2.5m
Verge widths	Verge 1 – 5.6m Verge 2 – 4.6m	Verge 1 – 4.0m Verge 2 – 5.0m
Lane configuration	2 x 3.5m Through Traffic 2 x 4.2m kerbside Through	2 x 3.5m Through Traffic 2 x 4.0m kerbside Parking
Design Vechile swept paths (equivalent prescriptive vehicle configuration)	26m -B-Double 14.5m Rigid Bus	26m -B-Double 14.5m Rigid Bus (bus route only)
Check Vechile swept paths (equivalent prescriptive vehicle configuration)	36.5m B-Triple	36.5m B-Triple

Table 6: Road configuration

Active Transport links to surrounding infrastructure have been incoepraeted into the shared path design of the development, main locations include:

- Connection the the M12 cycleway in the north east corner of the site adjacent to basin NG_CC15/Basin C
- Connection to Elizabeth Drive:
    - Adjacent to TfNSW basin between Lot 2.4 and Lot 2.6.

4.3 Pavements

The proposed pavement thickness design for road pavements through the internal subivision is designed to be fit for purpose and suitable for the intended landuse within the site, being large-format industrial lots. A large proportion of the traffic within the site will be heavy vehicles, including 19m semi-trailers and 26m B-Doubles.

Proposed pavement thickness design is also undertakeen in accordance with geotehincal advice provided by Development Risk Management (reference DRM P24.1002.V02b-R01D1). For preliminary pavement thickness design a California Bearing Ratio (CBR) of 5% is recommended based on the geotechnical samples obtained.

The pavement design shall generally be based on a Penrith City Council's Design Guidelines For Engineering Works For Subdivisions And Developments. For granular pavements with thin bituminous surfacing, using the design traffic loadings given in the Table 2 of Penrith City Council's Design Guidelines For Engineering Works For Subdivisions And Developments. The Design Traffic Loading for a heavy industrial road is defined as 1 x 10^7 Equivalent Standard Axles (ESAs). The design traffic loading for a light industrial road is defined as 5 X 10^6 ESAs. Both design traffic loadings are understood to be estimated for a minimum design life of 20 years. Final determination on design traffic loading is subject to detailed design when the specific use of the individual lots is better understood.

Pavements are designed in accordance Austroads; Guide to Pavement Technology - Part 2 Pavement Structural Design. Preliminary pavement thickness design for the proposed internal state roads is presented below in Table 7.

Preliminary pavement thickness design.					
Design Traffic (ESAs)	Design CBR (%)	Sub-base	Base	Wearing Course	Total Thickness
Light Industrial 5 X 10^6 (Local Industrial)	5	310mm DGS40 in 2 layers	150mm DGB40 in 1 layer	70mm AC14 C320 binder in 2 x 35mm layers	530mm
Heavy Industrial 1 x 10^7 (Local industrial & Collector)	5	350mm DGS40 in 2 layers	150mm DGB40 in 1 layer	70mm AC14 C320 binder in 2 x 35mm layers	570mm

Table 7: Preliminary pavement thickness design

It should be noted that Council's Design Guidelines For Engineering Works For Subdivisions And Developments notes a wearing course should be 50mm AC10 layed in 2 x 25mm layers. However, in consideration of the heavy vehicle traffic frequenting the site a larger stone size and thicker asphaltic concrete layer is recommended in the wearing course.

Additionally, it is recommended a Polymer modified asphalt will be used within all cu-de-sacs and round-a-bouts with the wearing course layer becoming a 75mm thick polymer modified AC14 with a A15E Polymer Modified Binder laid in a single 75mm layer.

Earthworks cut and filling is proposed onsite. It should be noted that the above pavement design is preliminary and should be reassessed during detailed design specific to the road location. Consideration should be given to the use of select fill or subgrade stabilisation (subject to the specific site conditions (cut or fill)) to improve the efficiency of the pavement in future detailed pavement design.

5. Site Works

5.1 Bulk Earthworks and Grading

The bulk earthworks design and concept grading has been developed to form developable pads and road corridors suitable for the zoning of the development with a strong focus on incorporation of the central riparian corridor, formation of the extensive stormwater management infrastructure and improving level differences with surrounding interfaces (partially central and surrounding waterways).

The proposed grading across the subject site has been designed with consideration of the following key design constraints:

- Form development pads that respond to the end user and provide flexibility to cater for a range of development within the Enterprise Land Zoning.
- Respond to the natural topography and seek to match the existing predeveloped topography (e.g. ridges, valleys etc.).
- Minimise cutting and filling depths across the site, especially at key interfaces such as Cosgroves Creek and the proposed central naturalised trunk drainage channel.
- Provides suitable levels and grading at access locations, such as:
    - Coordinate with proposed levels at proposed Elizabeth Drive upgrade.
    - Coordinate with proposed levels and provide suitable road grades at the approach to the proposed Elizabeth Drive intersection upgrade.
    - Provide suitable road level at the site boundary to the Sydney University lands to the east such that future neighboring development is not constricted nor prohibited.
- Working within the desired naturalised trunk drainage alignment, ensure levels of the central riparian corridor to match that of the existing unformalised drainage depression and minimise soil disturbance.
- Provide an earthworks solution that results in a balanced site i.e. no requirement to import or export material from site. Provide an earthworks solution that retains all soils native to the existing site within the proposed development. Sequence earthworks and stockpile of native soils appropriately to allow native soils to be placed in a sequence that generally matches the existing soil horizons.
- Minimise earthworks spoil or shortfalls between different development stages to minimise temporary stockpiling and minimise land disturbance.
- Create stormwater catchments that match the up-to-date understanding of stormwater planning and correspond to amended stormwater catchments developed with Sydney Water throughout the exhibition period.
- Improve the interface with the road network, reduce level differences and promote activation of key existing site features particularly, e.g. location of traditional custodian significance, Cosgroves Creek riparian corridor, central naturalised trunk drainage channel etc. Whilst filling is inevitable to achieve suitable drainage to the proposed estate stormwater basins, the inground stormwater system has been increased in size to minimise the amount of vertical level difference required to drain the lots and road thus reducing the level difference along Cosgroves Creek.
- Minimise retaining walls and level differences between development lots and public spaces.
- Ensuring all downstream basins are generally outside of Cosgroves Creek mainstream 1% flood extent such that adverse flood impacts are minimised.
- Ensuring all detentions storages are above the Cosgroves Creek mainstream 1% flood level.

- Lots which require considerable level difference at opposing extents are proposed to prepared with split levels to promote development in accordance with the Urban Design guidelines whereby level differences are treated internally within lots not a lot boundaries. Examples include 3.2, 3.3 and 5.5.
- Providing sufficient longitudinal fall in all roads such that;
    - Roads comply with best practice, Austroads geometric design guidelines and Council's policies.
    - There is a manageable velocity depth product for any flows in the gutter during the 1% AEP and PMF storm event.
    - The stormwater drainage infrastructure in the road networks has sufficient fall and cover and conveyance capacity.
- Ensure basins levels and the difference between basin levels and proposed road levels are not to excessive to prohibit access for maintenance or reduce amenity.

The proposed pad levels have been designed with consideration of the following key design constraints:

- Ensuring the pad levels will enable a functional stormwater system that can provide gravity drainage from the furthest part of the pad and also provide underground detention storage (where required) that interface with the hydraulic grade line at the road drainage infrastructure.
- Ensure some flexibility with driveway locations for each pad with respect to the road levels.
- Seek to balancing cut and fill over the site.
- Balancing the level difference with the various boundaries (including boundaries to the conservation zone, easements, proposed road reserve, and other lot boundaries).

The distribution of cut and fill throughout the site is shown on civil engineering drawings 240518_DA_BE01, Appendix A. A smaller-scale figure is shown below, Figure 12. Green represents filling and red represents cutting. Table 8 is shown below which summarises the earthworks quantities for the development.

Given the total site area of approximately 171.9ha and a total works area of approximately 148.7 ha, the net fill of 66,440m³ required to achieve the proposed bulk earthworks levels is not considered excessive, and is appropriate in order to ensure the overall estate has a functional drainage strategy. It should also be noted that when stormwater and service trenching is considered it is likely the earthwork quantities for the proposed development will effectively balance.

Earthworks Quantities	
Site Area (works area)	148.8 ha
Cut	1,467,780m³
Fill	1,534,220m³
Net Fill "Shortfall"	66,440m³

Table 8: Earthwork quantities

Major assumptions

- Existing pond area of 90,051m²
- Existing pond depth of 2.0m. Unsuitable sediments within ponds to a depth of 0.5m. (total 2.5m allowance). Unsuitable materials will be stability blending with existing topsoils to improve organic content.
- 200mm topsoil to be removed and stockpiled for reuse.
- 300mm setdown allowance within lots.

- 530-570m setdown for road pavement.
- 150mm setdown for proposed creek.
- Allowance for all FFLs and BELs +/-1000mm from displayed level to provide flexibility for varying geotechnical conditions.

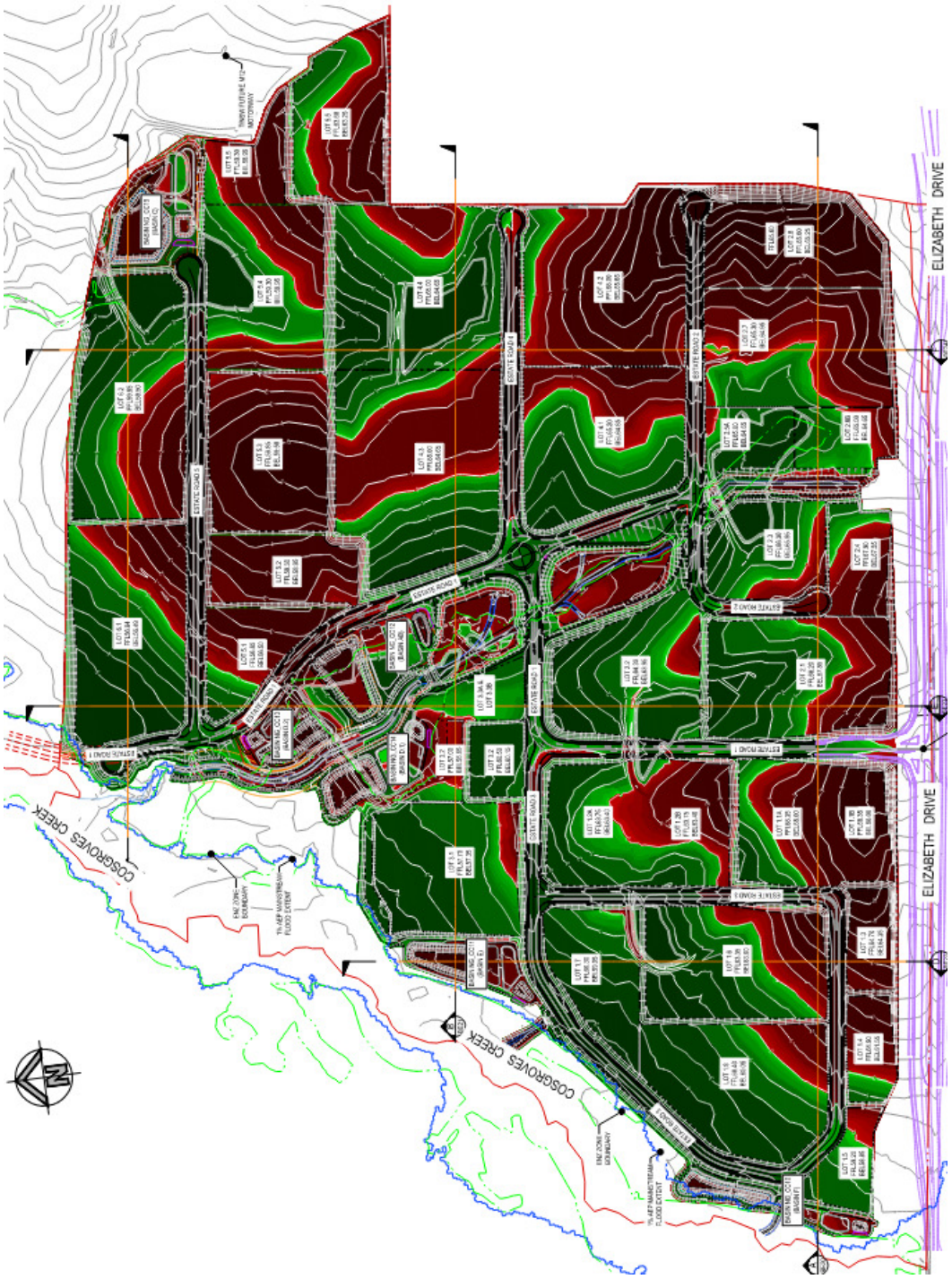


Figure 12: Bulk Earthworks cut and fill plan

5.2 Embankment Stability / Retaining walls

Subdivision retaining walls and batters.

Permanent earthworks batters are provided wherever possible as part of the grading design for the site. Typically, 1(H) in 4(V) earthworks batters are proposed with an increase to 1(V) in 3(H) for localised areas to avoid the need for retaining walls or reduce development footprint. Earthworks batters will be provided at maximum slopes of 1(V) in 3(H) as per geotechnical advice by Development Risk Management (reference DRM P24.1002.V02b-R01D1). Permanent batters steeper than 1(H) in 5(V) are proposed to vegetated in accordance with Penrith City Council Requirements.

Where short-term construction batters are implemented, these will be protected from erosion by appropriately installed sediment and erosion control measures.

Whilst earthworks batters will be provided wherever possible, retaining walls will be required in some instances where there are significant level changes generally where proposed surface levels are unable to meet with proposed/existing levels due to constraints around layout/grading. These walls are predominately located at internal to external interfaces and site boundaries where space is limited and site constraints prevent earthworks batters to existing levels.

The location and height of proposed retaining walls are shown on the civil engineering drawings 240518_DA_C101-125 in Appendix A. Retaining walls, unless noted otherwise, are proposed to be constructed as earth reinforced retaining walls (common brand keystone walls).

The following consideration have been made in consideration of retaining wall consideration and design:

- Retaining walls are proposed to be designed in accordance with DCP requirements. Where adjacent to the public spaces retaining walls are proposed to be designed in accordance with Aerotropolis DCP requirements such that:
    - Suitable offsets from boundaries are provided.
    - Walls are terraced within 2m height increments,
    - Allowances for deep soil are provided behind each terrace.
    - Overall height is restricted to 6m.
- All retaining walls in excess of 900mm high will have pedestrian balustrades and vehicular safety barriers will be provided for all walls in excess of 600mm high (where necessary) in accordance with the Australian Standards and Austroads Guidelines.
- Where possible, retaining walls will be located within the individual lots and not within road reserves.
- Given the large size of the masterplan pad sites, retaining walls are not proposed to be provided between the pad sites at this stage. 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. Where boundary fill walls are proposed, the construction of the boundary walls may be delayed until such time the adjacent lot is developed. If the boundary walls are delayed, a temporary batter will be delivered as part of the subdivisions works as an interim measure.
- Retaining walls are proposed to be designed and constructed in a manner that is sympathetic to the surrounding infrastructure where movements and settlement of the retained soils are proposed to be limited to avoid adverse impacts to existing pavement surfaces and services (where required).

Retaining walls within development lots will be required to be designed in accordance with the Urban Design Guidelines developed by Nettleton Tribe as well as the Aerotropolis DCP such that retaining walls adjacent to public space boundaries are minimised and a strategy of locating retaining walls within the individual sites or stepping of levels within the building structure is adopted, refer Figure 13. Where walls adjacent to the boundary are unavoidable, a terraced retaining wall solution that complies with Aerotropolis DCP will be required, refer Figure for 14.

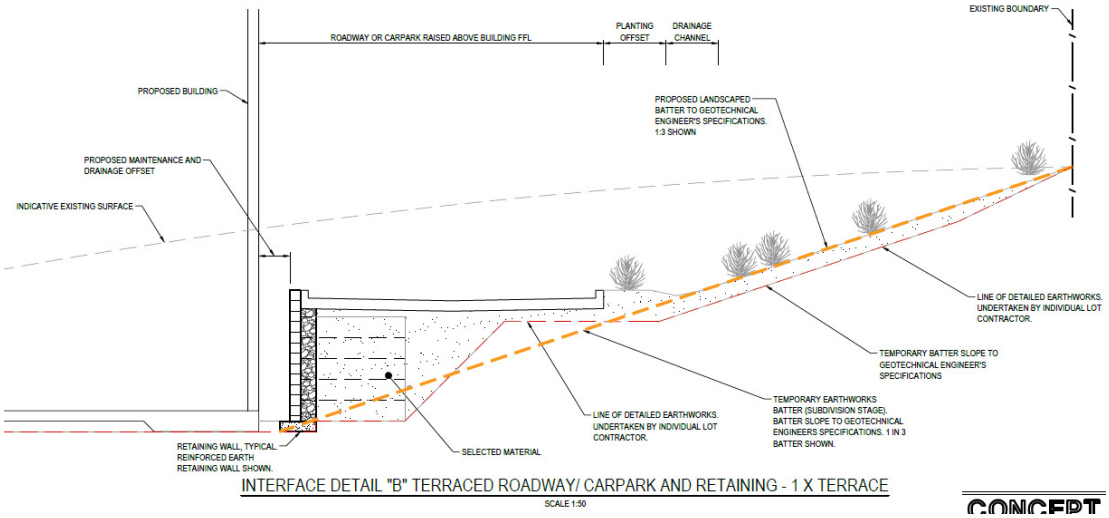


Figure 13 : Sample section, retaining wall at building interface

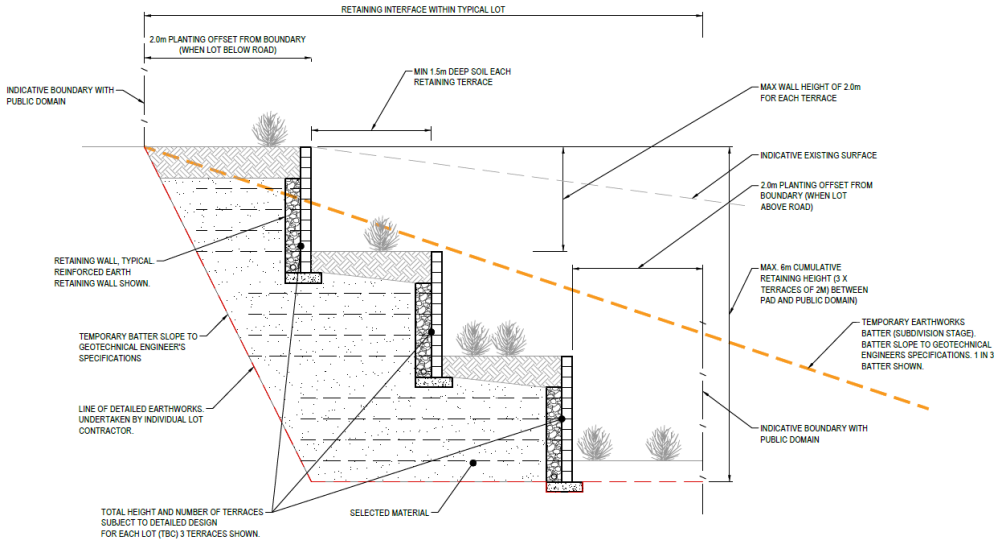


Figure 14: Sampled section, terraced retaining wall

6. Stormwater Management

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 environment, stormwater systems and flow regime.

The stormwater management system has been designed to comply with the following codes and policies:

- Aerotropolis Phase 2 DCP, Department of Planning and Environment, 2022 (DPE1).
- Western Sydney Aerotropolis Precinct Plan.
- Technical guidance for achieving Wianamatta - South Creek stormwater management targets (DPE2, 2022).
- Relevant policies from Penrith City Council DCP.
- Western Sydney Aerotropolis (Initial Precincts) Stormwater and Water Cycle Management Study (Sydney Water [SWC], 2021). (SW1, 2021).
- The Guidelines for Riparian Corridors on Waterfront Land prepared by the Department of Planning and Environment (DPE3, 2022).
- Stormwater Scheme Infrastructure Design Guidelines DRAFT Version 2024-1.0 (SW2, 2024).

Sydney Water are the regional stormwater authority and the 'Initial Precincts' guideline details recommended strategies for integrated water management. The proposed stormwater management system has been designed to comply with guidelines in respect to the location of regional stormwater management basins (detailed in Figure 9-5: Locations for regional stormwater detention, quality and flow management - Northern Gateway – Shown in Figure 15 below) as well as the underlying principles of stormwater management for waterway, reuse and landscape integration detailed in the guidelines, listed below:

- Compliance Aerotropolis guidelines.
- Waterway health.
    - Wianamatta-South Creek objectives (flow and water quality targets)
- Stormwater detention.
- Integrated water servicing that integrates and balances potable water, wastewater, recycled and harvested stormwater.
- Landscape led design and integration.
- Riparian Land Management.

It should be noted that the 'Initial Precincts' guidelines have progressed since 2021 with the introduction of various draft updated design guidelines and draft scheme plans as understanding of the stormwater management within the Aerotropolis is refined (the significance of which is discussed below and in later chapters).

Locations of regional stormwater infrastructure (detention and water quality basins) proposed by SW are included in the (SW,2021). Within the subject site, two combined water quality and detention basins, and three water quality only basins are proposed. The locations and configuration of these basins is shown in Figure 15 and on the predeveloped catchment plan (Drawing C251) in Appendix A.

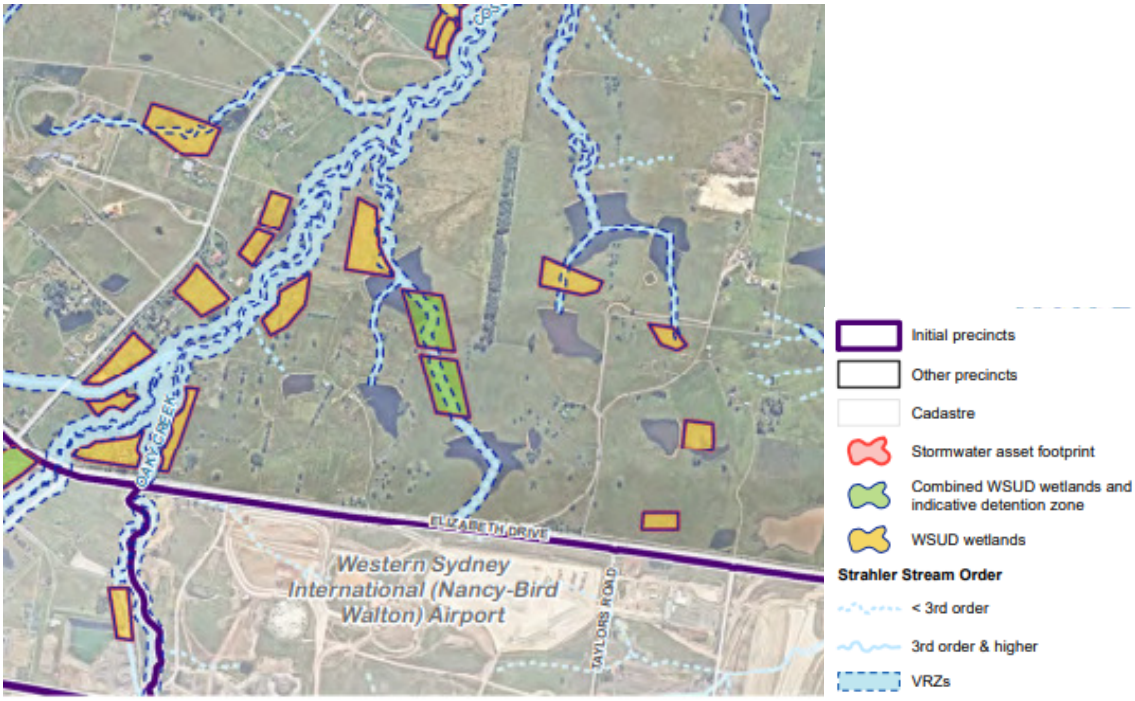


Figure 15: 'Intial Precints' Plan source: (SW, 2021)

Key to the proposed stormwater management system is the delivery of Sydney Water's ultimate regional basins as shown in the 'Initial Precincts' Stormwater and Water Cycle Management Study. The applicant proposes to deliver the ultimate regional basins with reimbursement via Sydney Water's recently released Stormwater Developer Works Policy. Under this process, the developer (the applicant) will design and construct the basins and then dedicate the basins to Sydney Water at completion.

At the time of this previous issue of this report (June 2025) the applicant was in close consultation with Sydney Water with the goal of preparing a Flexible Planning Agreement for the delivery of regional stormwater assets within the Burrah Park development. A preliminary feasibility application was submitted to Sydney Water in June 2024. The stormwater management strategy detailed in the subsequent chapters detail a strategy that has been developed with a strong focus on Sydney Water requirements and incorporate ongoing consultation with Sydney Water as of June 2025. The strategy has been updated following the introduction of the Stormwater Scheme Infrastructure Design Guidelines DRAFT Version 2024-1.0 (SW2, 2024), agency advice provided by Sydney Water during the EIS exhibition period, preliminary review of the draft Aerotropolis scheme plans and various ongoing consultations with Sydney Water.

It is noted that the Aerotropolis Draft Integrated Stormwater Scheme Plans – Cosgroves Creek (SWC4, 2025) has been on exhibition during April and May 2025. It is noted that due to the ongoing consultation between The Applicant and Sydney Water the stormwater scheme plan is closely aligned to that of stormwater management plan submitted during the EIS phase of the project taking into account agency advise and commentary provided by Sydney Water during the exhibition (Burrah Park) period. As part of the exhibition of the scheme plans commentary from the Burrah Park Team was provided to the Sydney Water during May 2025 to provide additional detail in respect to the evolution of the stormwater management plan following the incorporation of agency comments (both Sydney Water and other authorities).

Summarising the above, to initiate spatial planning, the proposed regional stormwater management basins have been located within 'initial precinct' basin locations. However, during the evolution of the stormwater planning in the region the final basins have been modified to incorporate the following:

- Agency advice provided by Sydney Water during exhibition of the project including commentary provided by Sydney Water's Technical Consultant Civille dated 19th December 2024.
- Design actions determined during consultation with Sydney Water on the 27.03.2025
- Aerotropolis Draft Integrated Stormwater Scheme Plans – Cosgroves Creek (SWC4, 2025)
- Agency advise from other key stakeholders.

Following ongoing consultation with Sydney Water, minor amendments to the basins and catchments are proposed to better respond to the natural topography, retain existing habitat and consolidate and centralise WSUD infrastructure generally away from the WSI to response to the unique constraints of the neighbouring development. The following deviations from the 'Initial precinct's' locations are noted below:

- Removal of combined OSD and Water Quality basins.
- Consolidation of Basin A and B to a single basin (treatment basin), NG_CC12.
- Consolidation of Catchments A,B to drain to a single basin (as above).
- Relocation of the consolidated Basin (A,B) to the existing dam location to promote the retention of existing infrastructure and habitat.
- Splitting the remaining catchment D into two sub-catchment (D.1/ NG_CC14 and D.2/ NG_CC13), each with a separate basin. This is due to the 'initial precincts' basin location being located on a single side (west) of the existing and proposed creek with a catchment that encompasses areas either side of the creek. Noting the difficulty of draining a catchment beneath a proposed trunk drainage system to the other creek bank.
- Relocation of Basin C/ NG_CC15.
    - Improved outlook from M12 and connection of open spaces and public art.
    - Locate closer to M12 drainage to collect and redirect low flows through Basin C system.
    - Improve connectivity with the M12.
    - Locate proposed stormwater basin closer to existing dam locations.

Through ongoing consultation with Sydney Water following the RTS phase of the development approval (June 2025 to December 2025), the following changes have been made to the civil engineering package (refer Chapters 6 for additional details):

- Coordination between the Burrah Park development and Integrated Stormwater Scheme Water Quality and Flow Target model (MUSIC modelling). Refer Chapter 6.4, 6.5 and 6.6.
- Adoption of Integrated Stormwater Scheme's regional basins design undertaken by Sydney Water's external technical consultant Civille and coordination of the site civil works to accommodate the regional basin. With ongoing refinement of the engineering design and through off-site efficiencies realised through the Integrated Stormwater Scheme It should be noted that generally there was a reduction in the size of stormwater infrastructure required to service the development under the Stormwater Scheme. Off-site efficiencies are only realised once the stormwater infrastructure within the development is connected to the Integrated Stormwater Scheme. As such, a in-depth review of stages preceding connection the Scheme is required to ensure that Water Quality and Flow Targets can still be achieved I the interim scenario – Refer Chapter 6.7;
- Incorporation of detailed staging in regard to delivery of Integrated Stormwater Scheme infrastructure.

The ‘initial precincts’ stormwater catchment plan is shown on civil engineering drawing C250 in Appendix A. Following the above, the resultant catchment plan including revised basin allocations is shown on the civil engineering drawing C251 in Appendix A.

The stormwater management strategies for the development have also been designed to comply with the principles of the Department of Planning and Environment guideline the ‘Technical guidance for achieving Wianamatta–South Creek stormwater management targets” (DPE1, 2022). Due to the proposed masterplan development lot yield the subject site exhibits a Large Format Industrial (LFI) typology generally classified as C4. As such, considerable stormwater harvesting and reuse as well as precinct wetlands are required to offset the proposed overall impervious ratio of the development.

The overall stormwater management strategies are summarised below. The stormwater management strategy has been sized and developed in accordance with the aforementioned guidelines and policies. Detailed information regarding each stormwater management strategy is included in subsequent sections and include indicative sizing and key modelling assumptions and parameters.

Regional stormwater management basins are proposed generally in accordance with SW’s Initial precincts guideline (SW, 2021). Water management basins are proposed to be designed and sized to provide water quality treatment (pollutant targets) for all upstream catchments within the site. Following ongoing consultation with Sydney Water and the release of the aforementioned updated draft guidelines and scheme plans the regional stormwater management basins are proposed to include the following treatment train:

- GPT located ‘On-lot’.
- Low flow diversion networks to ‘offline treatment basins’ for the central naturalised trunk drainage channel.
- Sediment pond – Offline Configuration.
- Wetland component.
- Bioretention basin component.
- Storage pond including water harvesting facilities.

Regional stormwater management basins are a key to reducing stormwater volume targets detailed in (DPE2, 2022) via the processes of evapotranspiration – Refer section 6.6. The regional basins also required to provide a storage reservoir for harvested treated stormwater for reuse throughout the subdivision via a recycled water main.

For large format industrial developments such as Burrah Park, Sydney Water detail the need for a regional stormwater harvesting scheme, including a reticulated system and storage ponds to achieve the stormwater management objectives, while maximising developable land use. In the interim where a regional scheme has not been developed, and the lot yields and imperviousness were not reduced. “initial precinct“ and DEP1 guidelines recommend large on-lot rainwater harvesting tanks for reuse in toilet flushing and to irrigate 100% of all landscaped and public open spaces within the site. Rainwater harvesting was initially proposed for all development lots with stored rainwater proposed to be used for on-lot toilet flushing and on-lot landscape irrigation. However, following consultation with Sydney Water in July 2024, and following the release of the Stormwater Scheme Infrastructure Design Guidelines DRAFT Version 2024-1.0 (SW2, 2024) it was determined the site would develop a regional stormwater harvesting scheme without on-lot rainwater harvesting tanks.

Run-off treated by the regional stormwater management basins is proposed to be stored in storage ponds integrated into the basins in accordance with (DPE1, 2022) and Sydney Water guidelines.

Stored water is proposed to be appropriately treated and directed via a recycled water main for the following:

- Landscape watering of subdivision landscape areas (excluding lots).
- Landscape watering of residual landscaping areas.
- On-lot landscape watering.
- On-lot non potable internal water demand
    - Toilet Flushing.
    - Hardstand washing and vehicle washing.

For further information regarding stormwater harvesting and reuse, refer section 6.9.

A mixed stormwater detention strategy is proposed to be provided generally in accordance with Western Sydney Aerotropolis (Initial Precincts) Stormwater and Water Cycle Management Study (Sydney Water [SW], 2021). Providing 3 online detention basins proposed along the green/blue corridor. The basin design has been undertaken utilising the guidance set out in the Western Sydney Aerotropolis DCP (2022) and the Guidelines for Controlled Activities on Waterfront Land (DPE3, 2022). The detention storage has been achieved primarily with “passive” storage created by letting water back up in the creek corridors, utilising the proposed road embankments and culverts for attenuation. Detention facilities are proposed to be provided adjacent to communal regional stormwater management basin.

A on-lot detention strategy is proposed for remaining catchments (Catchments D.1,D.2, E, F and C).

The WSUD summary for each lot detailing allowances and assumption around each lot are shown in section 6.8 Specific parameters for stormwater harvesting design and modelling is included in Chapter 6.11. Sizing methodology and specific parameters for onsite stormwater detention modelling are discussed in section 6.3.

6.1 Proposed Stormwater System – Trunk Drainage

A defining feature of the existing topography is the existing informal drainage channel (Strahler 2) draining from Elizabeth Drive to Cosgroves Creek. The informal drainage channel is anthropogenic in nature and links a series of exiting dams currently collecting run-off for agricultural purposes. Ongoing development around the subject site, namely the WIS development and Elizabeth Drive upgrade has significantly reduced the upstream catchment to approx 4.1Ha, refer Chapter 2.1.

The existing informal drainage channel has been the focus of ecology assessments by Ecological which have assessed the condition of the existing watercourse. Refer Biodiversity Impact Assessment Report for additional details.

The informal channel and associated existing dams are generally located within ENZ zoning.

The informal drainage channel, as part of development of the subject site is proposed to be formalised into a new trunk drainage channel. The new trunk drainage channel, and surrounding development has been designed to be closely align with the informal drainage channel and ENZ zones. Minor deviations form the existing alignment are proposed where required to accommodate the regional stormwater management basins or due to the existing site constraints. The alignment of the naturalised trunk drainage channel has been determined following consultation with Sydney Water and Ecological and takes into account commentary provided during the EIS period.

Following agency advice, the design of the Naturalised Trunk Drainage Channel has been amended in terms of alignment and extent with the upper portion of the channel's alignment rationlised with the lot layout and extended to the boundary with Eizabeth Drive. Active transport links have been provided to the boundary interface with Elizabeth Drive. A continuous active transport link is also provided along the western interface with Cosgroves Creek.

The new trunk drainage channel is proposed to be designed and sized in accordance with Sydney Water guidelines as well as The Guidelines for Riparian Corridors on Waterfront Land prepared by the Department of Planning and Environment (DPE3,2022). An indicative section of the new trunk drainage channel from Sydney Water Guidelines is shown below in Figure 16.

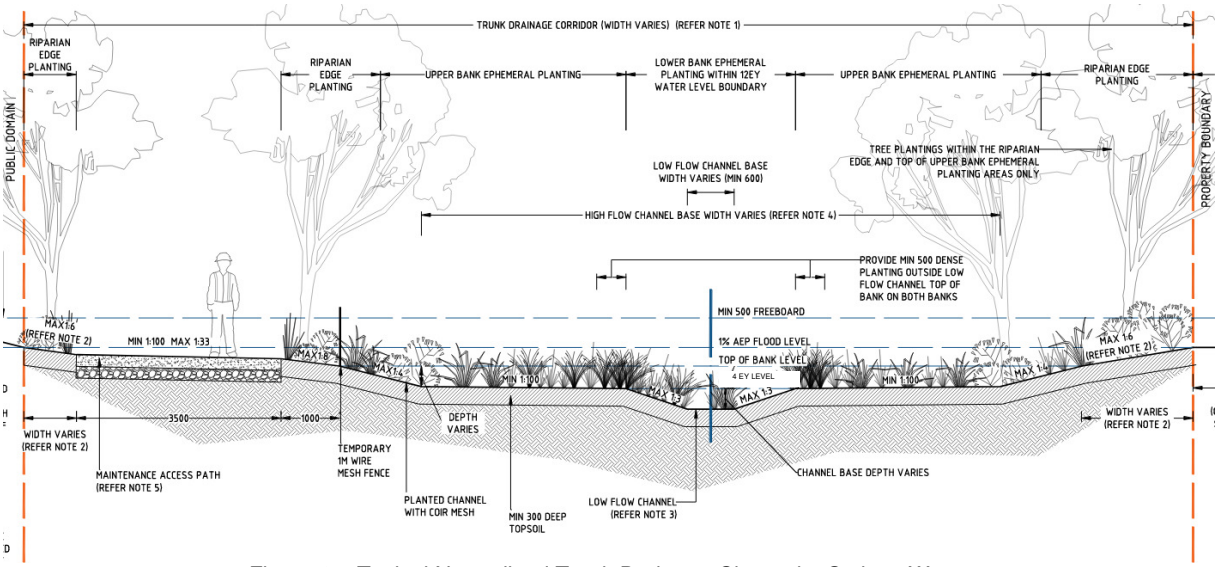


Figure 16: Typical Naturalised Trunk Drainage Channel – Sydney Water

The existing creek is classified as a stream order of 2 (Strahler 2) and it is understood the reconstructed new trunk drainage system will need to match the existing stream order despite the significantly reduced upstream catchment and undefined bank for much of the creeks length. A vegetated buffer or vegetated riparian zone (VRZ) of 20m is proposed on either side of the low flow top of bank location. Preliminary flow calculation estimates a low flow top of bank width of 5-7m. A total riparian Corridor with of 45-47m is proposed.

Two road crossings are proposed across the new trunk drainage system. Culvert drainage systems are proposed to be provided for the trunk drainage system at road crossing locations. Two pedestrian crossings are proposed. A high-level pedestrian crossing is proposed adjacent to the neighborhood centre to encourage pedestrian permeability through the central basin cluster and along the riparian corridor. The pedestrian crossing is achieved by culverts. An additional low-level crossing is provided adjacent to the northern roundabout and seeks to provide a more informal pedestrian connection from the north and east active transport links. Refer landscape drawing package for additional details.

Regional stormwater management basins catering for water quality and flow reduction are proposed to be provided in a 'offline configuration' adjacent to the central trunk drainage. Three offline basins are proposed along the central corridor. The major offline basins, Basins AB/ NG_CC12, D.1 NG_CC14, are proposed to receive stormwater from the low flow diversion stormwater system running parallel to the central corridor. All three basins AB/ NG_CC12, D.1/ NG_CC14 and D.2/ NG_CC13 are proposed to discharge to the trunk drainage system.

The configuration of the trunk drainage system is shown on the civil engineering drawings in Appendix A.

Generally, the trunk drainage system has been designed in accordance with Sydney Water Infrastructure scheme guidelines with the following key parameters are used:

- Min slope 0.5%, Max slope 2.0%.
- Minimum low flow channel Sinuosity of 1.05 x channel length.
- Low flow channel Creek meander radius of 3 x low flow channel top width.
- Low flow channel Meander wavelength of 10 x low flow channel top width.
- Low flow channel sized for 4EY flow. Although it should be noted, following agency advice, the low flow diversion line is sized for the 4EY flow.
- High flow channel sized for 1% AEP.
- Flood modelling undertaken to check rarer storm events 0.2% AEP and PMF.
- Shear stress modelling undertaken during detailed design.
- 20m vegetated riparian zone (VRZ) buffer.
- 3.5m wide maintenance/active transport path.

6.2 Proposed Stormwater System – Drainage General

The subdivision works and trunk drainage was designed to accommodate the concept masterplan layout by Nettleton Tribe with grading and drainage of each individual lot to be coordinated with the infrastructure works.

In terms of preparation of the infrastructure works package, each individual lot is proposed to be finished with a prepared, and benched pad. Each lot will be graded to intermediate catch drains which direct stormwater runoff in the interim to sediment and erosion control basins. The sediment and erosion control basins will be located at the downstream end of each individual lot. Each basin is proposed to be maintained, flocculated and dewatered in accordance with the publication "Landcom – Managing Urban Stormwater - Soils and Construction, Volume 1, 4th Edition March 2004" and Penrith City Council requirements.

Stub drainage lines will be provided to the individual lots based on predicted internal grading and stormwater layout of the lot based on the masterplan layout, with each lot having between 1-2 stub drainage lines. In the future, each individual lot will connect the local drainage system to the developments drainage system which will drain to their respective stormwater basins system.

DRAINS modelling software has also been utilised to design the estate wide drainage system for the proposed developments. DRAINS is a widely recognised computer program used for designing and analysing urban stormwater drainage systems and catchments. The stormwater features and structures modelled in DRAINS includes pits and pipe road drainage system, naturalised channel system, overland flow paths, regional combined stormwater basins and 'on-line' detention basins. DRAINS modelling is accepted by most municipalises in Sydney and across New South Wales (NSW) and has been endorsed by Penrith City Council as the preferred software for stormwater analysis. The main application of DRAINS modelling software was to undertake a Hydraulic Grade Line (HGL) analysis on the drainage system to ensure the pit and pipe drainage system and central drainage channel is adequately sized and will convey stormwater in a manner that is safe.

The central naturlised trunk drainage channel, stormwater management basin systems and stormwater quality improvement measures are designed in accordance with Sydney Water requirements. Details of strategies, parameters and constraints regarding these features are presented in Chapter 6.6.

Refer below for the key drainage strategies and, hydrological and hydraulic design parameters adopted in DRAINS for the major and minor system drainage design of the proposed development. It should be noted that in the absence of detailed modelling guidelines in the Aerotropolis DCP, Penrith City Design Guidelines For Engineering Works For Subdivisions And Developments have been utilised as a basis for the pit and pipe drainage design. Where relating to the IFD Data and modelling parameters for the central riparian corridor parameters from the Stormwater Scheme Infrastructure Design Guidelines DRAFT Version 2024-1.0 (SWC2,2024) have been adopted.

Key drainage strategies and, hydrological and hydraulic design parameters listed below.

- Rainfall intensities are based on the Bureau of Meteorology Design Rainfall Data System.
- Minor system (pit and pipe) drainage is designed to accommodate the 5% Annual Exceedance Probability (AEP) storm event. i.e. Pipe drainage within the internal road reserve has been designed to cater, at a minimum, for the 20-year ARI storm event as per Penrith City Council's requirements. The road carriageway has been designed such that overland flows during the 100-year ARI storm event are wholly contained within the road's kerb and gutter system and safely conveyed to the point of discharge.

- Combined pit and pipe drainage and overland flow paths are designed to accommodate the 1% AEP storm event.
- Time of concentration (Tc) values for pre-development for the smaller catchment are based on flow lengths, flow slopes and retardance coefficients. Tc values of post development site for minor catchment areas alongside the proposed road works were a standard 5 minutes for impervious areas and 10 minutes for pervious areas. However, Tc values for increasingly larger areas such as pad sites were more detailed and were based off factors including flow lengths, flow slopes and retardance coefficients.
- The width of flow in the gutter does not exceed 2.0 meters, and pits are spaced no more than 70 meters apart.
- The velocity x depth product for overland flow paths does not exceed 0.4 m^2/s for all storms up to and including the 1% AEP event.
- Blockage factors of 20% and 50% are adopted for on-grade and sag pits, respectively.
- Minimum pipe slopes are set to achieve minimum velocities of 1.0 m/s to ensure the pipes are self-cleansing under part full flow conditions.
- The minimum cover over pipes and drainage culverts is 500 mm in grassed areas and 600 mm within carriageways. Where minimum cover cannot be achieved due to physical constraints, the pipe class is suitably increased, or culverts were specified.
- All pipes in trafficable areas and public spaces are Class 4 Reinforced Concrete Pipes (RCP).

6.3 Proposed Stormwater Detention

The stormwater detention strategy is to detain the post development flow back to the un-developed flow for storm events up to 1% AEP according to Penrith City Council Stormwater Drainage Policy. As previously noted, the site is divided into six sub-catchments denoted in terms of its downstream-most regional basin. Each sub-catchment has its own detention strategy which is designed to be consistent with the 'initial precinct' stormwater strategy.

For catchments C/ NG_CC15, D.2/ NG_CC13, E/NG_CC11, F/ NG_CC10 and low reaches of catchment D.1/ NG_CC14, a on-lot detention system is proposed.

All lots within catchments AB/ NG_CC12 and upper reaches of D.1/ NG_CC14 will be detained by communal OSD system. OSD strategy has been amended to incorporate the overall changes proposed by Sydney Water agency comments during the EIS period. Concept communal on-site detention basins have been placed at several strategic locations throughout the site consistent with the principles of the precinct plan and Sydney Waters Initial Precinct Plan. Basins have been sized through an iterative design and modelling process to ensure that discharges from the site do not exceed the pre-development scenario results and to ensure that no adverse flooding impacts are placed on downstream or neighboring properties.

A total of 3 online detention basins are proposed along the green/blue corridor at all road and pedestrian crossings. The basin design has been undertaken utilising the guidance set out in the Western Sydney Aerotropolis DCP (2022) and the Guidelines for Controlled Activities on Waterfront Land (DPE3, 2022). The detention storage has been achieved with a naturalised approach incorporating passive storage created by letting water back up in the creek corridors, utilising the proposed road embankments and culverts for attenuation.

The online OSD Basin (OSD 2) has been retained as per the EIS design which is understood to be approved in principle. Further modification to the central basin network has been undertaken such that a OSD basin (OSD 1) has been formed 'on-line' upstream of the basin networks for catchments D.1 and AB. It should be noted that hydraulic investigations have been undertaken to ensure the OSD does not affect the hydraulics of the adjacent treatment basins. An additional OSD storage area (OSD3) is located between Lots 2.3 and 2.5. OSD detention storage over water quality/flow target facilities has been removed in response to agency advice and has not been included/quantified in the detention modelling. Supporting DRAINS model will be included as part of the RTS submission.

Given the proposed trunk drainage system will be formalised into a 2nd order riparian corridor the practice of providing online detention basins is permitted. Furthermore, the concept of providing 'on-line' detention facilities on the trunk drainage system is preferred and identified in Template 5 of Appendix B in Western Sydney Aerotropolis Initial Precincts from Sydney Water. Figure 17 illustrates such an OSD concept which is adopted by the subject site.

Figure 17: Sydney Water Riparian Corridor/ On-site Detention Concept.

Based on the above-mentioned strategy a detention volume of 29,796m3 is required to detain post developed flows to within predeveloped flows for all storms up until the 1% AEP storm event draining through the central naturalised trunk drainage channel. With a contributing catchment of approximately 68.36ha the resulting detention rate provided for catchment ABD is approximately 408m3/ha which is consistent with benchmark on-lot OSD rates for the region.

As noted above, on-lot detention is proposed for catchments C/ NG_CC15, D.1/ NG_CC14, D.2/ NG_CC12, E/ NG_CC11 and F/ NG_CC11. To assist in the design of future development lots within these catchments, and to ensure the future development conforms with the proposed detention strategy and overall detention requirements for the subdivision, a detention study was undertaken to provide a Permissible Site Discharge for each Lot provided in each storm event 20%, 5% and 1% AEP. The detention study was undertaken using DRAINS modelling software and is detailed below.

DRAINS Parameters

DRAINS modelling has been undertaken to assess the OSD strategy mentioned above. Rainfall data of the site was taken from the Australian Rainfall & Runoff (ARR) 2016 Data Hub. In coordination with the regional flood model, critical storm durations were extended up to 9hrs and assessed both the major and minor storm events.

IFDs we reviewed in conjunction with the IFDs provided by in Stormwater Scheme Infrastructure Design Guidelines DRAFT Version 2024-1.0 (SW2, 2024) with the (ARR) 2016 data hub run found to be conservative. In accordance with the aformetioned guidelines calibration and inclusion of pre-burst have been allowed for.

An ISLAX hydrological model was adopted for all modelling scenarios. The parameters for the ISLAX model were as follows:

- Paved area depression storage – 1mm
- Supplementary area depression storage – 1mm

- Grassed area depression storage – 5mm
- Soil Type - 3
- Antecedent Moisture Condition – 3

Catchment for pre-development site is divided into smaller catchments. Time of concentration (Tc) values for pre-development for the smaller catchment are based on flow lengths, flow slopes and retardance coefficients. (Tc) values of post development site for minor catchment areas alongside the proposed road works were a standard 5 minutes for impervious areas and 10 minutes for pervious areas. However, Tc values for increasingly larger areas such as pad sites were more detailed and were based off factors including flow lengths, flow slopes and retardance coefficients.

For the purpose of OSD calculations the predeveloped catchments is documented on engineering drawing C290 and below in Figure 18. Predeveloped OSD catchments have been amended to match the current understanding of stormwater management on Elizabeth Drive and the M12 as well as future stormwater management on the Sydney University lands to the east, and a to provide a direct comparison for post developed flows. Refer Appendix A drawing C290 for additional information.

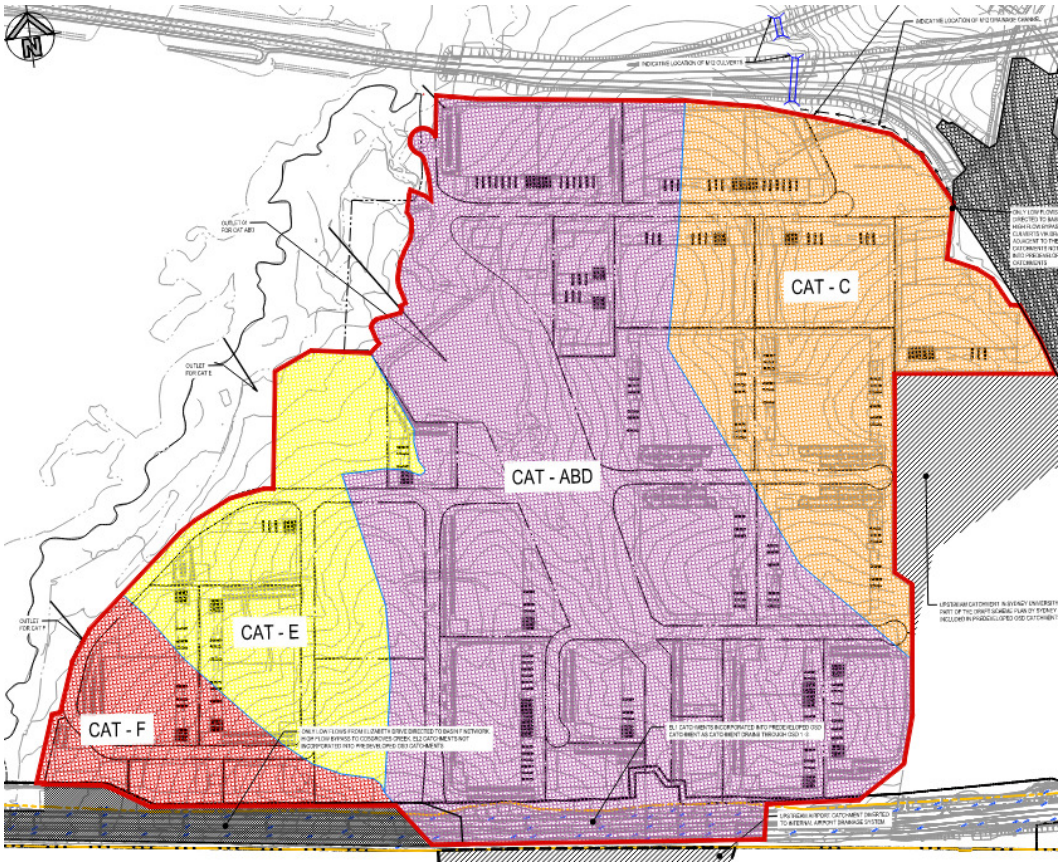


Figure 18: Predeveloped Catchments for OSD calculations

	Predeveloped Flow Rate 20% AEP Storm Event (m^3/s)	Predeveloped Flow Rate 5% AEP Storm Event (m^3/s)	Predeveloped Flow Rate 1% AEP Storm Event (m^3/s)
CAT C/NG_CC15	2.01	4.28	7.04
CAT E/NG_CC11	1.02	2.19	3.81
CAT F/NG_CC10	0.601	1.30	2.15
CAT ABD/NG_CC12,13,14	3.76	8.63	14.6

Table 9: Predevelopment flow rates

Table 10 below summarizes the permissible site discharge for each lot with on-lot detention strategy. The ratio of permissible site discharge to individual lot size can differ due to several factors. In accordance with regional flood modeling (refer ARCADIS flood study for additional details), the detention study was undertaken on a sub-catchment level, whereby each sub catchment individual meets the pre-development flow rates. It should also be noted the post-development catchment sizes are subject to fluctuation based on the catchment redistributing (detailed in section 6) as such some sub-catchments have decreased in size which impact the relationship between detention and pre/post developed flows. Additionally, the road, landscaping and basin area outside of the lots bypass the on-lot detention basin. Such bypass needs to be incorporated into the overall post developed flows for the catchment and thus compensated by the on-lot detention. Post-development catchment with larger area of detention bypass (typically a higher portion of road to lot size) will lead to an increase in the detention volume.

Delineation between lots and sub-catchment is presented on civil engineering drawing C252 and shown in Chapters 6.8.

Lot No.	Catchment	20% AEP (m3/s)	5% AEP (m3/s)	1% AEP (m3/s)
1.3	NG_CC10	0.061	0.147	0.302
1.4	NG_CC10	0.060	0.145	0.298
1.5	NG_CC10	0.060	0.145	0.297
1.8S	NG_CC10	0.124	0.284	0.571
1.6S	NG_CC10	0.106	0.243	0.489
1.1	NG_CC11	0.178	0.464	0.941
1.6N	NG_CC11	0.082	0.215	0.438
1.7	NG_CC11	0.135	0.351	0.675
1.8N	NG_CC11	0.068	0.177	0.36
3.1	NG_CC11	0.226	0.588	1.13
5.1	NG_CC13	0.120	0.321	0.47
5.2	NG_CC13	0.159	0.422	0.622
5.3W	NG_CC13	0.157	0.417	0.615
6.2W	NG_CC13	0.131	0.347	0.511
6.1	NG_CC13	0.313	0.838	1.28
5.3E	NG_CC15	0.176	0.436	0.635
5.4	NG_CC15	0.44	1.05	1.5
5.5	NG_CC15	0.36	0.917	1.38
6.2E	NG_CC15	0.38	0.904	1.315
3.2	NG_CC14	0.121	0.309	0.458
3.3	NG_CC14	0.068	0.171	0.250

Table 10: PSD for lots with on-lot stormwater detention

Combining the PSDs for lots with on-lot stormwater detention with the post developed flow rates for the central naturalised trunk drainage channel yields the post developed flow rates shown in table 11 below.

	Post developed Flow Rate 20% AEP Storm Event (m3/s)	Post Flow Rate 5% AEP Storm Event (m3/s)	Post Flow Rate 1% AEP Storm Event (m3/s)
CAT C/NG_CC15	1.85	3.71	5.66
CAT E/NG_CC11	0.96	2.08	3.66
CAT F/NG_CC10	0.599	1.21	2.13
CAT ABD/NG_CC12,13,14	3.73	7.25	14.6

Table 11: Post development flow rates (subject to detailed design).

It is noted from Table 11 that post developed flows in greater storm events (5% AEP and 1% AEP) are significantly less than pre developed conditions, this is due to the indicative detention component applied to each lot been single stage for the 20% AEP. During detailed design it is expected PSD for lots for greater storm events (5% AEP and 1% AEP) will be further refined to included a stage detention function subject to review of pre developed flow rates and in-ground stormwater system capacity.

Refer Table 12 below for a pre-development and post-development catchment area comparison. For locality of the catchment, please refer to drawing C290 and C251 respectively. The variation of pre and post catchment area is discussed further in section 2.1 and summarised below.

	Predevelopment Catchment Area (ha) (OSD STUDY)	Post development Catchment Area (ha) (OSD STUDY)	Difference
ABD	83.8	99.14	+18%
C	33.53	16.7	-50%
E	20.28	18.31	-10%
F	10.84	10.79	+0%
TOTAL	148.45	144.94	-0.02%

Table 12: Pre-Development and Post-Development Catchment Area Comparison

Table 12 indicates that catchment C has a -50% reduction from pre-development area to post development area. It should be noted that the post development catchment areas are directly coordinated with the Integrated Stormwater Scheme model provide by Sydney Water on 29/10/2025 (Chapter 6.4). The differences are likely due to the area external to the site boundary is to be redirected as part of the Western Sydney Airport, road upgrades of Elizabeth Drive and specifically the proposed draft integrated scheme plans by Sydney Water. Changes to the regional catchments resulting from surrounding significant infrastructure projects (such as M12) likely aim to consolidated and redirect catchments to naturalised trunk drainage systems rather than in-ground infrastructure such as the M12 culvert infrastructure. As such, the catchments were redistributed more than 10% in some instances, especially when existing basin allocations made it difficult to locate sufficient WSUD infrastructure (Catchment ABD/NG_CC12,13,14 and C/NG_CC15).

6.4 Adoption of Integrated Stormwater Scheme model

As part of ongoing consultation between Sydney Water between October 2025 and December 2025, the Burrah Park development proposal has been amended to adopt, and coordinate to, the Integrated Stormwater Scheme Model.

Late October 2025, the Burrah Park development team was provided with the Integrated Stormwater Scheme water quality and flow target model (MUSIC model) (reference Burrah Issue - Cluster 3 2025 10 03) and 3d linework (reference Burra-Pk-Basins_Civille_2025-10-16(1) containing The Scheme regional basin designs (location, size, geometry and levels) by Sydney Water.

Regular consultation between Sydney Water, Sydney Water's External Technical Consultant (Civille) and the Burrah Park consultant team was undertaken to facilitate the coordination process. Generally, the Burrah Park development proposal was to be amended to adopt the basin location and sizes proposed under the Integrated Stormwater Scheme. Minor amendments were proposed to the location of the Regional Basins to improve efficiency, to better integrate with the Burrah Park proposal and respond to the unique constraints of the subject site. Basins CC13 and CC12 were shifted in a northerly direction for several reasons; Better integration with the realigned channel and northern intersection, improve drainage distance to drain from Lot 6.1 to Basin CC13, improve the level difference between NG_CC13 pond and the adjacent naturalised trunk drainage channel level. Additionally, Basin E/NG_CC11 was lowered to permit drainage from Lot 3.1 which is specified in the stormwater scheme catchment plans provided by Sydney Water and better suit the existing topography.

The amendments undertaken to the precinct model (Burrah Issue - Cluster 3 2025 10 03) to coordinate the precinct model to the Burrah Park development are listed below:

1. Internal road source node areas amended to be consistent with the Burrah Park layout.
2. Ent/ lot source node areas amended to be consistent with the Burrah Park layout.
3. Public open space source node amended to be consistent with the Burrah Park layout.
4. Street trees treatment nodes amended to match the m^2/ha of road area rate in The Scheme model. It should be noted that due to the different distribution in Ent/Lot to Road area with the development that a general reduction of street trees is realised. Refer Table 13 below.

Catchment	Scheme Model Street Tree Area (m2)	Burrah Park Street Tree Area (m2)
CC12	2232.62	865.167
CC15	952.33	166.266
CC14	1455.38	752.425
CC13	864.33	583.257
CC11	12244.91	514.128
CC10	728.71	323.097

Table 13: Comparison of street tree areas between Scheme Model and Burrah Park Model.

5. To offset the reduction of Street Trees (item 4 above) the bioretention surface area within the regional basins was increased in to achieve water quality targets at water quality assessment nodes, see below. Bioretention was increased based on basin performance at each basin junction node. i.e. best performing catchments remained as per integrated stormwater scheme model. Lower performing basins (in terms of water quality) were upsized to minimise diminishing returns of bioretention treatment performance. Refer Table 14 below.

Catchment	Regional basin bioretention areas - Precinct Cluster Model (Music)	Regional basin bioretention areas - Precinct Cluster 3d Linework.	Regional basin bioretention areas - Burrah Park revised model (adopted)
CC12	1482.39	1485	2200
CC15	1500	1456	1456
CC14	954	980	1200
CC13	625.17	628	779
CC11	753.38	738	1100
CC10	495.67	536	536

Table 14: Comparison of regional basin bioretention areas between Scheme Model and Burrah Park Model.

6. Final POS source node (shown below). Divided into two (central riparian corridor and associated catchments) and (undisturbed internal POS outside of works area and external POS) to correspond with respective assessment locations. Overall area of two source node catchment (representing original single) adjusted to reflect Burrah park layout and remain consistent with original study area (noting items 15-16 below).
7. Minor amendments to treatment parameters to match the 3d linework provided which (was understood to be further coordinated and take precedence), list of key items below:
    - Pond 11- Surface area: 3d Linework (4118m2) – MUSIC (3716m2).
    - Pond 10 - Surface area: 3d linework (3173m2) – MUSIC (7370m2).
    - Wetland 15 - Surface area: 3d linework (2321m2) – MUSIC (793.1m2).
8. Direct rainfall for basin clusters amended previous items and to match corresponding source node.
9. GPT high flow bypass amended for amened lot area.
10. Basin surround POS amended to be 10% impervious.
11. Introduction of water quality treatment node and flow target assessment node as per Figure 3.2 of Aerotropolis Initial Precincts Integrated Stormwater Schemes Design Report.

Key to the coordination process and formation of a benchmark model for the development is the retention of several key parameters, listed below:

12. Upstream external catchments within the Scheme Model maintained (M12, Elizabeth Drive, RES1 (adjacent to M12))
13. Study area (entire precinct cluster music model total area) maintained consistent. (noting items 15-16 below).
14. Reuse (annual and daily) demand retained for all ponds – as this is understood to be precinct based and kept consistent with the scheme model.

Following further coordination between SWC, H&H and Civille mid December 2025. External catchments pertaining to Elizabeth Drive were amended to be consistent with precinct catchment mapping produced by Civille. The following catchments (refer Chapter 6.8) were amended:

15. EL1= 2.441ha (previous baseline model area of 1.174ha)
16. EL2= 6.037ha (previous baseline model area of 2.754ha)
17. EL3= 1.156ha (previous baseline model area of 0.526ha)

The study area was amended to increase for the additional external catchment areas detailed above but be consistent with Scheme model for other external catchments (Cosgroves and M12).

6.5 Water Quality Modelling – Ultimate Stage

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, the aforementioned stormwater management strategies 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 (DPE2,2022).

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The performance of the stormwater management strategies in mitigating pollution from urban development can be assessed by simulating a post developed pollutant reduction rate for the stormwater system. In accordance with Aerotropolois DCP the development must achieve a minimum percentage reduction of the post developed average annual loads of pollutants in accordance with Table 15 below:

Parameter	**Stormwater Quality Target – Operational Phase**
Option 1: Annual Load Reduction	
Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	90%
Total Suspended Solids (TSS)	90%
Total Phosphorus (TP)	80%
Total Nitrogen (TN)	65%
Option 2: Allowable Loads	
Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	< 16 kg/ha/y
Total Suspended Solids (TSS)	< 80 kg/ha/y
Text Total Phosphorus (TP)	< 0.3 kg/ha/y

Table 15 Post development pollutant reduction targets – Operation phase

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 15, 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 the 'MUSIC MODELLING TOOLKIT – WIANAMATTA' part of available the following website.

https://datasets.seed.nsw.gov.au/dataset/music-modelling-toolkit-wianamatta

The amended benchmark integrated stormwater scheme model provide by Sydney Water (detailed in Chapter 6.4) was used for assessment of stormwater quality targets in the ultimate scenario. A schematic of the entire MUSIC model can be viewed below in Figure 20. The schematic illustrates the interrelationship between source nodes (catchments) and treatment nodes (water quality treatment measures) for the entire catchment. A sample of the configuration of a single sub-catchment is shown below in Figure 19.

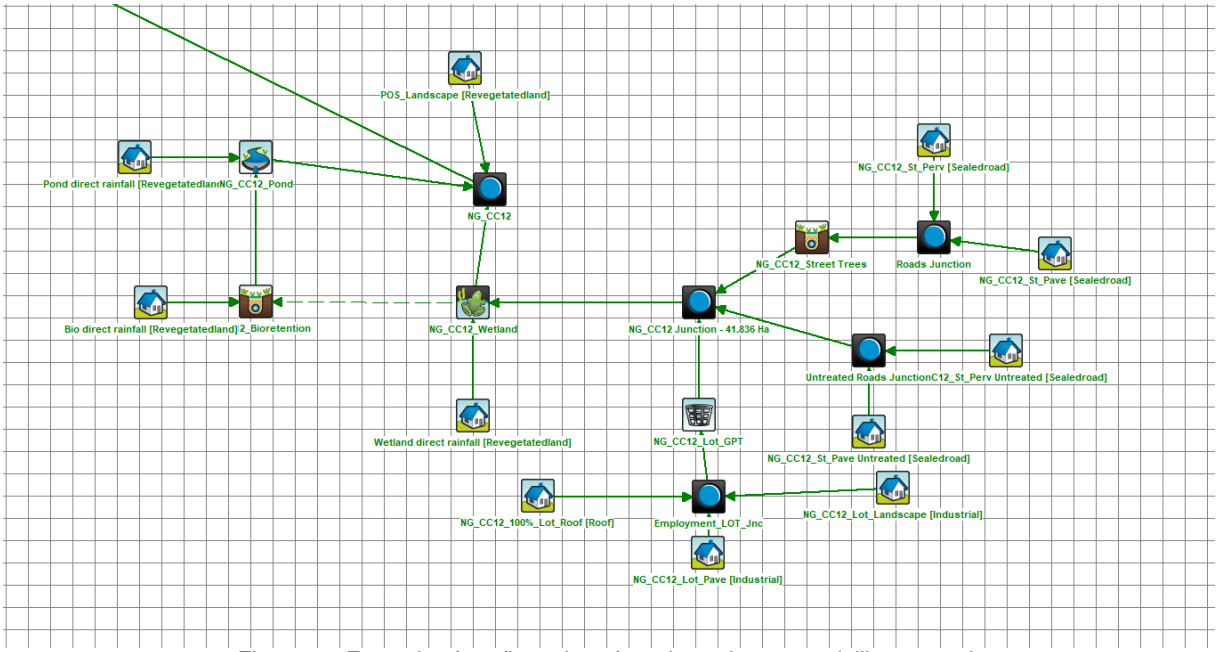


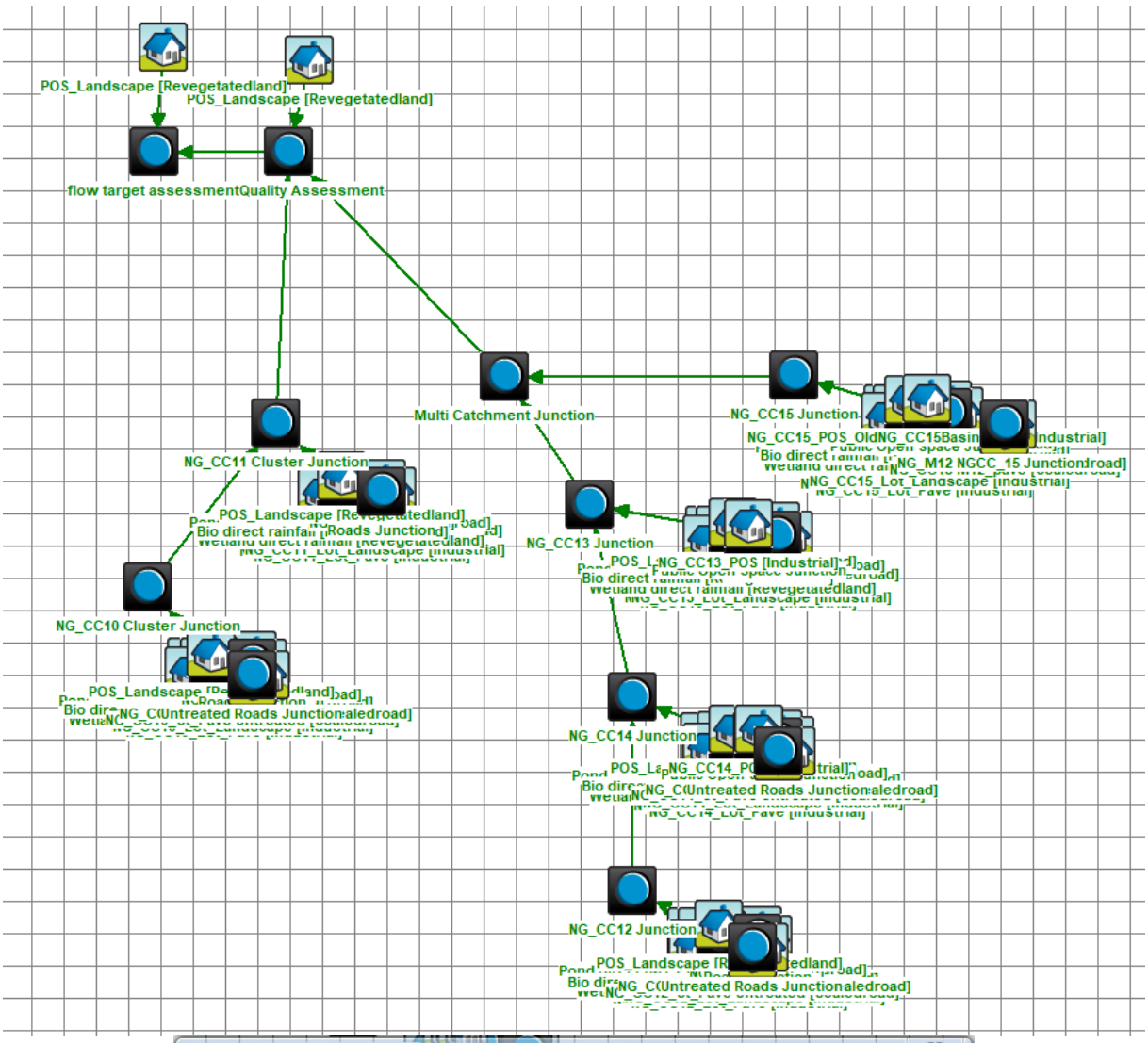
Figure 19: Example of configuration of a sub catchment modelling network

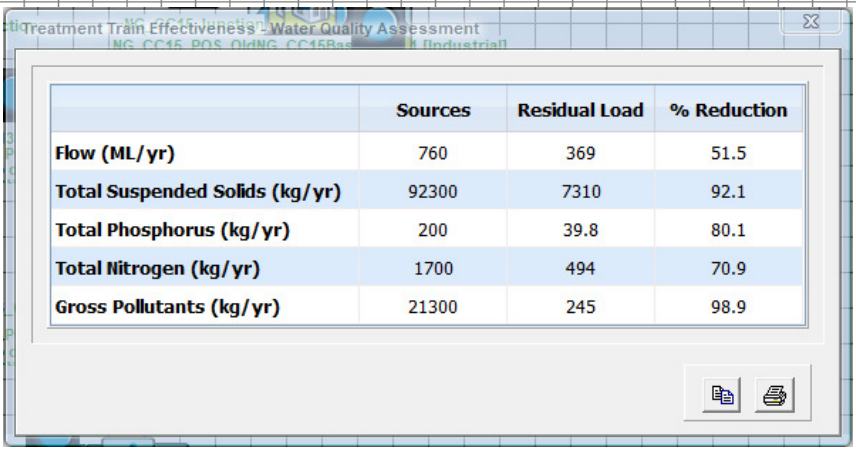
Refer to Chapter 6.8 for description of WSUD elements and key modelling parameters.

Refer Chapter 6.9 for lot WSUD information.

Refer Chapter 6.10 for basin sizing specifics.

Refer Civil engineering drawings in Appendix A for concept design of the stormwater management system.





	Sources	Residual Load	% Reduction
Flow (ML/yr)	760	369	51.5
Total Suspended Solids (kg/yr)	92300	7310	92.1
Total Phosphorus (kg/yr)	200	39.8	80.1
Total Nitrogen (kg/yr)	1700	494	70.9
Gross Pollutants (kg/yr)	21300	245	98.9

Figure 20: MUSIC model Configuration and results

The resultant reduction in post developed pollutants calculated by the simulation is presented in Table 14 below. With the implementation of the following WSUD strategies, the resultant post developed pollutant loads have been reduced below the reduction target for all targeted pollutants. Detailed drawings and specifications of the proposed WSUD strategies can be found on the civil engineering drawings included in Appendix A.

Parameter	**Stormwater Quality Target – Operational Phase**	**Stormwater Quality resultant – Operational Phase**
Option 1: Annual Load Reduction		
Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	90%	98.9%
Total Suspended Solids (TSS)	90%	92.1%
Total Phosphorus (TP)	80%	80.1%
Total Nitrogen (TN)	65%	70.9%
Option 2: Allowable Loads		
Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	< 16 kg/ha/y	N/A. Refer Option 1
Total Suspended Solids (TSS)	< 80 kg/ha/y	N/A. Refer Option 1
Text Total Phosphorus (TP)	< 0.3 kg/ha/y	N/A. Refer Option 1

Table 14: Post development pollutant reduction results – Operation – Ultimate Scenario

6.6 Stormwater Flow and Volume Targets – Ultimate Stage

In accordance with the Aerotropolis Precinct Plan and (DPE2, 2022) stormwater flow and volume modelling has been undertaken to ensure development within the Aerotropolis is to ensure protection, restoration and maintenance of waterways, riparian corridors, water bodies and water dependent ecosystems. Stormwater management measures have been designed to achieve the following stormwater flow targets, refer Table 15.

Parameter	**Stormwater Flow Target – Operational Phase**
Option 1: Mean Annual Runoff	
Mean Annual Runoff Volume (MARV)	≤ 2 ML/ha/year at the point of discharge to the local waterway
90%ile flow	1,000 to 5,000 L/ha/day at the point of discharge to the local waterway
50%ile flow	5 to 100 L/ha/day at the point of discharge to the local waterway
10%ile flow	0 L/ha/day at the point of discharge to the local waterway
Option 2: Flow Duration Curve	
95%ile flow	3,000 to 15,000 L/ha/day at the point of discharge to the local waterway
90%ile flow	1,000 to 5,000 L/ha/day at the point of discharge to the local waterway
75%ile flow	100 to 1,000 L/ha/day at the point of discharge to the local waterway
50%ile flow	5 to 100 L/ha/day at the point of discharge to the local waterway
Cease to flow	Cease to flow to be between 10% to 30% of the time

Table 15: Operational flow and volume targets (DPE2, 2022)

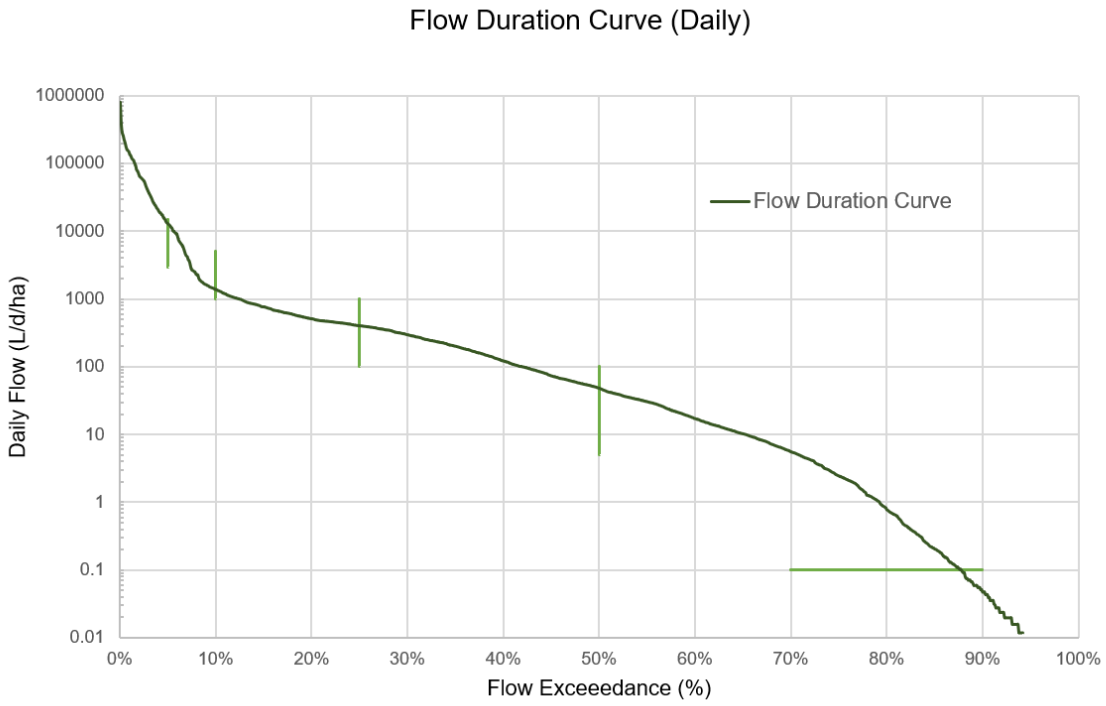
To assess the flow and volume targets the aforementioned Model for Urban Stormwater Improvement Conceptualisation (MUSIC) was utilised. Similarly with Water Quality, The amended benchmark integrates stormwater scheme model provide by Sydney Water (detailed in Chapter 6.4) was used for assessment of stormwater flow targets in the ultimate scenario. Results for the flow and volume modelling is presented below.

It is evident from review of Table 16 below, that the stormwater system documented on the enclosed engineering drawings is achieving compliance with the stormwater flow targets as well as the target 'Mean Annual Runoff Volume (MARV)" being reached.

Parameter	**Stormwater Flow Target – Operational Phase**	**Stormwater Flow achieved – Operational Phase**
Option 1: Mean Annual Runoff		
Mean Annual Runoff Volume (MARV)	≤ 2 ML/ha/year at the point of discharge to the local waterway	1.75
90%ile flow	1,000 to 5,000 L/ha/day at the point of discharge to the local waterway	1,381 L/ha/day
50%ile flow	5 to 100 L/ha/day at the point of discharge to the local waterway	48 L/ha/ day
10%ile flow	0 L/ha/day at the point of discharge to the local waterway	0 L/ha/ day
Option 2: Flow Duration Curve Approach		
95%ile flow	3,000 to 15,000 L/ha/day at the point of discharge to the local waterway	Na. Refer Option 1
90%ile flow	1,000 to 5,000 L/ha/day at the point of discharge to the local waterway	Na. Refer Option 1
75%ile flow	100 to 1,000 L/ha/day at the point of discharge to the local waterway	Na. Refer Option 1
50%ile flow	5 to 100 L/ha/day at the point of discharge to the local waterway	Na. Refer Option 1
Cease to flow	Cease to flow to be between 10% to 30% of the time	Na. Refer Option 1

Table 16: Operational flow and volume targets (DPE2, 2022) – Ultimate Scenario

An excerpt of the spreadsheet demonstrating compliance with Stormwater Flow Target – Operational Phase and the Flow Duration Curve (Daily) is shown below in Figure 21. The spreadsheet is included in Appendix D of this report.



Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	1.75	Yes	≤ 2
90%ile	1,381	Yes	1000 to 5000 L/ha/day
50%ile	48	Yes	5 to 100 L/ha/day
10%ile	0*	No*(Yes)	0 L/ha/day

*Rounding error with spreadsheet – value = 0.047253

Figure 21: Flow Duration Curve (Daily) and Table showing flow targets obtained

6.7 Interim Stages – Staging, Water Quality Targets and Flow targets

As noted in Chapter 3.2 the development is proposed to be delivered in six stages. As off-site efficiencies are only realised once the infrastructure within the development is connected to the Integrated Stormwater Scheme (Scheme) an in-depth review of stages prior to connection to the Scheme is required to ensure that Water Quality and Flow Targets can still be achieved in the interim scenario.

The amended benchmark integrated stormwater scheme model provided by Sydney Water (detailed in Chapter 6.4) is used for assessment of stormwater quality and flow targets in the interim scenario. Further amendments are made to the benchmark scheme MUSIC model to make the model suitable for use as an interim stage model:

- Removal of external catchments not part of the Burrah Park development proposal – as agreed with Sydney Water.
- Amend reuse demand (internal and external) to be specific for each stage and for the Burrah Park development proposal alone – refer to individual stages below for available and required demand.
- Amend source node and treatment node data and configuration to accurately represent development at a given stage – refer individual stages below for description of developed and undeveloped lot areas.

The relevant information for each stage is shown below.

Refer engineering drawings 240518_DA_C171-176 for detailed information on infrastructure staging.

Summary of Interim Staging:

- Stage 1
  - No Internal recycled water proposed.
  - No watering of private on-lot landscaping.
  - No irrigation of undeveloped lots required.
  - Model amended to coordinate with DHL proposal (Lots 4.1,4.2,4.3 and 4.4)
  - Temporary GPT modelled proposed for Estate Road 1 bypass (R.D.1.S1).
  - **Development proposal achieved flow and water quality targets.**
- Stage 2
  - No Internal recycled water proposed.
  - No watering of private on-lot landscaping
  - No irrigation of undeveloped lots required.
  - For Stage 2 alone, model has been amended to model (Development Stage 1 – Lots 1.1,1.2 and 3.1) and her respective GPTs individually (at CPHR request).
  - **Development proposal achieved flow and water quality targets.**
- Stage 3
  - No Internal recycled water proposed.
  - No watering of private on-lot landscaping
  - Irrigation of 12.04ha of undeveloped lots required at 100% application rate.
  - **Development proposal achieved flow and water quality targets.**
- Stage 4
  - No Internal recycled water proposed.
  - No watering of private on-lot landscaping
  - Irrigation of 12.86ha of undeveloped lots required at 100% application rate.
  - **Development proposal achieved flow and water quality targets.**
- Stage 5
  - No Internal recycled water proposed.
  - Watering of private on-lot landscaping proposed.
  - Irrigation of 17.79ha of undeveloped lots required at 100% application rate.
  - Lot 2.6 of Stage 5 remains undeveloped as part and used for irrigation (included in area noted above).
  - **Development proposal achieved flow and water quality targets.**
- Stage 6
  - Stage 6 lots (3.2,3.3,5.1,6.1,6.2) and Stage 5 lot (2.6 only) remain in undeveloped state and utilised for irrigation at 100% application rate subject to future development of on-lot internal reuse.
  - Refer to specific Stage 6 summary (page 107) for further information.

Refer page over for detailed breakdown of each interim stage.

Stage 1

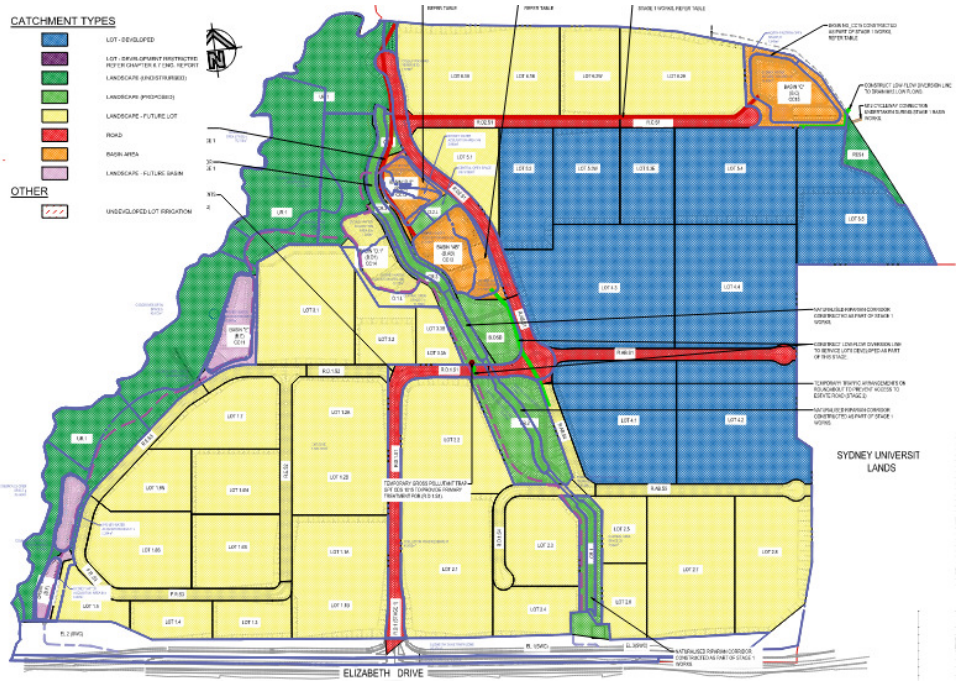


Figure 22: Excert of drawing C171 – Stage 1 Plan

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	42.05	ha
ON-LOT - PRIVATE	6.75	ha
POS - PUBLIC	28.01	ha
FUTURE LOTS (POTENTIAL)	83.15	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	134.6	kL/day
ON-LOT - PRIVATE	20240.4	kL/year
POS - PUBLIC	168048.9	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	498873.0	kL/year
IRRIGATION TOTAL (MAX)	687162.3	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	168048.90	kL/year
IRRIGATION OF FUTURE LOTS	0.00	kL/year
IRRIGATION TOTAL	168048.90	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	0.00	ha
MODE	WATER QUALITY DRIVEN	

Table 17: Key attributes of Stage 1

Key infrastructure to be delivered in Stage 1:

- Construction of Basin C/NG_CC15, Basin AB/NG_CC12 and Basin D.2/NG_CC13
- Construction of stormwater harvesting main from above basins to final pit adjacent to M12 underpass – approx 1174m. (subject to final coordination with Sydney Water).
- Supply of temporary containerized screen and UV filtration unit to meet open irrigation water quality standards for unrestricted access.
- Supply of temporary pump station to be sized on detailed irrigation design.
- Construction of low flow diversion lines from Estate Road 1 to Basin AB/NG_CC12 – Approx 420m.
- Active transport link with M12 cycleway.
- Temporary GPT for Estate Road Bypass (R.D.1.S1).

In respect to reuse demands, Flow Targets and Water Quality Targets can be achieved with the following measures, refer Figure 23 and Table 18 below:

- Irrigation of all Public POS at 100% Application Rate
- No future lot irrigation.
- No requirement for internal reuse demand.
- No requirement for private POS irrigation.
- Water quality target driven – as such, further reduction in irrigation areas could be achieved subject to the provision of interim water quality infrastructure to improve pollutant removal capability.

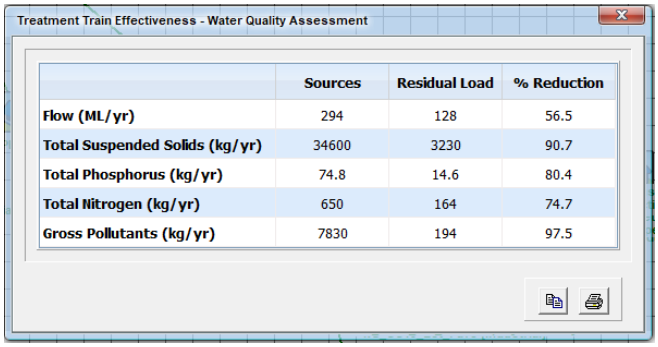


Figure 23: Water Quality Targets for Stage 1

Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	0.87	Yes	≤ 2
90%ile	2,033	Yes	1000 to 5000 L/ha/day
50%ile	68	Yes	5 to 100 L/ha/day
10%ile	0	Yes*	0 L/ha/day

*Rounding error with spreadsheet – value = 0.0179

Table 18: Flow Targets for Stage 1

Stage 2

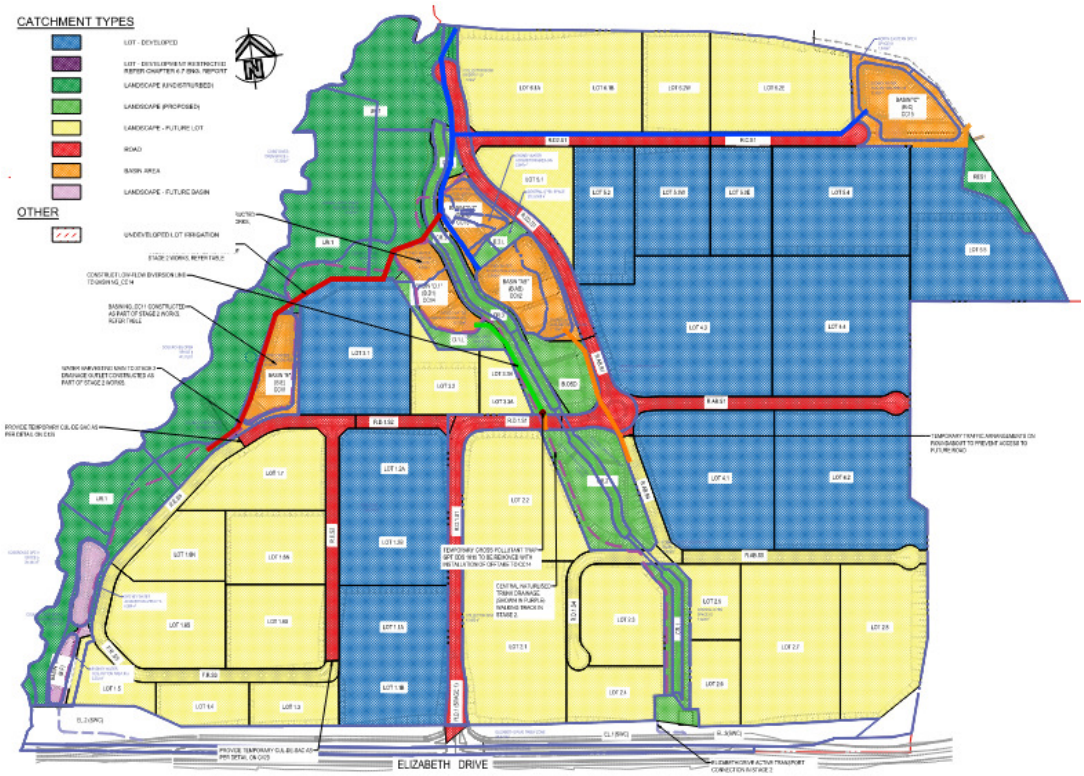


Figure 24: Excert of drawing C172– Stage 2 plan

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	56.67	ha
ON-LOT - PRIVATE	8.89	ha
POS - PUBLIC	29.03	ha
FUTURE LOTS (POTENTIAL)	63.41	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	181.3	kL/day
ON-LOT - PRIVATE	26675.1	kL/year
POS - PUBLIC	174197.3	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	380434.8	kL/year
IRRIGATION TOTAL (MAX)	581307.2	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	174197.34	kL/year
IRRIGATION OF FUTURE LOTS	0.00	kL/year
IRRIGATION TOTAL	174197.34	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	0.00	ha
MODE	WATER QUALITY DRIVEN	

Table 19: Key attributes of Stage 2

Key infrastructure to be delivered in Stage 2:

- Construction of Basin D.1/NG_CC14 and Basin E/NG_CC11
- Construction of stormwater harvesting main from NG_CC13 to NG_CC11 drainage outlet – approx 651m.
- Construction of low flow diversion lines from Estate Road 1 to Basin D.1/NG_CC14 – Approx 212m.
- Active transport link with Elizabeth Drive (central) and central naturalised trunk drainage walking track.
- Removal of temporary GPT following commissioning of CC14 offtake line.

In respect to reuse demands, Flow Targets and Water Quality Targets can be achieved with the following measures, refer Figure 25 and Table 20 below:

- Irrigation of all Public POS at 100% Application Rate
- No Irrigation of Future Lots.
- No requirement for internal reuse demand.
- No requirement for private POS irrigation.
- Water quality target driven – as such, further reduction in irrigation areas could be achieved subject to the provision of interim water quality infrastructure to improve pollutant removal capability.

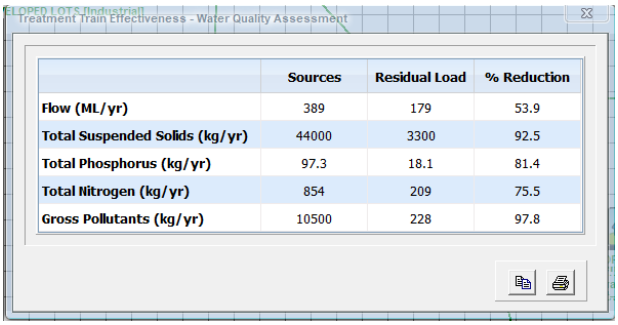


Figure 25: Water Quality Targets for Stage 2

Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	1.15	Yes	≤ 2
90%ile	1,794	Yes	1000 to 5000 L/ha/day
50%ile	41	Yes	5 to 100 L/ha/day
10%ile	0	Yes*	0 L/ha/day

*Rounding error with spreadsheet – value = 0.021

Table 20: Flow Targets for Stage 2

Stage 3

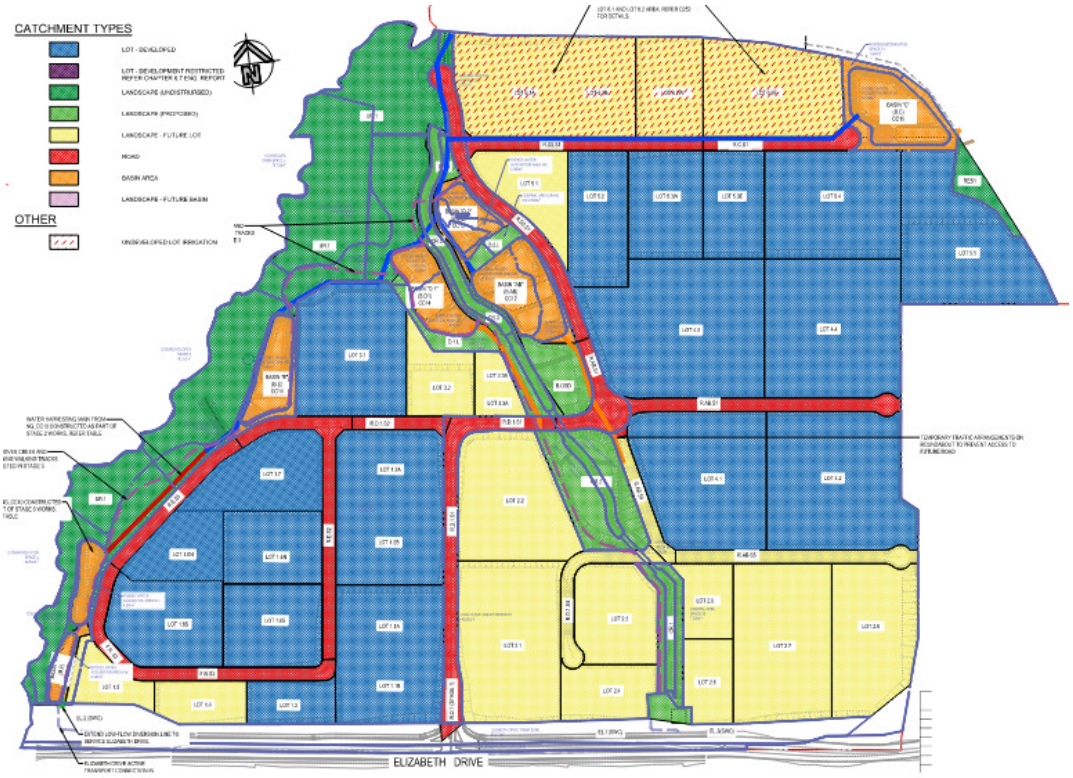


Figure 26: Excert of drawing C173 – Stage 3 plan

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	70.41	ha
ON-LOT - PRIVATE	10.95	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	46.51	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	225.3	kL/day
ON-LOT - PRIVATE	32860.9	kL/year
POS - PUBLIC	177017.8	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	279044.4	kL/year
IRRIGATION TOTAL (MAX)	488923.0	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	72219.60	kL/year
IRRIGATION TOTAL	249237.36	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	12.04	ha
MODE	WATER QUALITY DRIVEN	

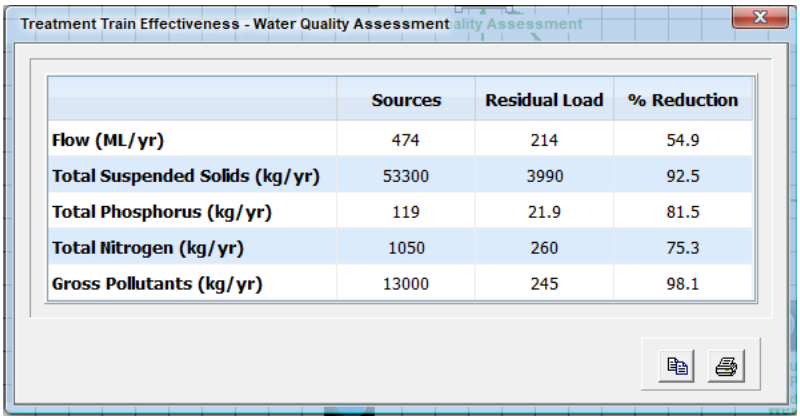
Table 21: Key attributes of Stage 3

Key infrastructure to be delivered in Stage 3:

- Construction of Basin F/NG_CC10
- Construction of stormwater harvesting main from NG_CC11 drainage outlet to Basin F/NG_CC10 – approx 250m
- Potential construction of low flow diversion lines Elizabeth Drive basins at Basin NG_CC10 – subject to TfNSW timing.
- Construction of Cosgrove Walking track and remaining walking tracks through general green corridor. Part of the open space along Cosgrove's Creek will be dedicated to Penrith City Council through a Voluntary Planning Agreement.

In respect to reuse demands, Flow Targets and Water Quality Targets can be achieved with the following measures, refer Figure 27 and Table 22 below:

- Irrigation of all Public POS at 100% Application Rate
- Irrigation of 12.04 ha of future lot area 100% application rate (Refer C173).
- No requirement for internal reuse demand.
- No requirement for private POS irrigation.
- Water quality target driven – as such, further reduction in irrigation areas could be achieved subject to the provision of interim water quality infrastructure to improve pollutant removal capability.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	474	214	54.9
Total Suspended Solids (kg/yr)	53300	3990	92.5
Total Phosphorus (kg/yr)	119	21.9	81.5
Total Nitrogen (kg/yr)	1050	260	75.3
Gross Pollutants (kg/yr)	13000	245	98.1

Figure 27: Water Quality Targets for Stage 3

Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	1.34	Yes	≤ 2
90%ile	2,188	Yes	1000 to 5000 L/ha/day
50%ile	32	Yes	5 to 100 L/ha/day
10%ile	0	No	0 L/ha/day

*Rounding error with spreadsheet – value = 0.021

Table 22: Flow Targets for Stage 3

Stage 4

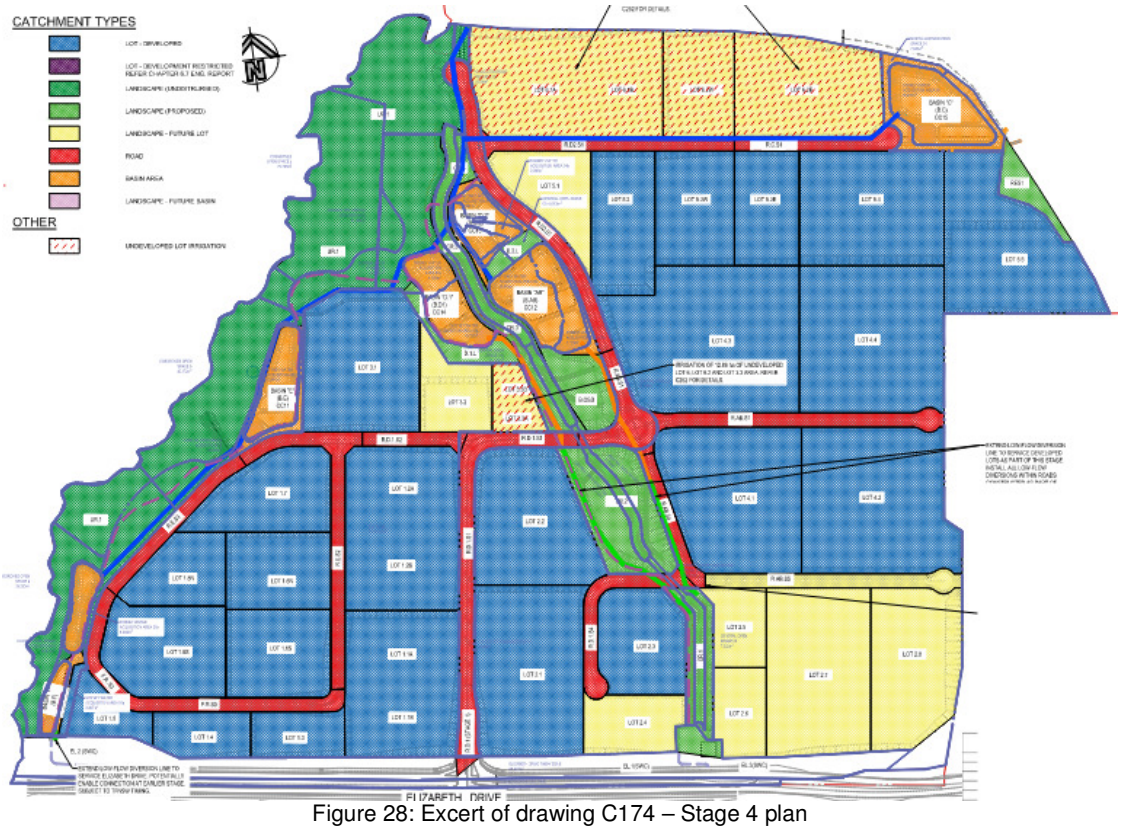


Figure 28: Excert of drawing C174 – Stage 4 plan

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	84.86	ha
ON-LOT - PRIVATE	13.12	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	30.58	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	271.5	kL/day
ON-LOT - PRIVATE	39361.2	kL/year
POS - PUBLIC	177017.8	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	183453.6	kL/year
IRRIGATION TOTAL (MAX)	399832.6	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	77172.00	kL/year
IRRIGATION TOTAL	254189.76	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	12.86	ha

Table 23: Key attributes of Stage 4

Key infrastructure to be delivered in Stage 4:

- Construction of low flow diversion lines from Estate Road 1 to Estate Road 2 – Approx 578m.

In respect to reuse demands, Flow Targets and Water Quality Targets can be achieved with the following measures, refer Figure 27 and Table 22 below:

- Irrigation of all Public POS at 100% Application Rate
- Irrigation of 12.86 ha of future lot area 100% application rate
- No requirement for internal reuse demand.
- Water quality target driven – as such, further reduction in irrigation areas could be achieved subject to the provision of interim water quality infrastructure to improve pollutant removal capability.

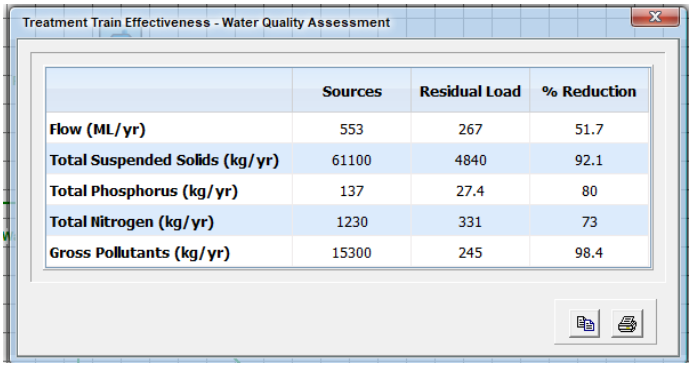


Figure 29: Water Quality Targets for Stage 4

Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	1.67	Yes	≤ 2
90%ile	1,946	Yes	1000 to 5000 L/ha/day
50%ile	33	Yes	5 to 100 L/ha/day
10%ile	0	No	0 L/ha/day

*Rounding error with spreadsheet – value = 0.021

Table 24: Flow Targets for Stage 4

Stage 5

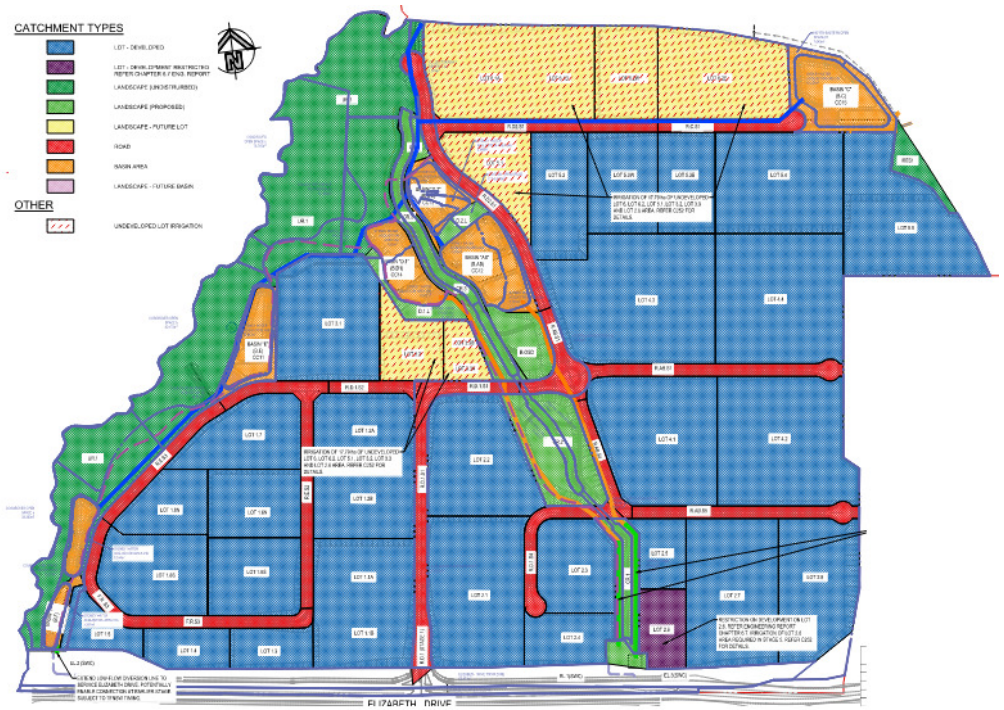


Figure 30: Excert of drawing C175 – Stage 5 plan

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	96.55	ha
ON-LOT - PRIVATE	14.87	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	17.79	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	309.0	kL/day
ON-LOT - PRIVATE	44624.1	kL/year
POS - PUBLIC	177017.8	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	106741.8	kL/year
IRRIGATION TOTAL (MAX)	328383.7	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	44624.13	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	106741.80	kL/year
IRRIGATION TOTAL	328383.69	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	17.79	ha
MODE	WATER QUALITY DRIVEN	

Table 25: Key attributes of Stage 5

Key infrastructure to be delivered in Stage 5:

- Construction of low flow diversion lines from Estate Road 2 to Elizabeth Drive and potential connection to Elizabeth Drive stormwater Basins (central naturalised trunk drainage channel) – Approx 463m.

In respect to reuse demands, Flow Targets and Water Quality Targets can be achieved with the following measures, refer Figure 31 and Table 26 below:

- No requirement for internal reuse demand currently proposed.
- Irrigation of all Public POS at 100% Application Rate
- Irrigation of all Private on-lot landscaping at 50% Application Rate (with the exception of Lot 2.6).
- Irrigation of 17.79 ha of future lot area 100% application rate
- Stage 5 Lot 2.6, remains undeveloped and utilised for irrigation at 100% Application rate.
- Water quality target driven.

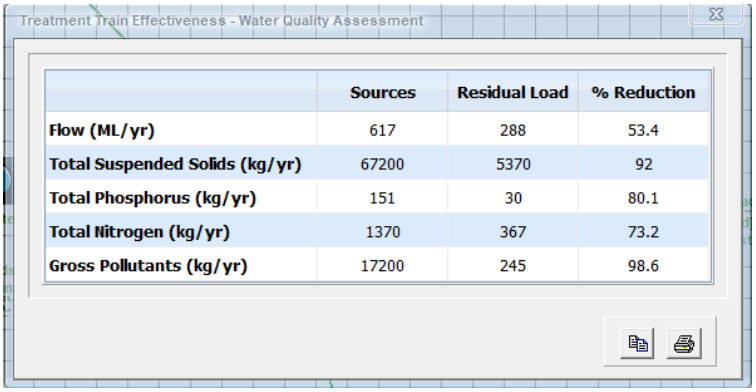


Figure 31: Water Quality Targets for Stage 5

Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	1.79	Yes	≤ 2
90%ile	1,615	Yes	1000 to 5000 L/ha/day
50%ile	33	Yes	5 to 100 L/ha/day
10%ile	0	No	0 L/ha/day

*Rounding error with spreadsheet – value = 0.021

Table 26: Flow Targets for Stage 5

Stage 6

At the time of this report, it is understood Sydney Water is not in a position to provide an approach to facilitate the reuse of stormwater for internal 'on-lot' reuse which is a preferred pathway for achieving stormwater flow and water quality targets for Stage 6 of Burrah Park. Whilst other pathways are available to achieving stormwater flow and water quality targets, it is proposed that on-lot development for the following stages and lots (listed below – shown in purple in Figure 32 below) be restricted until such a pathway is defined and developed in consultation with Sydney Water or the Burrah Park development is connected to the Integrated Stormwater Scheme:

- Stage 6: All Lots (Lot 6.2, Lot 6.1, Lot 3.2, Lot 3.3 and Lot 5.1)
- Stage 5: Lot 2.6

It is also acknowledged that whilst concept approval is sought for the entire estate, each stage will still need to demonstrate stormwater targets compliance in each respective development approval.

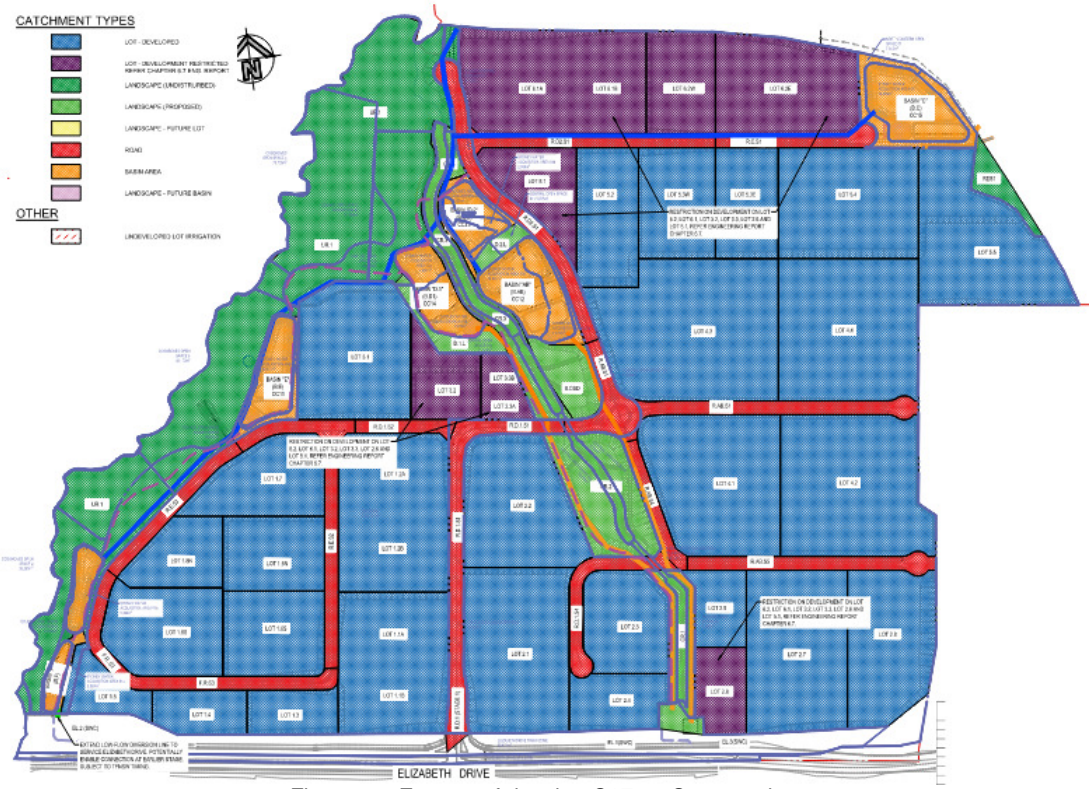


Figure 32: Excerpt of drawing C176 – Stage 6 plan

Whilst the exact pathway to achieving stormwater flow targets is subject to further coordination with Sydney Water, the following demonstrates a potential pathway to compliance. Advanced irrigation systems can be utilised to increase the application rate from 50% to 100% in private on-lot irrigation areas. The resulting compliant realised water quality targets and flow targets is presented in Figure 33 and Table 28 page over.

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	114.34	ha
POS - PRIVATE	17.54	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	0.00	ha
REUSE RATES		
ENT - TOTAL	TBC (subject to individual dev.)	kL/day
POS - PRIVATE	3000-6000 TBC	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	365.9 (3.2kl/day shown)	kL/day
POS - Private	52629.8- 105259.5	kL/year
POS - PUBLIC	177017.8	kL/year
FUTURE LOTS	0.0	kL/year
IRRIGATION TOTAL (max)	229647.5 - 282277.3	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	365.9	kL/day
POS - Private	105259.53	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	0.00	kL/year
IRRIGATION TOTAL	229647.5 - 282277.3	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	0.00	ha
MODE	BOTH WATER QUALITY AND FLOW TARGET DRIVEN	

Table 27: Key potential attributes of Stage 6 – SAMPLE (TBC – Future consultation with Sydney Water)

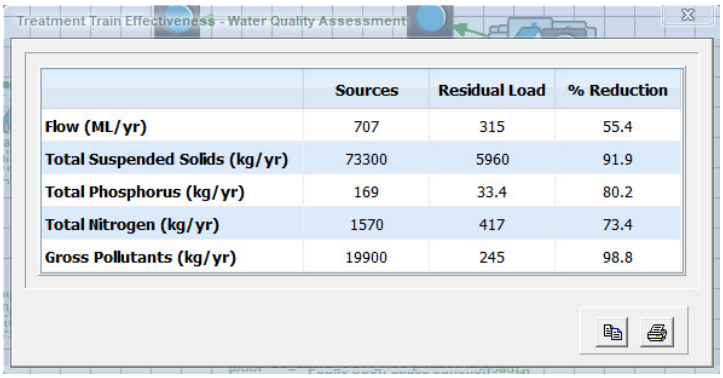


Figure 33: Water Quality Targets for Stage 6 – 100% Irrigation Application – SAMPLE (TBC – Future consultation with Sydney Water)

Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	1.95	Yes	≤ 2
90%ile	1,247	Yes	1000 to 5000 L/ha/day
50%ile	32	Yes	5 to 100 L/ha/day
10%ile	0	No	0 L/ha/day

*Rounding error with spreadsheet – value = 0.021

Table 28: Flow Targets for Stage 6 – 100% Irrigation Application – SAMPLE (TBC – Future consultation with Sydney Water)

It is understood that as part of the Aerotropolis Draft Integrated Stormwater Scheme on public exhibition the intention is to reduce the application rate for typical irrigation systems to 50%. It is understood that the 'Technical guidance for achieving Wianamatta–South Creek stormwater management targets by DPE 2022' notes Large Format Industrial (LFI) stormwater management strategies may require 100% irrigation of pervious areas of allotments. The Guide notes the adopting this example strategy will also likely require certification of the design to ensure 100% irrigation coverage and monitoring/ reporting of the system, and independent auditing to ensure the system is achieving the design intent. From review of the 'Smart Places Assessment Report' prepared by URBIS for the Burrah development it is noted that "smart irrigation" systems are proposed. We note 'Smart irrigation' systems are capable of monitoring and ensuring 100% irrigation coverage is achieved. Furthermore, certified irrigation design are proposed to be prepared and can be made available to the Sydney Water for review and approval.

It is the applicant intent to further pursue the design of a 'smart' advanced irrigation system that achieved an irrigation application rate of 100%. It is understood that the 100% application rate has been achieved and approved in other developments within the Aerotropolis and Mamre Road precinct, especially in regards to undeveloped pads which offer a wide, flat irrigable area that is easily efficiently irrigated.

In addition to the resolution of the on-lot Internal reuse, other potential pathways are listed below – subject to future approval;

- 100% application of irrigation rate within on-lot landscaping (as above).
- Should the interim on-lot internal reuse pathway be resolved, for the interim scenario adoption of individual development true internal reuse rates which give the potential comparatively high water users is likely higher than the conservative 3.2kl/day/ha adopted in the scheme plan.
- Utilisation of adjacent properties for additional irrigation, particularly surrounding properties held by the applicant e.g. Northern Precinct, north of M12.
- Continue of restriction upon lots Lot 6.2, Lot 6.1, Lot 3.2, Lot 3.3, Lot 2.6 and Lot 5.1 until connection to the integrated scheme.

Notwithstanding ongoing coordination with Sydney Water, it has been demonstrated that full development can progress within the Burrah precinct with the infrastructure delivered as part of the Burrah Park proposal with the exception of the aforementioned 'restricted' lots. Full development (including Stage 6) is also achievable subject to further coordination and development with Sydney Water with multiple pathways to compliance available.

6.8 WSUD elements and key modelling parameters

Sizing of WSUD elements has been specified as per Sydney Waters Stormwater Scheme model detailed in Chapter 6.4. Generally, WSUD elements within the subject site are sized to be consistent and generally in accordance with typology Large Format Industrial (LFI) C4 from (DPE1, 2022).

Indicative sizing of stormwater elements is detailed below with detailed sizes for each WSUD element detailed in Table 30.

	Quantity	Unit	Reference
On-Lot Rainwater Tanks	0	kL/ha	Na.
On-Lot Stormwater Detention	Refer PSD table below.	m3/ha	Lot Area - Depending on Catchment
Precinct Stormwater Detention	Varies, Refer 6.3. Generally, 408m3/ha where applied	m3/ha	Contributing Catchment, Refer C251 App A
Sediment Basin	0.19-0.28%	%	Contributing Catchment, Refer C251 App A
Precinct Bioretention filter area	0.43-0.6%	%	Contributing Catchment, Refer C251 App A
On-lot Bioretention filter area	0	m2/ha	Na.
Passive irrigated Street Trees	226m2 of filter area	/ha of Road	
Precinct Wetland Area (Macrophyte Zone)	0.58-0.8%	%	Contributing Catchment, Refer C251 App A
Precinct Pond Area	1.55-2.46%	%	Contributing Catchment, Refer C251 App A

Table 30: Proposed indicative WSUD sizing. Source H&H (based on total site area excluding residual areas).

The following key assumptions and parameters were applied during preliminary sizing of the site.

Stormwater Quality Improvement Measures

Stormwater Quality Improvement Measures are generally designed in accordance with the following documents:

- Technical guidance for achieving Wianamatta - South Creek stormwater management targets (DPE1, 2022).
- Western Sydney Aerotropolis (Initial Precincts) Stormwater and Water Cycle Management Study (SW1, 2021).
- Stormwater Scheme Infrastructure Design Guidelines DRAFT Version 2024-1.0 (SW2, 2024)
- Penrith City Council stormwater policies.

As Sydney Water is the Stormwater Management Authority, Sydney Water guidelines, specifically Infrastructure Design Guideline were given preference in instances of inconsistency or ambiguities between the aforementioned policies. Refer below for a short summary of key Stormwater Quality Improvement Measures, refer Chapter 6.7 and 6.8 for a summary of Stormwater Quality Improvement Measure sizing throughout the development.

Wetlands

In accordance with the Stormwater Scheme Infrastructure Design Guidelines, constructed wetlands are proposed to be placed offline to naturalised trunk drainage channels or stormwater drainage systems for the individual catchments. In total 6 wetlands are proposed to be provided as part of the overall stormwater management scheme. Their purpose is to provide final treatment for stormwater flows from upstream developments as well as providing aesthetic and habitat benefits. These wetlands are crucial for meeting the stormwater flow targets as well as the stormwater quality targets (refer Section 6.5 and 6.4 respectively) specified for Wianamatta South Creek in the Aerotropolis Development Control Plans (DCPs).

Firstly, constructed wetlands are essential for improving urban stormwater quality. They achieve this through sedimentation and biological digestion processes, making the water suitable for non-potable reuse.

Secondly, these wetlands offer the benefit of increasing evaporative losses, which helps meet flow-based stormwater targets by reducing the Mean Annual Runoff Volume (MARV). This function supports the overall stormwater management goals outlined in the DCPs (SW1, 2022).

The following key design requirements and parameter:

- Drainage systems (low flow diversion system) will convey stormwater runoff into the wetlands via the sediment basin. The diversion weirs are designed to convey the design flow (case-by-case basis – refer Engineering Drawings or Section 6.8) into the wetlands. The diversion weirs effectively form a high flow bypass and protect the wetlands from excessively high flows which may scour the wetlands and reduce water quality. Within the Burrah development.
- Design flow equal to 4EY.
- Provided sufficient surface area to achieve sufficient evaporation to achieve flow targets.
- Provide a flow path to create a sinuous flow path within the wetland to increase residence time and avoid short circuiting.
- Protection against sediments (either via sedimentation basins or GPTs).
- Provide a Permanent Pool Volume = 0.30 x Wetland Area (m2) m3.
- Extended detention of 350mm.
- Notional Detention Time less than 72 hours, typically 30 hours.
- Evaporation loss as % of PET of 125%.

Bioretention

Bioretention basins are essentially vegetated sunken garden bed areas that collect and treat stormwater as it percolates through a sandy loam soil media. Bioretention basins are a fundamental part of WSUD strategies in the Wianamatta–South Creek catchment and can be delivered at a variety of scales. As part of consultation with Sydney Water, Bioretention Basins are proposed downstream of constructed wetlands to improve the overall efficiency of the system and reduce the overall regional stormwater basin footprint. For the proposed development, bioretention is proposed to be provided on a precinct scale in the treatment train following the wetland and prior to the storage pond (where applicable). Bioretention basins have a variety of functions, namely:

- Pollutant Removal
- Runoff Reduction
- Hydrologic Control
- Aesthetic and Habitat Benefit

Key parameters and features of bioretention design:

- All regional stormwater management basins include a bioretention basin.
- Extended detention depth = 0.3m
- Surface area (m2) = Combination of bioretention and wetland surface area due to the shared extended detention.
- Unlined filter media perimeter = 0.01m
- Filter depth (m) of 500mm
- TN content of filter media (mg/kg) of 400
- Orthophosphate content of filter media (mg/kg) of 40
- Base Lined
- Vegetated with effective nutrient removal plants
- Maintainability – providing access path to appropriately maintain the facilities.
- High flow diversion controlled by upstream systems.

Pond and recycled water main

Treated stormwater which has previously being drained and treaded by the On-Lot GPT, sediment basin, constructed wetland and bioretention will be collected and stored in a storage pond for regional reuse. The storage and reuse of treated water is a key component of the Stormwater Scheme and required to meet the flow targets for Wianamatta South Creek. The bioretention will discharge into end-of-line storage and harvesting ponds, which represent the final stage of treatment. six treated stormwater storage ponds are proposed within the development site. Refer Engineering Drawings in Appendix A for details.

End-of-line treated stormwater storage ponds serve several important functions:

- **Enhancing Water Quality:** These ponds provide additional hydraulic retention time, allowing further decay of contaminants and improvement in water quality. The large open water areas exposed to UV light facilitate effective pathogen sterilization and enhanced sedimentation. This aids in reaching water quality targets detailed in Section 6.4.
- **Ensuring Water Availability:** The ponds retain water over extended periods to support the regional non-potable reuse scheme (refer Chapter 6.9). Water is gradually drawn down for regional reuse, and sizing has been undertaken to ensure that sufficient storage capacity is maintained for runoff from future storm events. This process is crucial for meeting both water quality and quantity targets.
- **Meeting Water Quantity Targets:** In addition to reducing the Mean Annual Runoff Volume (MARV), the ponds create detention space (extended detention) above the low flow spill level. This detention space accommodates very frequent storm events, complementing onsite stormwater detention which is designed for less common, more intense storms.

Key parameters and results featured in the proposed design:

- Extended detention depth = 0.1m
- Notional Detention Time = approx 10 hours
- Depth = 3.0m max
- For preliminary design, a factored reuse demand (detailed in Chapter 6.9) was applied to each pond weighted against the overall catchment size to the pond respective catchment size.

Gross Pollutant Traps

The on-lot gross pollutant traps (GPTs) are a DCP requirement for developers. The GPTs have been modelled to achieve an efficient level of sediment reduction on lot prior to discharge into the downstream treatment train elements. GPTS are intended to ensure private industrial and enterprise lands manage litter and sediment loads from development sites prior to discharge.

GPTs have been modelled as a single node for each sub catchment with a high flow bypass assumed consistent with the Stormwater Scheme model and representative from the upstream catchment. A Rocla CDS unit treatment node was adopted with nutrient removal removed from the treatment node.

GPTs have been included in the MUSIC modelling in accordance with the above. The high flow bypass for each catchment was included in the MUSIC modelling. GPTs are not proposed at end of line treatment due to the presence of GPTs on lot, the low-flow diversion system and inclusion of sediment basins for each basin network. The neighborhood centre is proposed to be include a GPT prior to discharging to the central naturalised trunk drainage channel.

Street Trees

Street Trees are proposed to be provided within the precinct road reserve and are proposed to be passively irrigated consistent with Council's requirements. Street trees are provided to absorb a significant volume of road runoff and therefore provide an important component of the Stormwater Management scheme as well as providing aesthetic and habitat amenity. Street trees have been modelled using the following parameters in MUSIC provided by SWC2,2024. Street trees have been modelled collectively for each sub catchment:

- Street trees are to be modelled as biofiltration nodes with a filter depth of 0.5m and a saturated hydraulic conductivity of 100mm/hr.
- 226m^2 of filter area street trees/ha of road area (scaled from Sydney Water Precinct model).
- 2.8 m^2 of surface area per tree to facilitate filtration/infiltration of stormwater to the root zone.
- An extended detention storage volume of 0.06 m3 per tree which can be modelled as an equivalent extended detention depth (e.g. 0.02 m across 2.8 m2 filter/infiltration zone).

Stormwater is directed into the street tree below the surface level (to a suitable drainage layer above filter layer), regular inlet pits are provided to capture sediments. To minimise the number of inlet pits, a connected / continuous trench of soil is provided so one inlet pit can passively irrigate a number of trees (SW2, 2022). The continuous trench of soil (passive irrigation pit) is shown on Engineering Drawing C151 in Appendix A. The concept design of the passively irrigated street trees is developed by project landscape architects - Geoscapes. Refer to landscape concept drawings for additional details.

6.9 Catchment Tables and On-lot summary

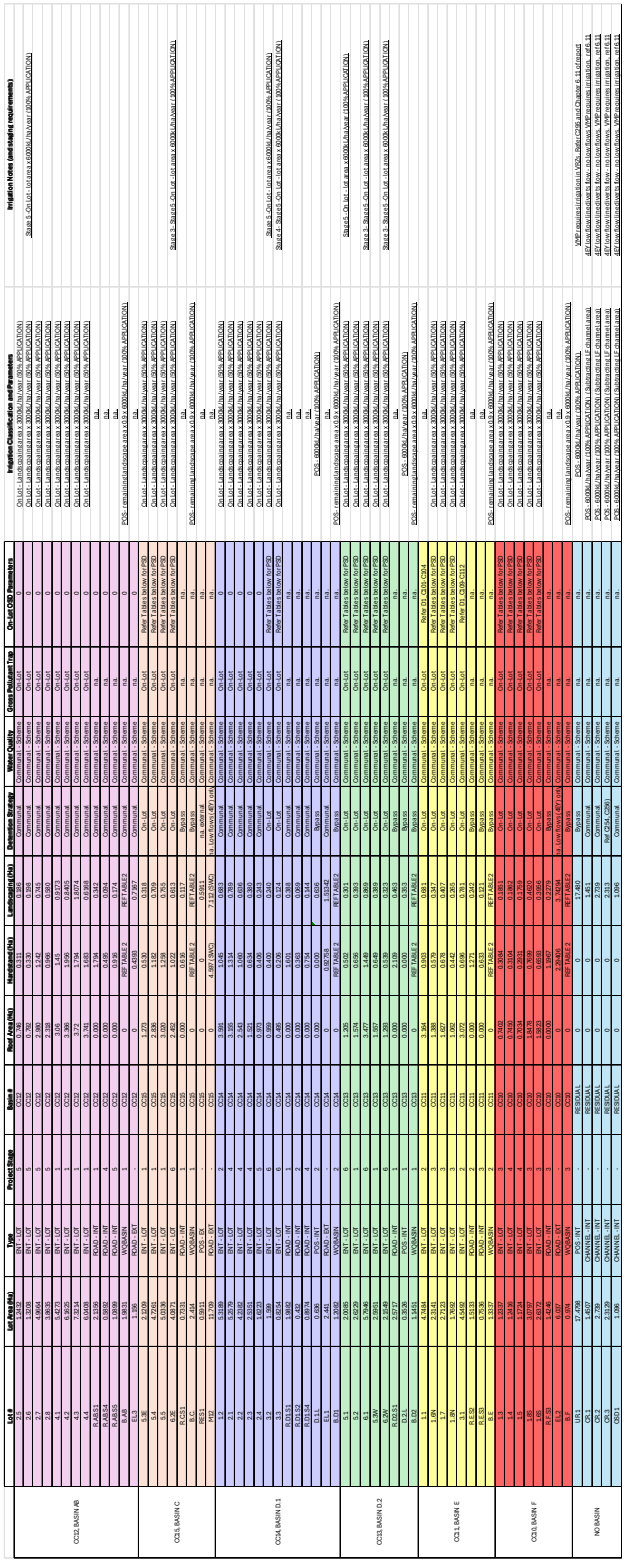


Table 31:Catchment Table and On-lot Summary, refer Engineering Drawing C252 in Appendix A for full size table.

6.10 Proposed Basin Sizing and Specifications

Table 32 below shows a summary of the key attributes of the proposed precinct stormwater treatment basins. Refer civil engineering drawings in Appendix A for layout and locations.

	Basin_NG12	Basin_NG15	Basin_NG14	Basin_NG13	Basin_NG11	Basin_NG10
	Basin AB	Basin C	Basin D.1	Basin D.2	Basin E	Basin F
(A) Bioretention Surface Level m(AHD)	57.35	55.65	54.65	52.85	53.65	56.45
(B) Wetland NWL m(AHD)	57.3	55.6	54.6	52.8	53.6	56.4
(C) Storage Pond NWL m(AHD)	55.65	54.85	53.85	52.05	52.85	55.65
(D) Bioretention EDD Level m(AHD)	57.65	55.95	54.95	53.15	53.95	56.75
(E) Wetland EDD Level m(AHD)	57.65	55.95	54.95	53.15	53.95	56.75
(F) Storage Pond EDD Level m(AHD)	55.75	54.95	53.95	52.15	52.95	55.75
(G) Sediment Pond NWL m(AHD)	57.3	55.6	54.6	52.8	53.6	56.4
Basin modelling allocation (ha) Refer C251	1.983	2.414	1.208	1.145	1.334	0.974
(I) Bioretention Filter Surface Area (m2)	2200	1456	1200	779	1100	536
(J) Wetland Plan Area (m2)	2384	2321	1527	1053	1212	808
(K) Pond Plan Area (m2)	6326	7148	4876	3300	4118	3173
(L) Pond Volume (m3)	13560	15827	9898	6290	6408	4665
Sediment Basin Surface Area (m2)	852	824	506	371	427	300
Residual Allocation Area (Ha)	0.892	1.322	0.448	0.632	0.691	0.522
Maintenance Path	4.0m Wide	4.0m Wide	4.0m Wide	4.0m Wide	4.0m Wide	4.0m Wide
4EY Flow (m3/s)	2.44	0.997(INC.0.411-M12)	1.51	0.562	0.559	0.392 (+0.233-ED)
Constructed in Stage	1	1	2	1	2	3
Catchment Area (ha)*	41.317	29.001	27.791	18.100	18.360	16.826
Bioretention Filter Surface Area (m2) % Catch	0.53	0.50	0.43	0.43	0.60	0.32
Wetland Plan Area (m2) % Catch	0.58	0.80	0.55	0.58	0.66	0.48
Pond Plan Area (m2) % Catch	1.53	2.46	1.75	1.82	2.24	1.89
Sediment Basins Area (m2) % Catch	0.21	0.28	0.18	0.20	0.23	0.18
* including external catchments, utilising Sydney Water external catchment sizing, exluding basin allocation						

Table 32: Preliminary basins sizing and specification. Refer Engineering drawings in Appendix A for full size table and accompanying information.

6.11 Site Water Balance

As detailed in section 6, a regional stormwater harvesting scheme and recycled water main is proposed in satisfaction of non-potable water demand at Burrah park. The regional stormwater harvesting scheme involves the capture, treatment, diversion and storage of stormwater that is then directed to a regional reuse system. Stored flows are drained via the treated stormwater harvesting mains to treatment and distribution centers. Reticulated recycled water pipe that is connected to all lots to provide non-potable water for a variety of use. The following section outlines a site water balance relating to the stormwater management system and focuses on the water demand required from the recycled water main.

A water balance model was developed using the MUSIC software package simulated to allow the evaluation of various elements of the water cycle to be assessed. Of critical importance was assessing the impact the site water balance has on the stormwater harvesting scheme in terms of:

- Water quality targets (refer Section 6.4 for details)
- Stormwater flow and volume targets (refer Section 6.5 for details)

Non-potable water demands on lots and in public open spaces are a critical consideration in achieving the stormwater quantity (flow) targets and have a significant impact on the sizing of stormwater management infrastructure, particularly the sizing of the storage ponds and wetland systems (refer section 6.6 for details).

During The following non-potable reuse rates and assumptions were made when assessing interim stages:

Water Harvesting Assumptions - On lot

- Irrigation rate of 600mm/yr (monthly distribution to DPE1,2022)
- Watering of 50% of on-lot landscaping areas (excluding permeable paving)
- Conservative demand of 3.2 kl/ha/day x lot area in interim stages – if applied (subject to future coordination with Sydney Water).
- For irrigation of prepared pads (undeveloped).
    - 600mm/yr @ 100% application rate for intensive irrigation systems – where required in later development stages prior to connection to the Stormwater Scheme – refer Chapter 6.7-Stage 6 for commentary.

Water Harvesting Assumptions – Precinct

- Irrigation rate of 600mm/yr (monthly distribution to DPE1,2022)
- POS - Watering application rate of 100% to public open landscaping areas and residual site areas. Irrigation adjacent to Cosgroves Creek has been coordinated with the creek restoration works detailed in the VMP.
- POS - Watering application rate of 100% to trunk drainage system and central drainage corridor landscaping areas. Landscape watering has been applied to the central trunk drainage system due to the implementation of a low flow drainage system which effectively diverts lows flows away from the corridor. The low flow channel area has been excluded from the irrigation area. It should be noted that irrigation is noted in the creek restoration works for the corridor detailed in the VMP (excluding low flow channel).
- POS - Conservative watering application rate of 100% to regional stormwater basin landscape areas (assumed to be 90% landscaping. Calculated as basin allocation minus the (combined surface area of pond, bioretention, wetland and sediment pond) then multiplied by 0.9. (SW2, 2024)\

Refer Appendix A drawing C252 for irrigation area breakdown (right most two columns)

Refer Appendix A drawing C295 for irrigation plan – Ultimate Stage

Resultant demand (recycled water)

Refer Appendix A drawing C171-C176 for staging drawings showing resultant demand for each stage. As noted in Chapter 6.7, the proposal for interim internal recycled water reuse is currently under coordination with Sydney Water.

Non quantified (excluded in demand)

- Passively irrigated street trees (irrigation of pervious areas of streets in general).
- Special allowances for data centre.

Irrigation

Refer Appendix A drawing C252 for specific irrigation areas and designations.

7. Soil and Water Management

Sediment and Erosion Control measures have been implemented to ensure that site run-off is appropriately treated of sediments in accordance with the Penrith City Council's guidelines, the Blue Book "Managing Urban Stormwater- Soils and Construction, 4th Edition (2004) by Landcom as well as the Technical guidance for achieving Wianamatta - South Creek stormwater management targets.

Sediment and erosion control plans have been prepared in Appendix A drawings SE01-SE14. Two sets of sediment and erosion control plans have been prepared, early earthworks and formed pad stages. Early earthworks sediment and erosion control drawings (SE11-SE14) show the control plan during the initial grubbing and stripping phase as well as bulk earthworks. Formed pad stage (drawings SE01-SE04) shows controls following the completion of bulk earthworks and main estate infrastructure where pad sites are prepared, however not appropriately covered to prevent the mobilisation of sediments.

Throughout both stages sediment and erosion control is proposed to be achieved through the following measures:

- Appropriately sized sediment basins to ensure that sediments are stored and contained in a rain event. Sediment basins to be provided with an automated system of flocculant dosing and a suitable supply of flocculant/coagulant, with the type of flocculant/coagulant determined based on the International Erosion Control Association (IECA) chemical coagulants and flocculants fact sheet.
- Catch drains or flow diversion banks to ensure that flows are directed to the sediment basins.
- Haybale filters to catch sediments within the catch drains.
- Mesh and gravel inlet filters around existing pits to ensure sediment cannot discharge into existing (or recently constructed) stormwater systems.
- Sediment fence along the boundary to ensure sediments are captured before conveyed through to adjacent properties, downstream or the public road.

The following design parameters have been assessed for the site:

Constraint	Value	(Source)*
Rainfall Erosivity (R-factor)	2200	Appendix B - Map 10
Length/Slope Gradient Factor, LS	VARY	Appendix A - Table A1
Soil Erodibility (K-factor)	0.050 (incorporating 20% allowance for highly dispersive soils).	Appendix C –Table 19
Erosion Control Practice Factor (P-Factor)	1.3	Appendix A - Table A2
Cover Factor (C-Factor)	1.0 (During earthworks)	Appendix A - Figure A5
Calculated Soil Loss, A (RUSLE equation)	VARY	A = R K LS P C
Soil Hydrologic Group	D	Appendix C Table 19
85th Percentile 5-day Rainfall	35.0mm (Penrith)	Table 6.3a

Event		
Volumetric Runoff Coefficient, Cv	0.64	(App. F Table F2)
Catchment Area, A	VARY	

Table 33: Sediment and Erosion design parameters

In accordance section 4.4.1 of the 'blue book; an assessment of erosion hazard has been undertaken for the subject site. Utilising the design parameters detailed in Table 33 a category of Low Erosion Hazard was determined for the subject site. As such, the following Construction Phase Soil and Water Management strategy is developed in consideration of a Low Erosion Hazard category.

Highly Dispersive Soils
The following allowances have been made to account for highly dispersive soils typical of the region. Undertake testing for highly dispersive soils and update the sediment and erosion control plan for the following if present:

- Flow diversion banks are to be specified in leu of catch drains to divert flows to sediment basins. 'Back-push' banks are formed by pushing material up-slope to form a flow diversion bank. In such cases the diverted water flows up-slope of the embankment instead of within a excavated trench reducing the likelihood of encountering highly dispersive subsoils.
- All flow diversion banks should have a stable outlet and seeded and mulched if there working life is expected to exceed 30 days, or as required by the sediment and control standard.
- Dispersive soils are highly susceptible to deep, narrow rilling on exposed slopes. These soils must be appropriately treated or buried under an appropriate layer of non-dispersive soil (usually 100mm min) before placing any erosion control measures.
- A Practice becoming increasingly common is to use the stripped topsoil to form flow diversion banks upslope of the soil disturbance, instead of placing the topsoil on stockpiles.
- Adjust Soil Erodibility (K-factor) for an addition 20% for highly dispersive soils.
- Topsoil and vegetation: consider treatment (e.g. Gypsum) prior to vegetation or seeding subject to site requirements.
- Avoid exposing dispersive soils. If exposed these soils should be treated to stabilise their dispersive nature or buried beneath a layer of non dispersive soils.
- Benches cut into dispersive or silty soils have a high risk of tunnel erosion and slope failure. Dispersive nature of soil is to be investigated if encountered onsite and benching design appropriately updated if encountered.

Sediment and Erosion Control measures have been designed for each pad site. Catch Drains or flow diversion banks have been designed to collect site run-off during construction. Since each pad site is more than 2500m^2, a sediment basin has been designed for every pad site. The below table is provided to indicate all factors accounted for in the design of every sediment basin.

<u>Basin sizing</u>

In addition to the "Blue book" requirements the sediment and erosion control strategies will need to comply with the Technical guidance for achieving Wianamatta - South Creek stormwater management targets (DPE, 2022). Best practice initiatives that strengthen the elements in the Blue Book include achieving the construction phase targets outlined below.

Following agency advise, sediment basins have been specified as Type B sediment Basins. Preliminary sizing has been prepared for high performance Type B sediment basins. Sizing has

been undertaken in accordance with the International Erosion Control Association (IECA) Appendix B Sediment Design and Operation (IECA1, 2018).

For areas larger than 2,500 m2 (i.e. all site catchments), this involves designing and implementing sediment controls that treat at least 80% of the average annual runoff volume (i.e. 80% hydrological effectiveness) to 50 mg/L TSS or less, and pH in the range 6.5–8.5. To achieve these construction phase targets, the design of the basins generally needs to:

- be sized and operated in accordance with either a Type-A or Type-B sediment basin as documented in IECA Appendix B Sediment Design and Operation (IECA1, 2018),
- be provided with an automated system of flocculant dosing and a suitable supply of flocculant/coagulant, with the type of flocculant/coagulant determined based on the IECA chemical coagulants and flocculants fact sheet (IECA2, 2018).
- Have markers within each basin to show the maximum sediment storage level and any additional water storage capacity for water reuse.
- Limit discharge from the primary outlet system to 50 mg/L TSS, with a pH within the range of 6.5–8.5.
- Be operational before any disturbance occurs in the catchment upslope of the basin.

Refer Table 34 below which indicate a preliminary total sediment basin volume. Preliminary sediment basin sizing has been undertaken to reflect the early earthworks stage and the prepared pad stage. Although a sediment basin is required for every pad site, bearing in mind that all sediment and settling volumes are dependent on the disturbed area of the site not necessary to lot area itself. Detailed design of basin to be undertaken when site conditions, soil conditions and final contributing catchments is known Furthermore, site conditions may vary from those detailed above in Table 33.

BASIN NAME	ADOPTED BASIN TYPE	LARGE BASIN WIDTH - Ws (m)	LARGE BASIN LENGTH - Ls (m)	SETTLING ZONE SURFACE AREA - As (m2)	DEPTH OF SETTLING ZONE - Ds (m)	SETTLING ZONE VOLUME - Vs (m3)	BASIN STORAGE (SOIL) VOLUME (m3)	TOTAL BASIN VOLUME TO SPILLWAY LEVEL (m3)
EWB1	OPTION 1B - L	13.03	39.09	509.2	1.5	763.9	914	1677.9
EWB2	OPTION 1B - L	19.89	59.66	1186.6	3	3559.7	3968	7527.7
EWB3	OPTION 1B - L	17.2	51.59	887.3	3	2661.8	3432	6093.8
EWB4	OPTION 1B - L	20.82	62.46	1300.6	3	3901.8	4633	8534.8
EWB5	OPTION 1B - L	20.68	62.03	1282.6	2	2565.2	2326	4891.2
EWB6	OPTION 1B - L	20.18	60.53	1221.3	2	2442.6	2686	5128.6
EWB7	OPTION 1B - L	17.14	51.43	881.5	2	1763.1	1904	3667.1
1.2	OPTION 1B - L	12.7	38.09	483.5	1.5	725.3	159	884.3
2.1	OPTION 1B - L	12.63	37.89	473.4	1.5	717.7	158	875.7
2.2	OPTION 1B - L	12.18	36.55	445.3	1.5	668	125	793
2.3	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	69	632.1
2.4	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	48	611.1
2.5	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	37	600.1
2.6	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	33	596.1
2.7	OPTION 1B - L	11.87	35.62	422.9	1.5	634.3	149	783.3
2.8	OPTION 1B - L	11.09	33.28	369.3	1.5	553.9	116	669.9
3.2	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	38	601.1
3.3	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	21	584.1
4.1	OPTION 1B - L	12.96	38.89	504	1.5	756.1	162	918.1
4.2	OPTION 1B - L	14.76	44.29	653.8	1.5	980.7	185	1165.7
4.3	OPTION 1B - L	17.45	52.36	913.8	1.5	1370.8	219	1589.8
4.4	OPTION 1B - L	14.43	43.29	624.4	1.5	936.9	181	1117.9
5.3	OPTION 1B - L	13.47	40.41	544.6	1.5	816.9	135	951.9
5.4	OPTION 1B - L	13.54	40.62	550	1.5	825	141	966
5.5	OPTION 1B - L	14.41	43.22	622.7	1.5	934.1	150	1084.1
6.2	OPTION 1B - L	14.23	42.69	607.4	1.5	911.1	120	1031.1
3.1	OPTION 1B - L	13.01	39.02	507.5	1.5	761.3	129	890.3
5.1	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	54	617.1
5.2	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	78	641.1
6.1	OPTION 1B - L	35.4	41.82	583	1.5	874.4	175	1049.4
1.1	OPTION 1B - L	13.61	40.82	555.4	1.5	833.2	139	972.2
1.6	OPTION 1B - L	14.18	42.55	603.6	1.5	905.4	148	1053.4
1.7	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	75	638.1
1.8 NORTH	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	61	624.1
1.3	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	36	599.1
1.4	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	37	600.1
1.5	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	24	587.1
1.8 SOUTH	OPTION 1B L (min)	12.51	37.52	469.2	1.2	563.1	68	631.1

Table 34: Estimated Total Sediment Basin volumes – Type B basins.

Important notes for Table 34:

1. Refer Type B basin typical plan, section and details for reference values on drawing SE07.
2. Review of sizing (and potential upsizing) is to be undertaken during detailed design phase using the IECA Appendix B Sediment Design and Operation (IECA1, 2018).
3. Calculations based on estimated design settlement coefficient; k/s based of 12000 (s/m). Based on 15 degrees suggested water temperature.

Basin Maintenance

Management and maintenance of the proposed sediment basins, including the temporary on-lot basins and the six proposed estate-wide basins (likely in temporary form), will be the responsibility of the developer.

The sediment basin shall be constructed on a rate per hectare basis and has been in accordance with the requirements of the IECA Appendix B Sediment Design and Operation (IECA1, 2018). The disturbed area within this catchment at any one time should be limited to an area for which each sediment basin has been designed for.

Values presented in the table adjacent are based on full site area. Subject to future detail design. Distrubted site areas (and thus basin areas) may change or be distributed to multiple basins as site conditions dictate. A review of sizing (and upsizing) to be undertaken during detailed design phase using the IECA Appendix B Sediment Design and Operation (IECA1, 2018). Detailed design of basin to be undertaken when site conditions, soil conditions and final contributing catchments are known. Furthermore, site conditions may vary from those detailed above in the table below.

Jar testing, in accordance with section B3 of the IECA Appendix B Sediment Design and Operation (IECA1, 2018) is required in order to determine the chemical dosing rates of sediment basins. It is

recommended that this analysis is undertaken prior to basin construction as the findings may potentially impact the sediment and erosion control (basin sizing also) adopted. It should be noted that the most suitable flocculant and/or coagulant is likely to vary with soil type. Consequently, there is a need to review the efficacy of certain products over time as soil characteristics change during the various stages of construction.

In accordance with the blue book, the sediment basins will be managed and maintained until the contributing catchment upstream is completed and fully stabilised on more than 90% of the total area.

Jar testing is to be undertaken to select the appropriate coagulants and/or flocculants along with determining their optimum dose rates. Jar testing is to be undertaking in accordance with the recommendations and testing procedure specified in the Chapter 5 of the IECA chemical coagulants and flocculants fact sheet (IECA2, 2018).

Type A and B basins require a fast acting coagulant and flocculant to perform based on the jar testing. A factor of safety (in accordance with above guidelines) should be applied to allow for the different settling times experienced by basins dues to dosing, mixing, flow velocity and wind action.

Maintenance and operating procedures report to be prepared at detail design phase. Report to include the following:

- Decant water quality objectives.
- Description of proposed chemical treatment of the basin, including minimum jar testing performance requirements.
- Performance assessment procedures.
- Guidance on corrective measures based on water quality monitoring outcomes.
- Description of de-watering triggers, including triggers for temporary shut-off of the decant system in the event of poor water quality.
- Description of de-silting triggers.
- Description of those circumstances and/or weather conditions that would trigger de-watering of the basin prior to an imminent storm.
- Maintenance procedures and protocols including de-silting method and frequencies.

Land Disturbance Conditions

- Where practicable, the soil erosion hazard shall be kept as low as possible. Limitations to access are to be in accordance with the following table:

Land use	Limitation
Access Areas	Access is to be limited to the designated all weather roads.
Truck Wash Down Bay	Any truck exiting out of the site shall be thoroughly cleaned and limit the exportation of clay and sediment on public roads.

Table 35: Land disturbance conditions.

Construction Sequence

Works shall be undertaken generally in the following sequence:

- Install sediment fencing and cut drains to meet the requirements of the SWMP. Waste collection bins shall be installed adjacent to the site office.
- Construct stabilised site access in location nominated by the Contractor and in accordance with Penrith City Council's standard drawing
- Construct sediment basin(s) for disturbed areas in accordance with the rate per hectare

provided in the SWMP. Install risers and two pegs in the floor of the basin and have them marked to show the top of the sediment storage zone. Ensure the basin is cleared of sediment once the design capacity is reached.

- Redirect clean water around the construction site.
- Install sediment control protection measures at all natural and man-made drainage structures. Maintain until all the disturbed areas are stabilised.
- Bunds shall be provided during construction to ensure that stormwater runoff does not enter open pits, manholes or shafts refer to civil drawings for details.
- Clear and strip the work areas. Minimise the damage to the grass and low ground cover of non-disturbed areas.
- 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.
- Maintain sediment and erosion control measures until such stage that the site earthworks are finalised.

Erosion Control Requirements

- Clearly visible barrier fencing shall be installed at the discretion of the site superintendent to ensure traffic control and prohibit unnecessary site disturbance. Vehicular access to the site shall be limited to only those essential for construction work and shall enter the site only through the stabilised access points.
- Soil materials shall be replaced in the same layers they are removed from the ground i.e., all subsoils are to be buried and topsoil is to be respread on the surface at the completion of works.
- All disturbed areas are to be stabilised within 14 working days of the completion of land shaping. All disturbed areas are to be protected so that the land is permanently stabilised within six months. Topsoil and revegetation will not be required for this site. The long-term ground cover factors for the construction works are 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 are 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.

Table 36: Land disturbance factors

- Proprietary silt fencing shall be installed by the Contractor in accordance with their approved Sediment and Erosion Control Plan and elsewhere at the discretion of the site superintendent to contain coarser sediment fractions as near as possible to their source.
- Sediment removed from any trapping device shall be relocated where further pollution to downslope lands and waterways cannot occur.
- Stockpiles shall be located by the Contractor in accordance with their approved Sediment and Erosion Control Plan and elsewhere at the discretion of the site superintendent. Where

stockpiles are to be in place longer than 30 days, they shall be stabilised by covering them with mulch or with temporary vegetation.

- Water shall be prevented from entering the permanent drainage system unless it is sediment free. Drainage pits are to be protected in accordance with the Contractor's approved Sediment and Erosion Control Plan.
- Temporary sediment traps at pits shall be retained until the lands they are protecting are completely rehabilitated.
- Waste bins are to be provided for all construction refuse. They are to be emptied at least weekly and refuse is to be disposed in accordance with the site manager's recommendations.
- The site manager shall inspect the site at least weekly and shall:
    - Ensure that all drains are operating effectively and shall make any necessary repairs.
    - Remove any spilled material from area subject to runoff or concentrated flow.
    - Remove trapped sediment where the capacity of the trapping device falls below 60%.
    - 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 always maintained in a fully operational condition.
    - Ensure rehabilitated lands have effectively reduced the erosion hazard and initiate upgrading or repair as appropriate.
    - Construct additional erosion or sediment control works as may be appropriate to ensure the protection of downslope lands and waterways.
    - Always maintain erosion and sediment control measures in a fully functioning condition until the site is rehabilitated.
    - Removing temporary soil conservation structures as the last activity in the earthworks program.

<u>Wet Weather Plan/Strategy</u>

Pre-Storm

- Site Manager to walk site immediately before/ at the beginning of a storm event to ensure all sediment and erosion control measures are in place.
- All machinery and equipment to be stored under cover and outside of any overland flow paths.

Post Storm

- Site manager to review excavated batters on site and assess to batter destabilization and signs of erosion.
- Contractor to inspect/clean/pump out sediment basin as required.
- Contractor to inspect/clean/ haybale filters as required.
- Contractor to inspect/clean/ mesh and gravel inlet filters as required.
- Contractor to inspect sediment fence along boundary.

8. Utilities

Introduction

Various utility services will be required to be provided to service the proposed development. This will include upgrading existing services, provision of temporary services until such stage as permanent services are available and new services associated with the new road works. The services include:

- Sewer
- Potable water supply
- Recycled water
- Electricity
- Telecommunications
- Gas

Sewer

It is understood that Sydney Water sewer mains will be available for the proposed development site. The Water Servicing Coordinator MGP has submitted a Feasibility Study as it relates to sewer main availability.

The vast majority of the development will comprise light industrial/warehousing land use types and the demand for sewer (and water) will be assessed on this basis. The application for the Feasibility Study was submitted based on a total of 63ha of developed floor area (warehouse and office combined). In addition, there is a data centre proposed for four of the lots within the development site which has a high-water demand of which much of this is understood to be recirculated thus not placing a high demand on waste water discharge. The floor area for this part of the development site is 93,334m^2.

The Feasibility Study seeks confirmation from Sydney Water in regards to sizing of both lead in and internal subdivision circulation of the Sydney Water sewer (and water) mains.

It is understood that a trunk gravity sewer main is proposed along the western side of the site adjacent to Cosgroves Creek. The ability to connect to this main will be dependent on the depth of the main to allow the site connection to drain by gravity with sufficient cover under Cosgroves Creek. The expectation is that this will be able to verified as part of the Feasibility Study in regards to levels, capacity and timing.

Depending on whether the timing of the construction of the subdivision proceeds ahead of the availability of the truck sewer main will determine whether a temporary sewer pump station will be required to service the development. Any temporary sewer pump station works will need to ne carried out under a Wastewater Interim Operating Procedure (IOP).

Potable Water

It is understood that Sydney Water water mains will be available for the proposed development site. The Water Servicing Coordinator MGP has submitted a Feasibility Study as it relates to potable water main availability.

The vast majority of the development will comprise light industrial/warehousing land use types and the demand for water (and sewer) will be assessed on this basis. It is understood that the average daily water use for this land use type is 2.82L/square metre of developed floor area. As stated above, the application for the Feasibility Study was submitted based on a total of 533,891m^2 of developed floor area (warehouse and office combined). In addition, there is a data centre proposed

for four of the lots within the development site which has a high water demand of which much of this is understood to be recirculated thus not placing a high demand on potable water supply. The floor area for this part of the development site is 93,334m^2.

The Feasibility Study seeks confirmation from Sydney Water in regards to sizing of both lead in and internal subdivision circulation of the Sydney Water water (and sewer) mains.

It is understood that new potable and recycled water mains are proposed along the northern side of Elizabeth Drive. In addition, there are currently 150mm and 750mm mains along the southern side of Elizabeth Drive. There appears to be two water service connections fronting the site from the 750mm main on the southern side of Elizabeth Drive (one a 315mm and one of unknown size).

Confirmation of the Sydney Water preferred connection point will be confirmed as part of the Sydney Water Feasibility Study. There is the potential based on network modelling by Sydney Water that multiple connections may be required which would improve reliability of supply.

It is understood that the site will also be serviced by a closed recycled water main that is reticulated throughout the subject site and services by a regional (subject site only) stormwater harvesting scheme (refer chapter 6 for details). The documentation of the recycled water mains will be incorporated into the overall water main design for the development.

The proposed road works and intersection designs currently being undertaken by Arcadis will take into account the locations of the proposed mains to ensure they are coordinated with the development works.

Electricity

Information provided on the Dial Before You Dig mapping indicates existing Endeavour Energy overhead 33kV power lines on the southern side of Elizabeth Drive and overhead 11kV power lines along the side of Elizabeth Drive. The existing residences within the site are connected to this power supply along the northern side of Elizabeth Drive supply via overhead power lines.

The Dial Before You Dig mapping also indicates underground cables along the northern side Elizabeth Drive along the development frontage.

Given the size of the development, it is expected that further investigations will need to be made on relation to from which zone substation the high voltage power for the site will be supplied noting that there is currently a zone substation being constructed opposite the site on the southern side of Elizabeth Drive.

Another possibility is that supply may be provided from the nearby Kemps Creek Zone Substation. Refer Figure 35 below:

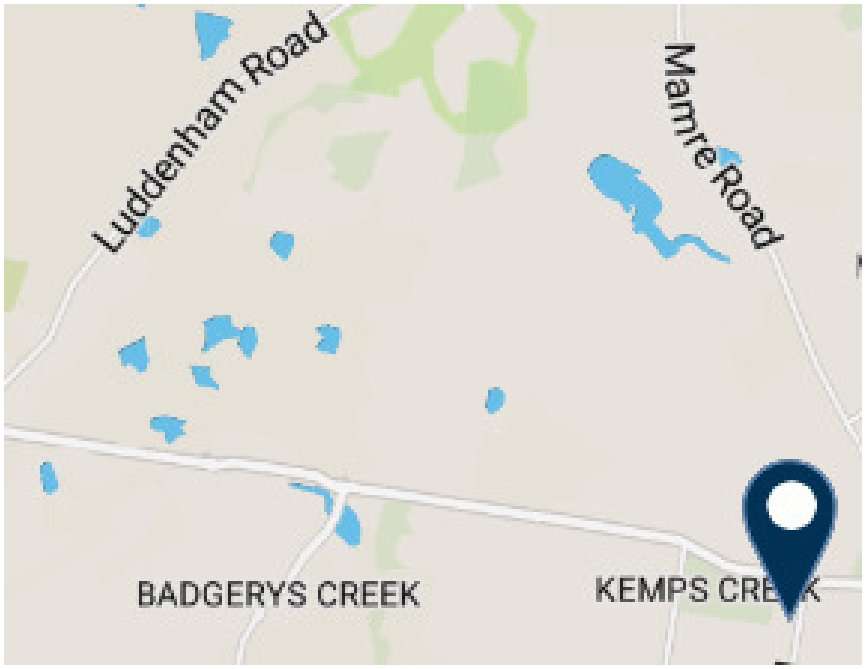


Figure 35: Proximity of Site to Kemps Creek Zone Substation (Endeavour Energy)

It is expected that underground high voltage will be reticulated through the development site to service lots, street lighting and any other community infrastructure provided as part of the development.

Similarly to the water mains and electricity, it is expected that relocations of existing electricity infrastructure, will be required as part of Elizabeth Drive road and intersection works.

Future electrical upgrades and relocation works including substations will be subject to future consultation with Endeavour Energy and electrical modelling and design.

Telecommunications

There is existing Telstra infrastructure located along the Elizabeth Drive frontage of the site. It is understood that the existing residences on the site are connected to the Telstra Network.

NBN infrastructure is located on the southern side of Elizabeth Drive at the southeastern corner of the site although it is understood that the site is not currently serviced by NBN. Given the current development in the vicinity of the site, it is expected that the site will be able to be serviced by NBN with a reticulated network installed as part of the estate roads.

Similarly to the water mains and electricity, it is expected that relocations of existing telecommunications infrastructure will be required as part of Elizabeth Drive Road and intersection works.

Gas

A review of Dial Before You Dig records indicates that there is an existing Jemena high pressure steel gas main located on the southern side of Elizabeth Drive at the south eastern corner of the site however there is no existing gas supply to the site. It is unclear at this stage whether gas will be required to service the development, but if so, it is recommended that Jemena be consulted in to confirm the suitability of connection an internal reticulation gas main extending from the existing high pressure main to service the development.

Services Reticulation

Services infrastructure mains will be reticulated throughout the new development. Services will be located in what is considered to be a standard footway/verge allocation. Typically, stormwater will be positioned beneath the kerb and gutter and the gravity sewer mains just inside the property boundaries. The remainder of the services will be located within the road verge/footway with the water mains (potable and recycled) typically behind the kerb and the telecommunications and electricity mains located between the water mains and the property boundary. Refer typical road verge detail below for service allocations.

The various service authorities will be consulted to ensure the mains and appropriately allocated and sized.

Consideration will be given to locations where services cross each other to ensure sufficient clearance of services is provided with gravity services such as sewer and stormwater taking priority. This will be further detailed as part of the Construction Certificate documentation. A typical verge cross section is shown below (Figure 36) which shows the general configuration of services withing proposed internal roads.

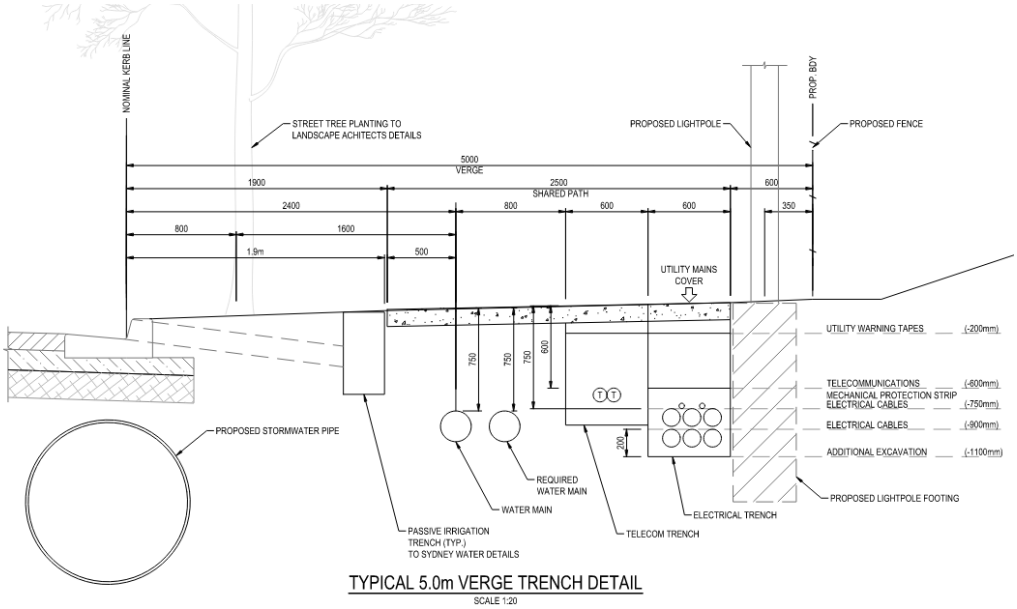


Figure 36: Typical Verge section

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DPE2,2022: Technical guidance for achieving Wianamatta - South Creek stormwater management targets.

DPE3,2022: The Guidelines for Riparian Corridors on Waterfront Land prepared by the Department of Planning and Environment.

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SWC4,2025: The Aerotropolis Draft Integrated Stormwater Scheme Plans – Cosgroves Creek by Sydney Water 2025.

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IECA1, 2018: Appendix B Sediment Design and Operation, International Erosion Control Association (IECA), 2018

IECA2, 2018: chemical coagulants and flocculants fact sheet, International Erosion Control Association (IECA), 2018

Appendices

Appendix A: Civil Engineering Drawings by Henry & Hymas Engineers

Appendix B: Site Survey

Appendix C: Relevant Architectural Concept Drawings

Appendix D: Flow Target Spreadsheets

Appendix A: Civil Engineering Drawings by Henry & Hymas Engineers

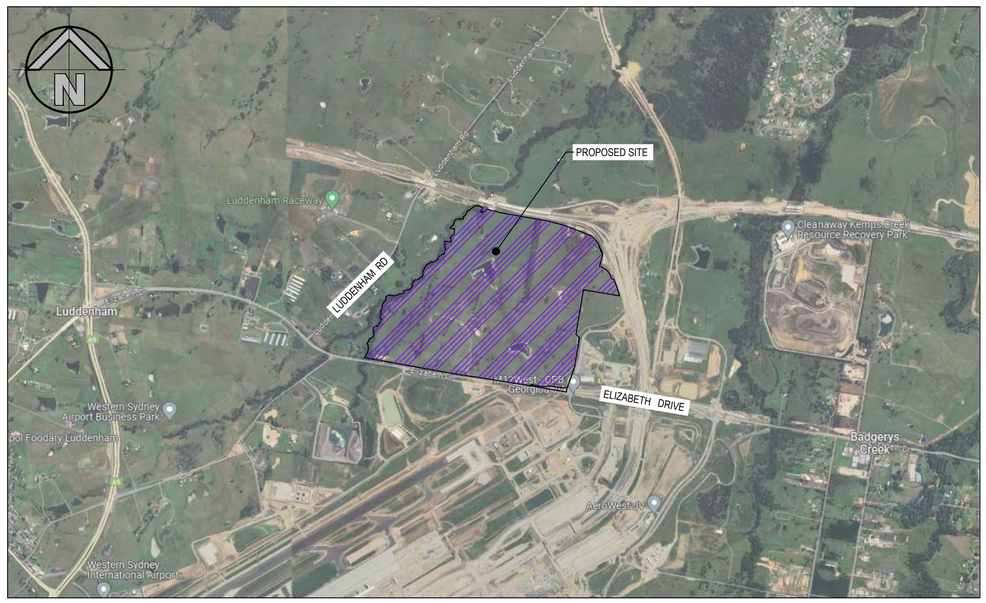
A1

BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW
CIVIL ENGINEERING WORKS

DRAWING SCHEDULE	
DRAWING NUMBER	DESCRIPTION
240518_DA_C000	COVER SHEET, DRAWING SCHEDULE AND LOCALITY SKETCH
240518_DA_C010	NOTES
240518_DA_C100	GENERAL ARRANGEMENT PLAN
240518_DA_C101	DETAIL PLAN SHEET 1 OF 25
240518_DA_C102	DETAIL PLAN SHEET 2 OF 25
240518_DA_C103	DETAIL PLAN SHEET 3 OF 25
240518_DA_C104	DETAIL PLAN SHEET 4 OF 25
240518_DA_C105	DETAIL PLAN SHEET 5 OF 25
240518_DA_C106	DETAIL PLAN SHEET 6 OF 25
240518_DA_C107	DETAIL PLAN SHEET 7 OF 25
240518_DA_C108	DETAIL PLAN SHEET 8 OF 25
240518_DA_C109	DETAIL PLAN SHEET 9 OF 25
240518_DA_C110	DETAIL PLAN SHEET 10 OF 25
240518_DA_C111	DETAIL PLAN SHEET 11 OF 25
240518_DA_C112	DETAIL PLAN SHEET 12 OF 25
240518_DA_C113	DETAIL PLAN SHEET 13 OF 25
240518_DA_C114	DETAIL PLAN SHEET 14 OF 25
240518_DA_C115	DETAIL PLAN SHEET 15 OF 25
240518_DA_C116	DETAIL PLAN SHEET 16 OF 25
240518_DA_C117	DETAIL PLAN SHEET 17 OF 25
240518_DA_C118	DETAIL PLAN SHEET 18 OF 25
240518_DA_C119	DETAIL PLAN SHEET 19 OF 25
240518_DA_C120	DETAIL PLAN SHEET 20 OF 25
240518_DA_C121	DETAIL PLAN SHEET 21 OF 25
240518_DA_C122	DETAIL PLAN SHEET 22 OF 25
240518_DA_C123	DETAIL PLAN SHEET 23 OF 25
240518_DA_C124	DETAIL PLAN SHEET 24 OF 25
240518_DA_C125	DETAIL PLAN SHEET 25 OF 25
240518_DA_C129	TEMPORARY CUL DE SAC PLAN
240518_DA_C130	ROAD LONGITUDINAL SECTIONS ROAD No. 01 (MC 01)
240518_DA_C131	ROAD LONGITUDINAL SECTIONS ROAD No.01 (MC 01) & ROAD No.01a (MC 01a)
240518_DA_C132	ROAD LONGITUDINAL SECTIONS ROAD No. 01a (MC 01a)
240518_DA_C133	ROAD LONGITUDINAL SECTIONS ROAD No.02 (MC 02) & ROAD No.02a (MC 02a)
240518_DA_C134	ROAD LONGITUDINAL SECTIONS ROAD No. 02a (MC 02a)
240518_DA_C135	ROAD LONGITUDINAL SECTIONS ROAD No. 03 (MC 03)
240518_DA_C136	ROAD LONGITUDINAL SECTIONS ROAD No. 03 (MC 03)
240518_DA_C137	ROAD LONGITUDINAL SECTIONS ROAD No. 03 (MC 03) & ROAD No. 04 (MC 04)
240518_DA_C138	ROAD LONGITUDINAL SECTIONS ROAD No. 04 (MC 04) & ROAD No. 05 (MC 05)
240518_DA_C139	ROAD LONGITUDINAL SECTIONS ROAD No. 05 (MC 05)
240518_DA_C150	TYPICAL ROAD CROSS SECTIONS
240518_DA_C151	TYPICAL ROAD VERGE SECTIONS
240518_DA_C160	TEMPORARY BATTER SECTIONS
240518_DA_C171	PROJECT STAGING - STAGE 1
240518_DA_C172	PROJECT STAGING - STAGE 2
240518_DA_C173	PROJECT STAGING - STAGE 3
240518_DA_C174	PROJECT STAGING - STAGE 4
240518_DA_C175	PROJECT STAGING - STAGE 5
240518_DA_C176	PROJECT STAGING - STAGE 6
240518_DA_C200	STORMWATER MISECELLANEOUS DETAILS
240518_DA_C201	REGIONAL STORMWATER BASIN INDICATIVE SECTION
240518_DA_C202	REGIONAL STORMWATER BASIN SEDIMENT BASIN DETAILS SHEET 1
240518_DA_C203	REGIONAL STORMWATER BASIN SEDIMENT BASIN DETAILS SHEET 2
240518_DA_C204	REGIONAL STORMWATER BASIN BIORETENTION DETAILS
240518_DA_C205	REGIONAL STORMWATER BASIN WETLAND DETAILS SHEET 1
240518_DA_C206	REGIONAL STORMWATER BASIN WETLAND DETAILS SHEET 2
240518_DA_C207	REGIONAL STORMWATER BASIN POND DETAILS
240518_DA_C208	REGIONAL STORMWATER BASIN TRUNK DRAINAGE DETAIL
240518_DA_C210	SCOUR PROTECTION DETAIL A
240518_DA_C211	STREET TREE DETAIL
240518_DA_C212	SCOUR PROTECTION DETAIL B
240518_DA_C220	BASINS GENERAL ARRANGEMENT

DRAWING SCHEDULE	
DRAWING NUMBER	DESCRIPTION
240518_DA_C221	BASIN F PLAN AND LONG SECTION
240518_DA_C222	BASIN E PLAN AND LONG SECTION
240518_DA_C223	BASIN D.1 PLAN AND LONG SECTION
240518_DA_C224	BASIN PLAN D.2 AND LONG SECTION
240518_DA_C225	BASIN PLAN D.2 AND LONG SECTION
240518_DA_C226	BASIN AB PLAN AND LONG SECTION
240518_DA_C227	BASIN C PLAN AND LONG SECTION
240518_DA_C228	BASIN C PLAN AND LONG SECTION
240518_DA_C240	PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 1 OF 4
240518_DA_C241	PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 2 OF 4
240518_DA_C242	PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 3 OF 4
240518_DA_C243	PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 4 OF 4
240518_DA_C245	TYPICAL CREEK SECTIONS, SHEET 1 OF 3
240518_DA_C246	TYPICAL CREEK SECTIONS, SHEET 2 OF 3
240518_DA_C247	TYPICAL CREEK SECTIONS, SHEET 3 OF 3
240518_DA_C250	PRE-DEVELOPMENT SYDNEY WATER CATCHMENT PLAN
240518_DA_C251	MASTER PLAN POST-DEVELOPMENT CATCHMENT PLAN
240518_DA_C252	WATER QUALITY, REUSE AND DETENTION - LOT SUMMARY
240518_DA_C253	STORMWATER DETAILED CATCHMENT PLAN-GENERAL ARRANGEMENT PLAN
240518_DA_C254	STORMWATER DETAILED CATCHMENT PLAN SHEET 1 OF 6
240518_DA_C255	STORMWATER DETAILED CATCHMENT PLAN SHEET 2 OF 6
240518_DA_C256	STORMWATER DETAILED CATCHMENT PLAN SHEET 3 OF 6
240518_DA_C257	STORMWATER DETAILED CATCHMENT PLAN SHEET 4 OF 6
240518_DA_C258	STORMWATER DETAILED CATCHMENT PLAN SHEET 5 OF 6
240518_DA_C259	STORMWATER DETAILED CATCHMENT PLAN SHEET 6 OF 6
240518_DA_C260	STORMWATER LONGITUDINAL SECTIONS SHEET 1 OF 14
240518_DA_C261	STORMWATER LONGITUDINAL SECTIONS SHEET 2 OF 14
240518_DA_C262	STORMWATER LONGITUDINAL SECTIONS SHEET 3 OF 14
240518_DA_C263	STORMWATER LONGITUDINAL SECTIONS SHEET 4 OF 14
240518_DA_C264	STORMWATER LONGITUDINAL SECTIONS SHEET 5 OF 14
240518_DA_C265	STORMWATER LONGITUDINAL SECTIONS SHEET 6 OF 14
240518_DA_C266	STORMWATER LONGITUDINAL SECTIONS SHEET 7 OF 14
240518_DA_C267	STORMWATER LONGITUDINAL SECTIONS SHEET 8 OF 14
240518_DA_C268	STORMWATER LONGITUDINAL SECTIONS SHEET 9 OF 14
240518_DA_C269	STORMWATER LONGITUDINAL SECTIONS SHEET 10 OF 14
240518_DA_C270	STORMWATER LONGITUDINAL SECTIONS SHEET 11 OF 14
240518_DA_C271	STORMWATER LONGITUDINAL SECTIONS SHEET 12 OF 14
240518_DA_C272	STORMWATER LONGITUDINAL SECTIONS SHEET 13 OF 14
240518_DA_C273	STORMWATER LONGITUDINAL SECTIONS SHEET 14 OF 14
240518_DA_C290	MASTER PLAN PRE-DEVELOPMENT OSD CATCHMENT PLAN
240518_DA_C295	MASTER PLAN IRRIGATION PLAN
240518_DA_C651	26m B-DOUBLE TURNING PATH SHEET 1 OF 8
240518_DA_C652	26m B-DOUBLE TURNING PATH SHEET 2 OF 8
240518_DA_C653	26m B-DOUBLE TURNING PATH SHEET 3 OF 8
240518_DA_C654	26m B-DOUBLE TURNING PATH SHEET 4 OF 8
240518_DA_C655	26m B-DOUBLE TURNING PATH SHEET 5 OF 8
240518_DA_C656	26m B-DOUBLE TURNING PATH SHEET 6 OF 8
240518_DA_C657	26m B-DOUBLE TURNING PATH SHEET 7 OF 8
240518_DA_C658	26m B-DOUBLE TURNING PATH SHEET 8 OF 8
240518_DA_C661	36.5m B-TRIPLE TURNING PATH SHEET 1 OF 8
240518_DA_C662	36.5m B-TRIPLE TURNING PATH SHEET 2 OF 8
240518_DA_C663	36.5m B-TRIPLE TURNING PATH SHEET 3 OF 8
240518_DA_C664	36.5m B-TRIPLE TURNING PATH SHEET 4 OF 8
240518_DA_C665	36.5m B-TRIPLE TURNING PATH SHEET 5 OF 8
240518_DA_C666	36.5m B-TRIPLE TURNING PATH SHEET 6 OF 8
240518_DA_C667	36.5m B-TRIPLE TURNING PATH SHEET 7 OF 8
240518_DA_C668	36.5m B-TRIPLE TURNING PATH SHEET 8 OF 8
240518_DA_C671	14.5m LONG BUS TURNING PATH SHEET 1 OF 6
240518_DA_C672	14.5m LONG BUS TURNING PATH SHEET 2 OF 6
240518_DA_C673	14.5m LONG BUS TURNING PATH SHEET 3 OF 6
240518_DA_C674	14.5m LONG BUS TURNING PATH SHEET 4 OF 6

DRAWING SCHEDULE	
DRAWING NUMBER	DESCRIPTION
240518_DA_C675	14.5m LONG BUS TURNING PATH SHEET 5 OF 6
240518_DA_C676	14.5m LONG BUS TURNING PATH SHEET 6 OF 6
240518_DA_SE01	SEDIMENT AND EROSION CONTROL PLAN SHEET 1 OF 4
240518_DA_SE02	SEDIMENT AND EROSION CONTROL PLAN SHEET 2 OF 4
240518_DA_SE03	SEDIMENT AND EROSION CONTROL PLAN SHEET 3 OF 4
240518_DA_SE04	SEDIMENT AND EROSION CONTROL PLAN SHEET 4 OF 4
240518_DA_SE05	SEDIMENT AND EROSION CONTROL DETAILS
240518_DA_SE06	TYPE A BASIN TYPICAL PLAN ,SECTION AND DETAILS
240518_DA_SE08	TEMPORARY CULVERT CROSSING DETAILS AND FLOW DIVERSIONS BANKS
240518_DA_SE11	EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 1
240518_DA_SE12	EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 2
240518_DA_SE13	EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 3
240518_DA_SE14	EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 4
240518_DA_BE01	BULK EARTHWORKS CUT AND FILL PLAN - i5
240518_DA_BE20	BULK EARTHWORKS SITE SECTION - A SHEET 1 OF 5
240518_DA_BE21	BULK EARTHWORKS SITE SECTION - B SHEET 2 OF 5
240518_DA_BE22	BULK EARTHWORKS SITE SECTION - C & D SHEET 3 OF 5
240518_DA_BE23	BULK EARTHWORKS SITE SECTION - E SHEET 4 OF 5
240518_DA_BE24	BULK EARTHWORKS SITE SECTION - F SHEET 5 OF 5
240518_DA_BE30	TYPICAL EARTHWORKS SECTIONS SHEET 1 OF 2
240518_DA_BE31	TYPICAL EARTHWORKS SECTIONS SHEET 2 OF 2



LOCALITY SKETCH

SCALE: N.T.S.

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
COVER SHEET, DRAWING SCHEDULE AND LOCALITY SKETCH

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

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Revision: 07

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A1

GENERAL NOTES:

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH PENRITH CITY COUNCIL 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 PENRITH CITY COUNCIL 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.

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.

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.

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.

BULK EARTHWORKS/ SUBGRADE PREPARATION - SITEWORKS.

1. REFER TO GEOTECHNICAL INVESTIGATION REPORT OR INFORMATION RELATING TO EXISTING GROUND CONDITIONS, SITE TREATMENT AND SUPERVISION. REPORT BY DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1 AND ALL RELEVANT PRECEDING REPORTS.
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 USING NOT FEWER THAN 8 PASSES OF A MINIMUM 12 TONNE DEAD WEIGHT SMOOTH DRUM ROLLER 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 SPECIFICATIONS FROM GEOTECH REPORT BY DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1 .
11. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH GEOTECH REPORT BY RELEVANT DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1.
12. IN-SITU DENSITY TESTING AND SUPERVISION MUST BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINTED WITHIN GEOTECH REPORT BY RELEVANT DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1.

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 - SITEWORKS".
2. SUB-GRADE SHALL BE COMPACTED TO 98% STANDARD MAXIMUM 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 ROCK COMPACTED TO 98% MODIFIED MAXIMUM 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 98% MODIFIED MAXIMUM 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
6. TESTING OF THE SUBGRADE AND PAVEMENT LAYERS SHALL BE CARRIED OUT BY APPROVED N.A.T.A. REGISTERED LABORATORY

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.

SUBSOIL DRAINAGE NOTES

1. GENERALY PROVIDE SUBSOIL DRAINS TO INTERCEPT GROUNDWATER SEEPAGE AND PREVENT WATER BUILD-UP BEHIND WALLS AND UNDER FLOORS AND PAVEMENTS. 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 OR JOIN THE SOCK AT EACH JOINT.

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.

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	31.10.2024
02	ISSUED FOR CONCEPT	MP	NW	15.10.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

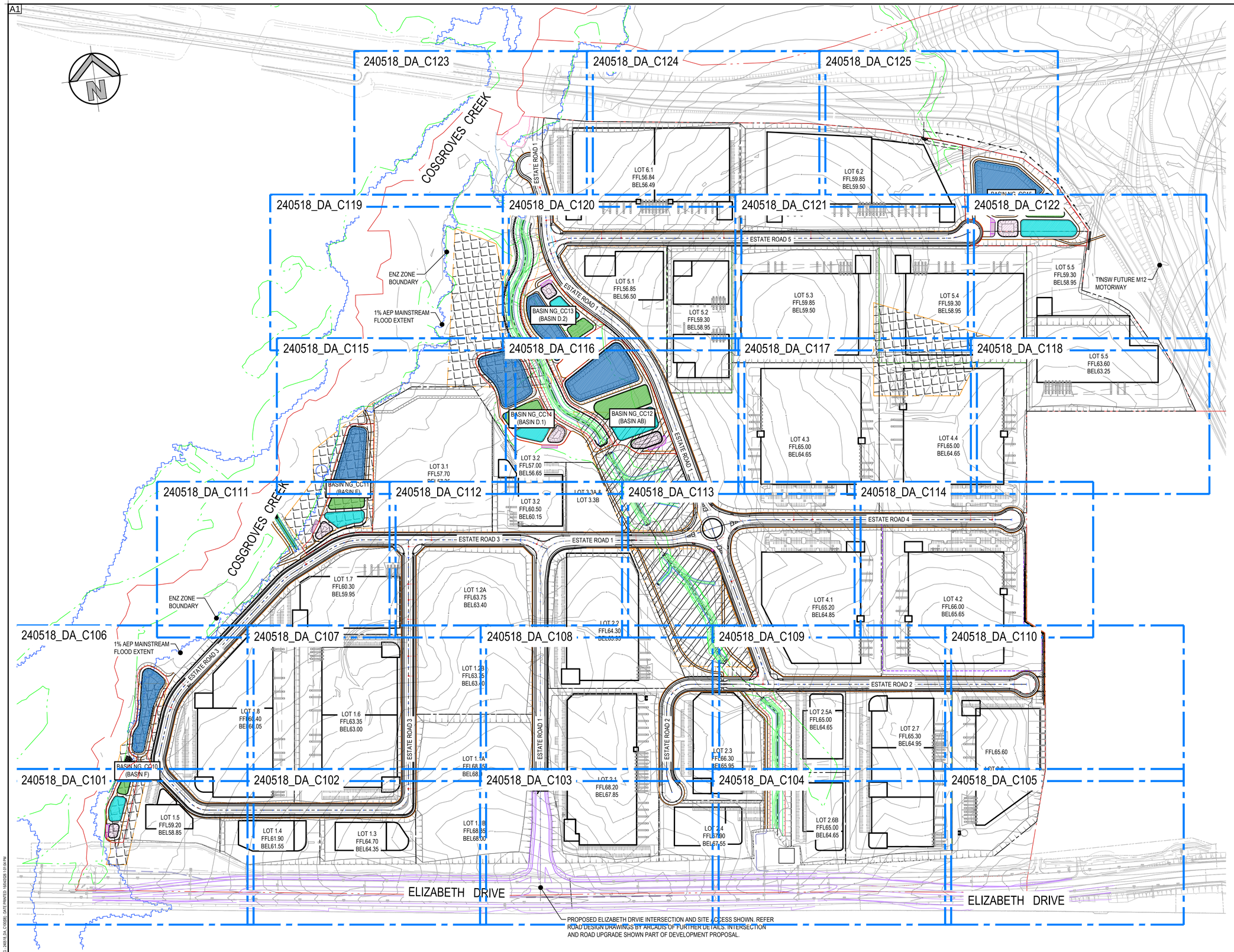
Title: NOTES

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C010
Revision: 05

File Path: R:\JOBS 2024\240518\ACAD\ArchiCAD\18518_DA_C00-C010.DWG, 18/01/26, DATE PRINTED: 12/12/2025 3:50:07 PM

A1



LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- PROPOSED CONTOURS (67.0)
- EXISTING CONTOURS (61)
- FLOOD EXTENT 1% AEP
- COSGROVES CREEK
- PROPOSED LIMIT OF WORK
- PROPOSED JUNCTION PITS
- PROPOSED SURFACE INLET PITS
- PROPOSED LINTEL ONGRADE & SAG PITS
- PROPOSED PIT TAG (A-1: LINE LETTER / PIT NUMBER)
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER CULVERT
- EXISTING BATTER LINE
- PROPOSED BATTER LINE
- PROPOSED SPOT LEVEL (60.00)
- PROPOSED RETAINING WALL (RW)
- PROPOSED KERB & GUTTER (K&G)
- SYDNEY WATER REGIONAL COMBINED WSUD WETLANDS AND INDICATIVE DETENTION ZONE ALLOCATION.
- SYDNEY WATER REGIONAL WSUD WETLAND ALLOCATION.
- BASIN ALLOCATIONS UNDER AEROTROPOLIS DRAFT INTEGRATED STORMWATER SCHEMES
- PROPOSED AMENDED BASIN ALLOCATIONS FOLLOWING CONSOLATION DURING EXHIBITION PERIOD
- PROPOSED BIORETENTION BASIN
- PROPOSED WETLAND
- PROPOSED STORAGE POND
- PROPOSED OSD ZONE
- PROPOSED SEDIMENT POND

NOTES:

ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

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07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	05.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
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02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24
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Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: GENERAL ARRANGEMENT PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C100
Revision: 08

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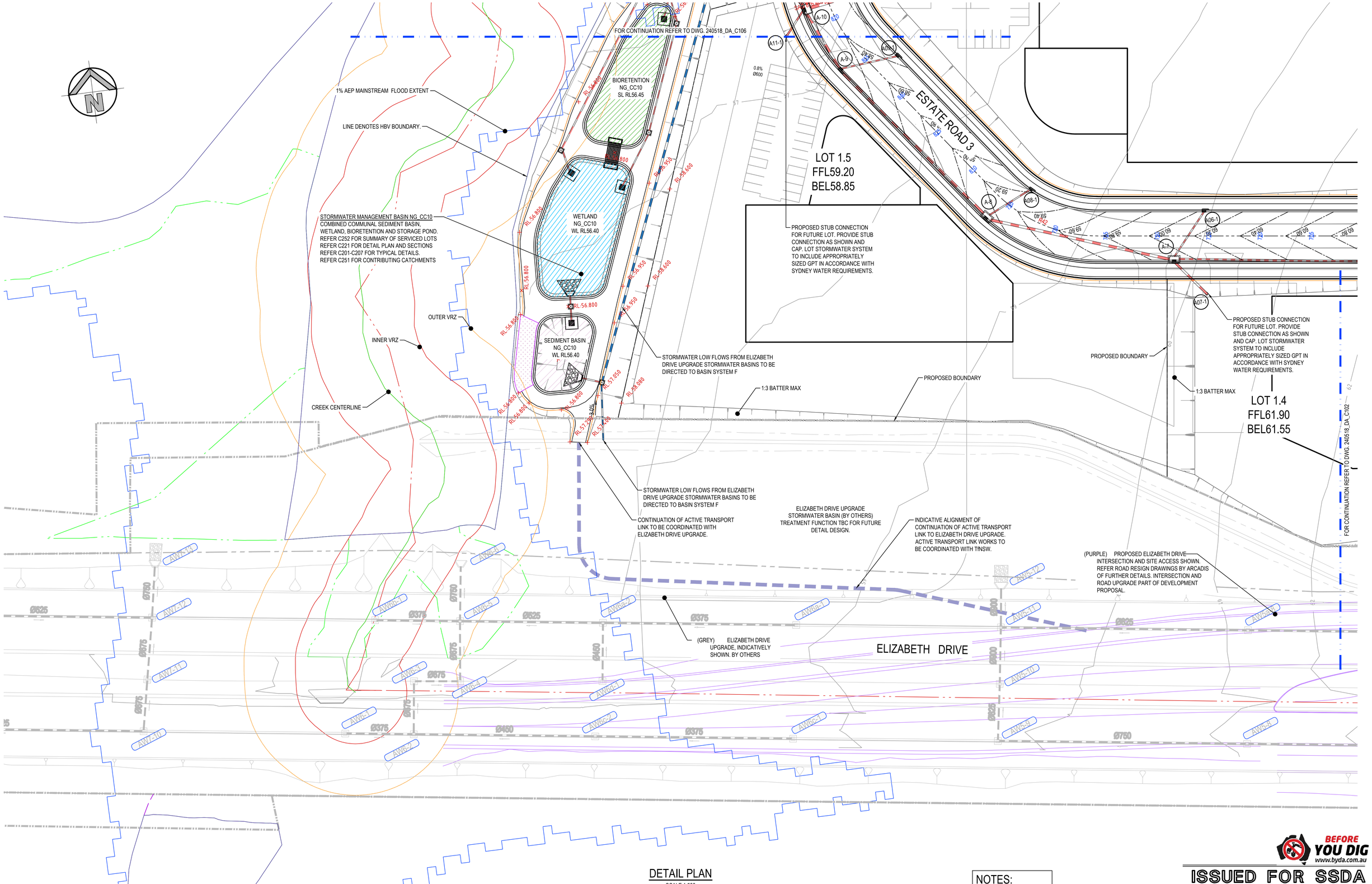

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	05.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: DETAIL PLAN SHEET 1 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C101
Revision: 08

File Path: N:\PROJECTS\240518\CAD\CAD\240518_DA_C101.DWG, DATE PRINTED: 19/05/2026 1:01:46 PM

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FOR CONTINUATION REFER TO DWG_240518_DA_C107

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

1:3 BATTER MAX

CREST 412.000

LOT 1.1 ENTRANCE

REFER ENGINEERING DRAWINGS BY HENRY & HYMAS REFERENCE 240518_D1 FOR DETAIL DESIGN FOR LOT 1.1

LOT 1.1B
FFL68.35
BEL68.00

PROPOSED BOUNDARY

LOT 1.4
FFL61.90
BEL61.55

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

1:3 BATTER MAX

LOT 1.3
FFL64.70
BEL64.35

1:3 BATTER MAX

PROPOSED BOUNDARY

1:3 BATTER MAX

FOR CONTINUATION REFER TO DWG_240518_DA_C101

FOR CONTINUATION REFER TO DWG_240518_DA_C103

(PURPLE) PROPOSED ELIZABETH DRIVE INTERSECTION AND SITE ACCESS SHOWN. REFER ROAD RESIGN DRAWINGS BY ARCADIS OF FURTHER DETAILS. INTERSECTION AND ROAD UPGRADE PART OF DEVELOPMENT PROPOSAL.

ELIZABETH DRIVE

DETAIL PLAN

SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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ORIGIN OF LEVELS:
PM25501, RL59.659

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08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 2 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C102
Revision: 08

File Path: R:\2025\240518\ACAD\240518_DA_C101-C125.DWG JOB:18_DA_C102[8] DATE PRINTED: 16/04/2026 1:02:03 PM

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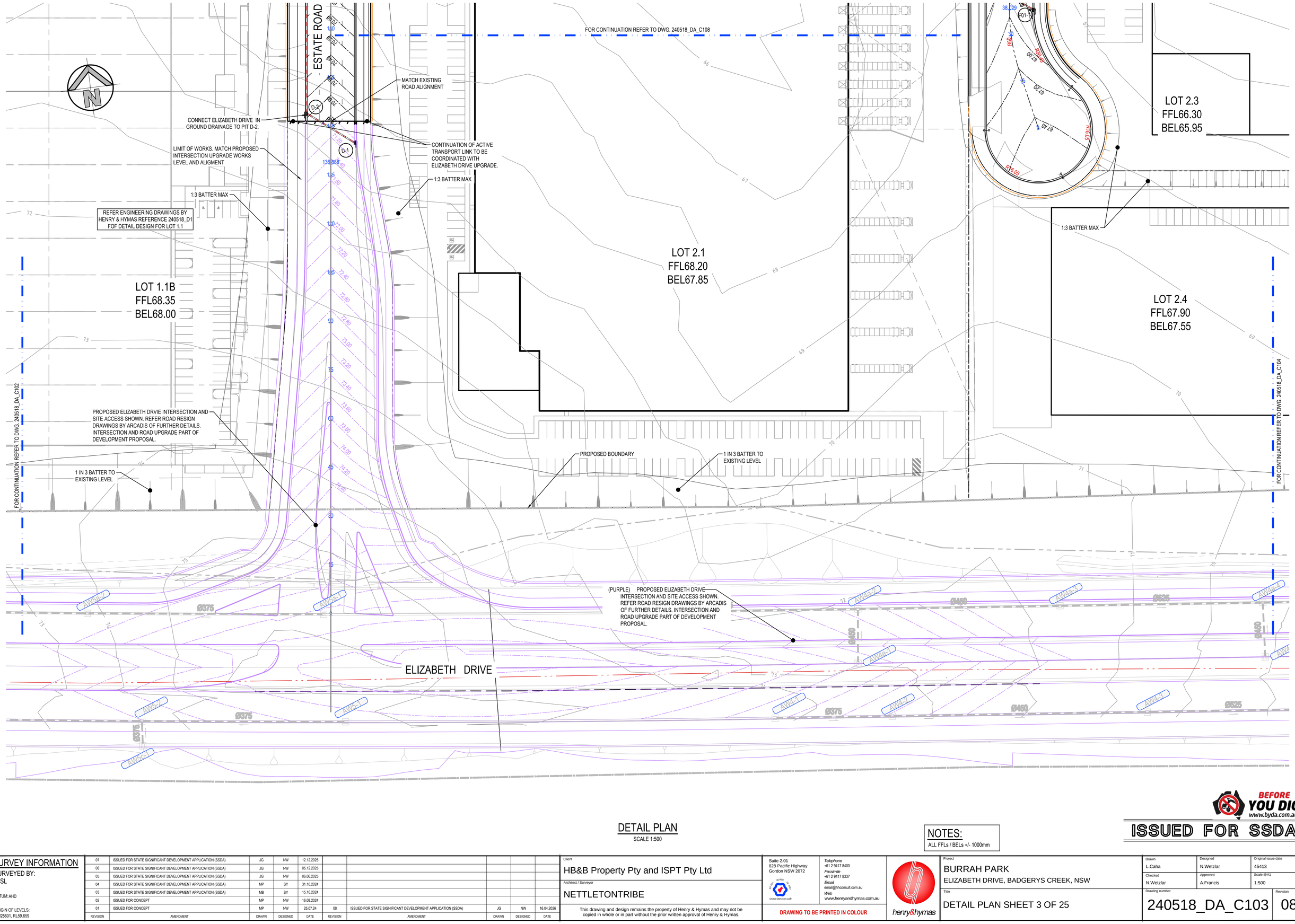

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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ORIGIN OF LEVELS:
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REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	05.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client
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Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 3 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number
240518_DA_C103

Revision
08

File Path: R:\240518\240518-ACAD\240518_DA_C101-C126.DWG JAN18_DA_C103[B]. DATE PRINTED: 16/04/2026 1:03:19 PM

A1

LINE DENOTES INNER 50% 10m VRZ OFFSET FROM LOW FLOW CHANNEL TOP BANK

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS.

PROPOSED BOUNDARY

REFER SCOUR PROTECTION DETAIL B DETAIL ON C212.

LOW FLOW DIVERSION PIT

PROPOSED BOUNDARY

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

1:3 BATTER MAX

CONTINUATION OF ACTIVE TRANSPORT LINK TO BE COORDINATED WITH ELIZABETH DRIVE UPGRADE.

CONNECT STORMWATER LOW FLOWS FROM ELIZABETH DRIVE STORMWATER BASINS TO LOW FLOW DIVERSION LINE.

CONNECT STORMWATER HIGH FLOWS FROM ELIZABETH DRIVE STORMWATER BASINS TO CENTRALISE TRUNK DRAINAGE CHANNEL

INDICATIVE ALIGNMENT OF CONTINUATION OF ACTIVE TRANSPORT LINK TO ELIZABETH DRIVE UPGRADE. ACTIVE TRANSPORT LINK WORKS TO BE COORDINATED WITH TINSW.

INDICATIVE LOCATION OF ELIZABETH DRIVE UPGRADE STORMWATER BASINS.

(PURPLE) PROPOSED ELIZABETH DRIVE INTERSECTION AND SITE ACCESS SHOWN. REFER ROAD RESIGN DRAWINGS BY ARCADIS OF FURTHER DETAILS. INTERSECTION AND ROAD UPGRADE PART OF DEVELOPMENT PROPOSAL.

ELIZABETH DRIVE

LOT 2.3
FFL66.30
BEL65.95

LOT 2.4
FFL67.90
BEL67.55

LOT 2.6
FFL65.00
BEL64.65

LOT 2.7
FFL65.30
BEL64.95

PROPOSED BOUNDARY

1:4 BATTER MAX

NATURALISED CENTRALISED TRUNK DRAINAGE CORRIDOR.

REFER C208 FOR TYPICAL CROSS SECTION, REFER C240-C243 FOR DETAIL PLAN. REFER C245 FOR DETAILED CROSS SECTIONS.

1:4 BATTER

1:4 BATTER MAX

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS

SCOUR PROTECTION DETAIL A ON C210. FINAL DESIGN SUBJECT TO FUTURE DESIGN OF ELIZABETH DRIVE BASINS.

CONNECT STORMWATER LOW FLOWS FROM ELIZABETH DRIVE STORMWATER BASINS TO LOW FLOW DIVERSION LINE.

1:3 BATTER MAX

FOR CONTINUATION REFER TO DWG. 240518_DA_C109

FOR CONTINUATION REFER TO DWG. 240518_DA_C103

FOR CONTINUATION REFER TO DWG. 240518_DA_C105

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	05.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 4 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

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08

File Path: R:\DBS\250429\06 ARCADIA\06 DA_CIVIL\CAD\DWG - 240518_DA_C104[08] - DATE PRINTED - 16/04/2026 1:05:26 PM

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FOR CONTINUATION REFER TO DWG. 240518_DA_C110

1:3 BATTER MAX

EXISTING BOUNDARY

LOT 2.8
FFL65.60
BEL65.25

TEMPORARY BATTER, LANDSCAPE BATTER OR TERRACED ROADWAY AND REMAINING (DETAIL 'B') ON BE31. SUBJECT TO INDIVIDUAL LOT DESIGN

SYDNEY UNIVERSITY LAND

1:3 BATTER MAX

PROPOSED BOUNDARY

FOR CONTINUATION REFER TO DWG. 240518_DA_C104

(PURPLE) PROPOSED ELIZABETH DRIVE INTERSECTION AND SITE ACCESS SHOWN. REFER ROAD RESIGN DRAWINGS BY ARCADIS OF FURTHER DETAILS. INTERSECTION AND ROAD UPGRADE PART OF DEVELOPMENT PROPOSAL.

(GREY) ELIZABETH DRIVE UPGRADE, INDICATIVELY SHOWN. BY OTHERS

ELIZABETH DRIVE

14.663

300.002

DETAIL PLAN

SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 5 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C105
Revision: 06

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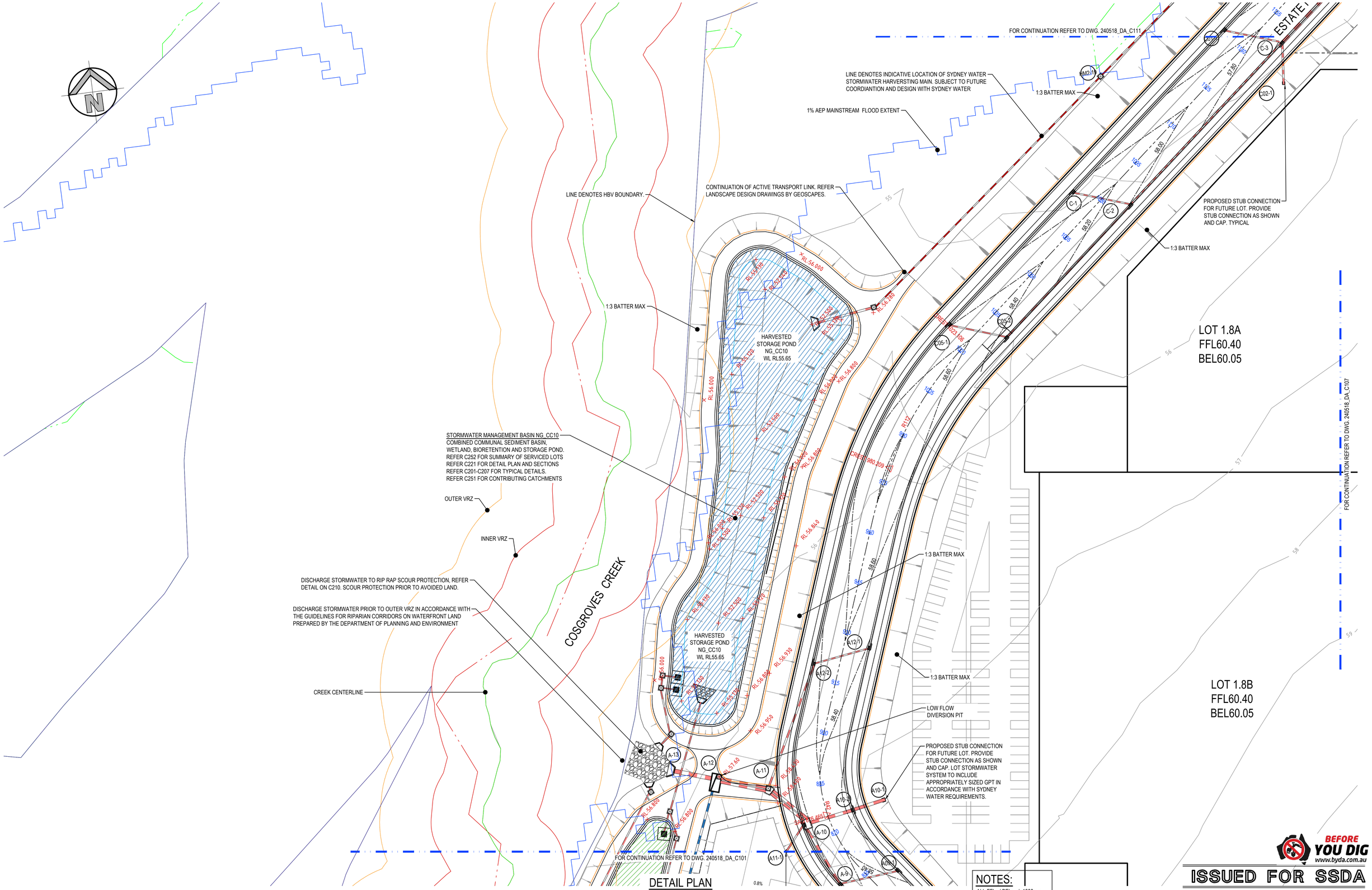

DETAIL PLAN

SCALE 1:500

NOTES:

ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: DETAIL PLAN SHEET 6 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C106 — Revision: 08

File Path: R:\JOBS\2024\240518\CAD\240518_DA_C101-C126.DWG - 240518_DA_C106(08) - DATE PRINTED: 16/04/2026 1:03:09 PM

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FOR CONTINUATION REFER TO DWG. 240518_DA_C111

FOR CONTINUATION REFER TO DWG. 240518_DA_C112

PROPOSED BOUNDARY

PROPOSED BOUNDARY

PROPOSED BOUNDARY

PROPOSED BOUNDARY

1:3 BATTER MAX

1:3 BATTER MAX

1:3 BATTER MAX

1:3 BATTER MAX

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

REFER ENGINEERING DRAWINGS BY HENRY & HYMAS REFERENCE 240518_D1 FOR DETAIL DESIGN FOR LOT 1.2

REFER ENGINEERING DRAWINGS BY HENRY & HYMAS REFERENCE 240518_D1 FOR DETAIL DESIGN FOR LOT 1.1

LOT 1.8A
FFL60.40
BEL60.05

LOT 1.6A
FFL63.35
BEL63.00

LOT 1.2B
FFL63.75
BEL63.40

LOT 1.8B
FFL60.40
BEL60.05

LOT 1.6B
FFL63.35
BEL63.00

LOT 1.1A
FFL68.35
BEL68.00

LOT 1.2 ENTRANCE

LOT 1.1 ENTRANCE

ESTATE ROAD 3

B-5 B03-1 B04-1 B-4 B02-1 B-2 B-1 B01-1 B01-2

CREST 62.508

FOR CONTINUATION REFER TO DWG. 240518_DA_C106

FOR CONTINUATION REFER TO DWG. 240518_DA_C108

FOR CONTINUATION REFER TO DWG. 240518_DA_C102

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 7 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number
240518_DA_C107

Revision
06

File/Path: R:\240518\04CAD\DA\240518_DA_C101-C124.DWG - 240518_DA_C107[06] - DATE PRINTED - 2/12/2025 5:33:42 PM

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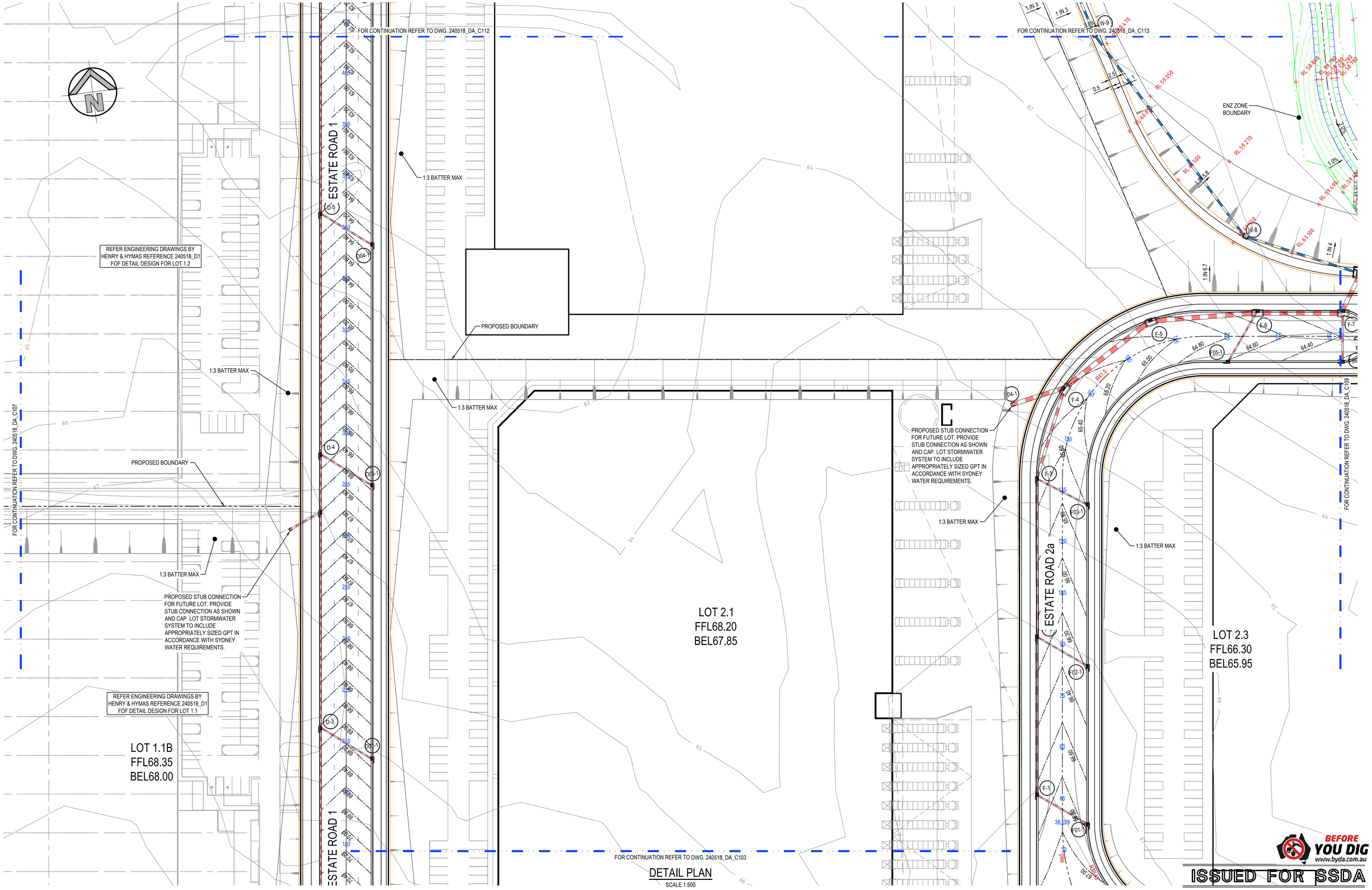

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Web www.henryandhymas.com.au

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 8 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:500

Drawing number
240518_DA_C108

Revision
07

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FOR CONTINUATION REFER TO DWG. 240518_DA_C113

FOR CONTINUATION REFER TO DWG. 240518_DA_C114

FOR CONTINUATION REFER TO DWG. 240518_DA_C108

FOR CONTINUATION REFER TO DWG. 240518_DA_C110

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

1:3 BATTER MAX

LOW FLOW DIVERSION PIT

PEDESTRIAN REFUGE ISLAND AND CROSSING FACILITIES IN ACCORDANCE WITH TINSW REQUIREMENTS,

LOW FLOW DIVERSION PIT

1:3 BATTER MAX

1:3 BATTER MAX

PROPOSED BOUNDARY

LOT 4.2
FFL66.00
BEL65.65

ESTATE ROAD 2a

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

RIP RAP SCOUR PROTECTION DETAIL B. REFER DETAIL ON C212

1:3 BATTER MAX

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

1:3 BATTER MAX

PROPOSED OSD CONTROL STRUCTURE. SHOWN INDICATIVELY. REFER TO CIVIL ENGINEERING REPORT FOR ADDITIONAL DETAILS. FINALISATION OF OUTLET STRUCTURE SUBJECT TO FINAL CREEK DESIGN AND SYDNEY WATER REQUIREMENTS.

RIP RAP SCOUR PROTECTION DETAIL A. REFER DETAIL ON C210

RIP RAP SCOUR PROTECTION DETAIL B. REFER DETAIL ON C212

LOW FLOW DIVERSION PIT

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

PROPOSED OSD ZONE 3

ONLINE DETENTION ZONE
DETENTION VOLUME = 3406m3
1% AEP OSD TOP WATER LEVEL = RL62.78
SURFACE AREA AT RL62.78 = 3,985m^2

1:4 BATTER MAX

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS

PROPOSED BOUNDARY

1:4 BATTER

LOT 2.5
FFL65.00
BEL64.65

LOT 2.7
FFL65.30
BEL64.95

OSD 3

LOT 2.3
FFL66.30
BEL65.95

1:3 BATTER MAX

1:4 BATTER MAX

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS,

NATURALISED CENTRALISED TRUNK DRAINAGE CORRIDOR.

REFER C208 FOR TYPICAL CROSS SECTION, REFER C240-C243 FOR DETAIL PLAN. REFER C245 FOR DETAILED CROSS SECTIONS.

REFER SCOUR PROTECTION DETAIL B DETAIL ON C212.

3.5m WIDE MAINTENANCE PATH

LOW FLOW DIVERSION PIT

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

LINE DENOTES INNER 50% 10m VRZ OFFSET FROM LOW FLOW CHANNEL TOP BANK

FOR CONTINUATION REFER TO DWG. 240518_DA_C104

PROPOSED BOUNDARY

DETAIL PLAN

SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: DETAIL PLAN SHEET 9 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C109

Revision: 07

FilePath: R:\240\20\04\Architectural\240518_DA_C101-C126.DWG - 240518_DA_C109(7) - DATE PRINTED: 16/04/2026 1:59:08 PM

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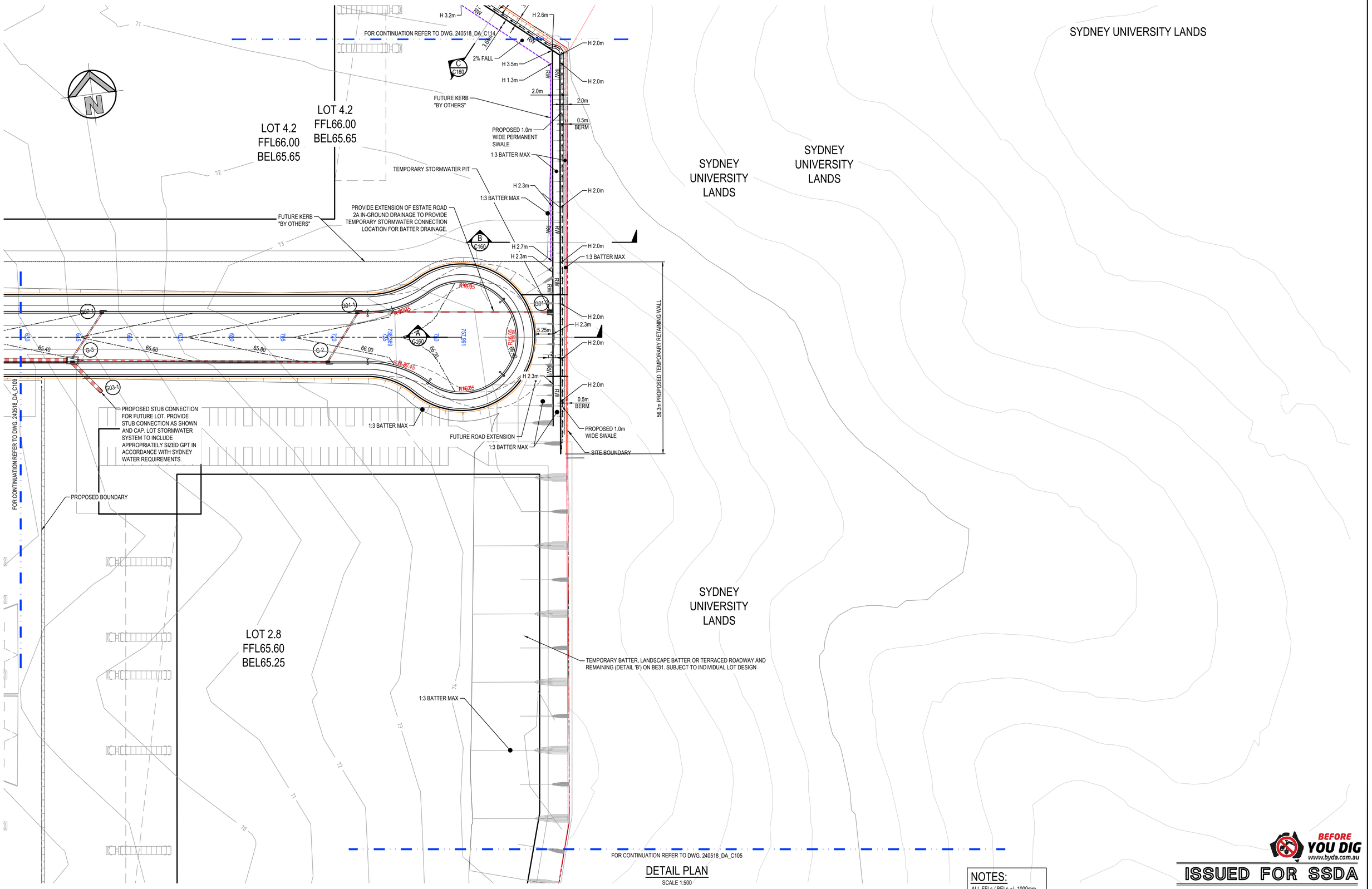

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: DETAIL PLAN SHEET 10 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C110
Revision: 06

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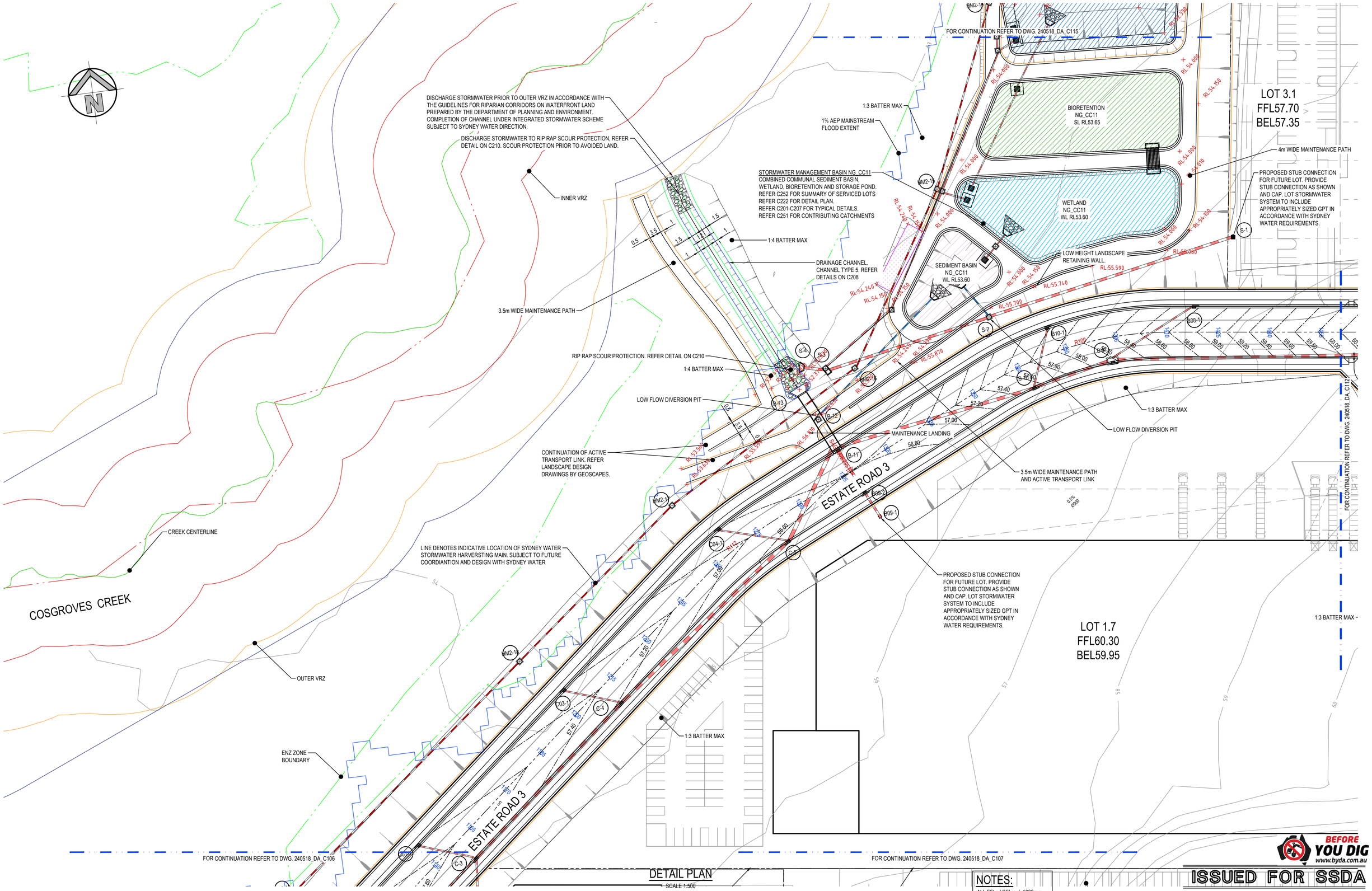

DETAIL PLAN
SCALE 1:500

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ISSUED FOR SSDA

NOTES:
ALL FFLs / BELs +/- 1000mm

SURVEY INFORMATION
SURVEYED BY:
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DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Gordon NSW 2072
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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 11 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C111
Revision: 07

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A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C115

LOT 3.1
FFL57.70
BEL57.35

REFER ENGINEERING DRAWINGS BY HENRY & HYMAS REFERENCE 240518_D1 FOF DETAIL DESIGN FOR LOT 3.1

1:3 BATTER MAX

PROPOSED BOUNDARY

LOT 3.2
FFL60.50
BEL60.15

WATER REQUIREMENTS.

FOR CONTINUATION REFER TO DWG. 240518_DA_C116

RIP RAP SCOUR PROTECTION. REFER DETAIL ON C210

1:4 BATTER MAX

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS.

LOT 3.3A & LOT 3.3B
FFL59.75- 57.00
BEL59.40-56.65

ESTATE ROAD 3

ESTATE ROAD 1

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

REFER ENGINEERING DRAWINGS BY HENRY & HYMAS REFERENCE 240518_D1 FOF DETAIL DESIGN FOR LOT 1.2

LOT 1.2A
FFL63.75
BEL63.40

LOT 1.1 ENTRANCE

LOT 2.2
FFL64.30
BEL63.95

FOR CONTINUATION REFER TO DWG. 240518_DA_C107

FOR CONTINUATION REFER TO DWG. 240518_DA_C108

FOR CONTINUATION REFER TO DWG. 240518_DA_C111

FOR CONTINUATION REFER TO DWG. 240518_DA_C113

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 12 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C112
Revision: 06

File Path: R:\Jobs\2024\240518\CAD\DA\240518_DA_C101-C125.DWG 240518_DA_C112[06], DATE PRINTED: 12/12/2025 8:54:02 PM

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FOR CONTINUATION REFER TO DWG. 240518_DA_C116

FOR CONTINUATION REFER TO DWG. 240518_DA_C117

OSD 1

DENOTES CENTRAL TRUNK DRAINAGE - SECTION 3
REFER C203 AND DRAWINGS C240-C243

NATURALISED CENTRALISED TRUNK DRAINAGE CORRIDOR.

REFER C208 FOR TYPICAL CROSS SECTION, REFER C240-C243 FOR DETAIL PLAN. REFER C245 FOR DETAILED CROSS SECTIONS.

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

LOW FLOW DIVERSION PIT

PROPOSED OSD ZONE 1

ONLINE DETENTION ZONE
DETENTION VOLUME = 13360m3
1% AEP OSD TOP WATER LEVEL = RL57.25
SURFACE AREA AT RL57.25 = 11120m²

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

TEMP (STAGE 1 ONLY) GPT CDS1015 SUBJECT TO FUTURE DESIGN

LOT 4.3
FFL65.00
BEL64.65

ESTATE ROAD 4

1:3 BATTER MAX

1:3 BATTER MAX

PROVIDE CONCRETE DISH DRAIN TO COLLECT STORMWATER GENERATED WITHIN ROUND-A-BOUT ANNULUS. DRAIN TO PIT W-4

PEDESTRIAN REFUGE ISLAND AND CROSSING FACILITIES IN ACCORDANCE WITH TfNSW REQUIREMENTS,

PROPOSED OSD CONTROL STRUCTURE. SHOWN INDICATIVELY. REFER TO CIVIL ENGINEERING REPORT FOR ADDITIONAL DETAILS. FINALISATION OF OUTLET STRUCTURE SUBJECT TO FINAL CREEK DESIGN AND SYDNEY WATER REQUIREMENTS.

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

LOW FLOW DIVERSION PIT

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

1:4 BATTER

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

NATURALISED CENTRALISED TRUNK DRAINAGE CORRIDOR.

REFER C208 FOR TYPICAL CROSS SECTION, REFER C240-C243 FOR DETAIL PLAN. REFER C245 FOR DETAILED CROSS SECTIONS.

LOT 2.2
FFL65.15

ENZ ZONE BOUNDARY

OSD 2

3.5M WIDE ACTIVE TRANSPORT LINK.

3.5M WIDE ACTIVE TRANSPORT LINK.

ESTATE ROAD 2

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS.

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

PROPOSED OSD ZONE 2

ONLINE DETENTION ZONE
DETENTION VOLUME = 13030m3
1% AEP OSD TOP WATER LEVEL = RL52.93
SURFACE AREA AT RL58.84 = 13720m²

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS,

1:3 BATTER MAX

PROPOSED BOUNDARY

LOT 4.1
FFL65.20
BEL64.85

FOR CONTINUATION REFER TO DWG. 240518_DA_C112

FOR CONTINUATION REFER TO DWG. 240518_DA_C114

FOR CONTINUATION REFER TO DWG. 240518_DA_C108

FOR CONTINUATION REFER TO DWG. 240518_DA_C109

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION											
SURVEYED BY: LTSL	07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026						
DATUM: AHD	06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025						
ORIGIN OF LEVELS: PM25501, RL59.659	05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025						
	04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024						
	03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024						
	02	ISSUED FOR CONCEPT	MP	NW	16.08.2024						
	01	ISSUED FOR CONCEPT	MP	NW	25.07.24						
	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: DETAIL PLAN SHEET 13 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C113

Revision: 07

File Path: P:\JOBS\2024\240518\CAD\ACAD\SSDA_DA_C101-C120.DWG - 240518_DA_C113 - DATE PRINTED: 16/04/2026 2:34:41 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C117

FOR CONTINUATION REFER TO DWG. 240518_DA_C118

PROPOSED BOUNDARY

1:3 BATTER MAX

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

LOT 4.4
FFL65.00
BEL64.65

INDICATIVE LOCATION OF POTENTIAL TEMPORARY STORMWATER CONNECTION FOR UPSTREAM PROPERTY SUBJECT TO STAGING AND TIMING OF SURROUNDING DEVELOPMENT. UPSTREAM CATCHMENT IN SYDNEY UNIVERSITY LANDS REDIRECTED AS PART OF THE DRAFT SCHEME PLAN BY SYDNEY WATER. CATCHMENT NOT INCLUDED IN PREDEVELOPED OSD CATCHMENTS AND NOT DIRECTED TO BASIN NG_CC15 SYSTEM.

ESTATE ROAD 4

SYDNEY UNIVERSITY LANDS

ADDITIONAL TEMPORARY SEDIMENT BASIN "1000m² CATCHMENT AREA"

5.0% SLOPE

0.5m BERM

EXISTING BOUNDARY

PROPOSED 1.0m WIDE TEMPORARY SWALE

TEMPORARY 1.0m WIDE SWALE

1.7% SLOPE

FUTURE KERB "BY OTHERS"

PROPOSED 1.0m WIDE PERMANENT SWALE

PROPOSED RETAINING WALL

H 0.7m

0.3% SLOPE

1.85% SLOPE

PERMANENT 1.0m WIDE SWALE

H 1.2m

H 1.8m

1:3 BATTER MAX

3.0m

H 1.65m

4.1% SLOPE

H 3.25m

H 3.2m

H 2.6m

H 2.0m

2% FALL

H 3.5m

FOR CONTINUATION REFER TO DWG. 240518_DA_C113

LOT 4.2
FFL66.00
BEL65.65

FOR CONTINUATION REFER TO DWG. 240518_DA_C109

FOR CONTINUATION REFER TO DWG. 240518_DA_C110

DETAIL PLAN
SCALE 1:500

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 14 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number 240518_DA_C114

Revision 06

File Path: N:\260-250\240518\ACAD\DA\240518_DA_C01-C270.DWG - 240518_DA_C114[06]_DATE PRINTED: 12/12/2025 5:34:36 PM

A1

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
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02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 15 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C115
Revision: 07

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C101-C125.DWG - 240518_DA_C115[07] - DATE PRINTED: 16/04/2026 1:05:36 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C120

FOR CONTINUATION REFER TO DWG. 240518_DA_C115

FOR CONTINUATION REFER TO DWG. 240518_DA_C117

FOR CONTINUATION REFER TO DWG. 240518_DA_C112

FOR CONTINUATION REFER TO DWG. 240518_DA_C113

LOT 5.1
FFL56.85

LOT 5.2
FFL58.45

LOT 4.3
FFL65.00

LOT 4.3
FFL65.00
BEL64.65

LOT 3.2
FFL57.00
BEL56.65

1:3 BATTER MAX

ENZ ZONE BOUNDARY

3.5m WIDE MAINTENANCE PATH

ESTATE ROAD 1a

ESTATE ROAD 1a

RIP RAP SCOUR PROTECTION B. REFER DETAIL ON C212

RED LINE DENOTES INDICATIVE ALIGNMENT OF STORMWATER HARVESTING MAIN TO SYDNEY WATER SPECIFICATIONS.

0.3m FREEBOARD @ T/N 4

0.3 BERM

10.7% FALL

HARVESTED STORAGE POND NG_CC12
WL 55.65

NATURALISED CENTRALISED TRUNK DRAINAGE CORRIDOR.

REFER C208 FOR TYPICAL CROSS SECTION. REFER C240-C243 FOR DETAIL PLAN. REFER C245 FOR DETAILED CROSS SECTIONS.

RIP RAP SCOUR PROTECTION B. REFER DETAIL ON C212

BIORETENTION NG_CC12
SL RL57.35

WETLAND NG_CC12
WL RL57.30

SEDIMENT BASIN NG_CC12
WL RL57.30

BIORETENTION NG_CC14
SL RL54.65

WETLAND NG_CC14
WL RL54.60

SEDIMENT BASIN NG_CC14
WL RL54.60

1 IN 3 MAX.

LOW FLOW DIVERSION PIT

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS.

LOW FLOW DIVERSION STORMWATER LINE TO STORMWATER BASINS.

STORMWATER MANAGEMENT BASIN D.1.
COMBINED COMMUNAL SEDIMENT BASIN, WETLAND, BIORETENTION AND STORAGE POND.
REFER C252 FOR SUMMARY OF SERVICED LOTS
REFER C223 FOR DETAIL PLAN.
REFER C201-C207 FOR TYPICAL DETAILS.
REFER C251 FOR CONTRIBUTING CATCHMENTS

STORMWATER MANAGEMENT BASIN AB/NG_CC12.
COMBINED COMMUNAL SEDIMENT BASIN, WETLAND, BIORETENTION AND STORAGE POND.
REFER C252 FOR SUMMARY OF SERVICED LOTS
REFER C226 FOR DETAIL PLAN.
REFER C201-C207 FOR TYPICAL DETAILS.
REFER C251 FOR CONTRIBUTING CATCHMENTS

3.5m WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

RIP RAP SCOUR PROTECTION A. REFER DETAIL ON C210

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

PROPOSED BOUNDARY

PROPOSED BOUNDARY

PROPOSED OSD 1 CONTROL STRUCTURE. SHOWN INDICATIVELY. REFER TO CIVIL ENGINEERING REPORT FOR ADDITIONAL DETAILS. FINALISATION OF OUTLET STRUCTURE SUBJECT TO FINAL CREEK DESIGN AND SYDNEY WATER REQUIREMENTS.

PROPOSED OSD ZONE 1

ONLINE DETENTION ZONE
DETENTION VOLUME = 13360m3
1% AEP OSD TOP WATER LEVEL = RL57.25
SURFACE AREA AT RL57.25 = 11120m^2

PEDESTRIAN CROSSING AND EMERGENCY OVERFLOW WEIR SUBJECT TO DETAILED DESIGN.

1:4 BATTER MAX

DETAIL PLAN
SCALE 1:500

OSD 1

DENOTES CENTRAL TRUNK DRAINAGE - SECTION 3

NOTES
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

Suite 2.01
828 Pacific Highway
Gordon NSW 2072

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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 16 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number
240518_DA_C116

Revision
07

File Path: R:\2025\240518\ACAD\240518_DA_C101-C125.DWG - 240518_DA_C116(07) - DATE PRINTED: 16/04/2026 1:06:49 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C121

1:3 BATTER MAX

FORMER BASIN C

1:3 BATTER MAX

PROPOSED BOUNDARY

PROPOSED BOUNDARY

PROPOSED BOUNDARY

FOR CONTINUATION REFER TO DWG. 240518_DA_C116

FOR CONTINUATION REFER TO DWG. 240518_DA_C118

LOT 4.3
FFL65.00
BEL64.65

LOT 4.4
FFL65.00
BEL64.65

FOR CONTINUATION REFER TO DWG. 240518_DA_C113

FOR CONTINUATION REFER TO DWG. 240518_DA_C114

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 17 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number
240518_DA_C117

Revision
06

File Path: R:\SHE\240518\ACAD\DA\240518_DA_C101-C125.DWG, 240518_DA_C117.DWG, DATE PRINTED: 2/12/2025 4:26:18 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C122

FOR CONTINUATION REFER TO DWG. 240518_DA_C117

FOR CONTINUATION REFER TO DWG. 240518_DA_C114

LOT 5.5
FFL63.60
BEL63.25

LOT 4.4
FFL65.00
BEL64.65

1:3 BATTER MAX

EXISTING BOUNDARY

INDICATIVE LOCATION OF POTENTIAL TEMPORARY STORMWATER LINE (OR DRAINAGE CHANNEL) FOR UPSTREAM PROPERTY SUBJECT TO STAGING AND TIMING OF SURROUNDING DEVELOPMENT.

M12
HIGHWAY
(TfNSW)

(GREY) M12 MOTORWAY DESIGN (BY OTHERS)

INDICATIVE LOCATION OF POTENTIAL TEMPORARY STORMWATER CONNECTION FOR UPSTREAM PROPERTY SUBJECT TO STAGING AND TIMING OF SURROUNDING DEVELOPMENT. UPSTREAM CATCHMENT IN SYDNEY UNIVERSITY LANDS REDIRECTED AS PART OF THE DRAFT SCHEME PLAN BY SYDNEY WATER. CATCHMENT NOT INCLUDED IN PREDEVELOPED OSD CATCHMENTS AND NOT DIRECTED TO BASIN C SYSTEM.

SYDNEY
UNIVERSITY
LANDS

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
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03	ISSUED FOR CONCEPT	MB	SY	13.09.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

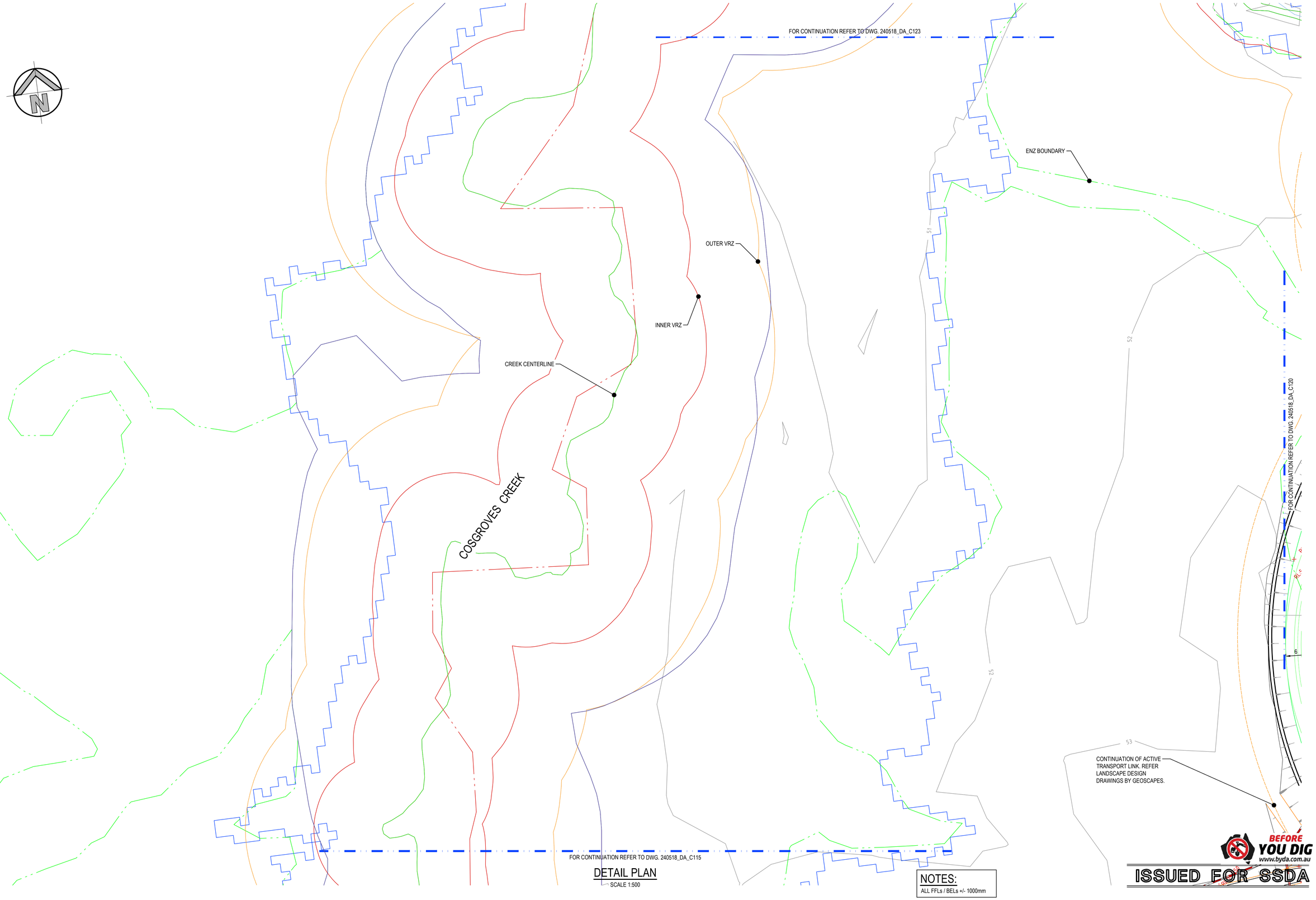
Title
DETAIL PLAN SHEET 18 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C118
Revision: 07

File Path: RL:\PROJ\2024\240518\ACAD\Cad\240518_DA_C01-C25.DWG - 240518_DA_C118(07) - DATE PRINTED - 12/12/2025 5:03:34 PM

A1



DETAIL PLAN

SCALE 1:500

NOTES:

ALL FFLs / BELs +/- 1000mm

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ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Suite 2.01
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Gordon NSW 2072

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Email email@hhconsult.com.au
Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 19 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number
240518_DA_C119

Revision
07

File Path: R:\JOBS\2024\240518\ACAD\240518_DA_C101-C125.DWG 240518_DA_C119[07] DATE PRINTED: 16/04/2026 1:56:37 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C123

FOR CONTINUATION REFER TO DWG. 240518_DA_C124

CONNECT TO COSGROVES CREEK, CONNECTION AND WORKS IN ACCORDANCE WITH THE GUIDELINES FOR RIPARIAN CORRIDORS ON WATERFRONT LAND PREPARED BY THE DEPARTMENT OF PLANNING AND ENVIRONMENT. TRANSITION TRUNK DRAINAGE TO MATCH EXISTING BANK DIMENSIONS AND PROFILE. REFER ENGINEERING DRAWING C24X'S FOR DETAILS. TRANSITION ZONE SHOWN. MINOR ADJUSTMENT TO CREEK ALIGNMENT TO SUIT CURRENT CREEK POSITION AT TIME OF WORKS.

LINE DENOTES INDICATIVE LOCATION OF SYDNEY WATER STORMWATER HARVERSTING MAIN. SUBJECT TO FUTURE COORDIANTION AND DESIGN WITH SYDNEY WATER

NATURALISED CENTRALISED TRUNK DRAINAGE CORRIDOR.

REFER C208 FOR TYPICAL CROSS SECTION, REFER C240-C243 FOR DETAIL PLAN. REFER C245 FOR DETAILED CROSS SECTIONS.

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

RED LINE DENOTES INDICATIVE ALIGNMENT OF STORMWATER HARVESTING MAIN TO SYDNEY WATER SPECIFICATIONS.

LOT 6.1A
FFL56.84

1:3 BATTER MAX

ESTATE ROAD 5

RIP RAP SCOUR PROTECTION B. REFER DETAIL ON C212

LOW FLOW DIVERSION PIT

INDICATIVE LOCATION OF LOW LEVEL INFORMAL PEDESTRIAN CROSSING. REFER DETAILS BY LANDSCAPE ARCHITECT. TO DETAIL DESIGN SUBJECT TO CENTRAL CHANNEL DESIGN.

RIP RAP SCOUR PROTECTION B. REFER DETAIL ON C212

LOW FLOW DIVERSION LINE

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

LOT 5.1
FFL56.85
BEL56.50

1:3 BATTER MAX

SEDIMENT BASIN
NG_CC13
WL RL52.80

WETLAND
NG_CC13
WL RL52.80

HARVESTED STORAGE POND
NG_CC13
WL RL52.05

BIORETENTION BASIN NG_CC13
SL RL52.85

STORMWATER MANAGEMENT BASIN NG_CC13
COMBINED COMMUNAL SEDIMENT BASIN, WETLAND, BIORETENTION AND STORAGE POND.
REFER C252 FOR SUMMARY OF SERVICED LOTS
REFER C224-225 FOR DETAIL PLAN.
REFER C201-C207 FOR TYPICAL DETAILS.
REFER C251 FOR CONTRIBUTING CATCHMENTS

ESTATE ROAD 1

BERM

1 IN 4 MAX.

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

PROPOSED BOUNDARY

LOT 5.2
FFL59.30
BEL58.95

FOR CONTINUATION REFER TO DWG. 240518_DA_C116

FOR CONTINUATION REFER TO DWG. 240518_DA_C119

FOR CONTINUATION REFER TO DWG. 240518_DA_C121

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 20 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C120
Revision: 07

Plot Date: 16/04/2026 9:08:00 AM BY:GORDON SMITH DA_C101 C135.DWG - 240518_DA_C120(07) - DATE PRINTED: 16/04/2026 1:06:51 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C124

FOR CONTINUATION REFER TO DWG. 240518_DA_C125

FOR CONTINUATION REFER TO DWG. 240518_DA_C120

FOR CONTINUATION REFER TO DWG. 240518_DA_C122

FOR CONTINUATION REFER TO DWG. 240518_DA_C117

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

LOT 6.2
FFL59.85
BEL59.50

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

LOW FLOW DIVERSION WEIR

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

1:3 BATTER MAX

LINE DENOTES INDICATIVE LOCATION OF SYDNEY WATER STORMWATER HARVERSTING MAIN. SUBJECT TO FUTURE COORDIANTION AND DESIGN WITH SYDNEY WATER

ESTATE ROAD 5

1:3 BATTER MAX

1:3 BATTER MAX

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

1:3 BATTER MAX

PROPOSED BOUNDARY

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

LOT 5.3
FFL61.00
BEL60.65

LOT 5.4
FFL59.30
BEL58.95

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 21 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number 240518_DA_C121

Revision 07

file://fm-fs-005:3550/3550-PACDP/240518_DA_C121.DWG, 240518_DA_C121(01), DATE PRINTED: 16/04/2026 1:07:09 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_DA_C125

BIORETENTION
NG_CC15
SL RL55.65

SEDIMENT BASIN
NG_CC15
WL RL55.60

WETLAND
NG_CC15
WL RL55.60

CONNECT STORMWATER LOW FLOWS FROM M12 DRAINAGE BASINS TO LOW FLOW DIVERSION LINE.

LOCATION OF EXISTING M12 SHARED PATH

CONNECT PROPOSED ACTIVE TRANSPORT LINK TO M12 SHARED PATH.

PROVIDE MINOR BRIDGING STRUCTURE TO CONNECT SHARED PATH OVER EXISTING MINOR CONCRETE DRAINAGE CHANNEL.

EXISTING MINOR CONCRETE DRAINAGE CHANNEL TO DRAIN RESIDUAL AREA (CATCHMENT RES1-C251). INDICATIVELY SHOWN.

M12
HIGHWAY
(TfNSW)

PROPOSED BOUNDARY

1:3 BATTER MAX

STORMWATER MANAGEMENT BASIN NG_CC15
COMBINED COMMUNAL SEDIMENT BASIN, WETLAND, BIORETENTION AND STORAGE POND.
REFER C252 FOR SUMMARY OF SERVICED LOTS
REFER C227-228 FOR DETAIL PLAN.
REFER C201-C207 FOR TYPICAL DETAILS.
REFER C251 FOR CONTRIBUTING CATCHMENTS

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. LOT STORMWATER SYSTEM TO INCLUDE APPROPRIATELY SIZED GPT IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.

EXISTING BOUNDARY

1:3 BATTER MAX

PROPOSED BOUNDARY

FOR CONTINUATION REFER TO DWG. 240518_DA_C121

LOT 5.4
FFL59.30
BEL58.95

LOT 5.5
FFL59.30
BEL58.95

M12 MOTORWAY DESIGN (BY OTHERS)

PROVIDE EARTHWORKS BENCH FOR LOT 5.5 TERRACING.

1:3 BATTER MAX

INDICATIVE LOCATION OF POTENTIAL TEMPORARY STORMWATER LINE (OR DRAINAGE CHANNEL) FOR UPSTREAM PROPERTY SUBJECT TO STAGING AND TIMING OF SURROUNDING DEVELOPMENT.

EXISTING BOUNDARY

LOT 5.5
FFL63.60
BEL63.25

0.95%
Ø900

1:3 BATTER MAX

FOR CONTINUATION REFER TO DWG. 240518_DA_C118

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	05.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	30.05.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 22 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C122
Revision: 05

File Path: N:\PROJECTS\240518\CAD\CIVIL\DWG\240518_DA_C122.DWG, DATE PRINTED: 19/05/2026 1:07:20 PM

A1

N

1% AEP MAINSTREAM FLOOD EXTENT

CREEK CENTERLINE

COSGROVES CREEK

INNER VRZ

OUTER VRZ

1% AEP MAINSTREAM FLOOD EXTENT

M12 HIGHWAY (TfNSW)

MAINTAIN EXISTING MAINTENANCE PATH AT M12 UNDERPASS.

MAKE SMOOTH CONNECTION WITH EXISTING MAINTENANCE PATH

INDICATIVE LOCATION OF FINAL STORMWATER HARVESTING MAIN PIT TO FUTURE COORDINATION WITH SYDNEY WATER

7M WIDE MAINTENANCE PATH AT EXISTING GRADE

PROPOSED BATTER TO AVOID NATIVE VEGETATION

INDICATIVE LOCATION OF NATIVE VEGETATION, REFER ECOLOGIST REPORTING

EXTENT OF BATTER

MAX GRADE 1 IN 3

LINE DENOTES INDICATIVE LOCATION OF SYDNEY WATER STORMWATER HARVERSTING MAIN. SUBJECT TO FUTURE COORDANTION AND DESIGN WITH SYDNEY WATER

PROPOSED BOUNDARY

1:3 BATTER MAX

ESTATE ROAD 1a

LOT 6.1
FFL56.84
BEL56.49

FOR CONTINUATION REFER TO DWG. 240518_DA_C119

FOR CONTINUATION REFER TO DWG. 240518_DA_C120

FOR CONTINUATION REFER TO DWG. 240518_DA_C124

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	30.05.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 23 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C123
Revision: 04

File Path: RL:\DRS 2024\240518\ACAD\DA\240518_DA_C01-C125.DWG , 240518_DA_C123(04), DATE PRINTED: 16/04/2026 1:07:34 PM

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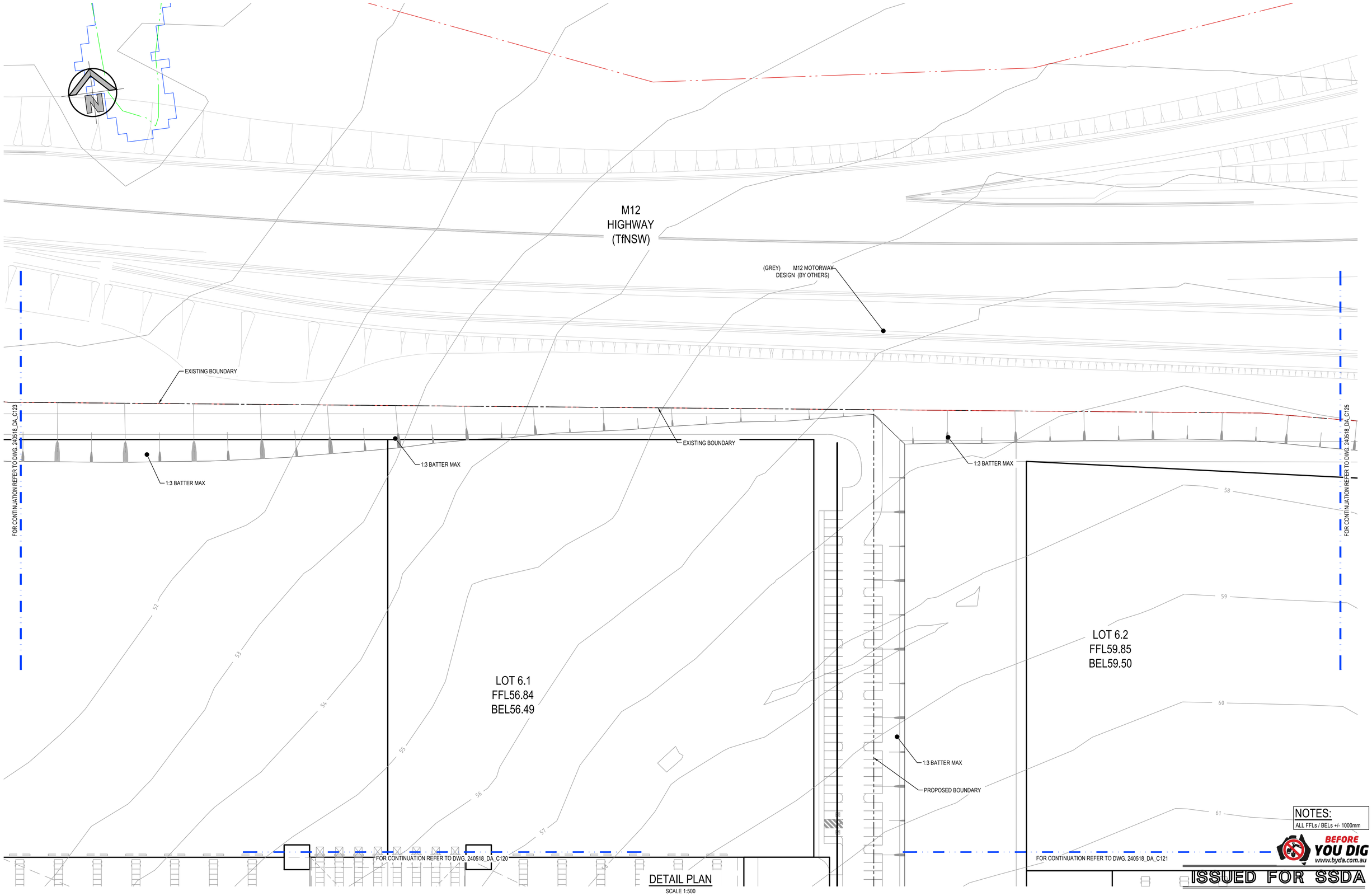

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	30.05.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 24 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number
240518_DA_C124

Revision
04

Plot Date: Fri,09/01/2026 5:48:42 PM,C:\Users\NWetzlar\Documents\240518_DA_C120_C125.rvt,DWG - 240518_DA_C124.DWG, DATE PRINTED: 16/04/2026 1:07:46 PM

A1

DETAIL PLAN
SCALE 1:500

NOTES:
ALL FFLs / BELs +/- 1000mm

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SURVEY INFORMATION
SURVEYED BY:
LTSL
DATUM: AHD
ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	30.05.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
DETAIL PLAN SHEET 25 OF 25

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_DA_C125
Revision: 04

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C101-C125.DWG - 240518_DA_C125[04] - DATE PRINTED: 16/04/2026 1:08:00 PM

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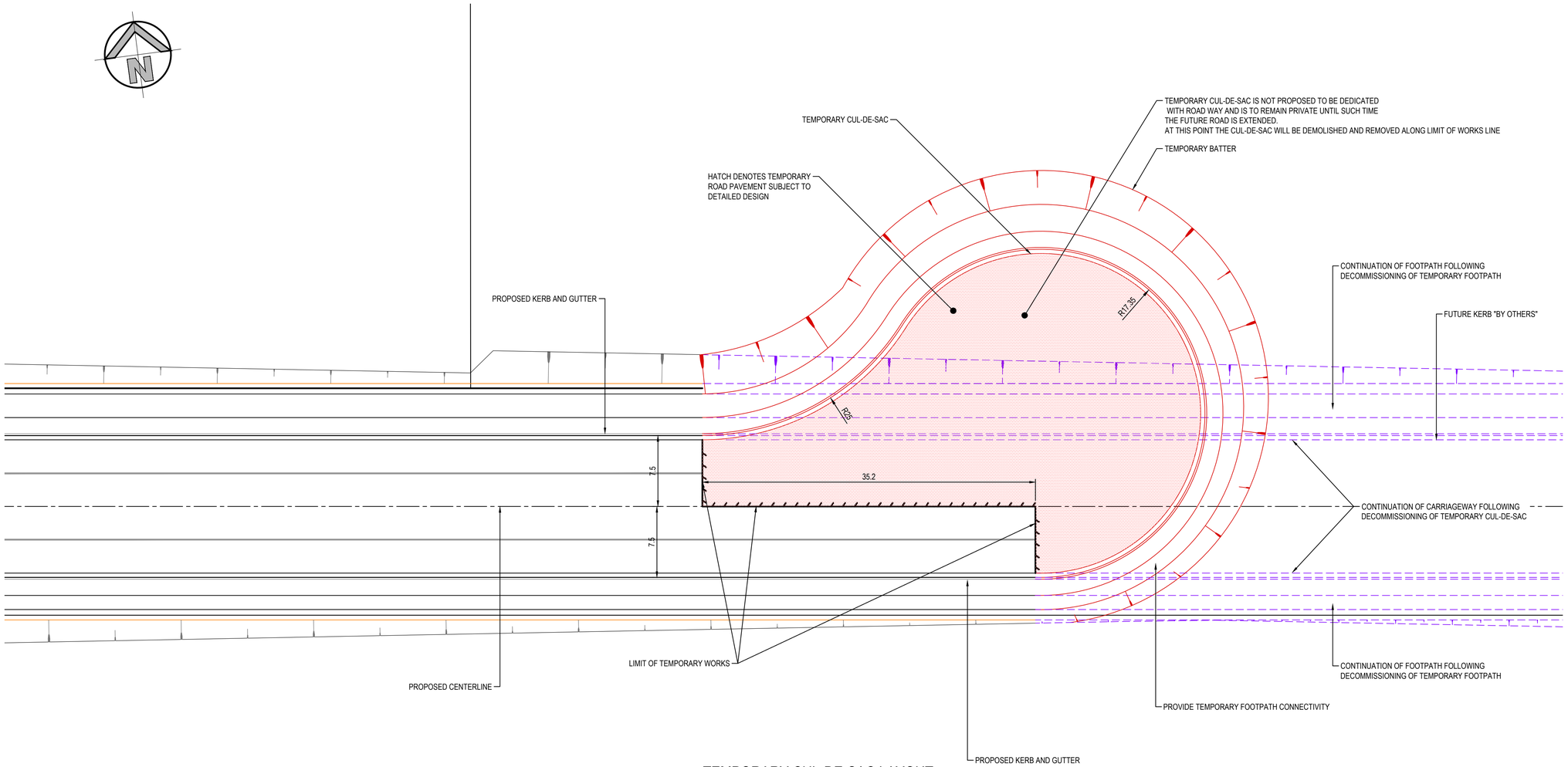

TEMPORARY CUL-DE-SAC LAYOUT

SCALE 1:250

NOTE: STORMWATER NOT SHOWN. TEMPORARY STORMWATER ARRANGEMENTS MY BE REQUIRED SUBJECT TO SITE STAGING AND DETAILED DESIGN.

0 5 10 15 20 25m

5 4 3 2 1

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: TEMPORARY CUL DE SAC PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_DA_C129

Revision: 02

File Path: R:\240518\04\Drawings\DA\C129.dwg, DATE PRINTED: 12/12/2025 3:57:07 PM

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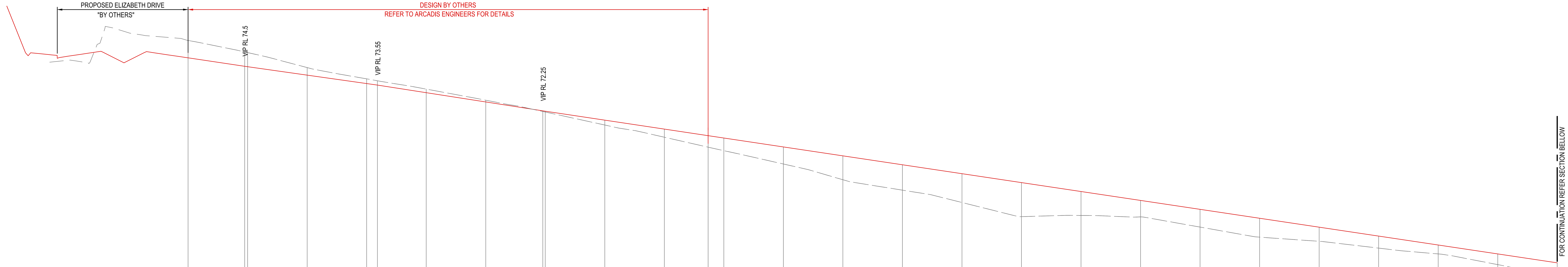


HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)

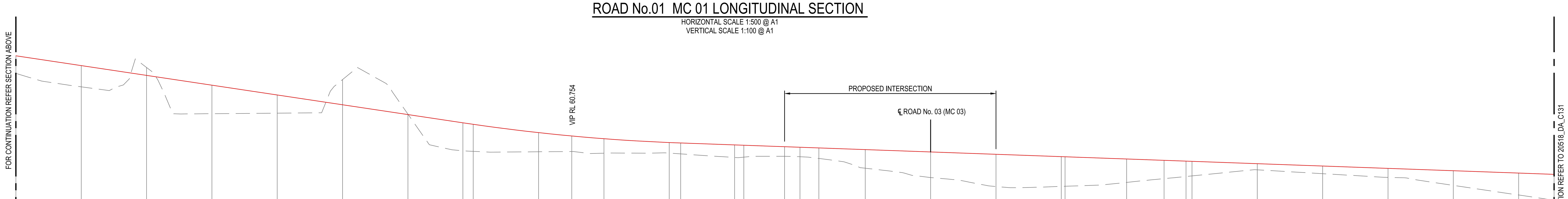
-3% / 14.26; -2.8% / 33.45; -3.1% / 41.67; -3% / 41.67; -3% / 341.57

DATUM RL = 59.200

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
0	74.925	75.803	-0.878
14.257	74.500	75.225	-0.725
15	74.479	75.191	-0.712
30	74.053	74.435	-0.382
45	73.627	73.865	-0.239
47.703	73.550	73.768	-0.218
60	73.166	73.350	-0.183
75	72.698	72.788	-0.090
89.378	72.250	72.220	0.030
90	72.231	72.192	0.039
105	71.781	71.536	0.246
120	71.331	70.920	0.411
131.044	71.000	70.418	0.582
135	70.881	70.241	0.640
150	70.431	69.569	0.862
165	69.981	68.773	1.208
180	69.531	68.249	1.283
195	69.082	67.626	1.456
210	68.632	66.912	1.720
225	68.182	66.972	1.209
240	67.732	66.899	0.833
255	67.282	66.385	0.897
270	66.832	65.876	0.955
285	66.382	65.667	0.715
300	65.932	65.324	0.608
315	65.482	65.030	0.452
330	65.032	64.491	0.541
345	64.582	63.774	0.808

ROAD No.01 MC 01 LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



HORIZONTAL CURVE DATA

R 100; R 40; R 100

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

VC 50 / R 2193.31

VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)

-3% / 341.57; -0.7% / 245.52

DATUM RL = 53.600

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
345	64.582	63.774	0.808
360	64.132	63.156	0.976
375	63.682	64.045	-0.363
390	63.232	61.921	1.311
405	62.782	61.946	0.836
420	62.332	63.492	-1.160
435	61.882	61.902	-0.020
447.615	61.504	60.219	1.285
450	61.434	60.189	1.245
465	61.051	60.170	0.881
472.615	60.897	60.183	0.714
480	60.772	60.107	0.664
495	60.594	60.108	0.486
497.615	60.574	60.072	0.502
510	60.485	59.909	0.576
512.125	60.470	59.925	0.544
521.472	60.402	59.959	0.443
525	60.377	59.941	0.435
529.339	60.346	59.864	0.481
540	60.269	59.414	0.855
555	60.161	58.985	1.176
570	60.053	58.572	1.480
585	59.945	58.579	1.366
585.859	59.939	58.584	1.354
600	59.837	58.762	1.075
608.588	59.775	58.933	0.842
613.626	59.739	59.032	0.706
615	59.729	59.060	0.669
630	59.621	59.341	0.280
645	59.513	59.163	0.350
660	59.405	58.992	0.413
675	59.297	58.627	0.670
690	59.189	58.182	1.007
698.132	59.130	57.941	1.189

ROAD No.01 - MC 01 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW
Title: ROAD LONGITUDINAL SECTIONS ROAD No. 01 (MC 01)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C130
Revision: 05

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C130-C139.DWG - 240518_DA_C130[05] - DATE PRINTED: 12/12/2025 2:57:09 PM

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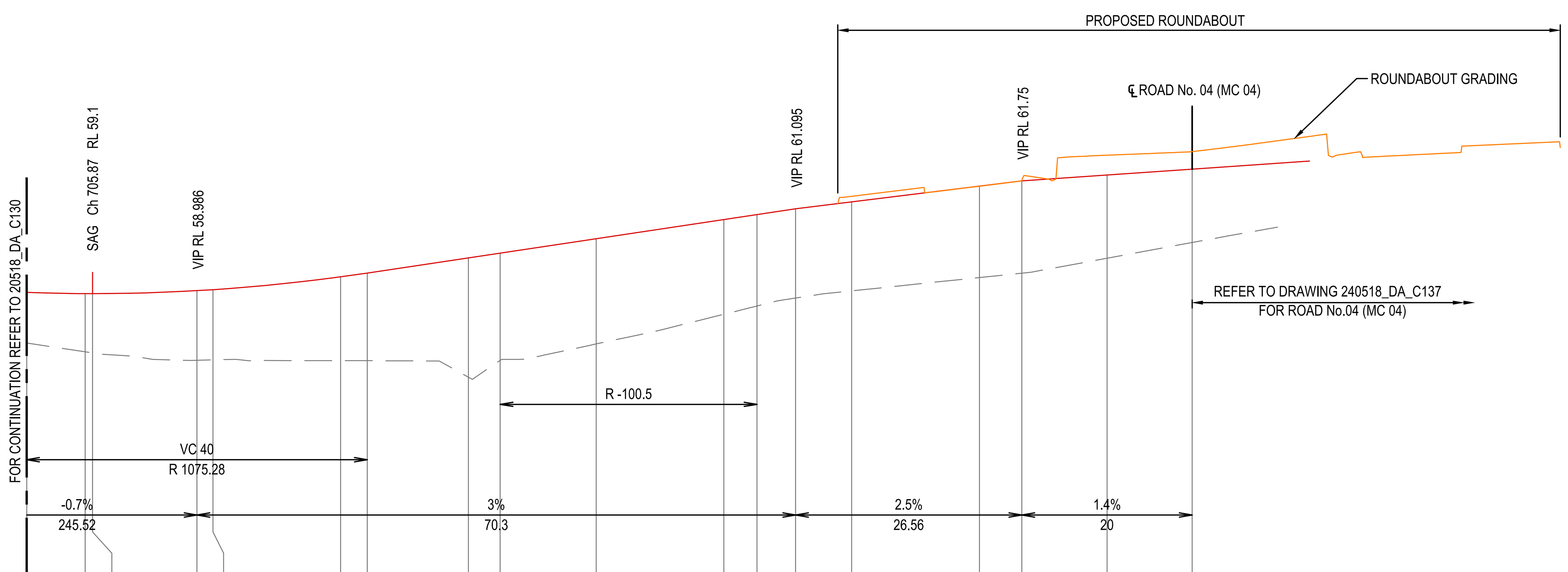

FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH	CONTROL LINE CHAINAGE
59.130	57.941	1.189	698.132
59.103	57.737	1.365	705
59.102	57.712	1.391	705.874
59.172	57.535	1.638	718.132
59.195	57.544	1.651	720
59.497	57.528	1.969	735
59.586	57.527	2.059	738.132
59.942	57.140	2.802	750
60.054	57.533	2.521	753.721
60.392	57.919	2.473	765
60.842	58.617	2.226	780
60.959	58.811	2.148	783.892
61.095	58.997	2.098	788.429
61.257	59.167	2.090	795
61.627	59.480	2.147	810
61.750	59.583	2.167	814.988
61.889	59.935	1.954	825
62.027	60.304	1.723	834.988

ROAD No.01 - MC 01 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH	CONTROL LINE CHAINAGE
62.027	60.304	1.724	0
61.985	60.427	1.558	15
61.972	60.411	1.561	19.914
61.800	60.277	1.523	30
61.546	60.081	1.464	45
61.432	60.004	1.428	51.701
61.261	59.907	1.354	60
60.954	59.610	1.344	75
60.874	59.520	1.354	78.893
60.677	59.256	1.421	90
60.520	58.996	1.524	103.893
60.512	59.005	1.507	105
60.461	59.120	1.341	119.099
60.461	59.127	1.334	120
60.486	59.160	1.325	128.893
60.507	59.144	1.363	135
60.510	59.197	1.313	138.687
60.477	59.210	1.267	150
60.451	59.177	1.274	153.893
60.333	59.130	1.203	165
60.097	59.000	1.098	178.893
60.075	58.993	1.082	180
59.767	58.995	0.772	195
59.459	59.071	0.387	210
59.151	59.102	0.049	225
58.843	58.975	-0.132	240
58.678	59.012	-0.335	248.055
58.535	58.970	-0.435	255
58.227	58.577	-0.350	270
57.919	58.394	-0.475	285
57.611	58.689	-1.078	300
57.303	59.205	-1.902	315
56.996	59.303	-2.307	330
56.688	59.072	-2.384	345

ROAD No.01a - MC 01a LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

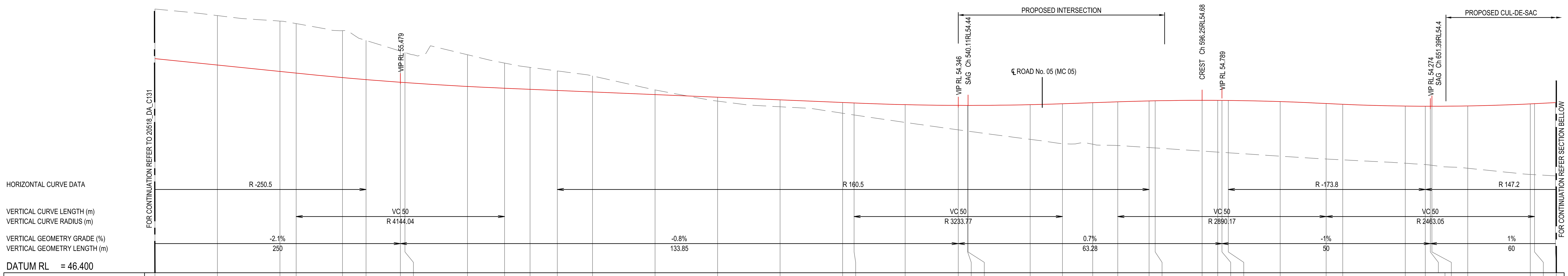
Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: ROAD LONGITUDINAL SECTIONS ROAD No.01 (MC 01) & ROAD No.01a (MC 01a)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C131
Revision: 05

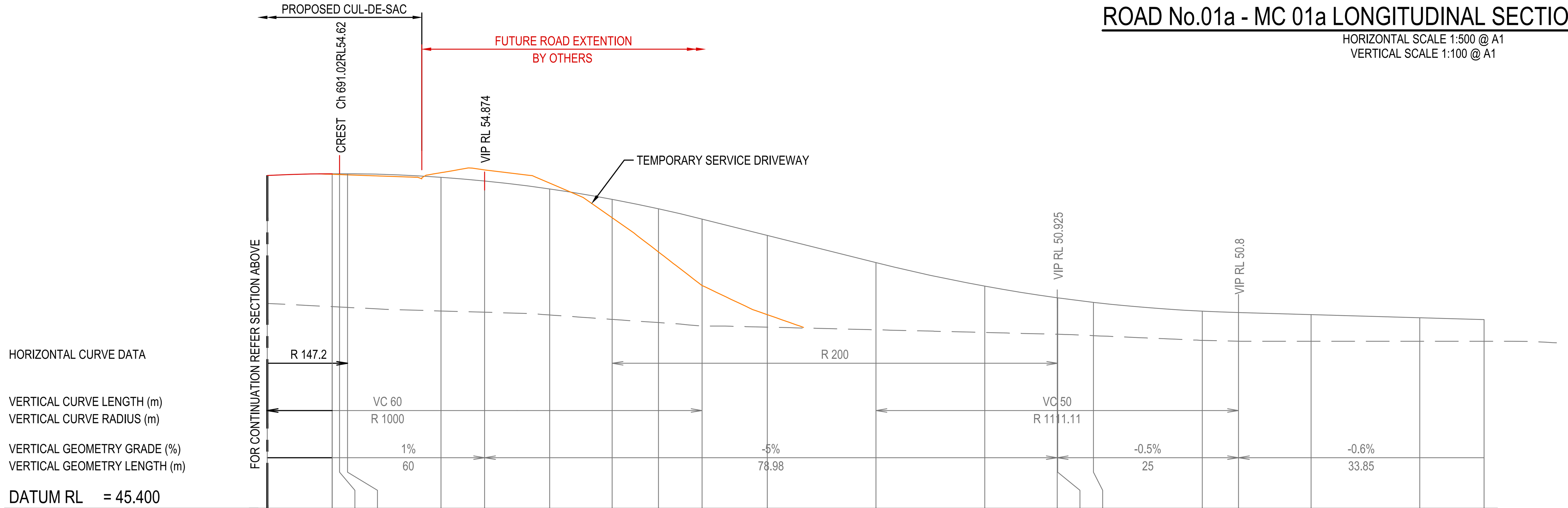
A1



CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
345	56.688	59.072	-2.384
360	56.380	58.756	-2.377
375	56.072	58.492	-2.421
378.896	55.992	58.373	-2.381
390	55.779	58.035	-2.256
395.658	55.682	57.561	-1.879
403.896	55.554	57.049	-1.495
405	55.538	56.981	-1.443
420	55.352	56.876	-1.524
428.896	55.267	56.476	-1.209
435	55.215	56.269	-1.053
441.552	55.160	56.097	-0.937
450	55.088	55.856	-0.768
465	54.962	55.183	-0.222
480	54.835	54.645	0.189
495	54.708	54.376	0.332
510	54.581	54.065	0.516
512.745	54.558	53.982	0.575
525	54.477	53.624	0.853
537.745	54.443	53.268	1.175
540	54.442	53.206	1.236
540.109	54.442	53.203	1.239
555	54.476	52.810	1.666
562.745	54.521	52.598	1.923
570	54.572	52.576	1.996
576.021	54.614	52.515	2.099
583.532	54.657	52.417	2.240
585	54.663	52.397	2.266
596.253	54.685	52.248	2.436
600	54.682	52.199	2.483
601.021	54.681	52.185	2.495
602.547	54.678	52.165	2.513
615	54.624	52.002	2.622
626.021	54.531	51.865	2.666
630	54.494	51.824	2.670
645	54.409	51.662	2.747
649.81	54.401	51.597	2.804
651.021	54.401	51.575	2.826
651.391	54.401	51.565	2.836
660	54.416	51.422	2.994
675	54.514	51.125	3.389
676.021	54.524	51.113	3.411
681.021	54.574	51.056	3.518

ROAD No.01a - MC 01a LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
681.021	54.574	51.056	3.518
690	54.623	50.961	3.662
691.021	54.624	50.951	3.673
692.129	54.623	50.940	3.683
705	54.526	50.842	3.684
711.021	54.424	50.807	3.617
720	54.204	50.732	3.472
728.61	53.917	50.610	3.307
735	53.657	50.522	3.135
741.021	53.374	50.428	2.946
750	52.925	50.397	2.528
765	52.175	50.324	1.851
780	51.526	50.250	1.276
790	51.206	50.201	1.005
790.063	51.205	50.201	1.004
795	51.080	50.162	0.918
810	50.836	50.034	0.803
815	50.800	50.010	0.790
825	50.742	50.009	0.734
840	50.656	50.009	0.647
848.854	50.605	50.009	0.596

ROAD No.01a - MC 01a LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE
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

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

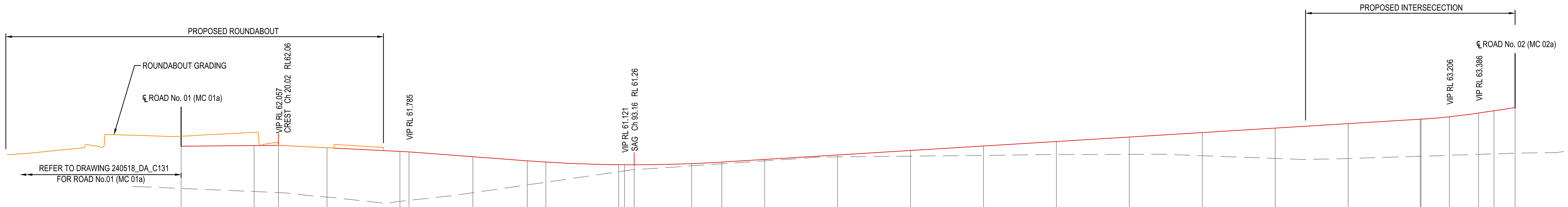
Title: ROAD LONGITUDINAL SECTIONS ROAD No. 01a (MC 01a)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C132 Revision: 05

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C130-C139.DWG - 240518_DA_C132[05] - DATE PRINTED: 12/12/2025 2:57:11 PM

A1



HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m) / VERTICAL CURVE RADIUS (m): VC 40, R 1467.19; VC 12, R 677.49

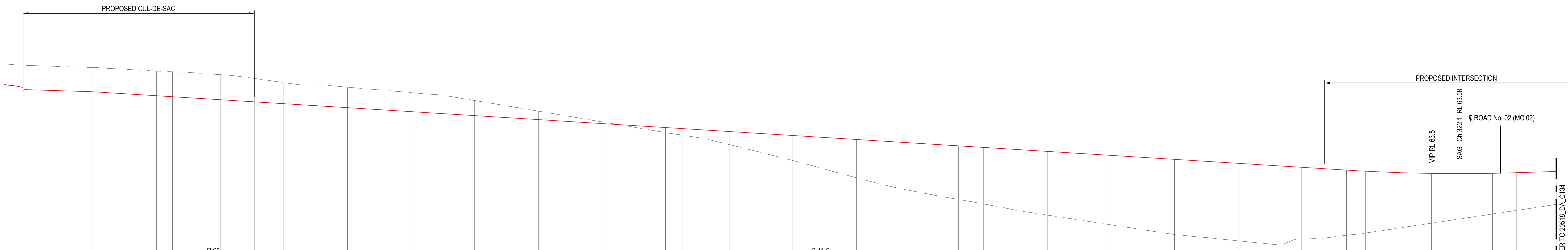
VERTICAL GEOMETRY GRADE (%) / VERTICAL GEOMETRY LENGTH (m): 0.2% 20.02; -1% 26.84; -1.5% 44.32; 1.2% 169.64; 3% 6; 2.9% 7.51

DATUM RL = 55.100

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
0	62.020	60.283	1.736
15	62.048	60.157	1.891
20.019	62.057	60.112	1.945
30	61.956	59.927	2.029
45	61.804	59.753	2.051
46.863	61.785	59.794	1.991
60	61.588	60.107	1.481
71.186	61.421	60.430	0.991
75	61.369	60.539	0.829
90	61.260	60.971	0.288
91.186	61.258	61.006	0.252
93.158	61.256	61.059	0.198
105	61.304	61.214	0.090
111.186	61.367	61.297	0.070
120	61.475	61.416	0.059
135	61.660	61.581	0.079
150	61.844	61.613	0.232
165	62.028	61.642	0.386
180	62.213	61.676	0.537
195	62.397	61.685	0.712
210	62.581	61.629	0.952
225	62.766	61.518	1.248
240	62.950	61.513	1.437
254.825	63.132	61.608	1.524
255	63.134	61.609	1.525
260.825	63.232	61.647	1.586
266.825	63.386	61.685	1.700
270	63.479	61.706	1.773
274.334	63.607	61.734	1.873

ROAD No.02 - MC 02 LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



HORIZONTAL CURVE DATA: R 60; R 41.5

VERTICAL CURVE LENGTH (m) / VERTICAL CURVE RADIUS (m): VC 40, R 2119.86

VERTICAL GEOMETRY GRADE (%) / VERTICAL GEOMETRY LENGTH (m): -1.3% 315.57; 0.6% 448.29

DATUM RL = 55.700

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
0	67.448	68.602	-1.154
15	67.261	68.427	-1.166
18.737	67.214	68.393	-1.179
30	67.073	68.260	-1.187
38.03	66.973	68.080	-1.107
45	66.885	67.884	-0.999
60	66.698	67.668	-0.970
75	66.510	67.410	-0.900
90	66.322	67.037	-0.715
105	66.135	66.536	-0.401
120	65.947	66.030	-0.083
135	65.759	65.524	0.236
138.914	65.710	65.402	0.309
150	65.572	64.958	0.614
165	65.384	64.204	1.180
180	65.196	63.388	1.808
195	65.009	62.695	2.314
204.102	64.895	62.362	2.533
210	64.821	62.151	2.669
225	64.633	61.626	3.008
240	64.446	61.166	3.279
255	64.258	60.707	3.551
270	64.070	60.410	3.660
285	63.883	60.492	3.391
295.572	63.750	60.673	3.077
300	63.699	60.776	2.924
315	63.596	61.226	2.370
315.572	63.594	61.243	2.351
322.095	63.584	61.439	2.145
330	63.599	61.677	1.922
335.572	63.627	61.844	1.783
345	63.687	62.132	1.555

ROAD No.02a - MC 02a LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C130-C139.DWG - 240518_DA_C133[05] - DATE PRINTED: 12/12/2025 2:57:11 PM

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

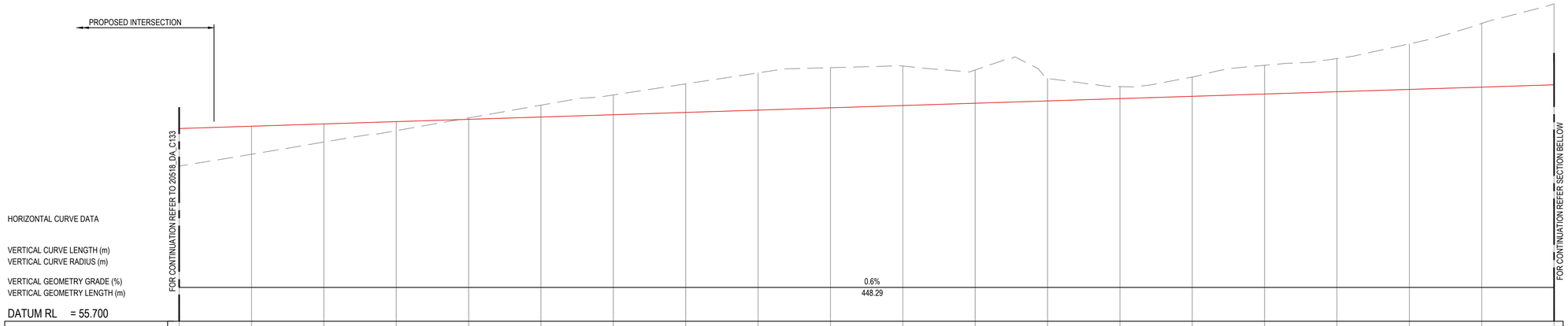
Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: ROAD LONGITUDINAL SECTIONS ROAD No.02 (MC 02) & ROAD No.02a (MC 02a)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C133 — Revision: 05

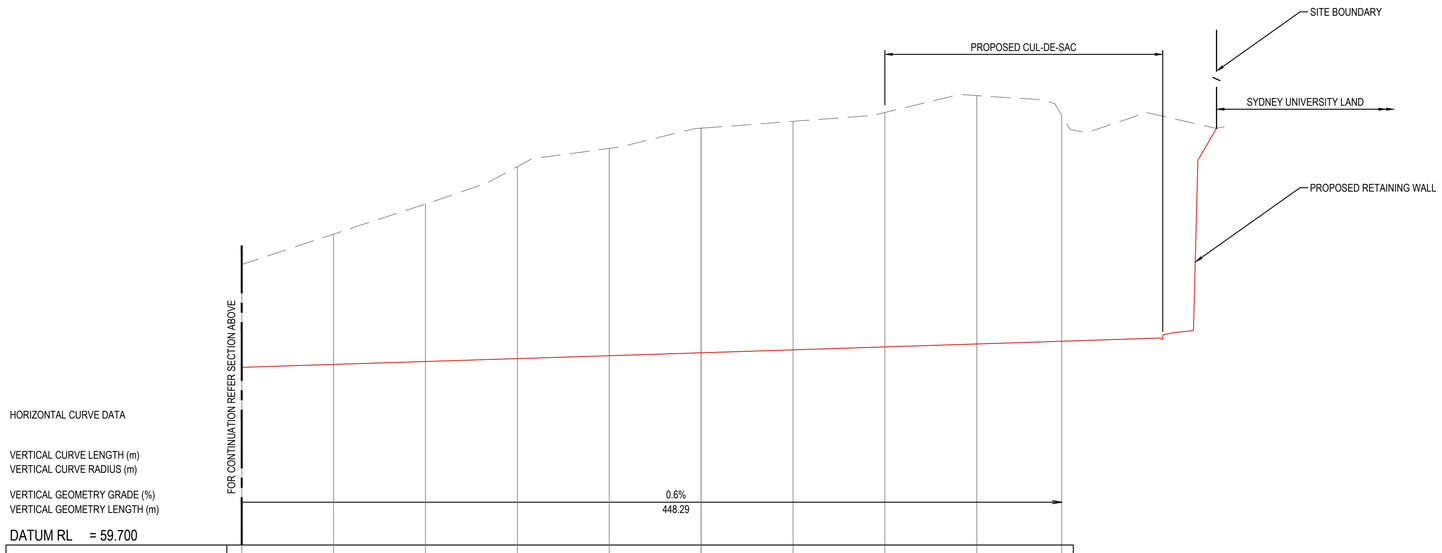
A1



HORIZONTAL CURVE DATA																				
VERTICAL CURVE LENGTH (m) VERTICAL CURVE RADIUS (m)																				
VERTICAL GEOMETRY GRADE (%) VERTICAL GEOMETRY LENGTH (m)											0.6% 448.29									
DATUM RL = 55.700																				
FINISHED SURFACE LEVEL	63.687	63.782	63.878	63.973	64.069	64.164	64.259	64.355	64.450	64.545	64.641	64.736	64.831	64.927	65.022	65.117	65.213	65.308	65.404	65.499
EXISTING SURFACE LEVEL	62.132	62.621	63.126	63.599	64.127	64.655	65.079	65.537	65.995	66.210	66.279	66.113	65.765	65.424	65.824	66.308	66.589	67.199	68.045	68.856
CUT / FILL DEPTH	1.555	1.162	0.752	0.374	-0.058	-0.491	-0.819	-1.182	-1.545	-1.665	-1.638	-1.377	-0.933	-0.498	-0.802	-1.190	-1.376	-1.891	-2.641	-3.357
CONTROL LINE CHAINAGE	345	360	375	390	405	420	435	450	465	480	495	510	525	540	555	570	585	600	615	630

ROAD No.02a - MC 02a LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



HORIZONTAL CURVE DATA										
VERTICAL CURVE LENGTH (m) VERTICAL CURVE RADIUS (m)										
VERTICAL GEOMETRY GRADE (%) VERTICAL GEOMETRY LENGTH (m)					0.6% 448.29					
DATUM RL = 59.700										
FINISHED SURFACE LEVEL	65.499	65.594	65.690	65.785	65.880	65.976	66.071	66.166	66.262	66.360
EXISTING SURFACE LEVEL	68.856	69.849	70.830	72.052	72.645	73.307	73.530	73.818	74.371	73.726
CUT / FILL DEPTH	-3.357	-4.255	-5.140	-6.267	-6.765	-7.331	-7.458	-7.651	-8.109	-7.376
CONTROL LINE CHAINAGE	630	645	660	675	690	705	720	735	750	763.863

ROAD No.02a - MC 02a LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

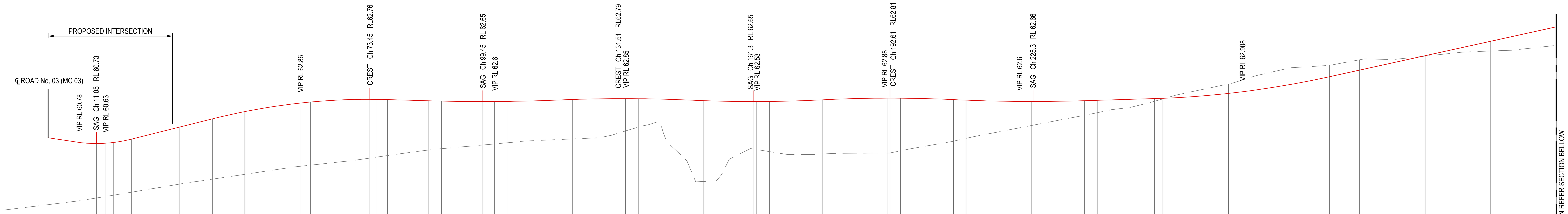
Title
ROAD LONGITUDINAL SECTIONS ROAD No. 02a (MC 02a)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C134
Revision: 05

File Path: R:\240518\04DA\04\240518_DA_C134.DWG, 240518_DA_C134(05)_DATE PRINTED: 12/12/2025 3:57:13 PM

A1



HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m) / VERTICAL CURVE RADIUS (m): VC 12 R 160; VC 40 R 716.35; VC 30 R 2116.81; VC 30 R 1730.77; VC 30 R 1578.95; VC 30 R 1551.72; VC 30 R 1950.76; VC 40 R 1053.89

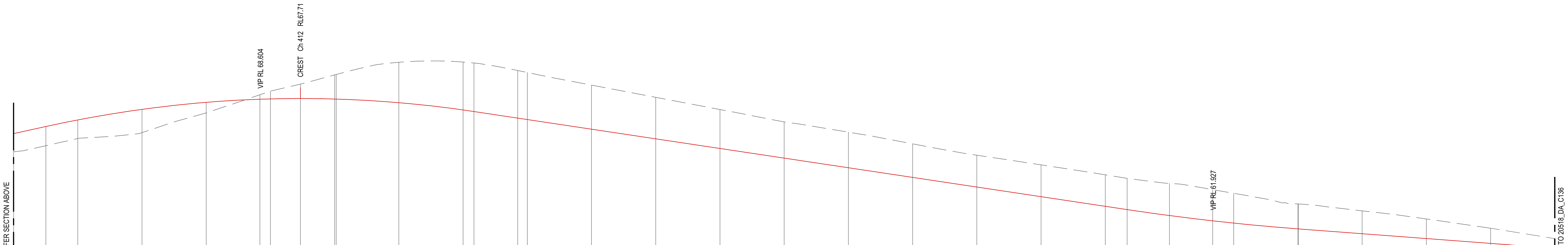
VERTICAL GEOMETRY GRADE (%) / VERTICAL GEOMETRY LENGTH (m): -3% 7.05; -2.5% 6; 5% 44.59; -0.6% 44.46; 0.8% 30; -0.9% 30; 1% 30; -0.9% 30; 0.6% 51.01; 4.4% 129.44

DATUM RL = 53.100

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
0	60.989	57.930	3.058
7.05	60.780	58.101	2.680
11.05	60.730	58.231	2.499
13.05	60.743	58.296	2.447
15	60.779	58.361	2.419
19.05	60.930	58.497	2.433
30	61.478	58.865	2.612
37.636	61.860	59.095	2.765
45	62.190	59.316	2.874
57.636	62.580	59.684	2.896
60	62.629	59.736	2.893
73.453	62.755	60.056	2.699
75	62.753	60.101	2.653
77.636	62.743	60.176	2.566
87.091	62.688	60.431	2.256
90	62.673	60.493	2.179
99.451	62.651	60.660	1.992
102.091	62.653	60.708	1.945
105	62.659	60.762	1.897
117.091	62.725	60.913	1.812
120	62.747	60.939	1.808
131.514	62.785	61.263	1.522
132.091	62.785	61.298	1.487
135	62.782	61.475	1.307
147.091	62.715	59.526	3.189
150	62.692	58.991	3.701
161.302	62.651	60.483	2.168
162.091	62.651	60.457	2.194
165	62.655	60.364	2.292
177.091	62.730	60.247	2.483
180	62.756	60.277	2.479
192.091	62.807	60.297	2.510
192.608	62.808	60.298	2.510
195	62.806	60.392	2.414
207.091	62.740	60.832	1.908
210	62.715	60.962	1.753
222.091	62.658	61.441	1.217
225	62.655	61.553	1.102
225.298	62.655	61.565	1.090
237.091	62.691	62.021	0.669
240	62.708	62.136	0.572
253.1	62.787	62.657	0.130
255	62.801	62.767	0.034
270	63.025	63.453	-0.428
273.1	63.098	63.627	-0.529
285	63.463	64.206	-0.743
293.1	63.788	64.306	-0.518
300	64.092	64.562	-0.470
315	64.752	64.729	0.023
330	65.412	64.965	0.447
345	66.072	65.224	0.848

ROAD No.03 - MC 03 LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



HORIZONTAL CURVE DATA: R 27

VERTICAL CURVE LENGTH (m) / VERTICAL CURVE RADIUS (m): VC 100 R 1351.35; VC 40 R 2678

VERTICAL GEOMETRY GRADE (%) / VERTICAL GEOMETRY LENGTH (m): 4.4% 129.44; -3% 222.56; -1.5% 241.33

DATUM RL = 56.400

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
345.0	66.072	65.224	0.848
352.54	66.404	65.508	0.896
360	66.711	65.842	0.870
375	67.205	66.119	1.086
390	67.533	67.041	0.492
402.54	67.679	67.886	-0.207
405	67.694	68.054	-0.360
412	67.712	68.383	-0.672
420	67.688	68.812	-1.124
420.357	67.686	68.832	-1.146
435	67.516	69.402	-1.885
450	67.178	69.412	-2.235
452.54	67.104	69.367	-2.263
462.769	66.797	69.017	-2.220
465	66.730	68.925	-2.195
480	66.280	68.337	-2.057
495	65.830	67.767	-1.937
510	65.380	67.198	-1.818
525	64.930	66.617	-1.687
540	64.480	66.140	-1.660
555	64.030	65.594	-1.564
570	63.580	65.062	-1.482
585	63.130	64.614	-1.484
600	62.680	64.148	-1.468
605.1	62.527	63.984	-1.457
615	62.248	63.747	-1.499
625.1	62.002	63.458	-1.457
630	61.896	63.288	-1.392
645	61.627	62.789	-1.162
645.1	61.626	62.788	-1.163
660	61.401	62.468	-1.067
675	61.175	62.089	-0.913
690	60.949	61.655	-0.705
705	60.723	61.166	-0.442

ROAD No.03 - MC 03 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C130-C139.DWG - 240518_DA_C135[05] - DATE PRINTED: 12/12/2025 2:57:13 PM

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

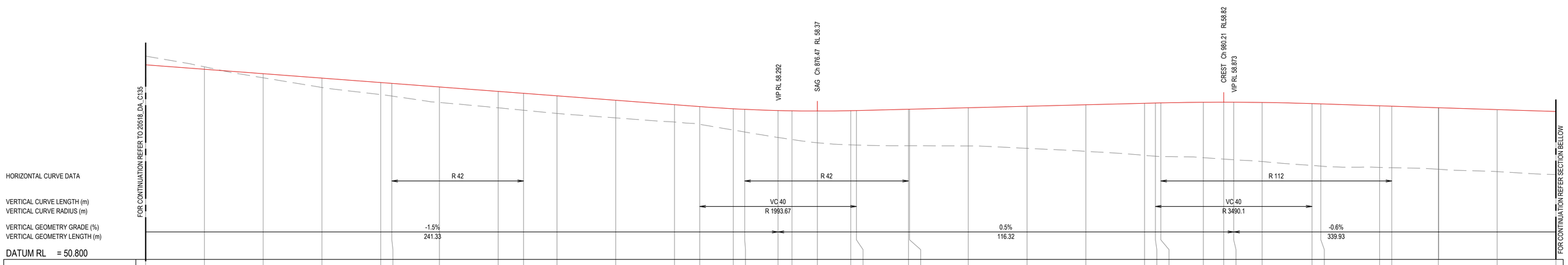
henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW
Title: ROAD LONGITUDINAL SECTIONS ROAD No. 03 (MC 03)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C135
Revision: 05

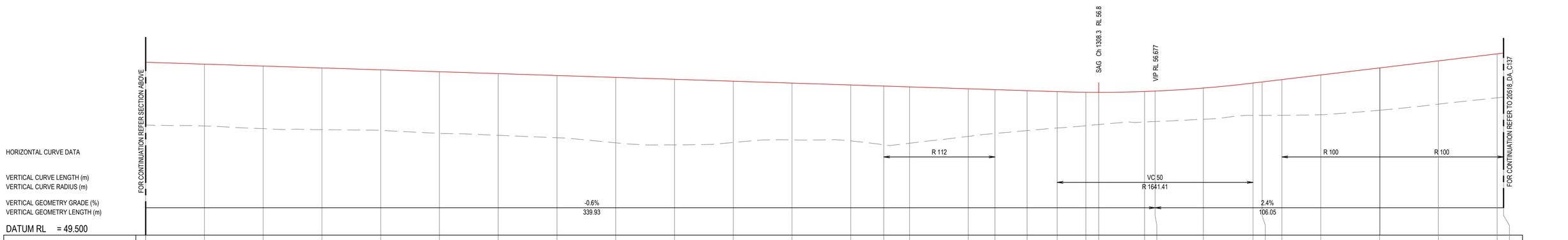
A1



CONTROL LINE CHAINAGE	705	720	735	750	765	767.842	780	795	801.47	810	825	840	846.433	855	857.922	866.433	870	876.465	885	886.433	899.724	900	915	930	945	960	962.758	964.139	975	980.209	982.758	990	1002.758	1005	1020	1023.106	1035	1050	1065
CUT / FILL DEPTH	-0.442	-0.123	0.209	0.478	0.616	0.647	0.791	0.837	0.864	0.901	0.900	0.883	0.903	1.085	1.156	1.373	1.465	1.619	1.745	1.761	1.864	1.865	1.948	2.147	2.373	2.654	2.714	2.734	2.826	2.901	2.932	3.014	3.151	3.171	3.142	3.136	3.139	3.161	3.213
EXISTING SURFACE LEVEL	61.166	60.621	60.062	59.567	59.204	59.130	58.803	58.530	58.406	58.240	58.016	57.807	57.690	57.397	57.297	57.019	56.912	56.748	56.640	56.631	56.594	56.595	56.587	56.463	56.312	56.106	56.060	56.046	55.987	55.916	55.884	55.789	55.593	55.558	55.491	55.476	55.397	55.278	55.129
FINISHED SURFACE LEVEL	60.723	60.497	60.271	60.046	59.820	59.777	59.594	59.368	59.270	59.142	58.916	58.690	58.593	58.482	58.453	58.392	58.377	58.367	58.385	58.392	58.458	58.459	58.534	58.609	58.684	58.759	58.773	58.780	58.813	58.817	58.816	58.803	58.744	58.730	58.633	58.613	58.536	58.439	58.342

ROAD No.03 - MC 03 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



CONTROL LINE CHAINAGE	1065	1080	1095	1110	1125	1140	1155	1170	1185	1200	1215	1230	1245	1253.425	1260	1275	1281.806	1290	1297.69	1305	1308.295	1320	1322.69	1335	1347.69	1350	1355.071	1365	1380	1395	1410	1411.649
CUT / FILL DEPTH	3.213	3.163	3.204	3.156	3.088	3.154	3.155	3.186	3.345	3.355	3.135	2.906	2.860	3.001	2.882	2.436	2.242	2.040	1.859	1.712	1.649	1.563	1.558	1.595	1.655	1.710	1.826	2.037	2.166	2.215	2.249	2.251
EXISTING SURFACE LEVEL	55.129	55.082	54.944	54.895	54.856	54.704	54.605	54.478	54.222	54.115	54.238	54.370	54.319	54.123	54.200	54.549	54.699	54.848	54.979	55.095	55.155	55.283	55.309	55.426	55.622	55.622	55.629	55.655	55.887	56.198	56.523	56.561
FINISHED SURFACE LEVEL	58.342	58.245	58.148	58.051	57.954	57.857	57.760	57.663	57.567	57.470	57.373	57.276	57.179	57.124	57.082	56.985	56.941	56.888	56.838	56.808	56.804	56.846	56.867	57.021	57.277	57.332	57.454	57.692	58.052	58.412	58.772	58.812

ROAD No.03 - MC 03 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

Rev Date: R:\JOBS\2024\240518\CAD\DA\240518_DA_C136.DWG, 240518_DA_C136[05], DATE PRINTED: 23/12/2025 7:57:14 PM

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

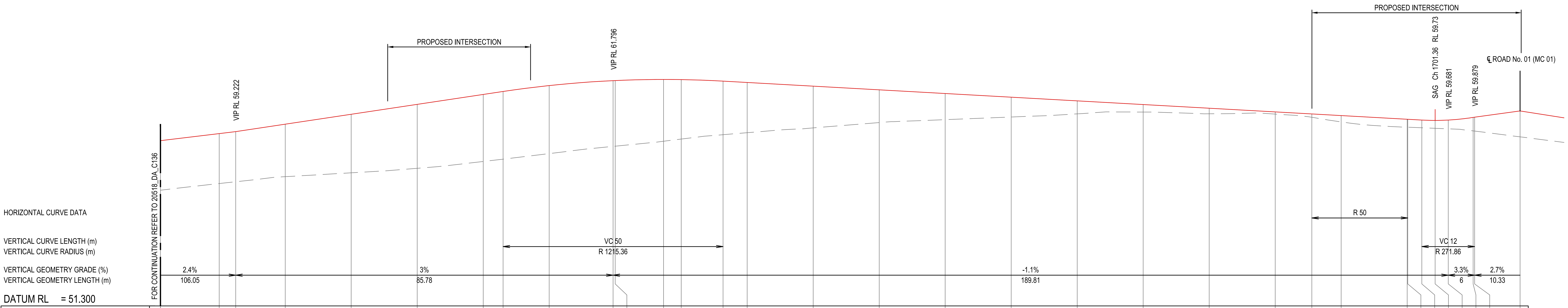
Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
ROAD LONGITUDINAL SECTIONS ROAD No. 03 (MC 03)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C136
Revision: 05

A1



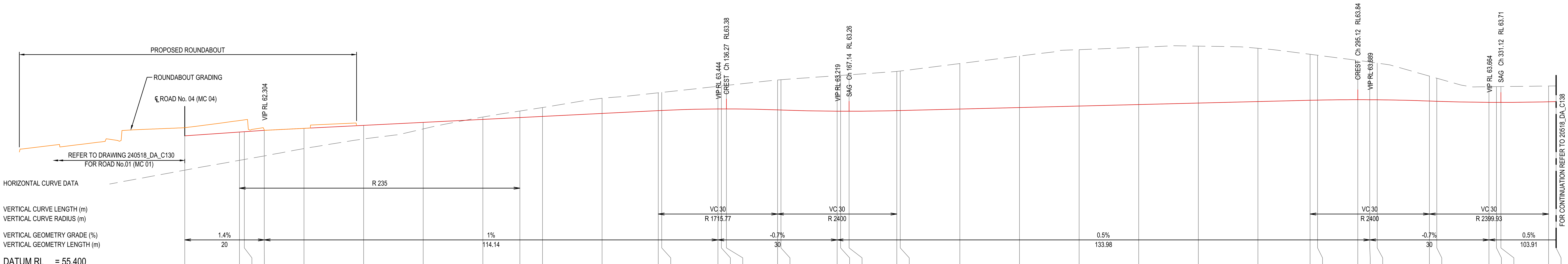
FINISHED SURFACE LEVEL	58.812	59.132	59.222	59.560	60.010	60.460	60.910	61.046	61.315	61.538	61.543
EXISTING SURFACE LEVEL	56.561	56.865	56.944	57.174	57.350	57.554	57.865	57.969	58.224	58.551	58.560
CUT / FILL DEPTH	2.251	2.268	2.278	2.386	2.660	2.906	3.045	3.077	3.091	2.987	2.982
CONTROL LINE CHAINAGE	1411.649	1425	1428.737	1440	1455	1470	1485	1489.518	1500	1514.518	1515

FINISHED SURFACE LEVEL	61.592	61.586	61.517	61.456	61.289	61.122	60.955	60.788	60.620	60.453	60.286
EXISTING SURFACE LEVEL	58.785	58.884	59.083	59.173	59.391	59.635	59.767	59.885	60.028	60.111	60.033
CUT / FILL DEPTH	2.808	2.702	2.434	2.283	1.898	1.487	1.187	0.903	0.592	0.342	0.254
CONTROL LINE CHAINAGE	1525.979	1530	1539.518	1545	1560	1575	1590	1605	1620	1635	1650

FINISHED SURFACE LEVEL	60.119	60.026	59.952	59.785	59.784	59.748	59.731	59.747	59.868	59.879	60.160
EXISTING SURFACE LEVEL	60.020	59.874	59.664	59.422	59.421	59.396	59.371	59.347	59.254	59.246	58.984
CUT / FILL DEPTH	0.099	0.152	0.288	0.363	0.362	0.352	0.360	0.400	0.614	0.633	1.176
CONTROL LINE CHAINAGE	1665	1673.338	1680	1695	1695.132	1698.33	1701.358	1704.33	1710	1710.33	1720.655

ROAD No.03 - MC 03 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



FINISHED SURFACE LEVEL	62.027	62.218	62.235	62.304	62.404	62.554	62.704	62.853	62.946	63.003	63.153
EXISTING SURFACE LEVEL	60.304	60.797	60.841	61.017	61.390	61.872	62.375	62.973	63.275	63.447	63.916
CUT / FILL DEPTH	1.724	1.420	1.394	1.287	1.014	0.682	0.328	-0.120	-0.328	-0.444	-0.763
CONTROL LINE CHAINAGE	0	13.769	15	20	30	45	60	75	84.32	90	105

FINISHED SURFACE LEVEL	63.294	63.302	63.378	63.379	63.380	63.331	63.325	63.266	63.265	63.264
EXISTING SURFACE LEVEL	64.191	64.209	64.514	64.532	64.560	64.835	64.848	65.050	65.062	65.092
CUT / FILL DEPTH	-0.897	-0.907	-1.136	-1.153	-1.180	-1.504	-1.523	-1.784	-1.797	-1.828
CONTROL LINE CHAINAGE	119.142	120	134.142	135	136.274	149.142	150	164.142	165	167.142

FINISHED SURFACE LEVEL	63.294	63.298	63.373	63.448	63.523	63.598	63.673	63.748	63.814	63.822
EXISTING SURFACE LEVEL	65.262	65.283	65.660	66.036	66.357	66.475	66.534	66.425	66.122	66.074
CUT / FILL DEPTH	-1.968	-1.985	-2.286	-2.588	-2.834	-2.877	-2.861	-2.677	-2.309	-2.252
CONTROL LINE CHAINAGE	179.142	180	195	210	225	240	255	270	283.123	285

FINISHED SURFACE LEVEL	63.844	63.842	63.839	63.776	63.763	63.711	63.709	63.709	63.739	63.748
EXISTING SURFACE LEVEL	65.817	65.737	65.683	65.028	64.922	64.494	64.499	64.501	64.532	64.536
CUT / FILL DEPTH	-1.973	-1.895	-1.845	-1.252	-1.159	-0.783	-0.790	-0.793	-0.793	-0.788
CONTROL LINE CHAINAGE	295.123	298.123	300	313.123	315	328.123	330	331.122	343.123	345

ROAD No.04 - MC 04 LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL
DATUM: AHD
ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
ROAD LONGITUDINAL SECTIONS ROAD No. 03 (MC 03) & ROAD No. 04 (MC 04)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked: N.Wetzlar	Approved: A.Francis	Scale @A1: AS SHOWN

Drawing number: 240518_DA_C137
Revision: 05

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C130-C139.DWG - 240518_DA_C137[05] - DATE PRINTED: 12/12/2025 2:57:15 PM

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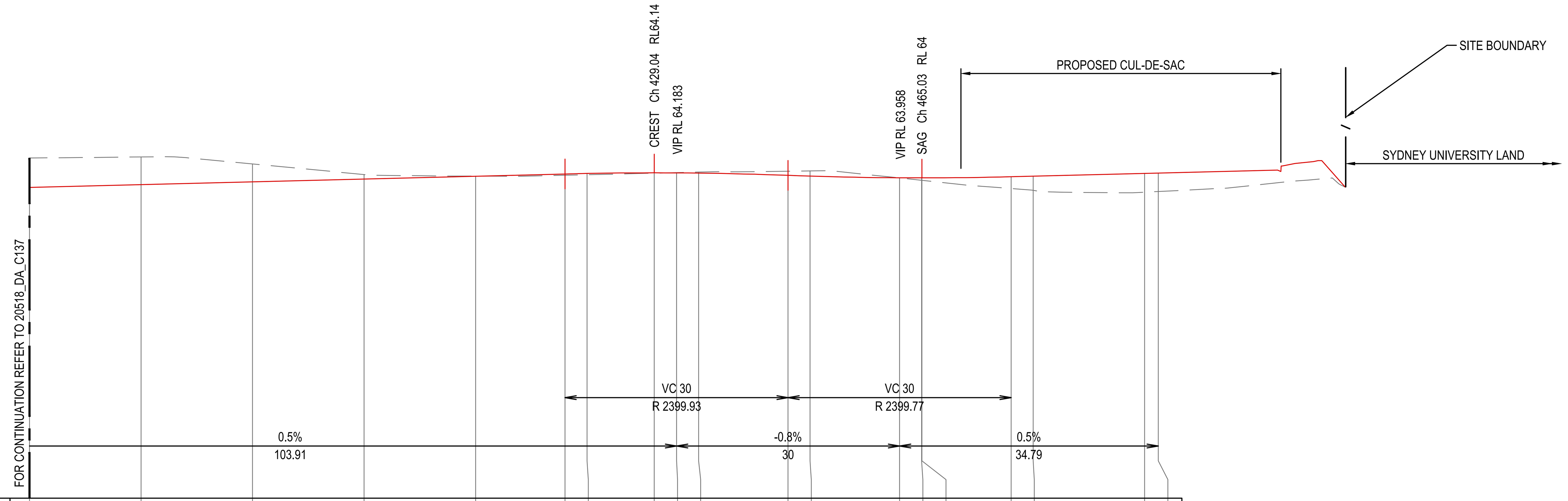


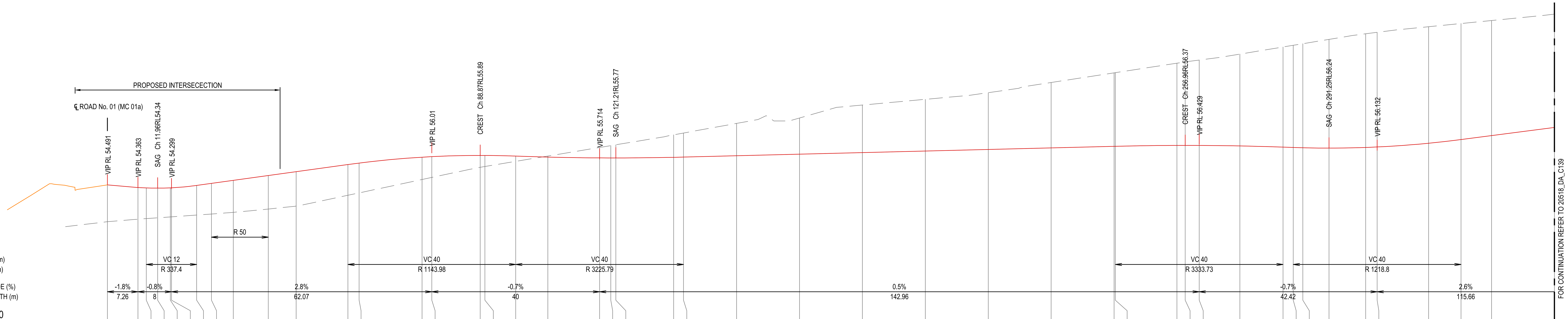
HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)

DATUM RL = 55.400

FINISHED SURFACE LEVEL	63.748	63.823	63.898	63.973	64.048	64.108	64.121	64.138	64.136	64.131	64.071	64.050	64.005	64.003	64.003	64.033	64.048	64.123	64.132
EXISTING SURFACE LEVEL	64.536	64.565	64.377	64.094	64.050	64.075	64.088	64.130	64.144	64.157	64.183	64.191	64.000	63.938	63.937	63.719	63.670	63.617	63.636
CUT / FILL DEPTH	-0.788	-0.742	-0.479	-0.121	-0.002	0.034	0.033	0.008	-0.007	-0.027	-0.113	-0.141	0.005	0.065	0.066	0.315	0.378	0.506	0.496
CONTROL LINE CHAINAGE	345	360	375	390	405	417.035	420	429.036	432.035	435	447.035	450	462.035	465	465.034	477.035	480	495	496.827



HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)

DATUM RL = 48.000

FINISHED SURFACE LEVEL	54.491	54.363	54.347	54.336	54.350	54.352	54.464	54.562	54.705	54.935	55.119	55.459	55.529	55.809	55.835	55.893	55.893	55.862	55.814	55.776	55.774	55.774	55.803
EXISTING SURFACE LEVEL	52.736	52.857	52.885	52.923	52.966	52.969	53.054	53.103	53.184	53.340	53.483	53.995	54.109	54.746	54.846	55.330	55.367	55.610	55.864	56.272	56.360	56.400	56.875
CUT / FILL DEPTH	1.755	1.506	1.462	1.413	1.384	1.383	1.411	1.458	1.522	1.595	1.635	1.463	1.420	1.063	0.990	0.564	0.525	0.252	-0.050	-0.496	-0.586	-0.626	-1.071
CONTROL LINE CHAINAGE	0	7.263	9.263	11.962	15	15.263	21.263	24.792	30	38.34	45	57.336	60	75	77.336	88.871	90	97.336	105	117.336	120	121.207	135

FINISHED SURFACE LEVEL	55.814	55.877	55.952	56.027	56.102	56.177	56.252	56.327	56.329	56.370	56.370	56.369	56.345	56.289	56.272	56.258	56.242	56.273	56.296	56.473	56.648	56.836	57.224
EXISTING SURFACE LEVEL	56.959	57.419	57.674	58.293	58.564	58.881	59.366	59.826	59.835	60.285	60.346	60.435	60.718	61.057	61.137	61.213	61.419	61.685	61.754	62.021	62.172	62.316	62.624
CUT / FILL DEPTH	-1.145	-1.541	-1.721	-2.265	-2.462	-2.704	-3.113	-3.498	-3.506	-3.916	-3.975	-4.066	-4.373	-4.769	-4.865	-4.955	-5.177	-5.411	-5.458	-5.547	-5.524	-5.479	-5.401
CONTROL LINE CHAINAGE	137.336	150	165	180	195	210	225	240	240.294	255	256.963	260.294	270	280.294	282.717	285	291.247	300	302.717	315	322.717	330	345

ROAD No.05 - MC 05 LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C130-C139.DWG - 240518_DA_C138[05] - DATE PRINTED: 12/12/2025 2:57:16 PM

SURVEY INFORMATION
SURVEYED BY:
LTSL
DATUM: AHD
ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

ISO 9001 ISO14001 ISO 45001 Global-Mark.com.au®

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

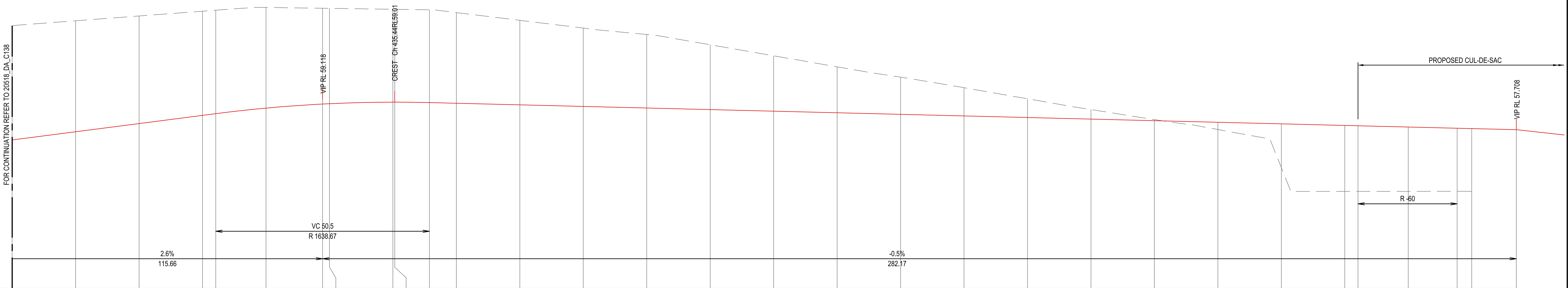
Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
ROAD LONGITUDINAL SECTIONS ROAD No. 04 (MC 04) & ROAD No. 05 (MC 05)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C138
Revision: 05

A1



HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)

DATUM RL = 50.200

CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
345	57.224	62.624	-5.401
360	57.611	62.866	-5.255
375	57.998	63.092	-5.094
390	58.386	63.319	-4.933
393.126	58.466	63.366	-4.900
405	58.730	63.497	-4.767
418.376	58.924	63.459	-4.535
420	58.940	63.454	-4.514
435	59.013	63.410	-4.398
435.438	59.013	63.409	-4.396
443.626	58.992	63.385	-4.393
450	58.960	63.253	-4.293
465	58.885	62.886	-4.001
480	58.810	62.520	-3.709
495	58.735	62.216	-3.480
510	58.660	61.730	-3.069
525	58.586	61.208	-2.622
540	58.511	60.686	-2.175
555	58.436	60.197	-1.761
570	58.361	59.697	-1.336
585	58.286	59.172	-0.886
600	58.211	58.662	-0.451
615	58.136	58.188	-0.053
630	58.061	57.716	0.344
645	57.986	55.914	2.072
660	57.911	54.787	3.124
663.128	57.895	54.788	3.107
675	57.836	54.790	3.046
686.554	57.778	54.792	2.987
690	57.761	54.792	2.969
700.551	57.708	54.799	2.910

ROAD No.05 - MC 05 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

ISSUED FOR SSDA

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C130-C139.DWG - 240518_DA_C139[05] - DATE PRINTED: 12/12/2025 2:57:17 PM

SURVEY INFORMATION
SURVEYED BY:
LTSL
DATUM: AHD
ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor
NETTLETONTRIBE

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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

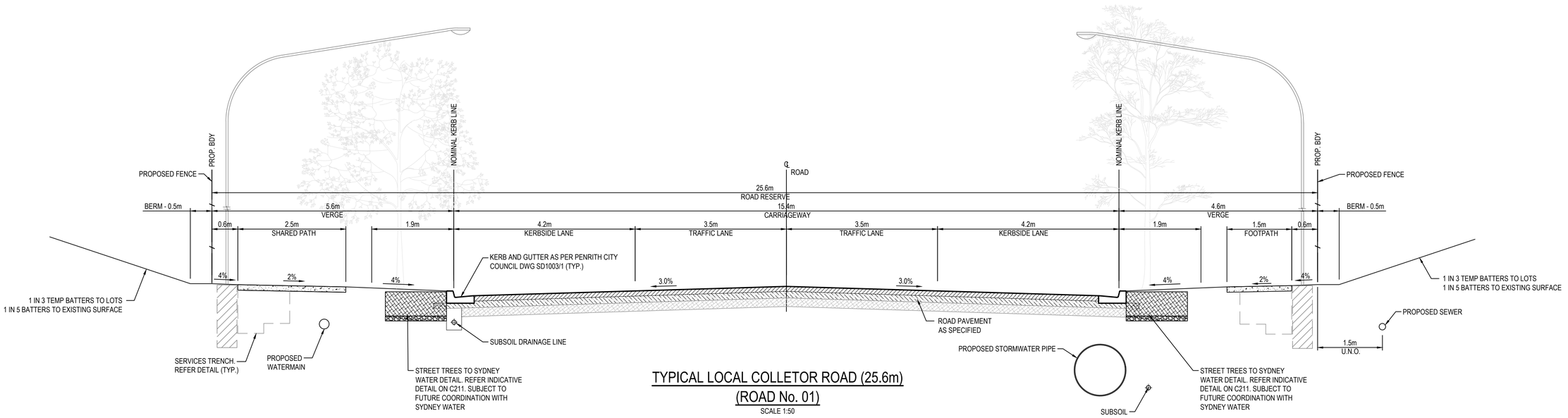
Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
ROAD LONGITUDINAL SECTIONS ROAD No. 05 (MC 05)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

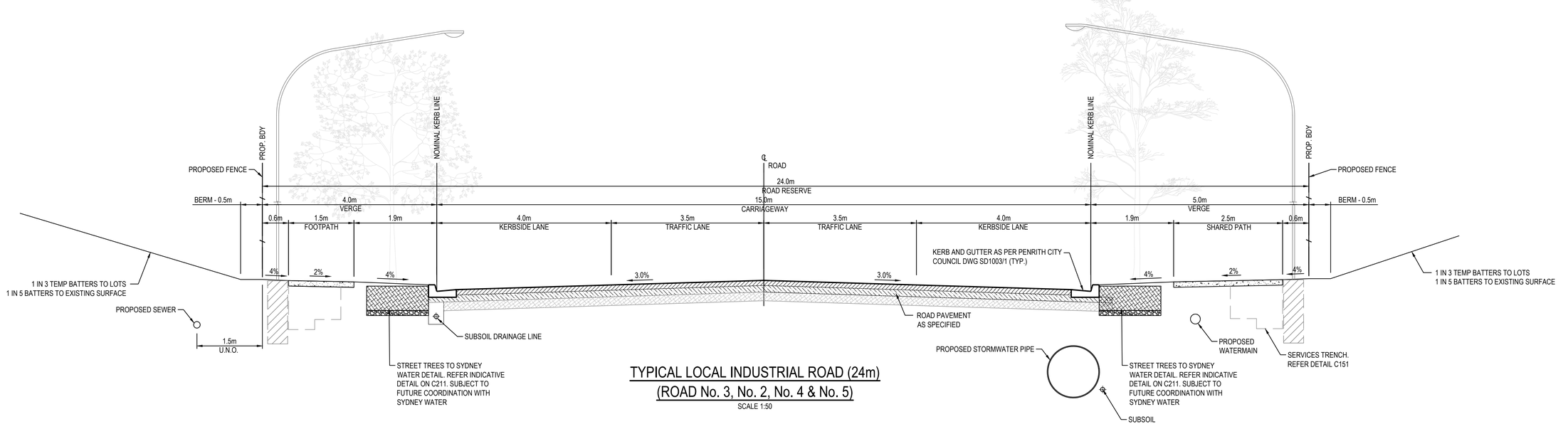
Drawing number: 240518_DA_C139
Revision: 05

A1



TYPICAL LOCAL COLLETOR ROAD (25.6m)
(ROAD No. 01)

SCALE 1:50



TYPICAL LOCAL INDUSTRIAL ROAD (24m)
(ROAD No. 3, No. 2, No. 4 & No. 5)

SCALE 1:50

ISSUED FOR SSDA

File Path: R:\2025\250429\05 ACAD\SA\SA05 DA C150\C151.DWG - JW/18, DA, C150(5), DATE PRINTED: 12/12/2025 3:47:29 PM

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

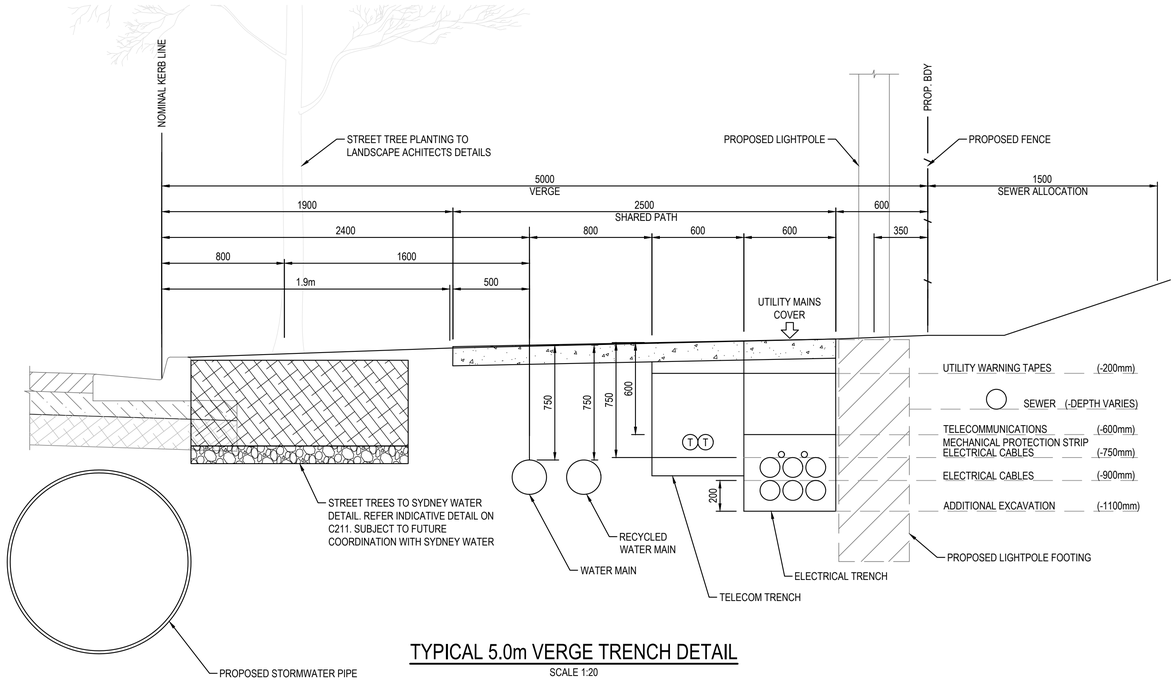
Title
TYPICAL CROSS SECTIONS

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:50

Drawing number
240518_DA_C150

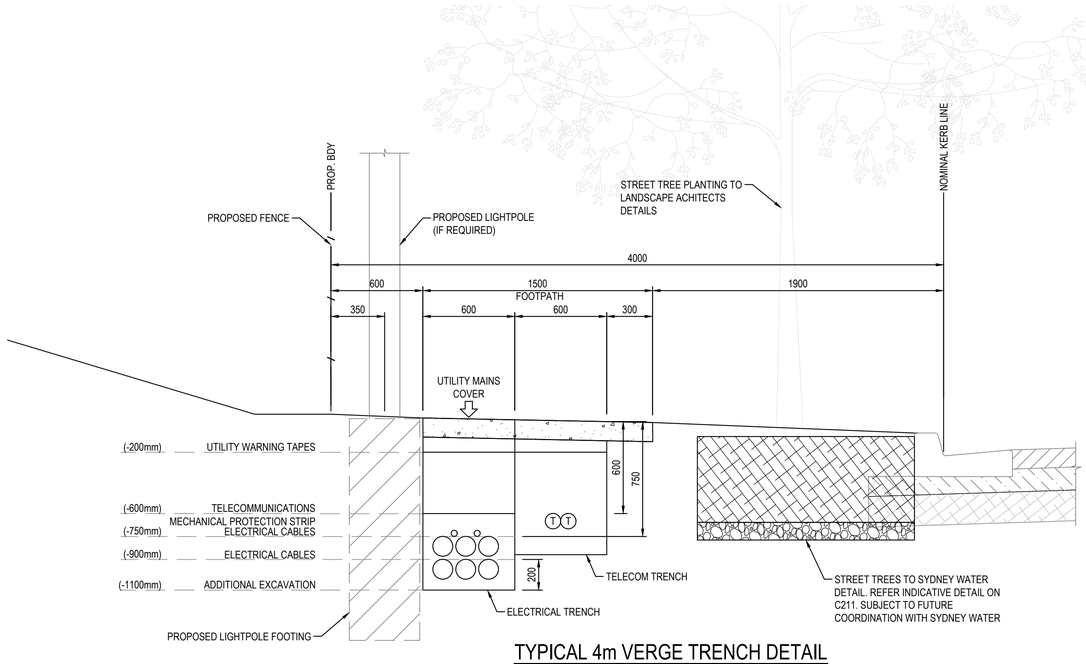
Revision
05

A1



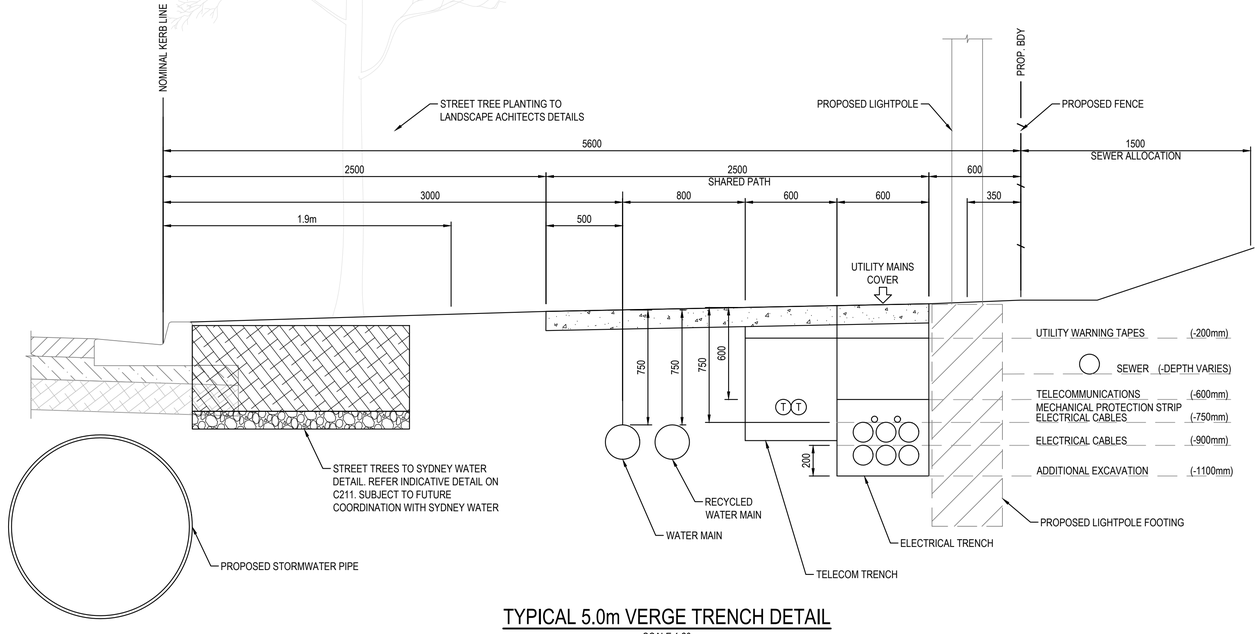
TYPICAL 5.0m VERGE TRENCH DETAIL

SCALE 1:20



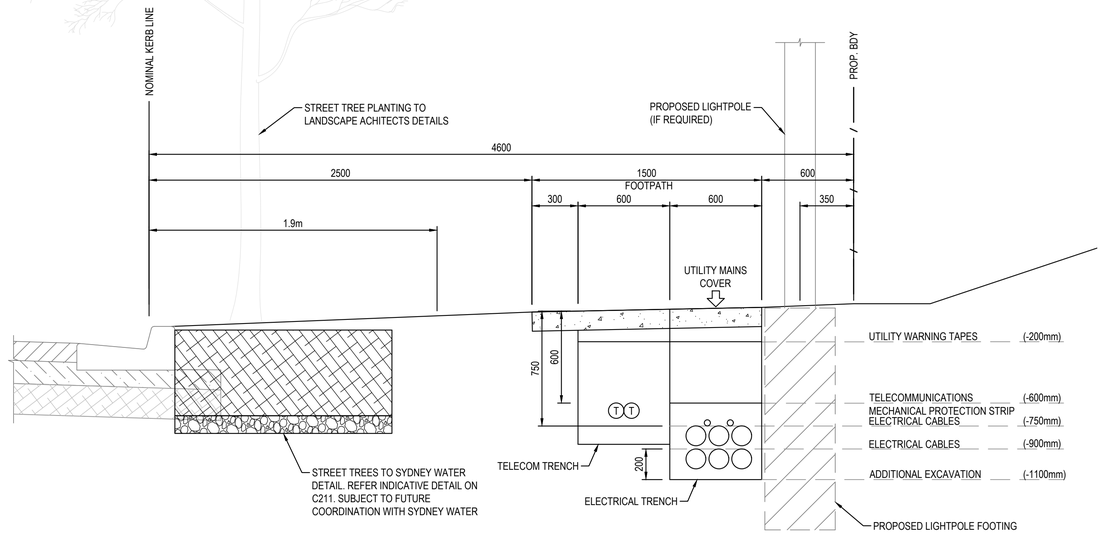
TYPICAL 4m VERGE TRENCH DETAIL

SCALE 1:20



TYPICAL 5.0m VERGE TRENCH DETAIL

SCALE 1:20



TYPICAL 4.6m VERGE TRENCH DETAIL

SCALE 1:20

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR DRAFT	JG	NW	30.05.25
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

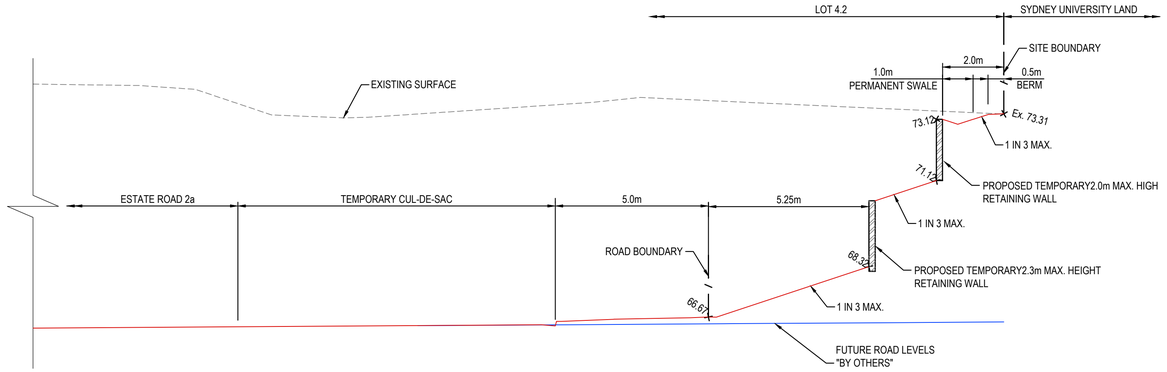
Title
TYPICAL ROAD VERGE SECTIONS

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:20

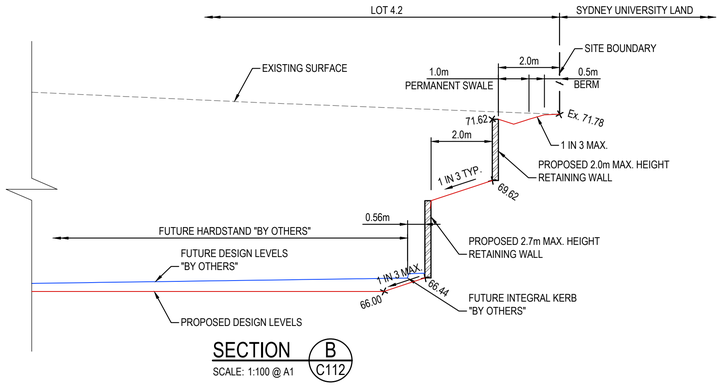
Drawing number: 240518_DA_C151
Revision: 06

File Path: R:\PDS 2024\240518-DA-C151.DWG - 240518_DA_C151[06] - DATE PRINTED - 2/12/2025 3:57:24 PM

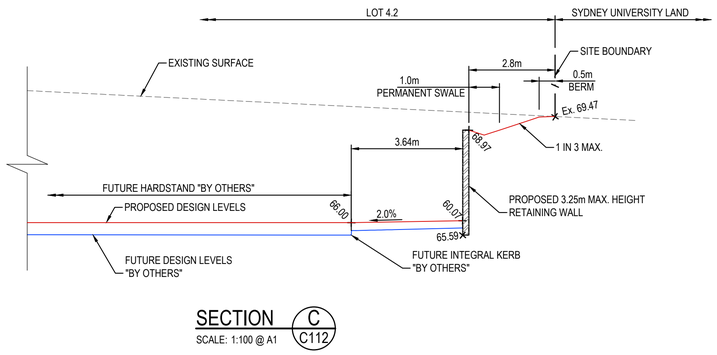
A1



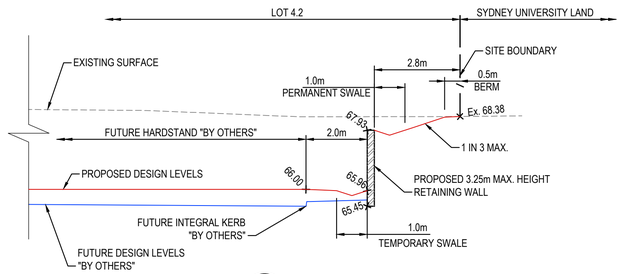
SECTION A
SCALE: 1:100 @ A1 — C112



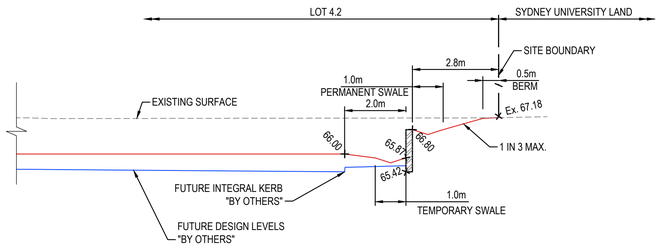
SECTION B
SCALE: 1:100 @ A1 — C112



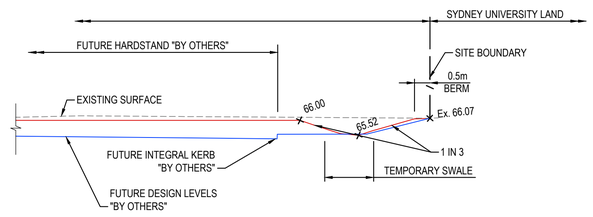
SECTION C
SCALE: 1:100 @ A1 — C112



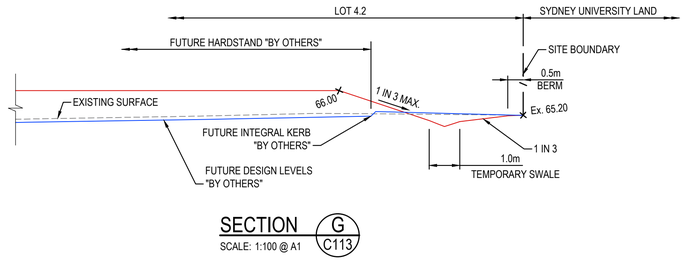
SECTION D
SCALE: 1:100 @ A1 — C112



SECTION E
SCALE: 1:100 @ A1 — C112



SECTION F
SCALE: 1:100 @ A1 — C113



SECTION G
SCALE: 1:100 @ A1 — C113

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

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR DRAFT	JG	NW	30.05.25
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	11.09.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

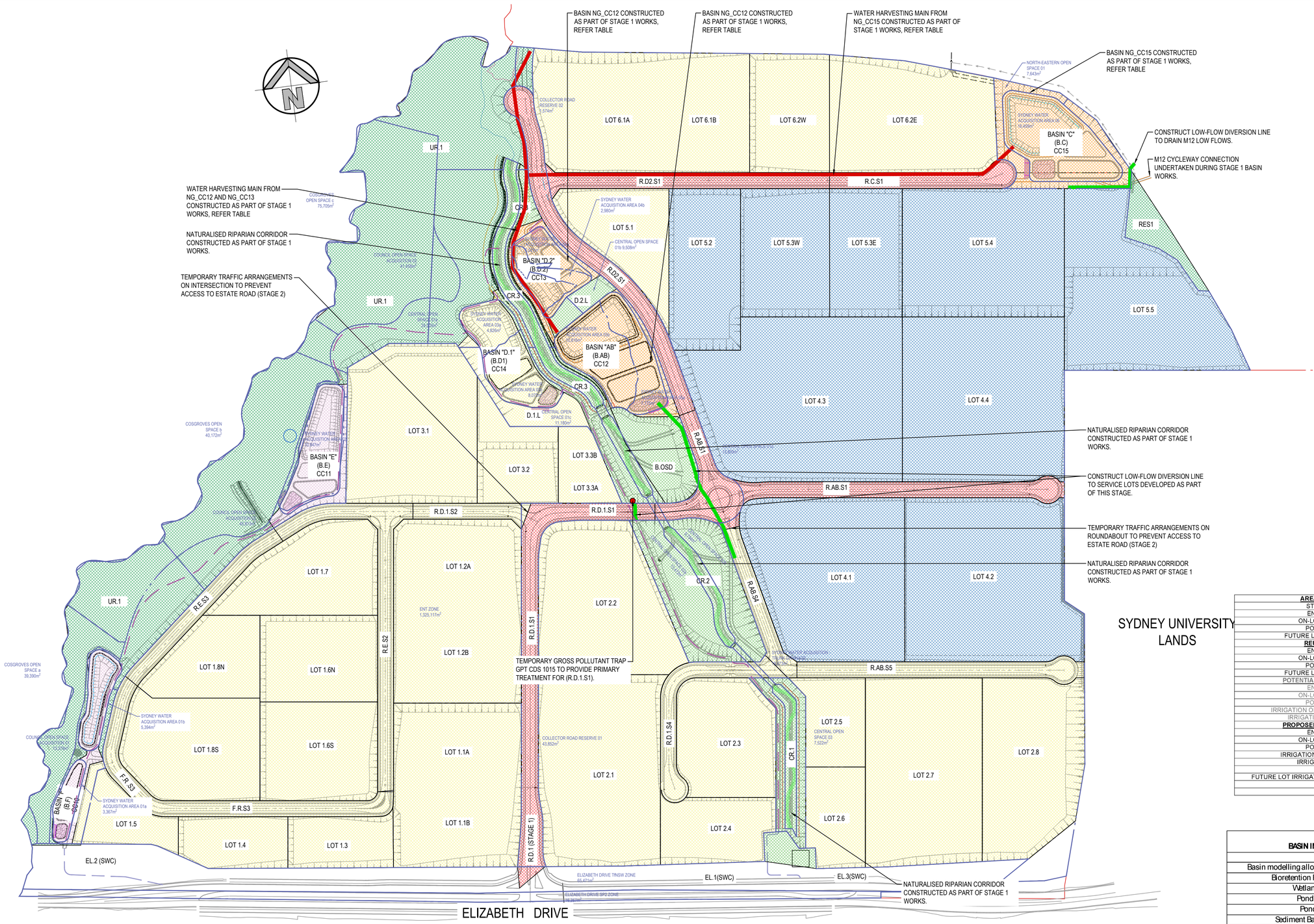
Title: TEMPORARY BATTER SECTIONS

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:100

Drawing number: 240518_DA_C160
Revision: 05

File Path: R:\SIDE\240518\ACAD\240518-DA-C160.DWG, 240518_DA_C160(B), DATE PRINTED: 12/12/2025 3:57:26 PM

A1



LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- STORMWATER HARVERSTING MAIN THIS STAGE
- STORMWATER HARVERSTING MAIN FORMER STAGE
- LOW FLOW DIVERSION LINE (MAJOR) THIS STAGE
- LOW FLOW DIVERSION LINE (MAJOR) FORMER STAGE
- ACTIVE TRANSPORT LINK
- ACQUISITIONS REFER 14020_SK034G BY NETTLETON TRIBE

CATCHMENT TYPES

- LOT - DEVELOPED
- LOT - DEVELOPMENT RESTRICTED REFER CHAPTER 6.7 ENG. REPORT
- LANDSCAPE (UNDISTRURBED)
- LANDSCAPE (PROPOSED)
- LANDSCAPE - FUTURE LOT
- ROAD
- BASIN AREA
- LANDSCAPE - FUTURE BASIN

OTHER

- UNDEVELOPED LOT IRRIGATION

SYDNEY UNIVERSITY LANDS

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	42.05	ha
ON-LOT - PRIVATE	6.75	ha
POS - PUBLIC	28.01	ha
FUTURE LOTS (POTENTIAL)	83.15	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	134.6	kL/day
ON-LOT - PRIVATE	20240.4	kL/year
POS - PUBLIC	168048.9	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	498873.0	kL/year
IRRIGATION TOTAL (MAX)	687162.3	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	168048.90	kL/year
IRRIGATION OF FUTURE LOTS	0.00	kL/year
IRRIGATION TOTAL	168048.90	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	0.00	ha
MODE	WATER QUALITY DRIVEN	

BASIN INFRASTRUCTURE	STAGE 1 Basin_NG12 Basin AB	STAGE 1 Basin_NG15 Basin C	STAGE 1 Basin_NG13 Basin D.2
Basin modelling allocation (ha) - MODELLING ONLY	1.98	2.414	1.1451
Bioretention Filter Surface Area (m2)	2200	1456	779
Wetland Plan Area (m2)	2384	2321	1053
Pond Plan Area (m2)	6326	7148	3300
Pond Volume (m3)	13560	15827	6290
Sediment Basin Surface Area (m2)	852	824	371
Residual Allocation Area (Ha)	0.892	1.3215	0.6319
STORMWATER HAVERSTING		STAGE (m)	TOTAL (m)
STORMWATER HARVESTING MAIN		1174	1174
LOW FLOW DIVERSION (MAJOR)		STAGE (m)	TOTAL (m)
LOW FLOW DIVERSION MAIN		420	420

PROJECT STAGING PLAN - STAGE 1

SCALE: 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	11.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	04.12.2025

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW
Title: PROJECT STAGING - STAGE 1

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C171
Revision: 04

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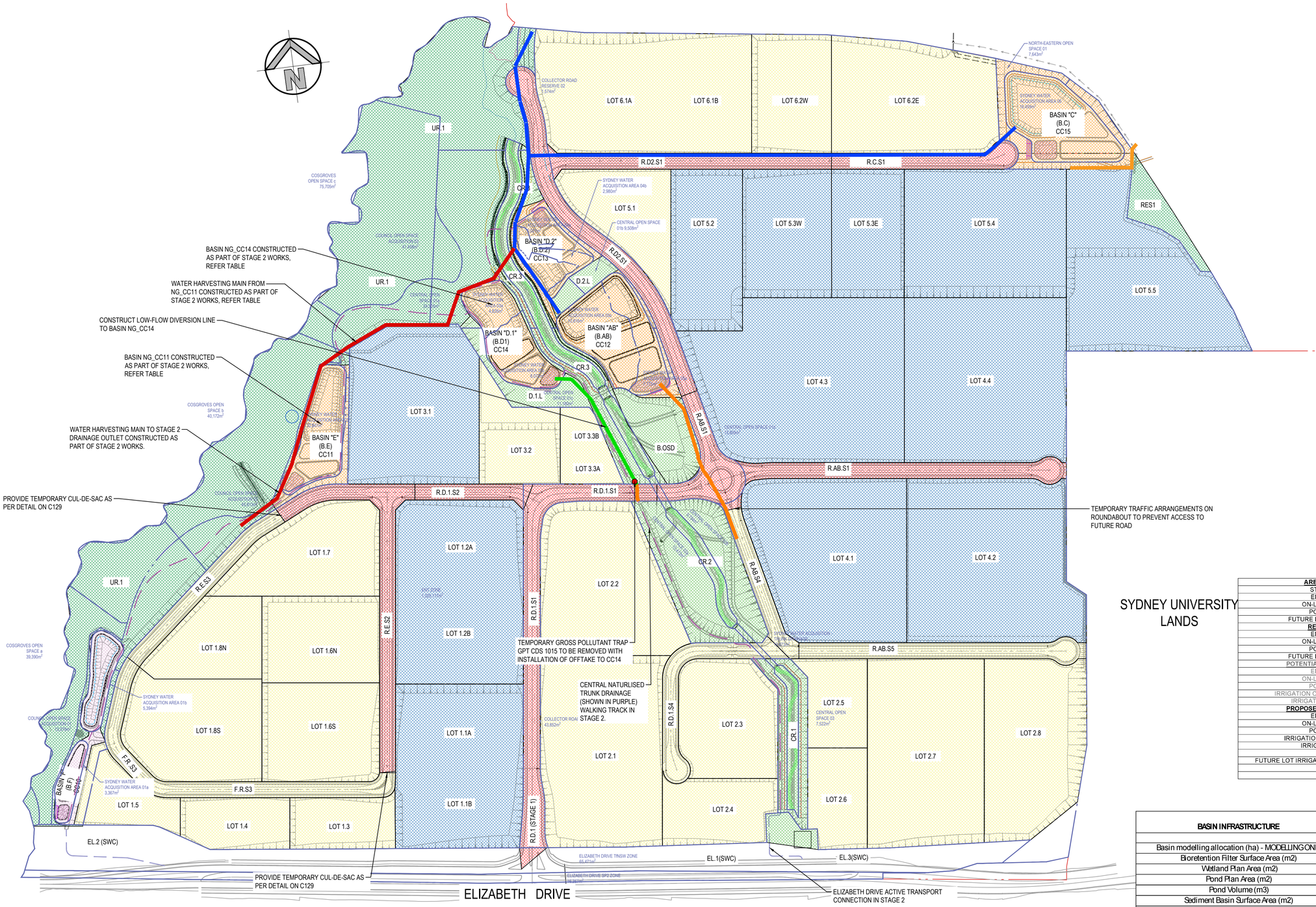

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- STORMWATER HARVERSTING MAIN THIS STAGE
- STORMWATER HARVERSTING MAIN FORMER STAGE
- LOW FLOW DIVERSION LINE (MAJOR) THIS STAGE
- LOW FLOW DIVERSION LINE (MAJOR) FORMER STAGE
- ACTIVE TRANSPORT LINK
- ACQUISITIONS REFER 14020_SK034G BY NETTLETON TRIBE

CATCHMENT TYPES

- LOT - DEVELOPED
- LOT - DEVELOPMENT RESTRICTED REFER CHAPTER 6.7 ENG. REPORT
- LANDSCAPE (UNDISTRURBED)
- LANDSCAPE (PROPOSED)
- LANDSCAPE - FUTURE LOT
- ROAD
- BASIN AREA
- LANDSCAPE - FUTURE BASIN

OTHER

- UNDEVELOPED LOT IRRIGATION

SYDNEY UNIVERSITY LANDS

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	56.67	ha
ON-LOT - PRIVATE	8.89	ha
POS - PUBLIC	29.03	ha
FUTURE LOTS (POTENTIAL)	63.41	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	181.3	kL/day
ON-LOT - PRIVATE	26675.1	kL/year
POS - PUBLIC	174197.3	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	380434.8	kL/year
IRRIGATION TOTAL (MAX)	581307.2	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	174197.34	kL/year
IRRIGATION OF FUTURE LOTS	0.00	kL/year
IRRIGATION TOTAL	174197.34	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	0.00	ha
MODE	WATER QUALITY DRIVEN	

BASIN INFRASTRUCTURE	STAGE 1 Basin_NG12 Basin AB	STAGE 1 Basin_NG15 Basin C	STAGE 2 Basin_NG14 Basin D.1	STAGE 1 Basin_NG13 Basin D.2	STAGE 2 Basin_NG11 Basin E
Basin modelling allocation (ha) - MODELLING ONLY	1.98	2.414	1.2082	1.1451	1.3337
Bioretention Filter Surface Area (m2)	2200	1456	1200	779	1100
Wetland Plan Area (m2)	2384	2321	1527	1053	1212
Pond Plan Area (m2)	6326	7148	4876	3300	4118
Pond Volume (m3)	13560	15827	9898	6290	6408
Sediment Basin Surface Area (m2)	852	824	506	371	427
Residual Allocation Area (Ha)	0.892	1.3215	0.4479	0.6319	0.6907
STORMWATER HAVERSTING		STAGE (m)	TOTAL (m)		
STORMWATER HARVESTING MAIN		651	1825		
LOW FLOW DIVERSION (MAJOR)		STAGE (m)	TOTAL (m)		
LOW FLOW DIVERSION MAIN		212	632		

PROJECT STAGING PLAN
STAGE 2
SCALE: 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	11.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	04.12.2025

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE
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

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW
Title: PROJECT STAGING - STAGE 2

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C172
Revision: 04

File Path: R:\240518\Drawings\240518_DA_C172.DWG 16/04/2026 1:09:29 PM

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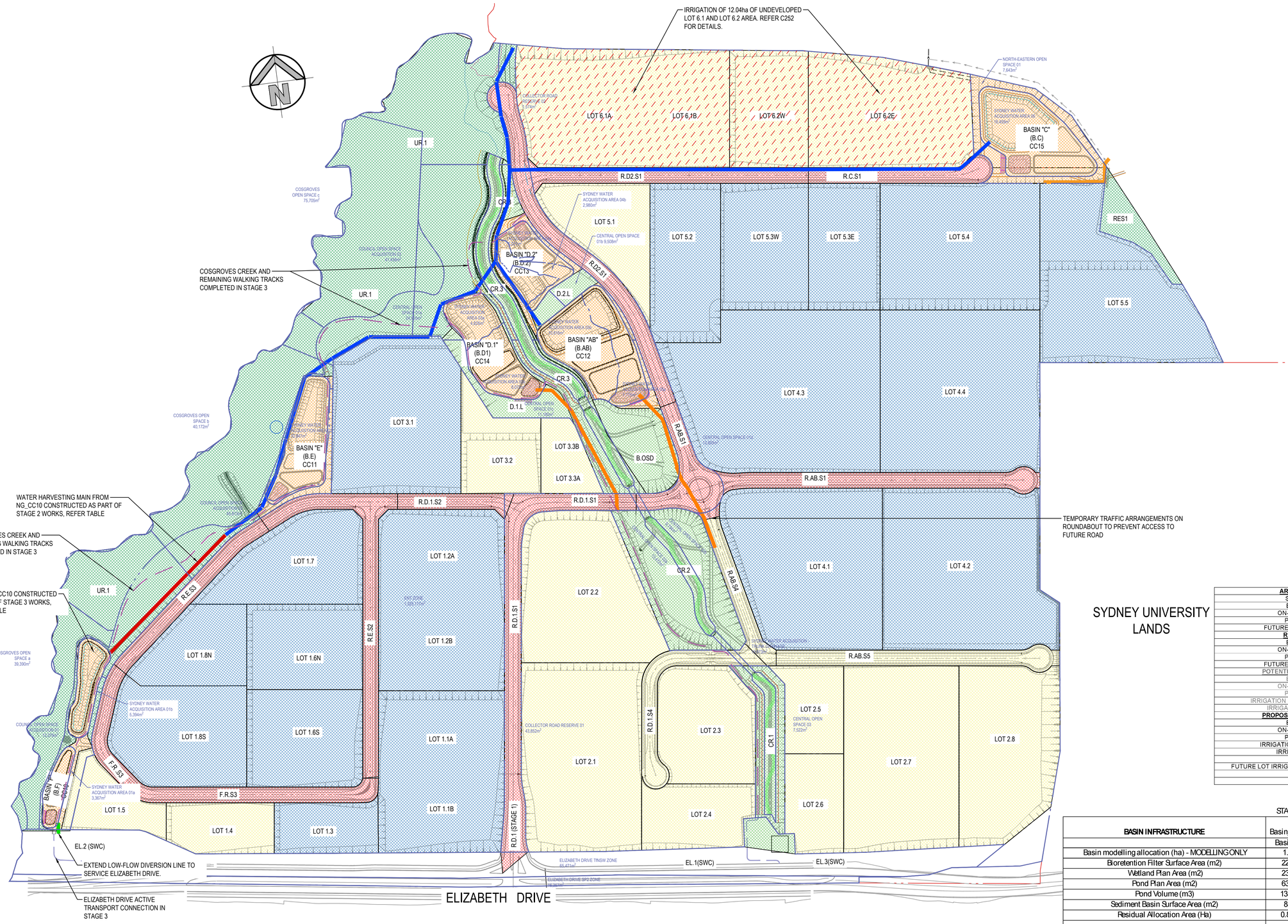

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- STORMWATER HARVERSTING MAIN THIS STAGE
- STORMWATER HARVERSTING MAIN FORMER STAGE
- LOW FLOW DIVERSION LINE (MAJOR) THIS STAGE
- LOW FLOW DIVERSION LINE (MAJOR) FORMER STAGE
- ACTIVE TRANSPORT LINK
- ACQUISITIONS REFER 14020_SK034G BY NETTLETON TRIBE

CATCHMENT TYPES

- LOT - DEVELOPED
- LOT - DEVELOPMENT RESTRICTED REFER CHAPTER 6.7 ENG. REPORT
- LANDSCAPE (UNDISTRURBED)
- LANDSCAPE (PROPOSED)
- LANDSCAPE - FUTURE LOT
- ROAD
- BASIN AREA
- LANDSCAPE - FUTURE BASIN

OTHER

- UNDEVELOPED LOT IRRIGATION

SYDNEY UNIVERSITY LANDS

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	70.41	ha
ON-LOT - PRIVATE	10.95	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	46.51	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	225.3	kL/day
ON-LOT - PRIVATE	32860.9	kL/year
POS - PUBLIC	177017.8	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	279044.4	kL/year
IRRIGATION TOTAL (MAX)	488923.0	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	72219.60	kL/year
IRRIGATION TOTAL	249237.36	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	12.04	ha
MODE	WATER QUALITY DRIVEN	

	STAGE1	STAGE1	STAGE2	STAGE1	STAGE2	STAGE3
BASIN INFRASTRUCTURE	Basin_NG12	Basin_NG15	Basin_NG14	Basin_NG13	Basin_NG11	Basin_NG10
	Basin AB	Basin C	Basin D.1	Basin D.2	Basin E	Basin F
Basin modelling allocation (ha) - MODELLING ONLY	1.98	2.414	1.2082	1.1451	1.3337	0.974
Bioretention Filter Surface Area (m2)	2200	1456	1200	779	1100	536
Wetland Plan Area (m2)	2384	2321	1527	1053	1212	808
Pond Plan Area (m2)	6326	7148	4876	3300	4118	3173
Pond Volume (m3)	13560	15827	9898	6290	6408	4665
Sediment Basin Surface Area (m2)	852	824	506	371	427	300
Residual Allocation Area (Ha)	0.892	1.3215	0.4479	0.6319	0.6907	0.5223
STORMWATER HAVERSTING		STAGE (m)	TOTAL (m)			
STORMWATER HARVESTING MAIN		250	2075			
LOW FLOW DIVERSION (MAJOR)		STAGE (m)	TOTAL (m)			
LOW FLOW DIVERSION MAIN		290	922			

PROJECT STAGING PLAN
STAGE 3
SCALE: 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	11.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	04.12.2025

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE
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

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: PROJECT STAGING - STAGE 3

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C173 | Revision: 04

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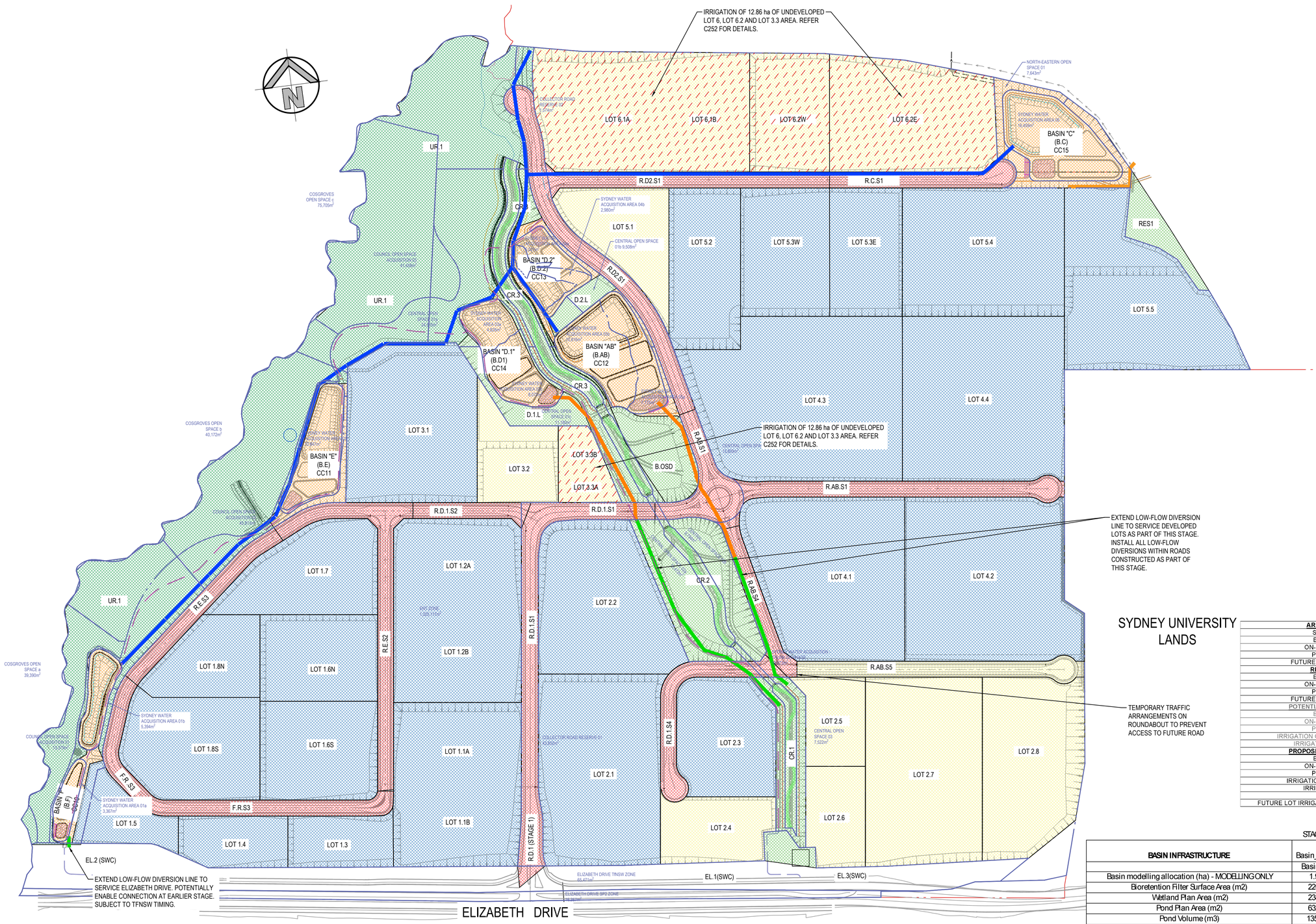

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- STORMWATER HARVERSTING MAIN THIS STAGE
- STORMWATER HARVERSTING MAIN FORMER STAGE
- LOW FLOW DIVERSION LINE (MAJOR) THIS STAGE
- LOW FLOW DIVERSION LINE (MAJOR) FORMER STAGE
- ACTIVE TRANSPORT LINK
- ACQUISITIONS REFER 14020_SK034G BY NETTLETON TRIBE

CATCHMENT TYPES

- LOT - DEVELOPED
- LOT - DEVELOPMENT RESTRICTED REFER CHAPTER 6.7 ENG. REPORT
- LANDSCAPE (UNDISTRURBED)
- LANDSCAPE (PROPOSED)
- LANDSCAPE - FUTURE LOT
- ROAD
- BASIN AREA
- LANDSCAPE - FUTURE BASIN

OTHER

- UNDEVELOPED LOT IRRIGATION

PROJECT STAGING PLAN
STAGE 4
SCALE: 1:3000

SYDNEY UNIVERSITY LANDS

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	84.86	ha
ON-LOT - PRIVATE	13.12	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	30.58	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	271.5	kL/day
ON-LOT - PRIVATE	39361.2	kL/year
POS - PUBLIC	177017.8	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	183453.6	kL/year
IRRIGATION TOTAL (MAX)	399832.6	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	0.00	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	77172.00	kL/year
IRRIGATION TOTAL	254189.76	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	12.86	ha

BASIN INFRASTRUCTURE	STAGE1	STAGE1	STAGE2	STAGE1	STAGE2	STAGE3
	Basin_NG12	Basin_NG15	Basin_NG14	Basin_NG13	Basin_NG11	Basin_NG10
	Basin AB	Basin C	Basin D.1	Basin D.2	Basin E	Basin F
Basin modelling allocation (ha) - MODELLING ONLY	1.98	2.414	1.2082	1.1451	1.3337	0.974
Bioretention Filter Surface Area (m2)	2200	1456	1200	779	1100	536
Wetland Plan Area (m2)	2384	2321	1527	1053	1212	808
Pond Plan Area (m2)	6326	7148	4876	3300	4118	3173
Pond Volume (m3)	13560	15827	9898	6290	6408	4665
Sediment Basin Surface Area (m2)	852	824	506	371	427	300
Residual Allocation Area (Ha)	0.892	1.3215	0.4479	0.6319	0.6907	0.5223
STORMWATER HAVERSTING		STAGE (m)	TOTAL (m)			
STORMWATER HARVESTING MAIN		0	2075			
LOW FLOW DIVERSION (MAJOR)						
LOW FLOW DIVERSION MAIN		578	1500			

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	11.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	04.12.2025

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Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW
Title: PROJECT STAGING - STAGE 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C174
Revision: 04

File Path: R:\2026\240518\ACAD\Sheets\240518_DA_C174.DWG, 240518_DA_C174(04), DATE PRINTED: 16/04/2026 1:06:43 PM

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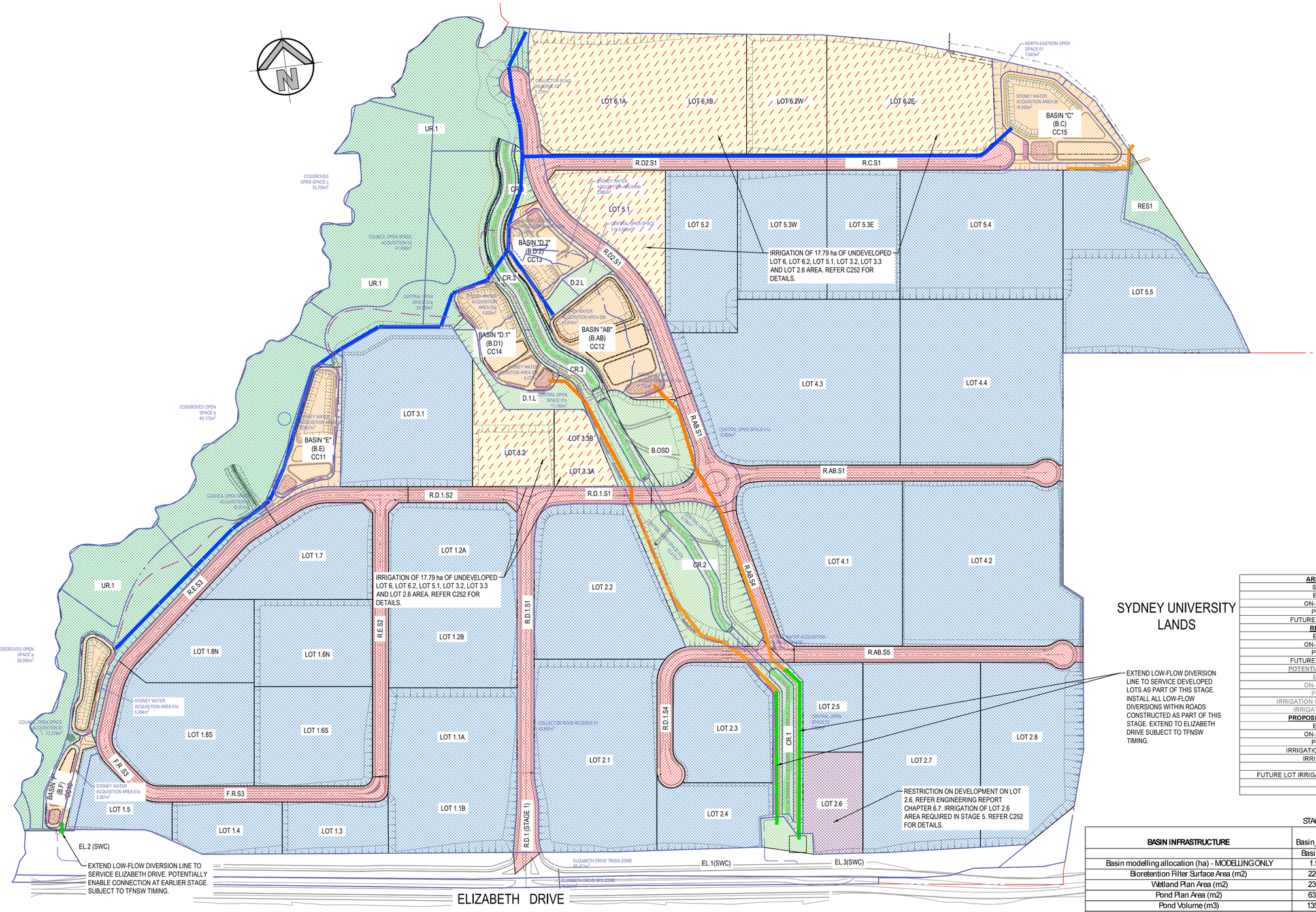

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- STORMWATER HARVERSTING MAIN THIS STAGE
- STORMWATER HARVERSTING MAIN FORMER STAGE
- LOW FLOW DIVERSION LINE (MAJOR) THIS STAGE
- LOW FLOW DIVERSION LINE (MAJOR) FORMER STAGE
- ACTIVE TRANSPORT LINK
- ACQUISITIONS REFER 14020_SK034G BY NETTLETON TRIBE

CATCHMENT TYPES

- LOT - DEVELOPED
- LOT - DEVELOPMENT RESTRICTED REFER CHAPTER 6.7 ENG. REPORT
- LANDSCAPE (UNDISTRURBED)
- LANDSCAPE (PROPOSED)
- LANDSCAPE - FUTURE LOT
- ROAD
- BASIN AREA
- LANDSCAPE - FUTURE BASIN

OTHER

- UNDEVELOPED LOT IRRIGATION

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	96.55	ha
ON-LOT - PRIVATE	14.87	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	17.79	ha
REUSE RATES		
ENT - TOTAL	3.2	kL/day
ON-LOT - PRIVATE	3000	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	309.0	kL/day
ON-LOT - PRIVATE	44624.1	kL/year
POS - PUBLIC	177017.8	kL/year
IRRIGATION OF FUTURE LOTS (MAX)	106741.8	kL/year
IRRIGATION TOTAL (MAX)	328383.7	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	0.00	kL/day
ON-LOT - PRIVATE	44624.13	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	106741.80	kL/year
IRRIGATION TOTAL	328383.69	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	17.79	ha
MODE	WATER QUALITY DRIVEN	

SYDNEY UNIVERSITY LANDS

EXTEND LOW-FLOW DIVERSION LINE TO SERVICE DEVELOPED LOTS AS PART OF THIS STAGE. INSTALL ALL LOW-FLOW DIVERSIONS WITHIN ROADS CONSTRUCTED AS PART OF THIS STAGE. EXTEND TO ELIZABETH DRIVE SUBJECT TO TFNSW TIMING.

RESTRICTION ON DEVELOPMENT ON LOT 2.6, REFER ENGINEERING REPORT CHAPTER 6.7. IRRIGATION OF LOT 2.6 AREA REQUIRED IN STAGE 5. REFER C252 FOR DETAILS.

BASIN INFRASTRUCTURE	STAGE1 Basin_NG12 Basin AB	STAGE1 Basin_NG15 Basin C	STAGE2 Basin_NG14 Basin D.1	STAGE1 Basin_NG13 Basin D.2	STAGE2 Basin_NG11 Basin E	STAGE3 Basin_NG10 Basin F
Basin modelling allocation (ha) - MODELLING ONLY	1.98	2.414	1.2082	1.1451	1.3337	0.974
Bioretention Filter Surface Area (m2)	2200	1456	1200	779	1100	536
Wetland Plan Area (m2)	2384	2321	1527	1053	1212	808
Pond Plan Area (m2)	6326	7148	4876	3300	4118	3173
Pond Volume (m3)	13560	15827	9898	6290	6408	4665
Sediment Basin Surface Area (m2)	852	824	506	371	427	300
Residual Allocation Area (Ha)	0.892	1.3215	0.4479	0.6319	0.6907	0.5223
STORMWATER HAVERSTING		STAGE (m)	TOTAL (m)			
STORMWATER HARVESTING MAIN		0	2075			
LOW FLOW DIVERSION (MAJOR)						
LOW FLOW DIVERSION MAIN		463	1963			

PROJECT STAGING PLAN
STAGE 5
SCALE: 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	11.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	04.12.2025

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW
Title: PROJECT STAGING - STAGE 5

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C175
Revision: 04

File Path: R:\2024\240518\CAD\Drawings\DA_C175.DWG, 2026-04-DA, CYNBH, DATE PRINTED: 16/04/2026 1:06:56 PM

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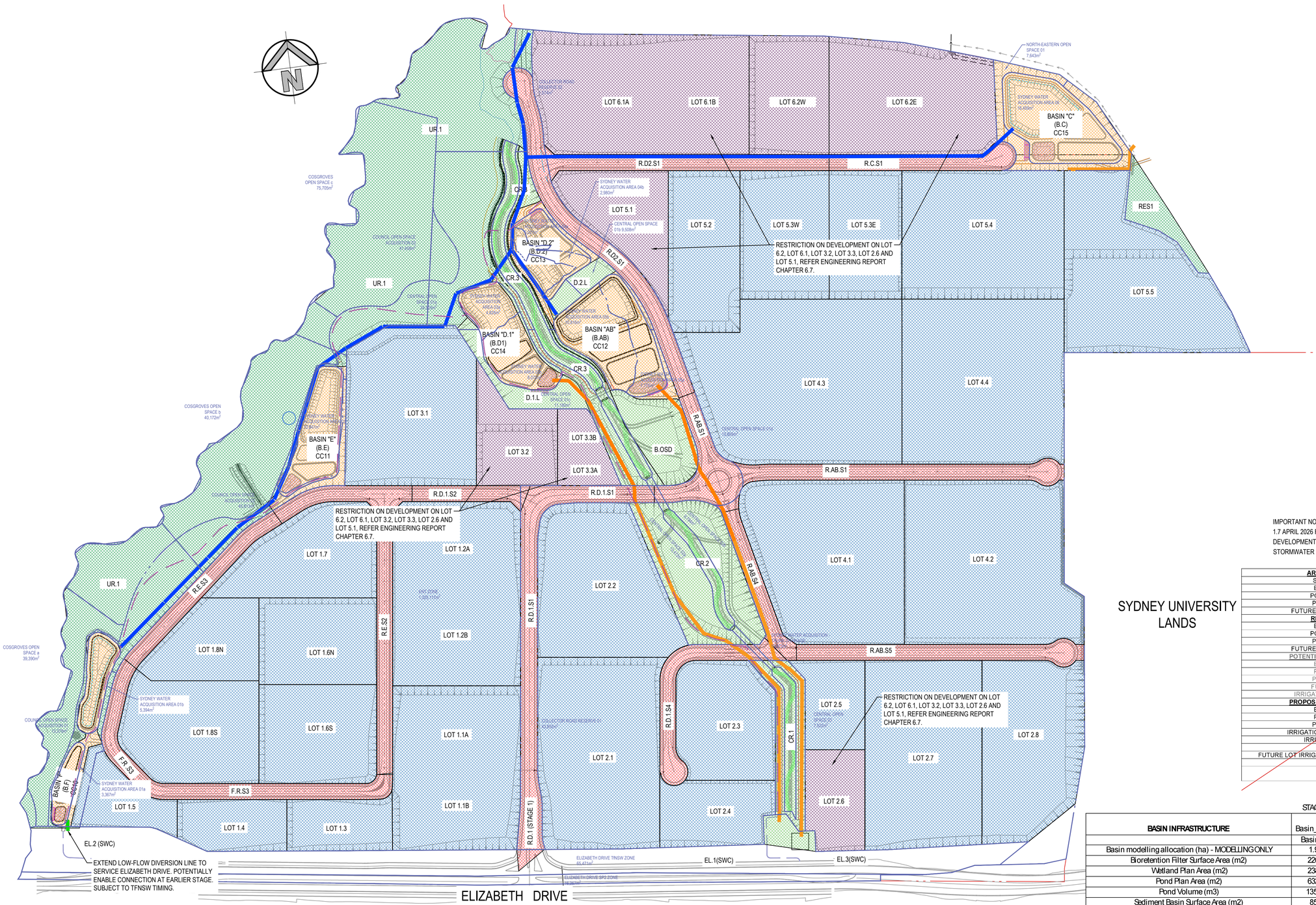

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- STORMWATER HARVERSTING MAIN THIS STAGE
- STORMWATER HARVERSTING MAIN FORMER STAGE
- LOW FLOW DIVERSION LINE (MAJOR) THIS STAGE
- LOW FLOW DIVERSION LINE (MAJOR) FORMER STAGE
- ACTIVE TRANSPORT LINK
- ACQUISITIONS REFER 14020_SK034G BY NETTLETON TRIBE

CATCHMENT TYPES

- LOT - DEVELOPED
- LOT - DEVELOPMENT RESTRICTED REFER CHAPTER 6.7 ENG. REPORT
- LANDSCAPE (UNDISTRURBED)
- LANDSCAPE (PROPOSED)
- LANDSCAPE - FUTURE LOT
- ROAD
- BASIN AREA
- LANDSCAPE - FUTURE BASIN

OTHER

- UNDEVELOPED LOT IRRIGATION

IMPORTANT NOTE: REFER CIVIL ENGINEERING REPORT BY HENRY AND HYMAS REV 1.7 APRIL 2026 FOR ADDITIONAL DETAILS (CHAPTER 6). RESTRICTIONS TO DEVELOPMENT MAY APPLY SUBJECT TO TIMING OF DELIVERY OF INTEGRATED STORMWATER SCHEME.

AREA SUMMARY		
STUDY AREA	163.60	ha
ENT - TOTAL	114.34	ha
POS - PRIVATE	17.54	ha
POS - PUBLIC	29.50	ha
FUTURE LOTS (POTENTIAL)	0.00	ha
REUSE RATES		
ENT - TOTAL	TBC (subject to individual dev.)	kL/day
POS - PRIVATE	3000-6000 TBC	kL/ha/year
POS - PUBLIC	6000	kL/ha/year
FUTURE LOTS (POTENTIAL)	6000	kL/ha/year
POTENTIAL REUSE DEMAND		
ENT - TOTAL	365.9 (3.2kl/day shown)	kL/day
POS - Private	52629.8- 105259.5	kL/year
POS - PUBLIC	177017.8	kL/year
FUTURE LOTS	0.0	kL/year
IRRIGATION TOTAL (max)	229647.5 - 282277.3	kL/year
PROPOSED REUSE DEMAND		
ENT - TOTAL	365.9	kL/day
POS - Private	105259.53	kL/year
POS - PUBLIC	177017.76	kL/year
IRRIGATION OF FUTURE LOTS	0.00	kL/year
IRRIGATION TOTAL	229647.5 - 282277.3	kL/year
FUTURE LOT IRRIGATION AREA @ 6000 kL/ha/year	0.00	ha
MODE	BOTH WATER QUALITY AND FLOW TARGET DRIVEN	

SUBJECT TO FURTHER COORDINATION WITH SYDNEY WATER

SYDNEY UNIVERSITY LANDS

BASIN INFRASTRUCTURE	STAGE 1	STAGE 1	STAGE 2	STAGE 1	STAGE 2	STAGE 3
	Basin_NG12	Basin_NG15	Basin_NG14	Basin_NG13	Basin_NG11	Basin_NG10
	Basin AB	Basin C	Basin D.1	Basin D.2	Basin E	Basin F
Basin modelling allocation (ha) - MODELLING ONLY	1.98	2.414	1.2082	1.1451	1.3337	0.974
Bioretention Filter Surface Area (m2)	2200	1456	1200	779	1100	536
Wetland Plan Area (m2)	2384	2321	1527	1053	1212	808
Pond Plan Area (m2)	6326	7148	4876	3300	4118	3173
Pond Volume (m3)	13560	15827	9898	6290	6408	4665
Sediment Basin Surface Area (m2)	852	824	506	371	427	300
Residual Allocation Area (Ha)	0.892	1.3215	0.4479	0.6319	0.6907	0.5223
STORMWATER HAVERSTING		STAGE (m)	TOTAL (m)			
STORMWATER HARVESTING MAIN		0	2075			
LOW FLOW DIVERSION (MAJOR)						
LOW FLOW DIVERSION MAIN		0	1963			

PROJECT STAGING PLAN
STAGE 6

SCALE: 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	11.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	LC	NW	04.12.2025

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW
Title: PROJECT STAGING - STAGE 6

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C176
Revision: 04

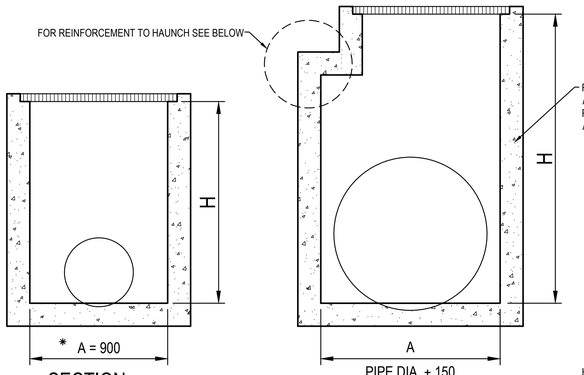
File Path: R:\2024\240518-BURRAH\DRAWING\DA_CIVIL\DWG - 240518_DA_CIVIL.DWG, DATE PRINTED: 16/4/2026 2:43:57 PM

A1

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.



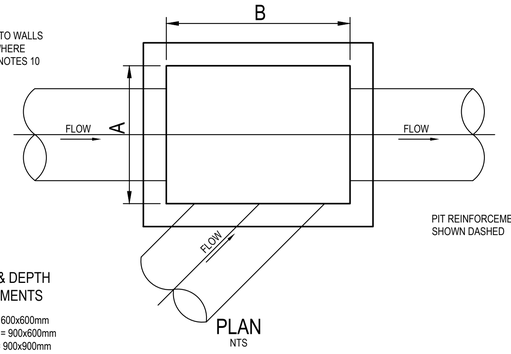
SECTION
NTS

*A = 600 FOR PIPES UP TO 375 DIA.

1 PIT CHAMBER DIMENSIONS FOR PIPES UP TO 600 DIA.

1 PIT CHAMBER FOR PIPES GREATER THAN 600 DIA.

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

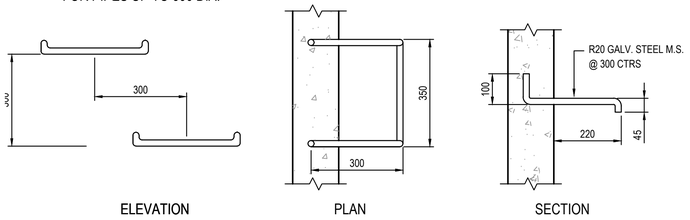


PLAN
NTS

2 PIT SIZE & DEPTH REQUIREMENTS

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

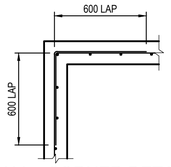
3 PIT CHAMBER FOR SIDE ENTRY ON SKEW



ELEVATION PLAN SECTION

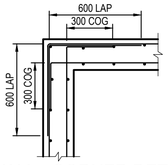
TYPICAL STEP IRON DETAIL

SCALE 1:10



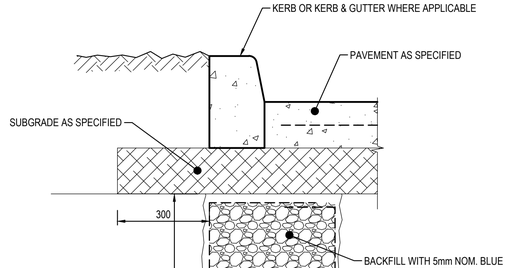
150 WALL - CORNER DETAIL

SCALE 1:20



200 WALL - CORNER DETAIL

SCALE 1:20



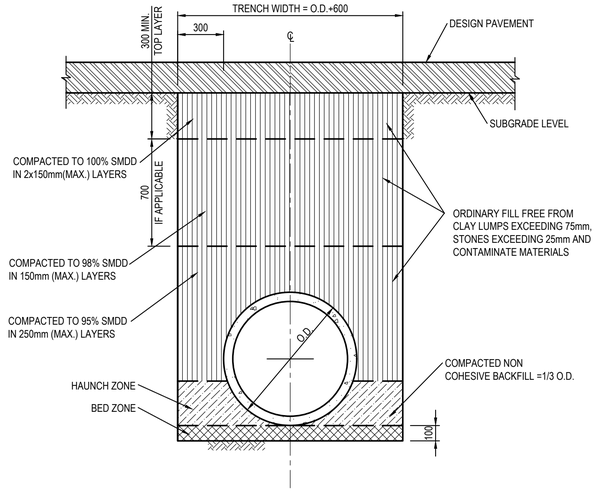
HAUNCH DETAIL -TYPICAL

SCALE 1:10

SUB-SOIL DRAIN DETAIL BELOW KERB

SCALE 1:10

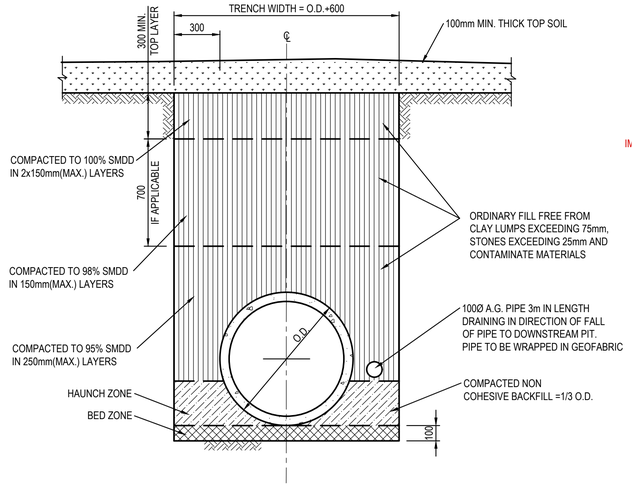
IMPORTANT NOTE: SUBSOIL DRAINAGE TO BE PROVIDE BELOW ALL KERBS (INCLUDING MEDIAN ISLANDS) IF NO STORMWATER DRAINAGE LINE IS PROVIDE BELOW.



PIPE TRENCH INSTALLATION BENEATH PAVEMENT

(H1 & H2 SUPPORT)

SCALE 1:20



PIPE TRENCH INSTALLATION IN LANDSCAPE AREAS

(H1 & H2 SUPPORT)

SCALE 1:20

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

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

PIT LID AND HEADWALL SCHEDULE

PIT NAME	PIT DESCRIPTION
A-13, B-13, D-13, F-9, G-10, H-5, I-13, J-3, K-6, L12, O-9, P-3, Q-4, R-3, T01-1, T01-2, T02-1, T02-2, U-3, V-3, X-3, S-4	PRECAST CONCRETE HEADWALL IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS. REFER C210 FOR ADDITIONAL SCOUR PROECTION DETAILS
A-1, A-2, A-3, A-4, A-5, A-6, A-7, A-8, A-9, A01-1, A02-1, A04-1, A05-1, A06-1, A08-1, A09-1, A12-1, A12-2, B-1, B-2, B-3, B-7, B-8, B-9, B-10, B01-2, B07-1, B08-1, C-1, C-2, C-3, C-4, C-5, C01-1, C03-1, C04-1, C05-1, C05-2, D-1, D-2, D-3, D-4, D-5, D-6, D-7, D-10, D-11, D01-1, D03-1, D04-1, D05-1, D06-1, D08-1, D09-1, E-1, E-2, E-3, E01-1, F-1, F-2, F-3, F-4, F-5, F-6, F-7, F01-1, F02-1, F03-1, F05-1, F06-1, G-2, G-3, G-4, G-5, G-6, G-7, G-8, G01-1, G02-1, G04-1, G05-1, G06-1, G08-1, G09-1, G11-2, H-2, H-1, H-3, H01-1, I-3, I-4, I-6, I-7, I-9, I-10, I-11, I01-1, I04-1, I06-1, I07-1, J-1, J-2, K-4, K01-1, K01-2, L-1, L-2, L-3, L-4, L-5, L-6, L01-1, L02-1, L03-1, L04-1, M-1, M-2, M-4, M-6, M-7, M02-1, N-4, N02-1, N-2, O-1, O-3, O-5, O-6, O-7, O06-4, A13-1, A13-2, L06-1, L-7, N03-1, O02-1, W05-1, W05-2, W-5, W-1, W-2	PROPOSED 1.8m ON-GRADE KERB INLET PIT WITH HEAVY DUTY FRAME AND GRATE, CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS.
L11, O-2, O06-2, O06-3, O06-1, O06-0, O-9, O-10, A-11, S-3, X-1, X-2	PROPOSED 900x900 JUNCTION PIT WITH SEALED CONCRETE LID HEAVY DUTY CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS
A-12, B-12, F-8, G-9, I-12, K-4, L-9, O-8, P-2, Q-2, Q-3, R-2, U-2, V-2, S-2	PROPOSED LOW FLOW DIVERSION $_S$SPLITTER$_R$ PIT. INSITU REINFORCED CONCRETE PIT WITH LOW FLOW DIVERSION WEIR. DETAILED DESIGN TO FUTURE SPECIFICATIONS.
A-10, A10-2, B-4, B-5, B-6, B-11, B02-1, B03-1, B05-1, B06-1, B09-2, B10-1, D-8, D-9, D-12, D11-1, G11-1, H-4, H02-2, I-1, I-2, I-5, I-8, I03-2, I05-1, K-2, K-3, M-3, M-5, M01-1, M04-1, N01-1, N-3, N-4, O-4, O03-1, M02-1 , M01-1 , L-8, N03-2	PROPOSED SAG KERB WITH 2.4m LINTEL AND HEAVY-DUTY FRAME AND GRATE, CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS.
A03-1, A07-1, A10-1, A11-1, B01-1, B04-1, B09-1, C02-1, D07-1, F04-1, G-1, G03-1, G07-1, G10-1, H02-1, I02-1, I03-1, I08-1, K-1, M07-1 , M03-1, M05-1, N-1, O07-01, O01-1, O02-2, O04-1, O05-1, O06-1, P-1, Q-1, Q01-1, R-1, S-1, U-1, V-1, A04-2	PROPOSED STUB CONNECTION IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS. REFER NOTES ON PLANS FOR ADDITIONAL REQUIREMENTS.
G01-2,I08-1	PROPOSED 1200x1200 SURFACE INLET PIT WITH GRATED 'SURCHARGE STYLE' LID HEAVY DUTY CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS
HM-1, HM1-1, HM1-2, HM1-3, HM1-4, HM1-5, HM1-6, HM1-7, HM1-8, HM1-9, HM1-10, HM2-1, HM2-1, HM2-2, HM2-3, HM2-4, HM2-5, HM2-6, HM2-7, HM2-8, HM2-9, HM2-10, HM2-11, HM2-12, HM2-13, HM2-14, HM2-15, HM2-16, HM2-17, HM2-18, HM2-19	WATER HAVERSTING MAIN PIT - TO SYDNEY WATER SPECIFCATION
W-11, W-10, W-9, W-8, W-7, W-1, W-4,	LOW FLOW DIVERSION PIT - PROPOSED 900x900 JUNCTION PIT WITH SEALED CONCRETE LID HEAVY DUTY CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS

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

NOTES:

- REFER C010 FOR DRAINAGE AND SUBSOIL NOTES.
- PIT SCHEDULE ABOVE DOES NOT INCLUDE PIT LIDS FOR WATER QUALITY DEVICES OR STORMWATER MANAGEMENT BASINS, REFER DRAWINGS C201 AND C212 FOR DETAILS REGARDING PITS WITHIN STORMWATER MANAGEMENT BASINS.

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
02	ISSUED FOR CONCEPT	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

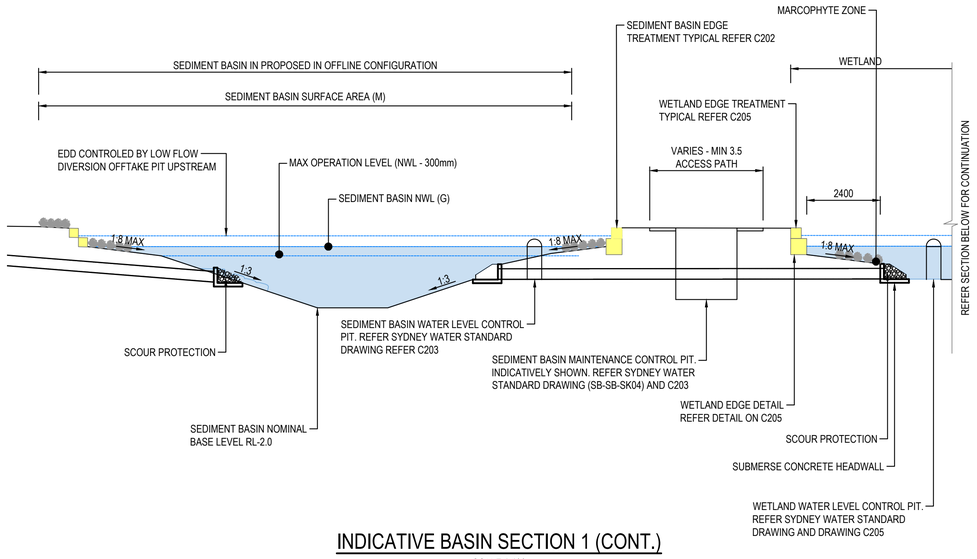
Title: STORMWATER MISECELLANEOUS DETAILS

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C200
Revision: 05

File Path: - RL:\2025\240518-BADGERY'S CREEK\DA\CAD\[240518_DA_C200].DWG DATE PRINTED: 12/12/2025 3:45:49 PM

A1



INDICATIVE BASIN SECTION 1 (CONT.)

SCALE 1:100

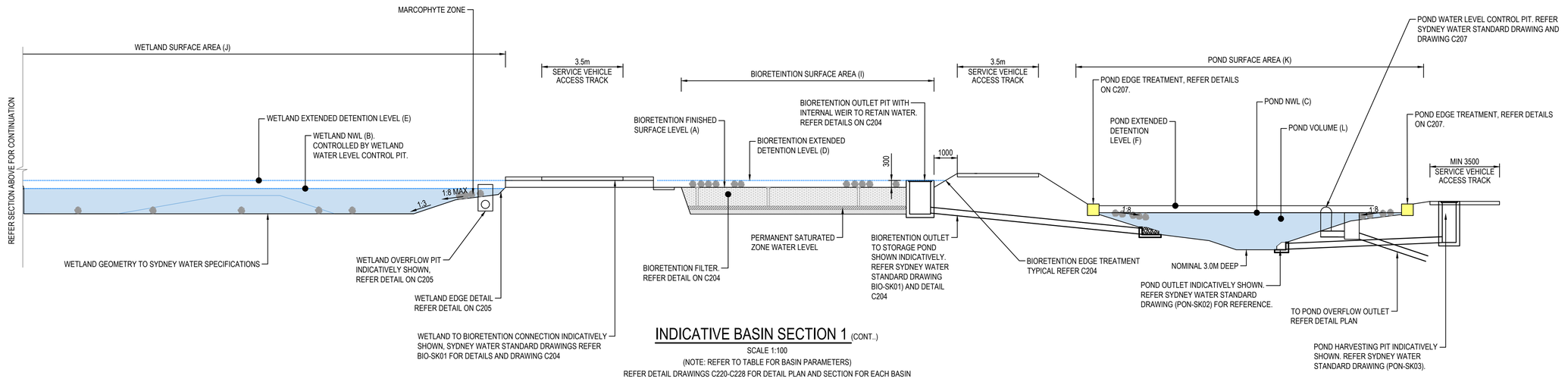
(NOTE: REFER TO TABLE FOR BASIN PARAMETERS)

REFER DETAIL DRAWINGS C220-C228 FOR DETAIL PLAN AND SECTION FOR EACH BASIN

	Basin_NG12	Basin_NG15	Basin_NG14	Basin_NG13	Basin_NG11	Basin_NG10
	Basin AB	Basin C	Basin D.1	Basin D.2	Basin E	Basin F
(A) Bioretention Surface Level m(AHD)	57.35	55.65	54.65	52.85	53.65	56.45
(B) Wetland NWL m(AHD)	57.3	55.6	54.6	52.8	53.6	56.4
(C) Storage Pond NWL m(AHD)	55.65	54.85	53.85	52.05	52.85	55.65
(D) Bioretention EDD Level m(AHD)	57.65	55.95	54.95	53.15	53.95	56.75
(E) Wetland EDD Level m(AHD)	57.65	55.95	54.95	53.15	53.95	56.75
(F) Storage Pond EDD Level m(AHD)	55.75	54.95	53.95	52.15	52.95	55.75
(G) Sediment Pond NWL m(AHD)	57.3	55.6	54.6	52.8	53.6	56.4
Basin modelling allocation (ha) Refer C251	1.983	2.414	1.208	1.145	1.334	0.974
(I) Bioretention Filter Surface Area (m2)	2200	1456	1200	779	1100	536
(J) Wetland Plan Area (m2)	2384	2321	1527	1053	1212	808
(K) Pond Plan Area (m2)	6326	7148	4876	3300	4118	3173
(L) Pond Volume (m3)	13560	15827	9898	6290	6408	4665
Sediment Basin Surface Area (m2)	852	824	506	371	427	300
Residual Allocation Area (Ha)	0.892	1.322	0.448	0.632	0.691	0.522
Maintenance Path	4.0m Wide	4.0m Wide	4.0m Wide	4.0m Wide	4.0m Wide	4.0m Wide
4EY Flow (m3/s)	2.44	0.997(INC.0.411-M12)	1.51	0.562	0.559	0.392 (+0.233-ED)
Constructed in Stage	1	1	2	1	2	3
Catchment Area (ha)*	41.317	29.001	27.791	18.100	18.360	16.826
Bioretention Filter Surface Area (m2) % Catch	0.53	0.50	0.43	0.43	0.60	0.32
Wetland Plan Area (m2) % Catch	0.58	0.80	0.55	0.58	0.66	0.48
Pond Plan Area (m2) % Catch	1.53	2.46	1.75	1.82	2.24	1.89
Sediment Basins Area (m2) % Catch	0.21	0.28	0.18	0.20	0.23	0.18
* including external catchments, utilising Sydney Water external catchment sizing, exluding basin allocation						

TABLE: PRELIMINARY BASIN PARAMETERS

REFER DETAIL DRAWINGS C220 - C228 FOR DETAIL PLAN AND SECTIONS FOR EACH BASIN



INDICATIVE BASIN SECTION 1 (CONT..)

SCALE 1:100

(NOTE: REFER TO TABLE FOR BASIN PARAMETERS)

REFER DETAIL DRAWINGS C220-C228 FOR DETAIL PLAN AND SECTION FOR EACH BASIN

ISSUED FOR SSDA

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SURVEY INFORMATION

SURVEYED BY: LTSL

DATUM:AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

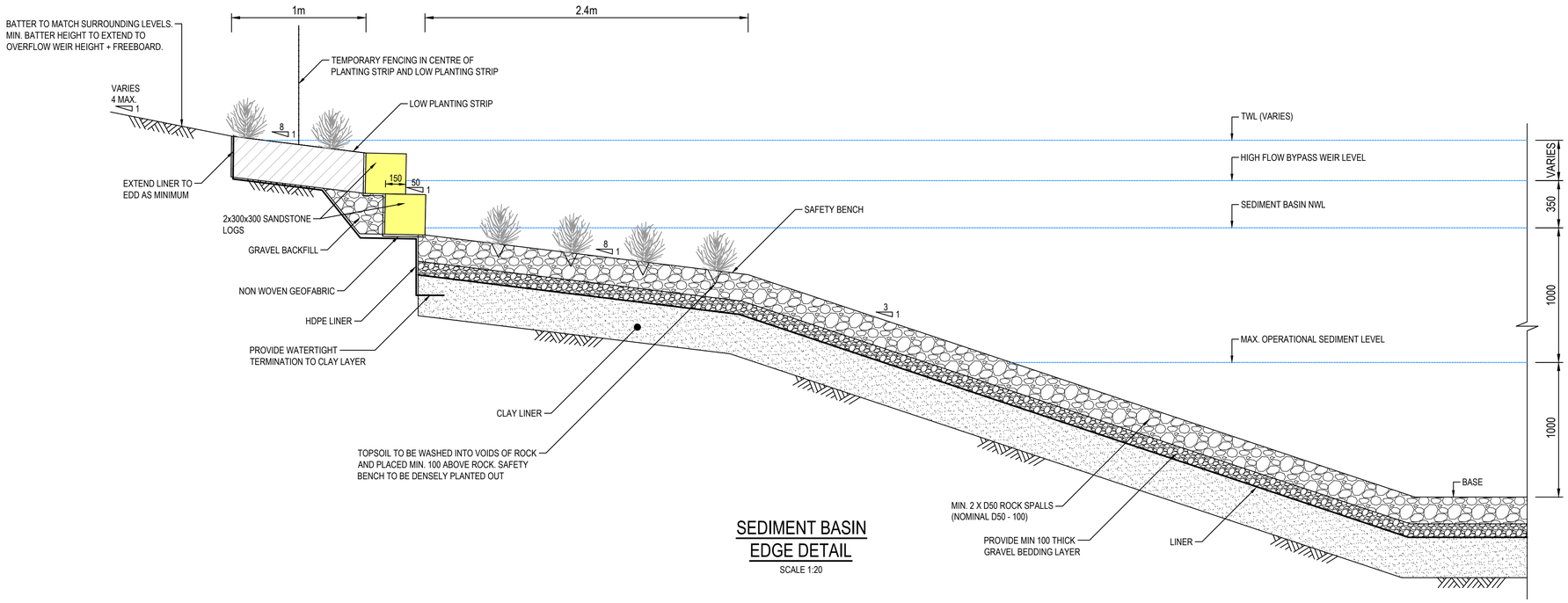
Title: REGIONAL STORMWATER BASIN INDICATIVE SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:100

Drawing number: 240518_DA_C201

Revision: 07

A1



SEDIMENT BASIN EDGE DETAIL

SCALE 1:20

NOTES

1. OTHER LINERS IN POND, WETLAND AND BIORETENTION MAY BE ACCEPTED SUBJECT TO LOCAL CONDITIONS.
2. SANDSTONE LOG TO BE INSTALLED TO PROVIDE NEAR VERTICAL EDGE AND MINIMISE WADING BIRD HABITAT AT POND EDGE. ALTERNATIVE OPTIONS TO SANDSTONE LOGS MAY BE CONSIDERED.
3. REFER TO PLANTING SCHEDULE FOR PLANTING REQUIREMENTS.
4. NWL = NOMINAL WATER LEVEL
5. EDD = EXTENDED DETENTION DEPTH
6. TWL = TOP WATER LEVEL
7. UNITS IN MILLIMETRES UNLESS OTHERWISE NOTED.
8. ALL BURIED INFRASTRUCTURE TO BE CHECKED FOR FLOTATION UNDER THE CRITICAL ASSUMPTION THAT GROUNDWATER IS AT NWL AND ASSUMING THE WATER STORAGE IS EMPTY OR AS PER GEOTECHNICAL/GROUNDWATER CRITICAL SCENARIO ASSESSMENT. PROVIDE ANTI-FLOTATION MEASURES AS REQUIRED

0 400 800 1200 1600 2000mm

400 200

SCALE 1:20

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
02	ISSUED FOR CONCEPT	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
REGIONAL STORMWATER BASIN
SEDIMENT BASIN DETAILS SHEET 1

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

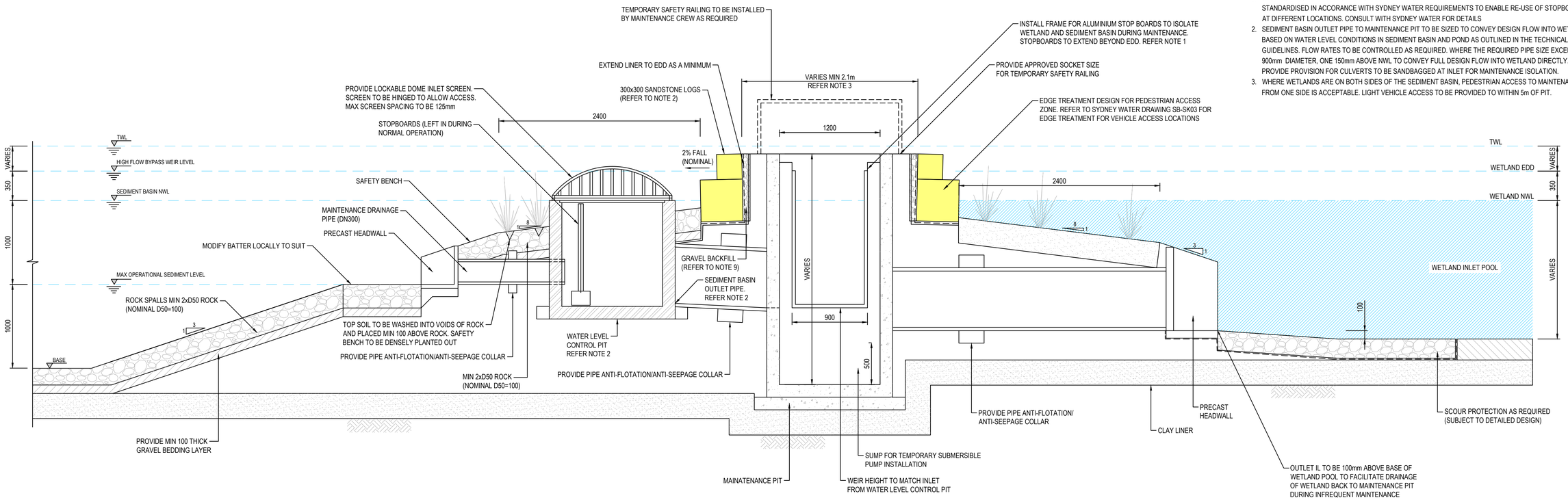
Drawing number: 240518_DA_C202
Revision: 05

File Path: R:\JOBS\2024\240518\CAD\DA\240518_DA_C01-C09.DWG , 240518_DA_C202[5], DATE PRINTED: 12/12/2025 2:58:57 PM

A1

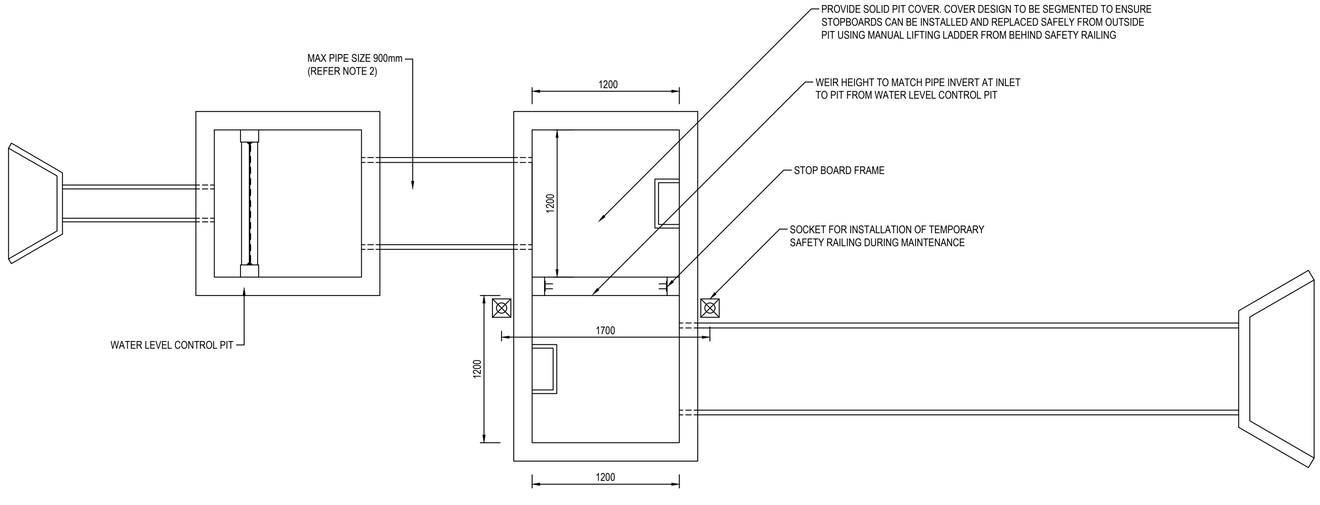
NOTES

1. STOP BOARDS TO BE REMOVED DURING NORMAL OPERATION. FRAME WIDTH/OPENING SIZE TO BE STANDARDISED IN ACCORANCE WITH SYDNEY WATER REQUIREMENTS TO ENABLE RE-USE OF STOPBOARDS AT DIFFERENT LOCATIONS. CONSULT WITH SYDNEY WATER FOR DETAILS
2. SEDIMENT BASIN OUTLET PIPE TO MAINTENANCE PIT TO BE SIZED TO CONVEY DESIGN FLOW INTO WETLAND BASED ON WATER LEVEL CONDITIONS IN SEDIMENT BASIN AND POND AS OUTLINED IN THE TECHNICAL GUIDELINES. FLOW RATES TO BE CONTROLLED AS REQUIRED. WHERE THE REQUIRED PIPE SIZE EXCEEDS 900mm DIAMETER, ONE 150mm ABOVE NWL TO CONVEY FULL DESIGN FLOW INTO WETLAND DIRECTLY. PROVIDE PROVISION FOR CULVERTS TO BE SANDBAGGED AT INLET FOR MAINTENANCE ISOLATION.
3. WHERE WETLANDS ARE ON BOTH SIDES OF THE SEDIMENT BASIN, PEDESTRIAN ACCESS TO MAINTENANCE PIT FROM ONE SIDE IS ACCEPTABLE. LIGHT VEHICLE ACCESS TO BE PROVIDED TO WITHIN 5m OF PIT.



WATER LEVEL CONTROL AND MAINTENANCE PIT - SECTION

SCALE 1:25



WATER LEVEL CONTROL AND MAINTENANCE PIT - PLAN VIEW

SCALE 1:25

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

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

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	AFe	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: REGIONAL STORMWATER BASIN SEDIMENT BASIN DETAILS SHEET 2

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:100

Drawing number: 240518_DA_C203
Revision: 07

File Path: R:\PROJ\240518\CAD\DA\240518_DA_C201-C204.DWG - 240518_DA_C203(07) - DATE PRINTED - 12/12/2025 3:45:52 PM

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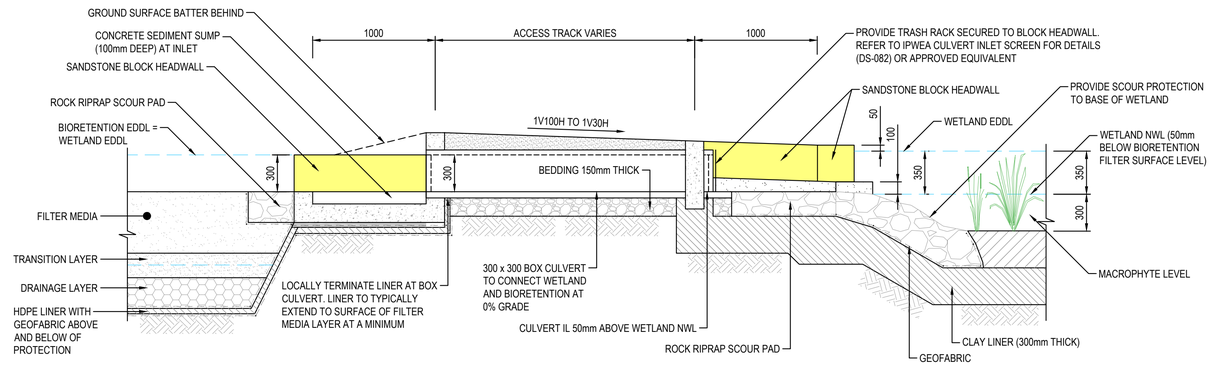
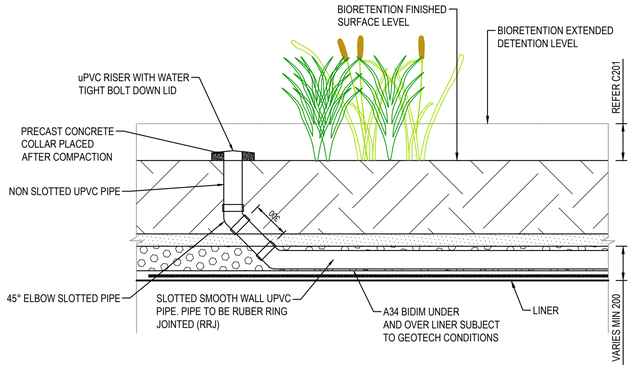


HIGH FLOW BIORETENTION OUTLET TYPICAL SECTION

SCALE 1:25

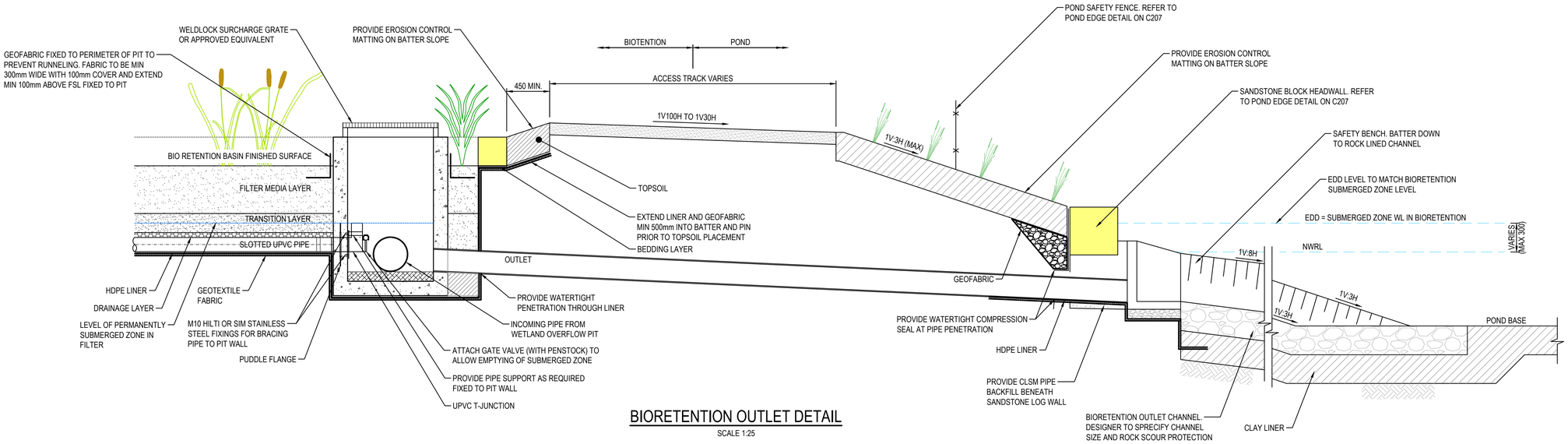


DRAINAGE & FLUSHING POINTS

NTS

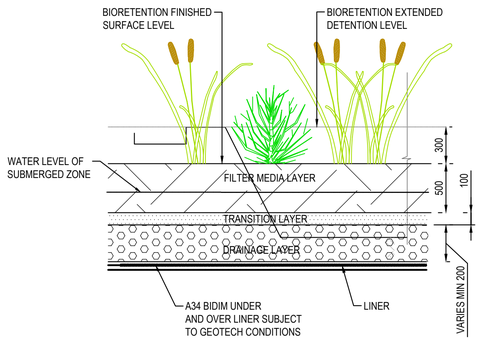
NOTES

1. OTHER LINERS IN POND, WETLAND AND BIORETENTION MAY BE ACCEPTED SUBJECT TO LOCAL CONDITIONS.
2. SANDSTONE LOG TO BE INSTALLED TO PROVIDE NEAR VERTICAL EDGE AND MINIMISE WADING BIRD HABITAT AT POND EDGE. ALTERNATIVE OPTIONS TO SANDSTONE LOGS MAY BE CONSIDERED.
3. REFER TO PLANTING SCHEDULE FOR PLANTING REQUIREMENTS.
4. NWL = NOMINAL WATER LEVEL
5. EDD = EXTENDED DETENTION DEPTH
6. TWL = TOP WATER LEVEL
7. UNITS IN MILLIMETRES UNLESS OTHERWISE NOTED.
8. ALL BURIED INFRASTRUCTURE TO BE CHECKED FOR FLOTATION UNDER THE CRITICAL ASSUMPTION THAT GROUNDWATER IS AT NWL AND ASSUMING THE WATER STORAGE IS EMPTY OR AS PER GEOTECHNICAL/GROUNDWATER CRITICAL SCENARIO ASSESSMENT. PROVIDE ANTI-FLOTATION MEASURES AS REQUIRED
9. ALL PITS TO BE WATERTIGHT
10. PROVIDE MIN 20mm CONCRETE BENCHING TO ALL STORMWATER PITS



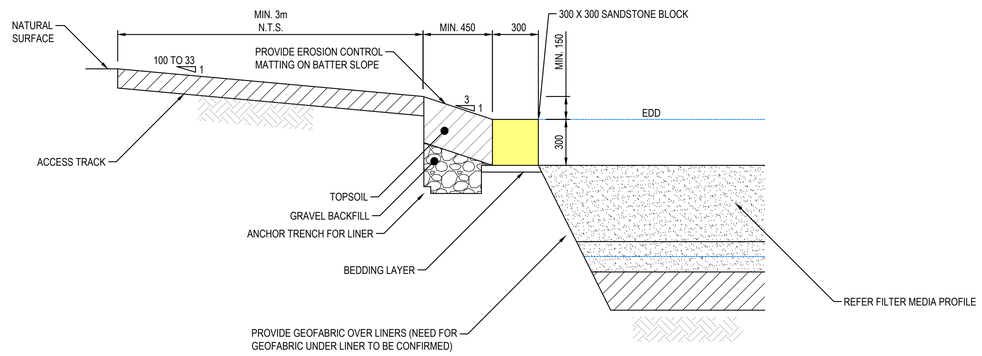
BIORETENTION OUTLET DETAIL

SCALE 1:25



BIO-RETENTION FILTER PROFILE

SCALE 1:25



BIO-RETENTION TYPICAL EDGE DETAIL

SCALE 1:20

0 400 800 1200 1600 2000mm
400 200

SCALE 1:20

0 500 1000 1500 2000 2500mm
500 300 100

SCALE 1:25

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	AFe	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: REGIONAL STORMWATER BASIN BIORETENTION DETAILS

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:100

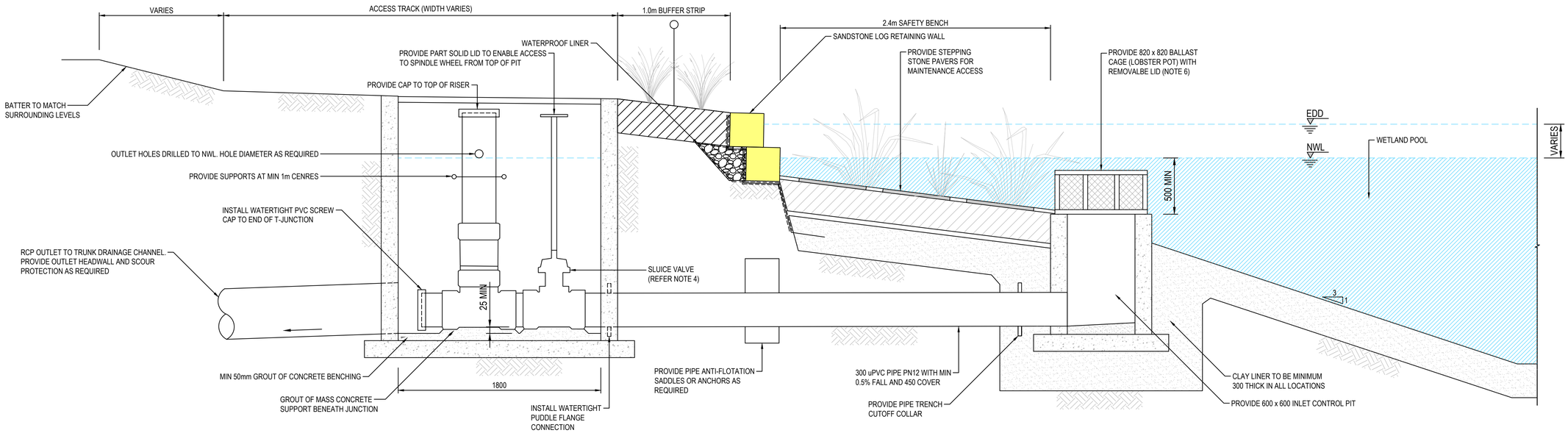
Drawing number: 240518_DA_C204
Revision: 07

dwg Ref: N:\DES\2024\240518\ACAD\DA\240518_DA_C201-C206.DWG - 240518_DA_C204[01] - DATE PRINTED - 2/12/2025 3:58:03 PM

A1

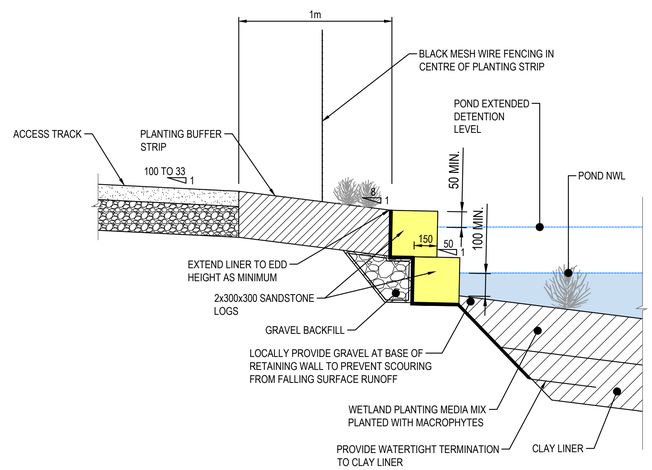
NOTES

1. NWL = NOMINAL WATER LEVEL
2. EDD = EXTENDED DETENTION DEPTH
3. TWL = TOP WATER LEVEL
4. SLUICE VALVE TO BE INSTALLED TO SUIT OFF WETLAND BASE FLOW DISCHARGE DURING RECIRCULATION OPERATION. ARRANGEMENT TO BE CONFIRMED WITH SYDNEY WATER. SPINDLE TO EXTEND AS REQUIRED TO ALLOW OPERATION AT SURFACE LEVEL.
5. PROVIDE 20mm CONCRETE BENCHING TO ALL STORMWATER PITS.
6. REFER TO TfNSW DRAWING CV04000998 FOR DETAILS.
7. ALL BURIED INFRASTRUCTURE TO BE CHECKED FOR FLOTATION UNDER THE CRITICAL ASSUMPTION THAT GROUNDWATER IS AT NWL AND ASSUMING THE WATER STORAGE IS EMPTY OR AS PER GEOTECHNICAL/GROUNDWATER CRITICAL SCENARIO ASSESSMENT. PROVIDE ANTI-FLOTATION MEASURES AS REQUIRED
8. ALL PITS TO BE WATERTIGHT



WETLAND WATER LEVEL CONTROL PIT SECTION

SCALE 1:20



WETLAND EDGE DETAIL

SCALE 1:20

0 400 800 1200 1600 2000mm

400 200

SCALE 1:20

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
REGIONAL STORMWATER BASIN WETLAND DETAILS SHEET 1

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:100

Drawing number
240518_DA_C205

Revision
02

File Path: R:\2024\240518\ACAD\DA\240518_DA_C201-C206.DWG - JANYA DA_C205(1), DATE PRINTED: 12/12/2025 3:54:57 PM

A1

NOTES

1. OTHER LINERS IN POND, WETLAND AND BIORETENTION MAY BE ACCEPTED SUBJECT TO LOCAL CONDITIONS.
2. SANDSTONE LOG TO BE INSTALLED TO PROVIDE NEAR VERTICAL EDGE AND MINIMISE WADING BIRD HABITAT AT POND EDGE. ALTERNATIVE OPTIONS TO SANDSTONE LOGS MAY BE CONSIDERED.
3. REFER TO PLANTING SCHEDULE FOR PLANTING REQUIREMENTS.
4. NWL = NOMINAL WATER LEVEL
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6. TWL = TOP WATER LEVEL
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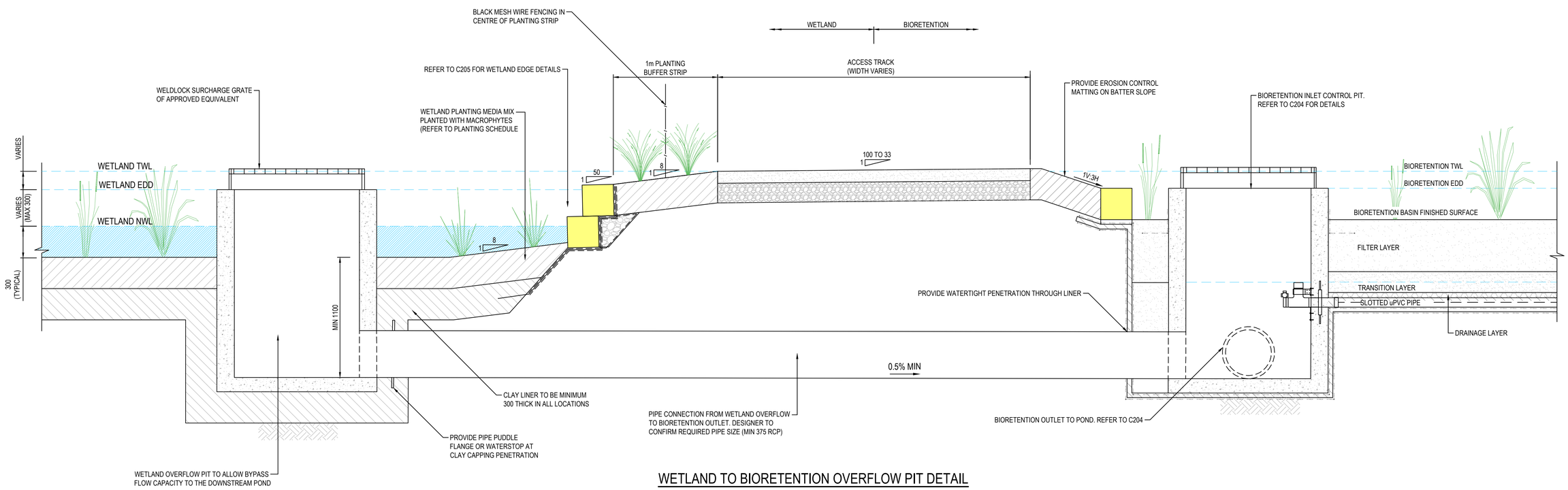
9. ALL PITS TO BE WATERTIGHT
10. PROVIDE MIN 20mm CONCRETE BENCHING TO ALL STORMWATER PITS



WETLAND TO BIORETENTION OVERFLOW PIT DETAIL

SCALE 1:20

0 400 800 1200 1600 2000mm

400 200

SCALE 1:20

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY: LTSL

DATUM:AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: REGIONAL STORMWATER BASIN WETLAND DETAILS SHEET 2

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:100

Drawing number: 240518_DA_C206

Revision: 02

File Path: RL:\PRJ\2024\240518\ACAD\DA\240518_DA_C01-C206.DWG , 240518_DA_C206(02) , DATE PRINTED: 12/12/2025 2:58:45 PM

A1

NOTES

1. OTHER LINERS IN POND, WETLAND AND BIORETENTION MAY BE ACCEPTED SUBJECT TO LOCAL CONDITIONS.
2. SANDSTONE LOG TO BE INSTALLED TO PROVIDE NEAR VERTICAL EDGE AND MINIMISE WADING BIRD HABITAT AT POND EDGE. ALTERNATIVE OPTIONS TO SANDSTONE LOGS MAY BE CONSIDERED.
3. REFER TO PLANTING SCHEDULE FOR PLANTING REQUIREMENTS.
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6. TWL = TOP WATER LEVEL
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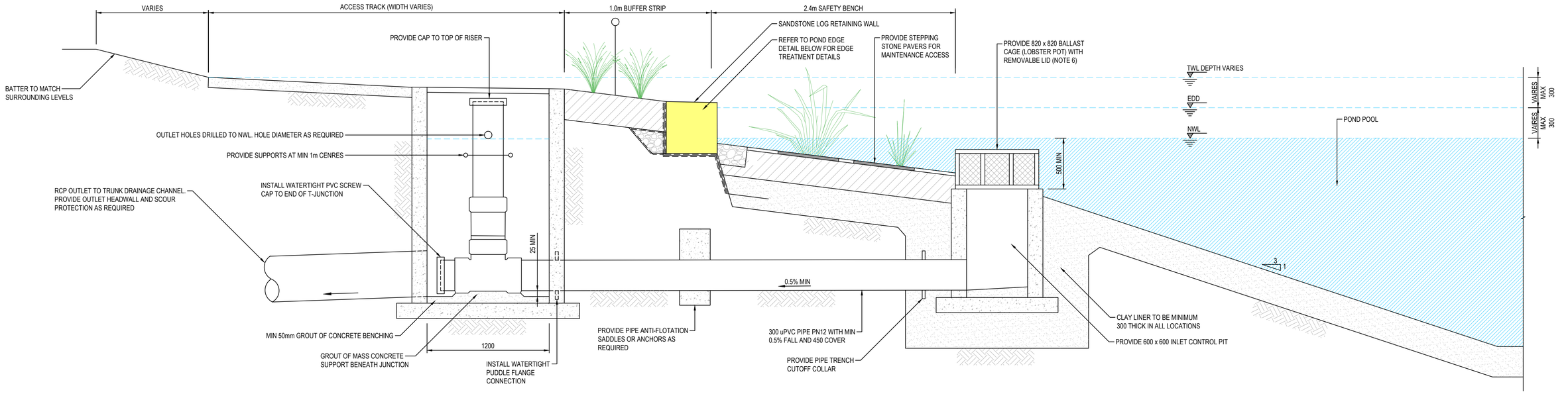
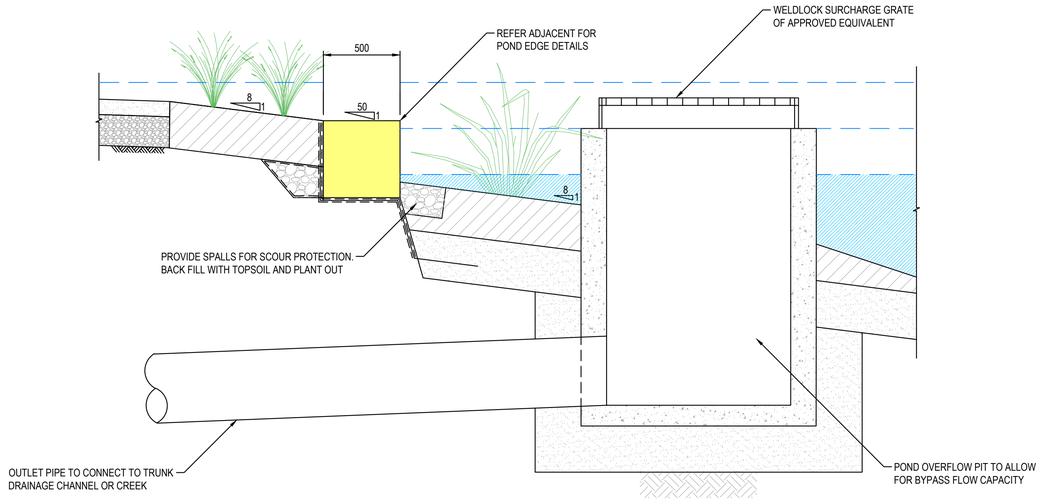
8. ALL BURIED INFRASTRUCTURE TO BE CHECKED FOR FLOTATION UNDER THE CRITICAL ASSUMPTION THAT GROUNDWATER IS AT NWL AND ASSUMING THE WATER STORAGE IS EMPTY OR AS PER GEOTECHNICAL/GROUNDWATER CRITICAL SCENARIO ASSESSMENT. PROVIDE ANTI-FLOTATION MEASURES AS REQUIRED
9. ALL PITS TO BE WATERTIGHT
10. PROVIDE MIN 20mm CONCRETE BENCHING TO ALL STORMWATER PITS



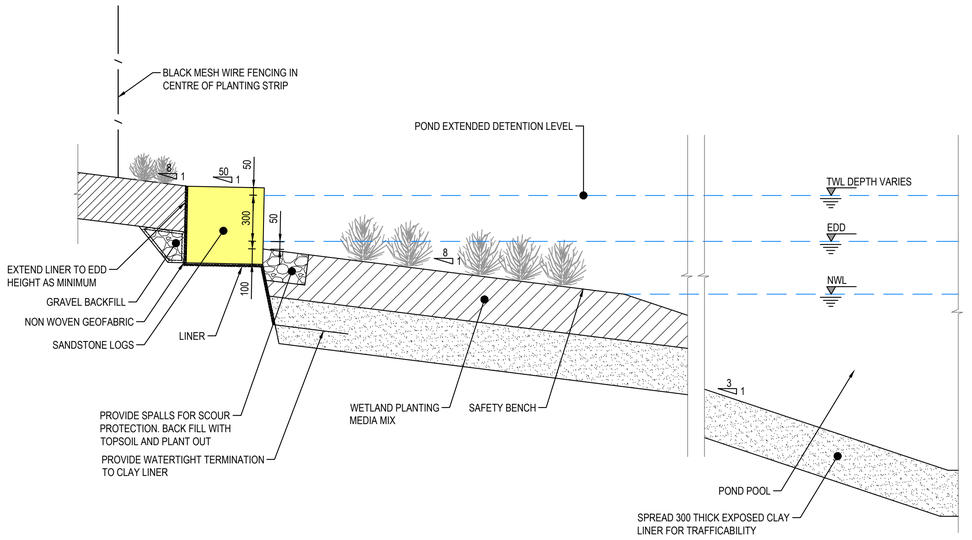
POND WATER LEVEL CONTROL PIT SECTION

SCALE 1:20



POND OVERFLOW PIT DETAIL

SCALE 1:20



POND TYPICAL EDGE DETAIL

SCALE 1:20

0 400 800 1200 1600 2000mm
400 200

SCALE 1:20

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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Suite 2.01
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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: REGIONAL STORMWATER BASIN POND DETAILS

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C207
Revision: 02

File Path: R:\JOBS\2024\240518\ACAD\DA\240518_DA_C207.DWG, 240518_DA_C207(01), DATE PRINTED: 12/12/2025 3:49:01 PM

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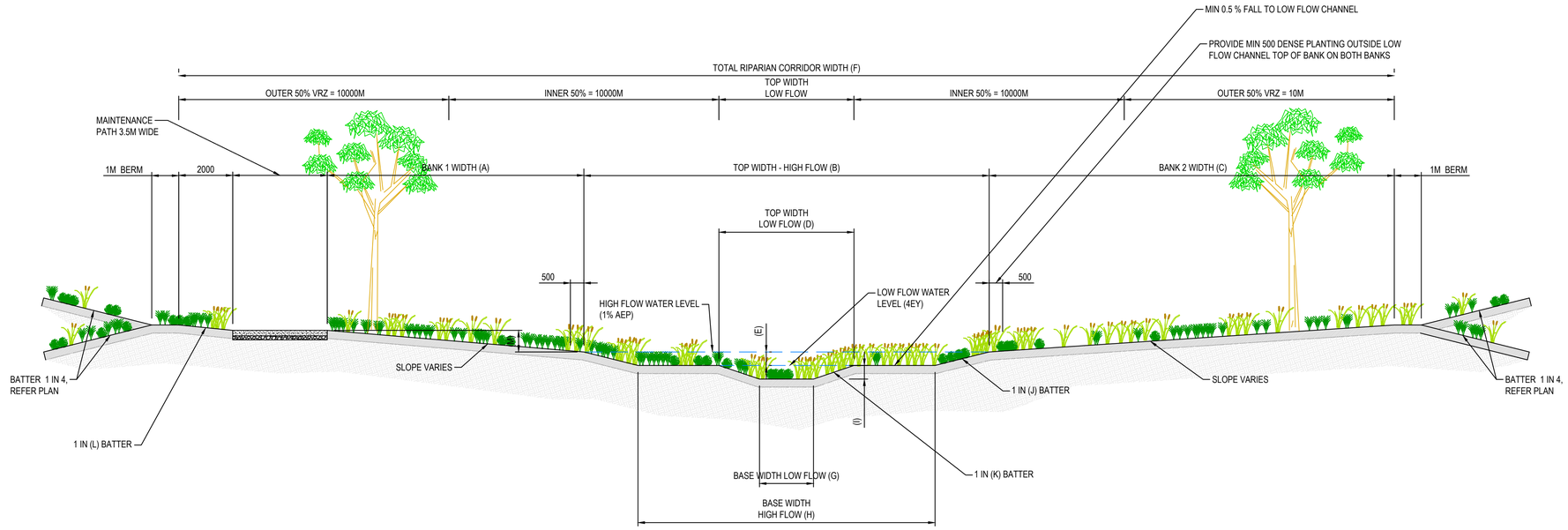
PRELIMINARY CHANNEL PARAMETERS

	CHANNEL TYPE 1	CHANNEL TYPE 2	CHANNEL TYPE 3	CHANNEL TYPE 5
CHANNEL PORTION START CHAINAGE	936.231	451.418	0	REF - SHOWN ON PLAN
CHANNEL PORTION END CHAINAGE	1173.73	847.819	429.459	REF - SHOWN ON PLAN
MAX GRADE OF LOW FLOW CHANNEL	1.1%	2.00%	1.5%	0.5%
MIN GRADE OF LOW FLOW CHANNEL	1.1%	0.50%	0.5%	0.5%
(A) BANK 1 WIDTH	4.5m	4.5m	4.5m	-
(B) TOP WIDTH - HIGH FLOW	25m	26m	27m	11.8m
(C) BANK 2 WIDTH	10m	10m	10m	-
(D) TOP WIDTH LOW FLOW CHANNEL	5m	6m	7m	5m
(E) TOP DEPTH HF - LF DEPTH	1m	1m	1m	1m
(F) TOTAL RIPARIAN CORRIDOR WIDTH	45m	46m	47m	20m
(G) BASE WIDTH LOW FLOW	3m	3m	2m	2m
(H) BASE WIDTH HIGH FLOW	17m	18m	19m	7m
(I) LOW FLOW FLOW DEPTH	0.5m	0.5m	0.83m	0.5m
(J) BATTER SLOPE 1	1 IN 4	1 IN 4	1 IN 4	1 IN 4
(K) BATTER SLOPE 2	1 IN 3	1 IN 3	1 IN 3	1 IN 3
(L) BATTER SLOPE 3	1 IN 4	1 IN 4	1 IN 4	1 IN 4
LOW FLOW CHANNEL SIZED FOR:	4ey	4ey	4ey	4ey
HIGH FLOW CHANNEL SIZED FOR:	1% AEP	1% AEP	1% AEP	1% AEP
PRELIMINARY LOW FLOW FLOW RATE (m^3/S)	1.592	2.414	2.28	0.508
PRELIMINARY HIGH FLOW FLOW RATE (m^3/S)	3.187	9.19	11.3 (14.7 WITHIN FLOOD ZONE)	3.66



TYPICAL CHANNEL CROSS SECTIONS

SCALE 1:100

REFER TO C240-C245 FOR DETAILED SECTIONS

0 2 4 6 8 10m

2 1

SCALE 1:100

ISSUED FOR SSDA

Dwg Plotted: By:JOSE.ZAPATA@HENRYANDHYMAS.COM.AU Dwg: 240518_DA_C208.DWG , 2/6/18, DA_C208(2), DATE PRINTED: 03/12/2025 2:59:04 PM

SURVEY INFORMATION

SURVEYED BY: LTSL

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

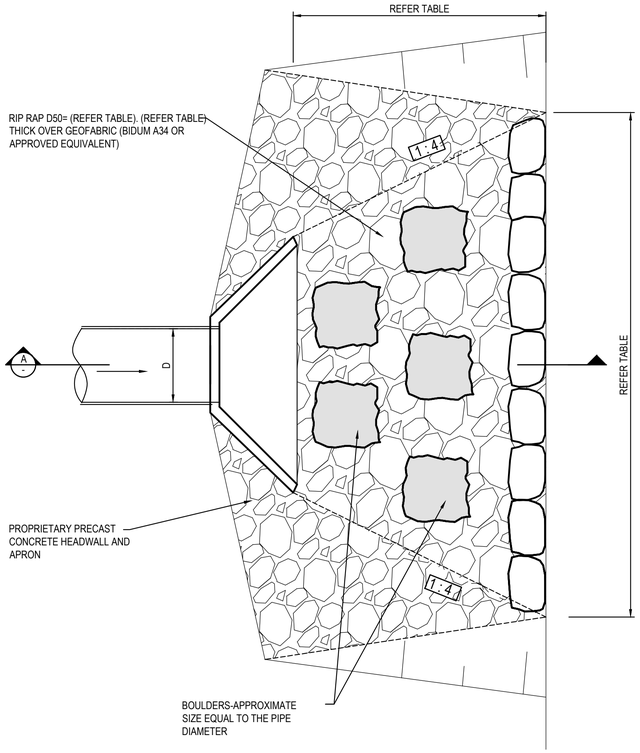
Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: REGIONAL STORMWATER BASIN TRUNK DRAINAGE DETAIL

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:100

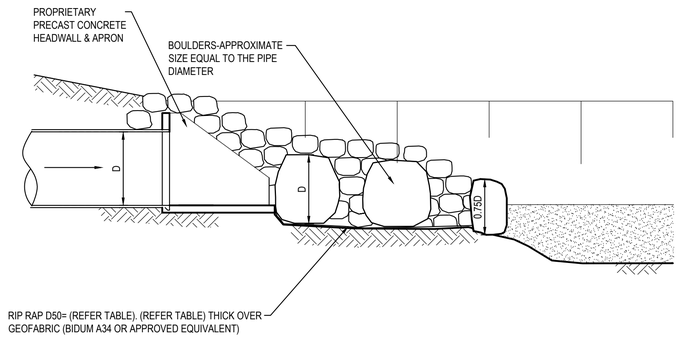
Drawing number: 240518_DA_C208

Revision: 02



SCOUR PROTECTION DETAIL A
ROCK HEADWALL - OUTLET PLAN TYPICAL

SCALE N.T.S.



SECTION A-A

SCALE N.T.S.

Drainage Structure ID	Culvert Shape	Culvert Height / Diam	Culvert Width	Median Rock Size	Min. Thickness of Riprap	Scour Protection Length	Scour Protection Width	Drawing Reference
		D	W	D50	T			
		m	m	mm	mm	m	m	
A-13	Circular	0.900	-	300.000	540.000	4.000	2.800	240518_DA_C258
B-13	Rectangular	0.900	1.500	200.000	360.000	3.000	2.700	240518_DA_C256
D-13	Circular	1.350	-	500.000	900.000	5.000	3.350	240518_DA_C256
R-3	Circular	0.900	-	200.000	360.000	3.000	2.100	240518_DA_C259
F-9	Circular	1.050	-	300.000	540.000	4.000	2.800	240518_DA_C259
P-3	Circular	1.200	-	300.000	540.000	4.000	2.800	240518_DA_C256
H-5	Circular	1.200	-	300.000	540.000	4.000	2.800	240518_DA_C256
T02-1	Rectangular	0.900	3.000	400.000	720.000	3.000	4.200	240518_DA_C256
T02-2	Rectangular	0.900	3.000	400.000	720.000	3.000	4.200	240518_DA_C256
J-3	Circular	as T02-2	-	as T02-2	as T02-2	as T02-2	as T02-2	240518_DA_C256
I-13	Circular	1.650	-	500.000	900.000	5.000	3.650	240518_DA_C256
K-5	Circular	1.350	-	500.000	900.000	5.000	3.350	240518_DA_C256
O-11	Rectangular	0.900	3.600	400.000	720.000	5.000	5.00	240518_DA_C255
T01-2	Rectangular	0.900	2.400	400.000	720.000	3.000	4.200	240518_DA_C256
T01-2	Rectangular	0.900	2.400	400.000	720.000	3.000	4.200	240518_DA_C256
X-3	TBC (TfNSW)	0.900	1.500	200.000	360.000	3.000	2.700	240518_DA_C259
S-4	Circular	0.825	-	200.000	360.000	3.000	1.950	240518_DA_C256
T03-1	Rectangular	0.900	3.000	400.000	720.000	3.000	4.200	240518_DA_C256
T03-2	Rectangular	0.900	3.000	400.000	720.000	3.000	4.200	240518_DA_C256

	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

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

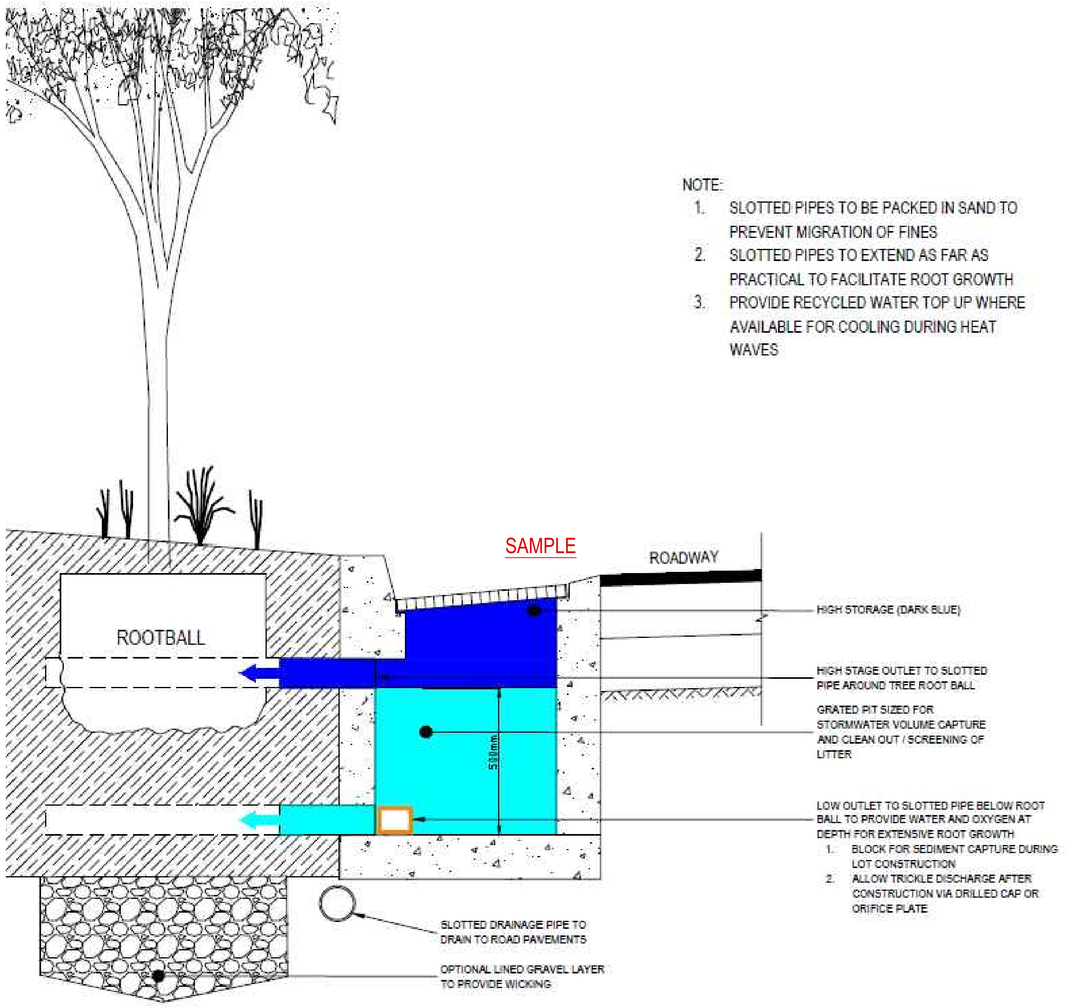
Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: SCOUR PROTECTION DETAIL A

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_DA_C210
Revision: 07

File Path: R:\2026\240518\ACAD\ISA\SHEETS\240518_DA_C210.DWG 240518_DA_C210(07) DATE PRINTED: 16/4/2026 1:10:43 PM



NOTE:

1. SLOTTED PIPES TO BE PACKED IN SAND TO PREVENT MIGRATION OF FINES
2. SLOTTED PIPES TO EXTEND AS FAR AS PRACTICAL TO FACILITATE ROOT GROWTH
3. PROVIDE RECYCLED WATER TOP UP WHERE AVAILABLE FOR COOLING DURING HEAT WAVES

Typical technical detail

STREET TREE DETAIL

SCALE: N.T.S.

NOTE

PRELIMINARY STREET TREE DETAIL SHOWN, FURTHER DEVELOPED OF STREET TREE DETAIL SUBJECT TO ONGOING CONSULTATION WITH SYDNEY WATER.
STREET TREE DESIGN TO BE FINALISED BASED ON SYDNEY WATER PROTO TYPES AND IN ACCORDANCE WITH SYDNEY WATERS "DESIGN PRINCIPLES FOR PASSIVELY WATERED STREET TREES (PWST) DOCUMENTATION.

REFER CHAPTER 6.8 - 'STREET TREES' FOR CURRENT DESIGN PARAMETERS.

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

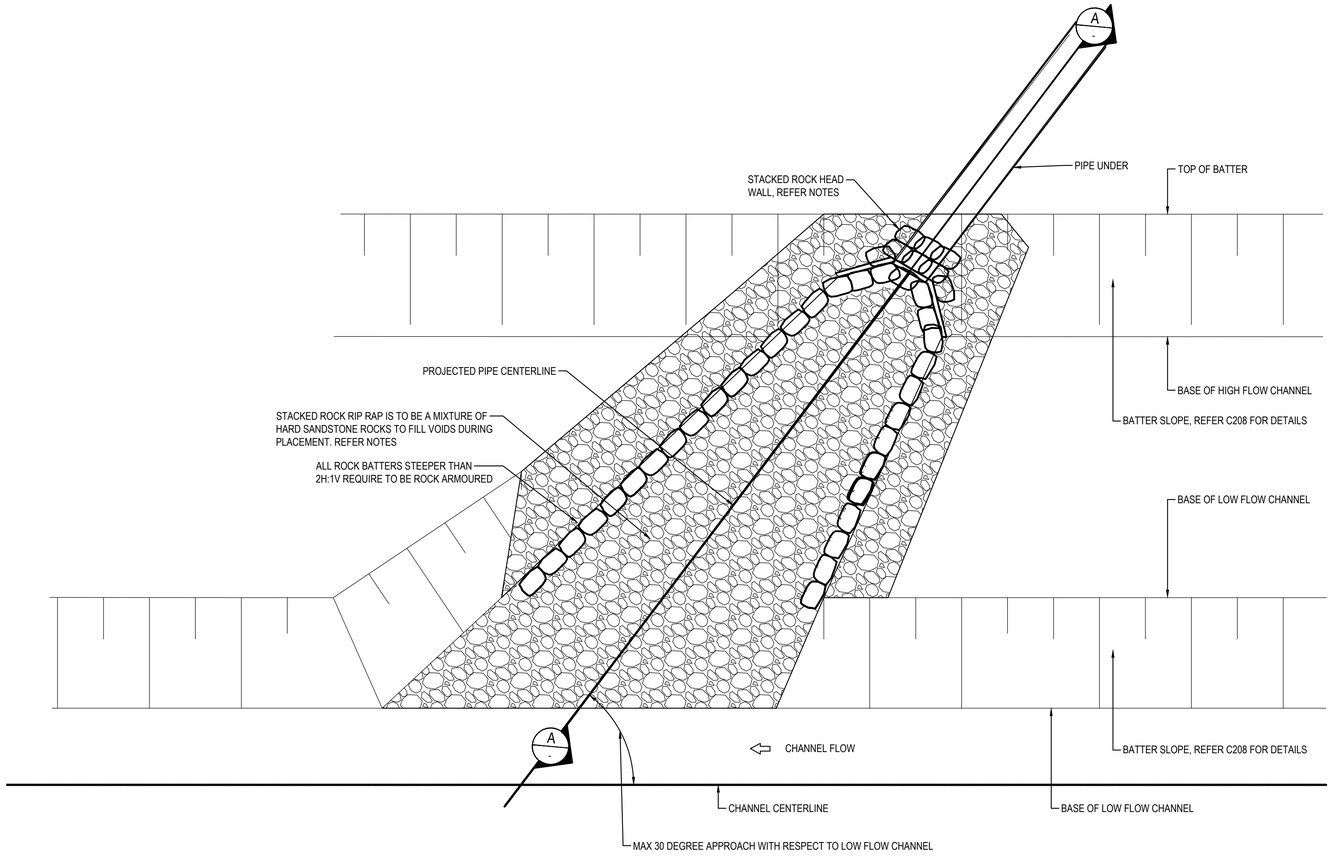
Title: STREET TREE DETAIL

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_DA_C211
Revision: 02

FilePath: R:\240\250\08\ACAD\240518_DA_C211.DWG - 240518_DA_C211(02) - DATE PRINTED: 16/04/2026 1:10:48 PM

A1

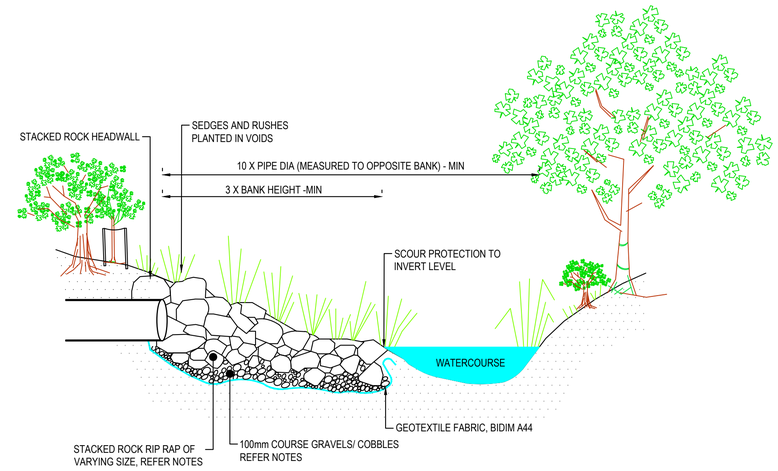


PLAN - SCOUR PROTECTION DETAIL B

SCALE 1:100

NOTE:

SPECIFICATIONS OF THE STORMWATER CONNECTIONS MUST FOLLOW THE GUIDELINE DOCUMENTED IN THE FOLLOWING LINK: STORMWATER CONNECTIONS TO NATURAL WATERWAYS: ROUSE HILL DEVELOPMENT AREA



CREEK STORMWATER CONNECTION

A SECTION

SCALE 1:50

SCOUR PROTECTION - RIP RAP SIZING TABLE

DESIGN AND POSITION

1. OUTLET ANGLE IS TO BE NO GREATER THAN 30 DEGREES IN THE DIRECTION OF THE CHANNEL FLOW.
2. SETBACK OF THE END OF THE PIPE MUST BE:
   a. AT LEAST THREE TIMES THE BANK HEIGHT FROM THE TOE OF THE BANK ON THE SAME SIDE OF THE CHANNEL
   b. AT LEAST 10 TIMES THE PIPE DIAMETER FROM THE TOE OF THE BANK ON THE OPPOSITE SIDE OF THE CHANNEL, IF THERE IS ONLY ONE PIPE
   c. AT LEAST 13 TIMES THE LARGEST PIPE DIAMETER FROM THE TOE OF THE BANK ON THE OPPOSITE SIDE OF THE CHANNEL, IF THERE ARE MULTIPLE PIPES.
3. THE COVER OVER THE PIPE MUST BE A MINIMUM OF 300 mm.
4. A MAXIMUM OF ONE METRE OF THE PIPE CAN BE EXPOSED.
5. PLACE THE HEADWALL SO AS TO AVOID VERTICAL DROPS OF OVER 900 mm.
6. FOR LOCATIONS WHERE THE VERTICAL FALL IS GREATER THAN 900 mm AND WHERE ROCK BATTERS ARE STEEPER THAN 1H:1V, YOU MUST INSTALL MONOWILLS BALLTUBE FENCING WITH BAND AND KNEE RAILS.

MATERIAL COMPOSITION

1.THE HEADWALL FOUNDATION MUST SIT ON A GEOTEXTILE FABRIC OF BIDIM A44 OR APPROVED EQUIVALENT.

2.THERE MUST BE A 100 mm THICK LAYER OF COARSE GRANULAR MATERIAL, SUCH AS CRUSHED RECYCLED TERRACOTTA 10-40 mm Ø (NOT BLUE METAL) ON THE GEOTEXTILE FABRIC.

3. STACKED ROCK RIP RAP IS TO BE A MIXTURE OF HARD SANDSTONE ROCKS TO FILL VOIDS DURING PLACEMENT. IT SHOULD BE MADE UP OF:
   - 70% LARGE ROCKS OF REGULAR DIMENSION SUITABLE FOR NEAT INTERLOCKING STACKS (TYPICALLY 200 kg TO 500 kg AND 0.75-1.2 m X 0.5 m X 0.25-0.45 m)
   - 15% MEDIUM ROCKS (TYPICALLY THE SIZE OF A SOCCER BALL)
   - 15% SMALL ROCKS (TYPICALLY THE SIZE OF A CLOSED FIST)
   - HAND-COMPACTED GROWING MEDIUM FOR VOIDS LESS THAN 200 mm Ø. THIS SHOULD NOT BE OVER COMPACTED.
4. ALL ROCK BATTERS STEEPER THAN 2H:1V REQUIRE TO BE ROCK ARMOURED.
5. ALL NON-ROCK BATTERS ARE TO BE NO STEEPER THAN 3H:1V.

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

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

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW
Title: SCOUR PROTECTION DETAIL B

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_DA_C212
Revision: 01

File Path: R:\2024\240518\ACAD\NA\240518_DA_C212.DWG, 240518_DA_C212(01), DATE PRINTED: 16/4/2026 1:19:57 PM

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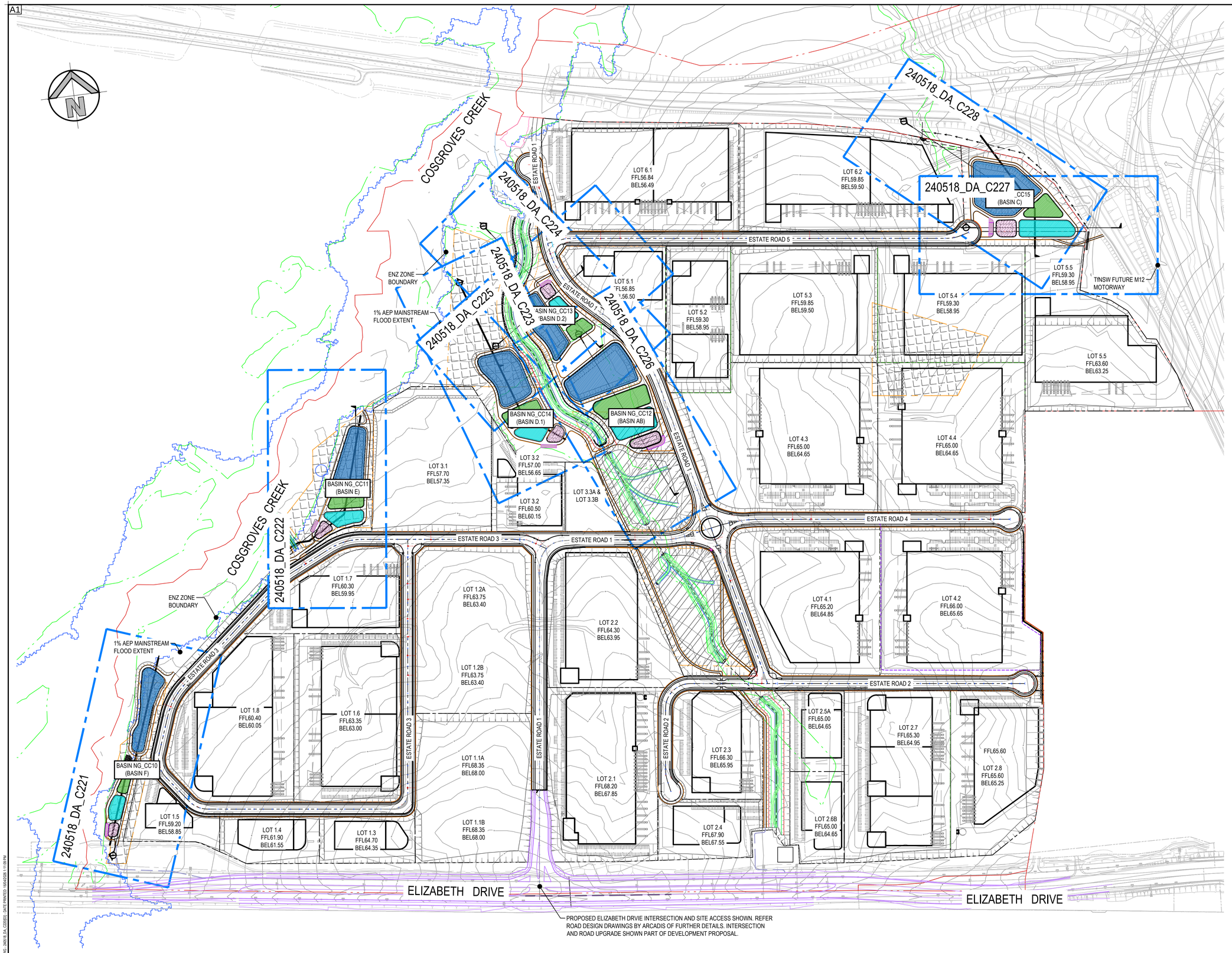

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- 67.0 PROPOSED CONTOURS
- 61 EXISTING CONTOURS
- FLOOD EXTENT 1% AEP
- COSGROVES CREEK
- PROPOSED LIMIT OF WORK
- PROPOSED JUNCTION PITS
- PROPOSED SURFACE INLET PITS
- PROPOSED LINTEL ONGRADE & SAG PITS
- A-1 LINE LETTER / PIT NUMBER — PROPOSED PIT TAG
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER CULVERT
- EXISTING BATTER LINE
- PROPOSED BATTER LINE
- 60.00 PROPOSED SPOT LEVEL
- RW PROPOSED RETAINING WALL
- K&G PROPOSED KERB & GUTTER
- SYDNEY WATER REGIONAL COMBINED WSUD WETLANDS AND INDICATIVE DETENTION ZONE ALLOCATION.
- SYDNEY WATER REGIONAL WSUD WETLAND ALLOCATION.
- PROPOSED BIORETENTION BASIN
- PROPOSED WETLAND
- PROPOSED STORAGE POND
- PROPOSED OSD ZONE
- PROPOSED SEDIMENT POND

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: BASINS GENERAL ARRANGEMENT

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C220 — Revision: 03

File Path: R:\2024\240518\ACAD\240518-DA-C220.DWG - 240518_DA_C220(01) - DATE PRINTED - 5/04/2026 1:11:09 PM

A1

Basin_NG10	
Basin F	
(A) Bioretention Surface Level m(AHD)	56.450
(B) Wetland NWL m(AHD)	56.400
(C) Storage Pond NWL m(AHD)	55.650
(D) Bioretention EDD Level m(AHD)	56.750
(E) Wetland EDD Level m(AHD)	56.750
(F) Storage Pond EDD Level m(AHD)	55.750
(G) Sediment Pond NWL m(AHD)	56.400
Basin modelling allocation (ha) Refer C251	0.974
(I) Bioretention Filter Surface Area (m^2)	536.000
(J) Wetland Plan Area (m^2)	808.000
(K) Pond Plan Area (m^2)	3173.000
(L) Pond Volume (m^3)	4665.000
Sediment Basin Surface Area (m^2)	300.000
Residual Allocation Area (Ha)	0.522
Maintenance Path	4.0m Wide
4EY Flow (m^3/s)	0.350 (+0.233-ED)
Constructed in Stage	3.000
Catchment Area (ha)*	16.826
Bioretention Filter Surface Area (m^2) % Catch	0.32
Wetland Plan Area (m^2) % Catch	0.48
Pond Plan Area (m^2) % Catch	1.89
Sediment Basins Area (m^2) % Catch	0.18

HATCH DENOTES DEWATERING AREA.
1.RIGID PAVEMENT WITH FALL TOWARDS
2.MIN 25% OF SEDIMENT BASIN ARE AT NWL
3.MIN WITH 5M.
4.PROVIDE GATES AND BARRIERS TO ISOLATE FORM PUBLIC.
5.REFER 7.2.5.5. OF SYDNEY WATER INFRASTRUCTURE DESIGN GUIDELINES ADDITIONAL REQUIREMENTS.

OVERFLOW AND WATER LEVEL CONTROL LINE FROM WETLAND AND SEDIMNET BASIN TO DRAINAGE CHANNEL.

DISCHARGE STORMWATER PRIOR TO OUTER VRZ IN ACCORDANCE WITH THE GUIDELINES FOR RIPARIAN CORRIDORS ON WATERFRONT LAND PREPARED BY THE DEPARTMENT OF PLANNING AND ENVIRONMENT

WETLAND WATER LEVEL CONTROL SEDIMENT BASIN OVERFLOW TO DRAINAGE CHANNEL, PROVIDE SCOUR PROECTION IN ACCORDANCE WITH DETAIL ON C210

HIGH FLOW BYPASS OUTLET TO DRAINAGE CHANNEL, PROVIDE SCOUR PROECTION IN ACCORDANCE WITH DETAIL ON C210

POND OVERFLOW TO DRAINAGE CHANNEL, PROVIDE SCOUR PROECTION IN ACCORDANCE WITH DETAIL ON C210

COSGROVES CREEK

POND INLET FROM BIORETENTION

POND OVERFLOW PIT, REFER DRAWING ON C207

POND WATER LEVEL CONTROL PIT, REFER DRAWING ON C207

4.0m WIDE MAINTENANCE PATH

WETLAND WATER LEVEL CONTROL PIT, REFER DRAWING ON C205. ENVIRONMENTAL FLOWS BYPASS TO CREEK.

BIORETENTION BASIN DISCHARGE CONTROL PIT, REFER DETAIL ON C204.

SEDIMENT BASIN OVERFLOW PIT.

1 IN 3 MAX.

SEDIMENT BASIN F/NG_CC10 WL RL56.40

WETLAND F NG_CC_10 WL RL56.40

BIORETENTION F/NG_CC10 SL RL56.45

HARVESTED STORAGE POND - F NG_CC10 WL RL55.65

H=0.5m

PUMP PIT, REFER TO POND HARVESTING PIT ON SYDNEY WATER DRAWING PON-SK02 AND SK03 FOR DETAILS.

STORMWATER GRAVITY MAIN SHOWN INDICATIVLEY. REFER AERETROPOLIS INTEGRATED STORMWATER SCHEMES FOR COSGROVES BY SYDNEY WATER

WETLAND OVERFLOW PIT, REFER DRAWING ON C206

BOX CULVERT CONNECTION FROM WETLAND TO BIORETENTION DETAIL, REFER C203 FOR DETAIL

IL55.95
Ø600
128m
0.5%
IL55.20

LOW FLOW DIVERSION LINE TO SEDIMENT BASIN.

BASIN NETWORK F INLET, REFER DRAINAGE LONSECTIONS FOR SIZING.

INLET FOR LOW FLOW TO DRAIN TO WETLAND. CONFRIM WITH ROAD DESIGNER AND PROVIDE LOW FLOW DIVERSION PIT UPSTREAM. ENSURE PIT IS SIZED TO DIVERT 4EY TO WETLAND.

SEDIMENT BASIN CONNECTION TO WETLAND, REFER DETAILS ON C202.

WETLAND INLET FROM SEDIMENT BASIN.

4.0M WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. TYPICAL

1:3 BATTER MAX

LOW FLOW DIVERSION PIT. DIVERT 4EY FLOWS TO SEDIMENT BASIN. REFER TABLE FOR 4EY FLOW RATES. DIVERSION WEIR LEVEL = 57.06 WEIR LENGTH = 5M MIN

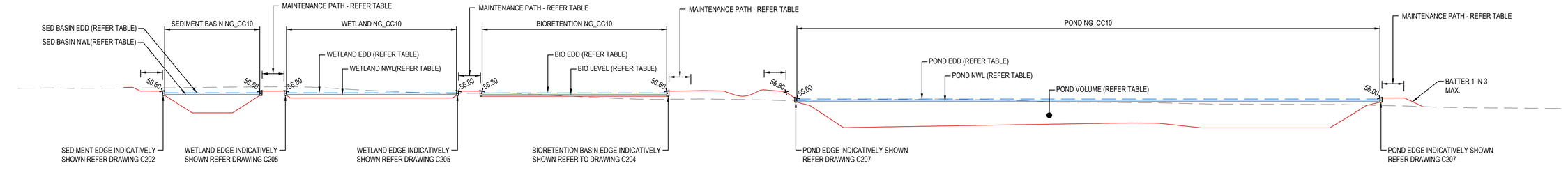
PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. TYPICAL

4.0M WIDE MAINTENANCE PATH

PROPOSED BOUNDARY

ESTATE ROAD 3

DETAIL PLAN
SCALE 1:500



A SECTION
SCALE 1:500 HOR
1:250 VERT

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

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

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	09.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: BASIN F PLAN AND LONG SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_DA_C221
Revision: 05

File Path: R:\GIS\SSD\240518\ACAD\240518_DA_C221.DWG - 240518_DA_C221[05] - DATE PRINTED: 16/04/2026 2:38:01 PM

A1

Basin_NG11	
Basin E	
(A) Bioretention Surface Level m(AHD)	53.650
(B) Wetland NWL m(AHD)	53.600
(C) Storage Pond NWL m(AHD)	52.850
(D) Bioretention EDD Level m(AHD)	53.950
(E) Wetland EDD Level m(AHD)	53.950
(F) Storage Pond EDD Level m(AHD)	52.950
(G) Sediment Pond NWL m(AHD)	53.600
Basin modelling allocation (ha) Refer C251	1.334
(I) Bioretention Filter Surface Area (m^2)	1100.000
(J) Wetland Plan Area (m^2)	1212.000
(K) Pond Plan Area (m^2)	4118.000
(L) Pond Volume (m^3)	6408.000
Sediment Basin Surface Area (m^2)	427.000
Residual Allocation Area (Ha)	0.691
Maintenance Path	4.0m Wide
4EY Flow (m^3/s)	0.559
Constructed in Stage	2.000
Catchment Area (ha)*	18.360
Bioretention Filter Surface Area (m^2) % Catch	0.60
Wetland Plan Area (m^2) % Catch	0.66
Pond Plan Area (m^2) % Catch	2.24
Sediment Basins Area (m^2) % Catch	0.23

ESTATE ROAD 3

LOW FLOW DIVERSION PIT. DIVERT 4EY FLOWS TO SEDIMENT BASIN.

HIGH FLOW BYPASS OUTLET TO DRAINAGE CHANNEL, PROVIDE SCOUR PROECTION IN ACCORDANCE WITH DETAIL ON C210

1:4 BATTER MAX

NATURLISED TRUNK DRAINAGE CHANNEL TO EXTENT SHOWN ON SYDNEY WATER SCHEME PLANS, REFER TO C208 FOR DETAILS.

CREEK CENTERLINE

COSGROVES CREEK

HATCH DENOTES DEWATERING AREA.
1.RIGID PAVEMENT WITH FALL TOWARDS
2.MIN 25% OF SEDIMENT BASIN ARE AT NWL
3.MIN WITH 5M.
4.PROVIDE GATES AND BARRIERS TO ISOLATE FORM PUBLIC.
5.REFER 7.2.5.5. OF SYDNEY WATER INFRASTRUCTURE DESIGN GUIDELINES ADDITIONAL REQUIREMENTS.

WETLAND AND SEDIMENT BASIN OVERFLOW TO DRAINAGE CHANNEL, PROVIDE SCOUR PROECTION IN ACCORDANCE WITH DETAIL ON C210

OFFTAKE LINE
IL54.423
Ø375
48m
3.2%
IL52.90

WATER LEVEL CONTROL LINE FROM WETLAND,POND AND SEDIMNET BASIN TO DRAINAGE CHANNEL.

SEDIMENT BASIN CONNECTION TO WETLAND, REFER DETAILS ON C202.

WETLAND WATER LEVEL CONTROL PIT, REFER DRAWING ON C205.

WETLAND OVERFLOW PIT, REFER DRAWING ON C206

BASIN NETWORK E, INLET REFER DRAINAGE LONG SECTIONS FOR SIZING.

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. TYPICAL.

SEDIMENT BASIN OVERFLOW PIT. REFER C203

LOW FLOW DIVERSION LINE FOR LOT 3.1.

LOW FLOW DIVERSION PIT

4.0M WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

SEDIMENT BASIN E/NG_CC11 WL RL53.60

POND OVERFLOW TO DRAINAGE CHANNEL.

BIORETENTION BASIN DISCHARGE CONTROL PIT, REFER DETAIL ON C204.

WETLAND OVERFLOW PIT, REFER DRAWING ON C206

WETLAND WATER LEVEL CONTROL PIT, REFER DRAWING ON C205.

APPROX LOCATION OF HERITAGE ITEM, REFER LANDSCAPE DRAWINGS BY GEOSCAPES

POND OVERFLOW PIT, REFER DRAWING ON C207

POND WATER LEVEL CONTROL PIT, REFER DRAWING ON C207

POND INLET FROM BIORETENTION.

4.0m WIDE MAINTENANCE PATH

PUMP PIT, REFER TO POND HARVESTING PIT ON SYDNEY WATER DRAWING PON-SK02 AND SK03 FOR DETAILS.

STORMWATER GRAVITY MAIN SHOWN INDICATIVLEY. REFER AEROTROPOLIS INTEGRATED STORMWATER SCHEMES FOR COSGROVES BY SYDNEY WATER.

1:3 BATTER MAX

WETLAND E/CC11 WL RL53.60

BIORETENTION E/CC11 SL RL53.65

HARVESTED STORAGE POND E/CC11 WL RL52.95

H=0.5m

BOX CULVERT CONNECTION FROM WETLAND TO BIORETENTION DETAIL, REFER C204 FOR DETAIL

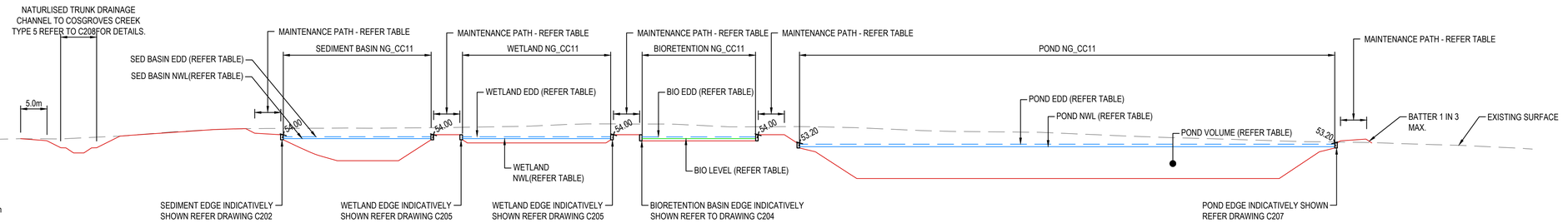
4.0m WIDE MAINTENANCE PATH

TEMPORARY 1:3 BATTER

4.0m WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

DETAIL PLAN

SCALE 1:500



B SECTION

SCALE 1:500 HOR
1:250 VERT

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

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

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	09.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
BASIN E PLAN AND LONG SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number
240518_DA_C222

Revision
05

Plot Path: R:\05_204\240518\CAD\DA\240518_DA_C222.DWG - A0518_DA_C222[05] | DATE PRINTED: 16/04/2026 11:25 PM

A1

NATURALISED TRUNK DRAINAGE CHANNEL TO COSGROVES CREEK. TYPE 3, REFER TO C208 FOR DETAILS.

OVERFLOW WATER LEVEL CONTROL LINE FROM WETLAND POND AND SEDIMENT BASIN TO DRAINAGE CHANNEL

DISCHARGE LOW FLOW BYPASS TO NATURLISED TRUNK DRAINAGE CHANNEL. REFER DETAIL ON C212. DISCHARGE IN ACCORDANCE WITH SYDNEY WATER GUIDELINES FOR DISCHARGE TO NATURAL WATERWAYS.

DISCHARGE HIGH FLOW BYPASS TO NATURLISED TRUNK DRAINAGE CHANNEL. REFER DETAIL ON C212. DISCHARGE IN ACCORDANCE WITH SYDNEY WATER GUIDELINES FOR DISCHARGE TO NATURAL WATERWAYS.

LOW FLOW DIVERSION

WETLAND WATER LEVEL CONTROL PIT REFER TO DETAIL ON C205

4.0m WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

POND OVERFLOW PIT REFER DRAWING ON C207

WETLAND OVERFLOW PIT REFER TO DETAIL ON C206

LOW FLOW DIVERSION PIT DIVERT 4EY FLOWS TO SEDIMENT BASIN

POND OVERFLOW AND WATER LEVEL CONTROL PIT TO DISCHARGE TO NATURALISED DRAINAGE CHANNELREFER DRAWING ON C207

STORMWATER GRAVITY MAIN SHOW INDICATIVELY REFER Aerotropolis Integrated Stormwater Schemes FOR COSGROVES BY SYDNEY WATER

LOW FLOW INLET TO SEDIMENT BASIN

SEDIMENT BASIN D.1/CC14 RL54.60

PUMP PIT REFER TO POND HARVESTING PIT ON SYDNEY WATER DRAWING PON-SK02 AND SK03 FOR DETAILS

HARVESTED STORAGE POND - D.1/CC14 WL RL53.85

BIORETENTION D.1/CC14 SL RL55.65

WETLAND POND D.1/CC14 WL RL54.60

HATCH DENOTES DEWATERING AREA.
1.RIGID PAVEMENT WITH FALL TOWARDS
2.MIN 25% OF SEDIMENT BASIN ARE AT NWL
3.MIN WITH 5M.
4.PROVIDE GATES AND BARRIERS TO ISOLATE FORM PUBLIC.
5.REFER 7.2.5.5. OF SYDNEY WATER INFRASTRUCTURE DESIGN GUIDELINES ADDITIONAL REQUIREMENTS.

4.0m WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

SEDIMENT BASIN OVERFLOW PIT, REFER DETAIL ON C203

SEDIMENT BASIN CONNECTION TO WETLAND, REFER DETAILS ON C202.

LINE DENOTES SYDNEY WATER STORMWATER HARVERSTING MAIN

POND INLET FROM BIORETENTION

BIORETENTION BASIN DISCHARGE CONTROL PIT REFER TO DETAIL ON C204

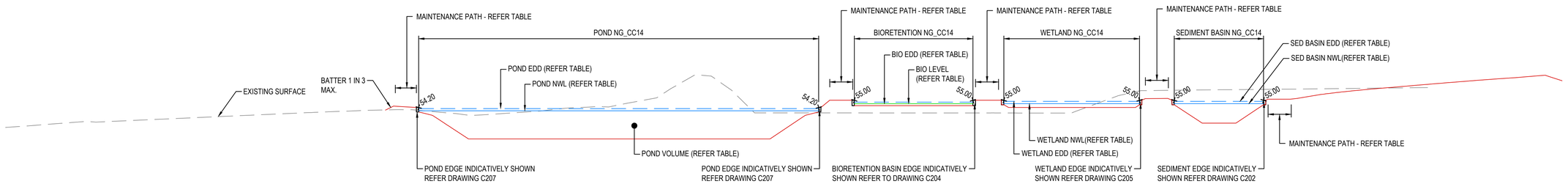
PROPOSED BOUNDARY

BOX CULVERT CONNECTION FROM WETLAND TO BIORETENTION REFER TO C204 FOR DETAIL

4.0m WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

PROPOSED BOUNDARY

Basin_NG14	
Basin D.1	
(A) Bioretention Surface Level m(AHD)	54.65
(B) Wetland NWL m(AHD)	54.60
(C) Storage Pond NWL m(AHD)	53.85
(D) Bioretention EDD Level m(AHD)	54.95
(E) Wetland EDD Level m(AHD)	54.95
(F) Storage Pond EDD Level m(AHD)	53.95
(G) Sediment Pond NWL m(AHD)	54.60
Basin modelling allocation (ha) Refer C251	1.21
(I) Bioretention Filter Surface Area (m^2)	1200.00
(J) Wetland Plan Area (m^2)	1527.00
(K) Pond Plan Area (m^2)	4876.00
(L) Pond Volume (m^3)	9898.00
Sediment Basin Surface Area (m^2)	506.00
Residual Allocation Area (Ha)	0.45
Maintenance Path	4.0m Wide
4EY Flow (m^3/s)	1.51
Constructed in Stage	2.00
Catchment Area (ha)*	27.79
Bioretention Filter Surface Area (m^2) % Catch	0.43
Wetland Plan Area (m^2) % Catch	0.55
Pond Plan Area (m^2) % Catch	1.75
Sediment Basins Area (m^2) % Catch	0.18



0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

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

C - SECTION
SCALE 1:500 HOR
1:250 VERT

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	09.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: BASIN D.1 PLAN AND LONG SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_DA_C223
Revision: 05

File Path: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C223.DWG - 240518_DA_C223[5]_DATE PRINTED: 16/04/2026 11:28 PM

A1

PROPOSED STUB CONNECTION FOR FUTURE LOT. PROVIDE STUB CONNECTION AS SHOWN AND CAP. TYPICAL

HATCH DENOTES DEWATERING AREA.
1.RIGID PAVEMENT WITH FALL TOWARDS
2.MIN 25% OF SEDIMENT BASIN ARE AT NWL
3.MIN WITH 5M.
4.PROVIDE GATES AND BARRIERS TO ISOLATE FORM PUBLIC.
5.REFER 7.2.5.5. OF SYDNEY WATER INFRASTRUCTURE DESIGN GUIDELINES ADDITIONAL REQUIREMENTS.

WETLAND OVERFLOW PIT, REFER DRAWING ON C206

BOX CULVERT CONNECTION FROM WETLAND TO BIORETENTION DETAIL, REFER C204 FOR DETAIL.

1:3 BATTER MAX

EXISTING WATER COURSE ALIGNMENT

SEDIMENT BASIN OVERFLOW PIT. REFER C202

ESTATE ROAD 1

1:4 BATTER MAX MATCH EXISTING SURFACE

SEDIMENT BASIN CONNECTION TO WETLAND, REFER DETAILS ON C203

LOW FLOW DIVERSION PIT.
DIVERT 4EY FLOWS TO SEDIMENT BASIN.
REFER TABLE FOR 4EY FLOW RATES.
WIER LEVEL = RL 53.11
750MM OFFTAKE LINE
5M LONG DIVERSION WIER.

DISCHARGE HIGH FLOW BYPASS TO NATURLISED TRUNK DRAINAGE CHANNEL. REFER DETAIL ON C212. DISCHARGE IN ACCORDANCE WITH SYDNEY WATER GUIDELINES FOR DISCHARGE TO NATURAL WATERWAYS.

LOW FLOW INLET TO SEDIMENT BASIN	IL52.60 Ø600 48m 1.45% IL51.90

STORMWATER GRAVITY MAIN SHOWN INDICATIVLEY. REFER AEROTROPOLIS INTEGRATED STORMWATER SCHEMES FOR COSGROVES BY SYDNEY WATER

SEDIMENT BASIN D.2/CC13 WL RL52.80

WETLAND D.2/CC13 WL RL52.80

BIORETENTION D.1/CC13 SL RL52.85

HARVESTED STORAGE POND AB/CC12 WL RL55.65

DISCHARGE LOW FLOW BYPASS TO NATURLISED TRUNK DRAINAGE CHANNEL. REFER DETAIL ON C212. DISCHARGE IN ACCORDANCE WITH SYDNEY WATER GUIDELINES FOR DISCHARGE TO NATURAL WATERWAYS.

WETLAND WATER LEVEL CONTROL PIT, REFER DRAWING ON C205

1-WAY RELFUX CONTROL VALVE FITTER TO FINAL OVERFLOW LINE PIT.

HARVESTED STORAGE POND - D.2/CC13 WL RL52.05

OVERFLOW AND WATER LEVEL CONTROL LINE FROM WETLAND,POND AND SEDIMNET BASIN TO DRAINAGE CHANNEL.

POND OVERFLOW PIT, REFER DRAWING ON C207

POND WATER LEVEL CONTROL PIT, REFER DRAWING ON C207

PUMP PIT, REFER TO POND HARVESTING PIT ON SYDNEY WATER DRAWING PON-SK02 AND SK03 FOR DETAILS.

NATURLISED TRUNK DRAINAGE CHANNEL TO COSGROVES CREEK. REFER TO C208 FOR DETAILS

BIORETENTION BASIN DISCHARGE CONTROL PIT, REFER DETAIL ON C204

POND INLET FROM BIORETENTION REFER DETAILS ON C204

H=0.6m

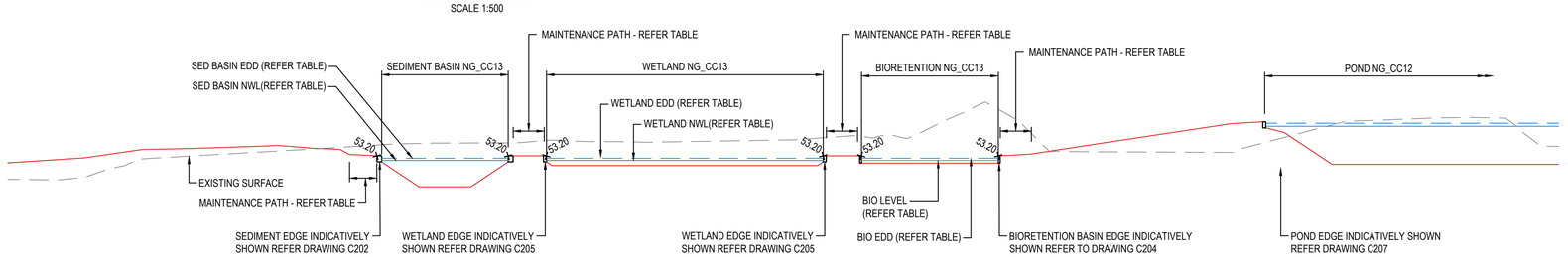
H=0.5m

H=0.6m

Basin_NG13	
Basin D.2	
(A) Bioretention Surface Level m(AHD)	52.85
(B) Wetland NWL m(AHD)	52.80
(C) Storage Pond NWL m(AHD)	52.05
(D) Bioretention EDD Level m(AHD)	53.15
(E) Wetland EDD Level m(AHD)	53.15
(F) Storage Pond EDD Level m(AHD)	52.15
(G) Sediment Pond NWL m(AHD)	52.80
Basin modelling allocation (ha) Refer C251	1.15
(I) Bioretention Filter Surface Area (m^2)	779.00
(J) Wetland Plan Area (m^2)	1053.00
(K) Pond Plan Area (m^2)	3300.00
(L) Pond Volume (m^3)	6290.00
Sediment Basin Surface Area (m^2)	371.00
Residual Allocation Area (Ha)	0.63
Maintenance Path	4.0m Wide
4EY Flow (m^3/s)	0.56
Constructed in Stage	1.00
Catchment Area (ha)*	18.10
Bioretention Filter Surface Area (m^2) % Catch	0.43
Wetland Plan Area (m^2) % Catch	0.58
Pond Plan Area (m^2) % Catch	1.82
Sediment Basins Area (m^2) % Catch	0.20

DETAIL PLAN

SCALE 1:500



D SECTION

SCALE 1:500 HOR
1:250 VERT

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

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

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	09.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
BASIN D.2 PLAN AND LONG SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

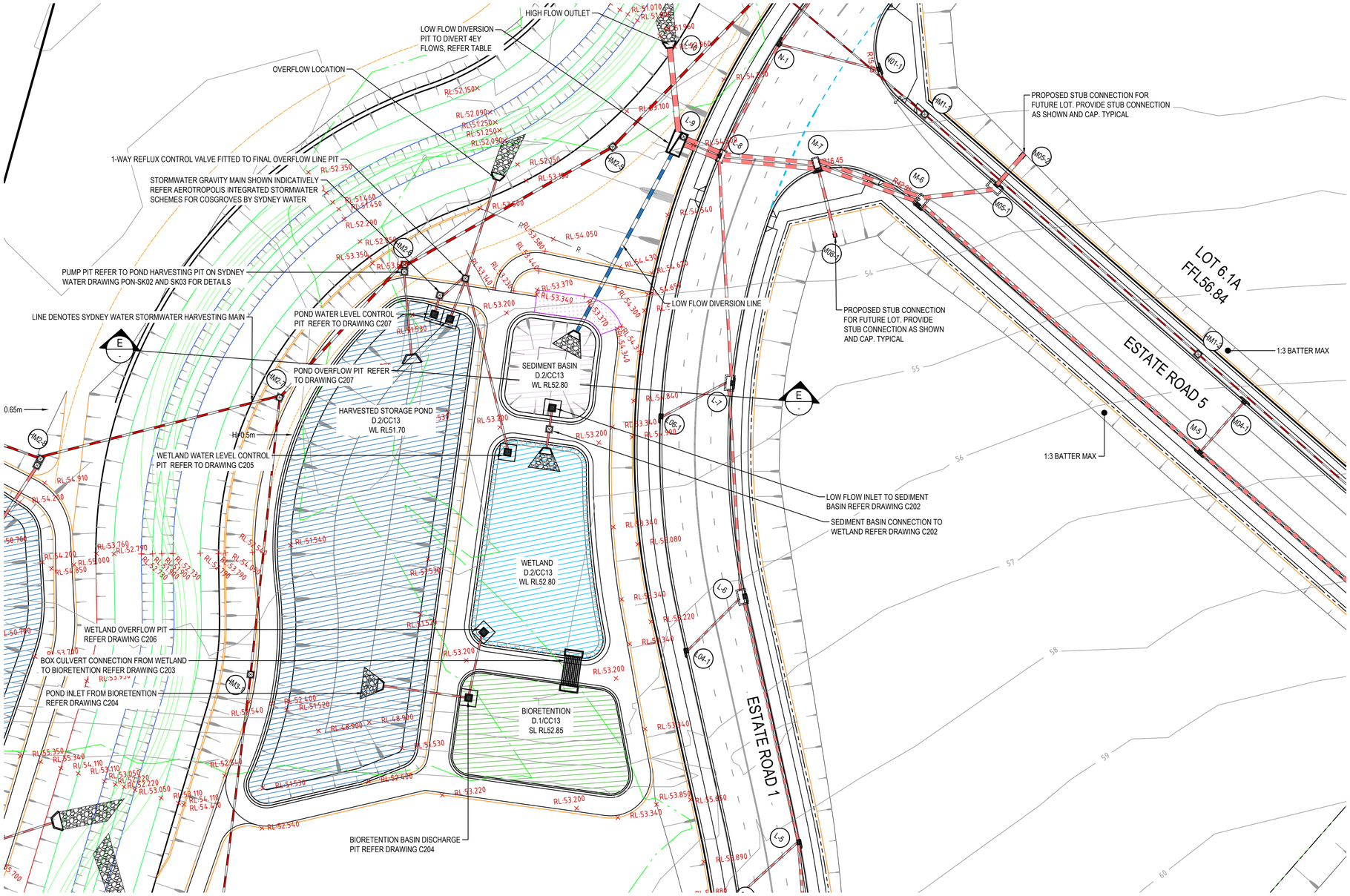
Drawing number
240518_DA_C224

Revision
05

File Path: R:\2023\2023\240518\ACAD\DA\240518_DA_C221-C228.DWG - 240518_DA_C224[05] - DATE PRINTED: 16/04/2026 11:31 PM

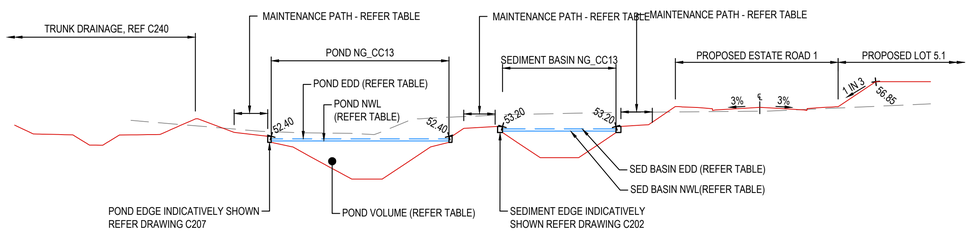
A1

Basin_NG13	
Basin D.2	
(A) Bioretention Surface Level m(AHD)	52.85
(B) Wetland NWL m(AHD)	52.80
(C) Storage Pond NWL m(AHD)	52.05
(D) Bioretention EDD Level m(AHD)	53.15
(E) Wetland EDD Level m(AHD)	53.15
(F) Storage Pond EDD Level m(AHD)	52.15
(G) Sediment Pond NWL m(AHD)	52.80
Basin modelling allocation (ha) Refer C251	1.15
(I) Bioretention Filter Surface Area (m²)	779.00
(J) Wetland Plan Area (m²)	1053.00
(K) Pond Plan Area (m²)	3300.00
(L) Pond Volume (m³)	6290.00
Sediment Basin Surface Area (m²)	371.00
Residual Allocation Area (Ha)	0.63
Maintenance Path	4.0m Wide
4EY Flow (m³/s)	0.56
Constructed in Stage	1.00
Catchment Area (ha)*	18.10
Bioretention Filter Surface Area (m²) % Catch	0.43
Wetland Plan Area (m²) % Catch	0.58
Pond Plan Area (m²) % Catch	1.82
Sediment Basins Area (m²) % Catch	0.20



DETAIL PLAN

SCALE 1:500



E SECTION

SCALE 1:500 HOR
1:250 VERT

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

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

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
BASIN D.2 PLAN AND LONG SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number
240518_DA_C225

Revision
05

File Path: R:\2024\240518\CAD\DA\240518_DA_C225.DWG - 240518_DA_C225[05], DATE PRINTED: 16/04/2026 11:33 PM

A1

4.0M WIDE MAINTENANCE PATH

4.0M WIDE MAINTENANCE PATH

LOT 4.3
FFL65.00

LOW FLOW INLET TO SEDIMENT BASIN

HATCH DENOTES DEWATERING AREA.
1.RIGID PAVEMENT WITH FALL TOWARDS
2.MIN 25% OF SEDIMENT BASIN ARE AT NWL
3.MIN WITH 5M.
4.PROVIDE GATES AND BARRIERS TO ISOLATE FORM PUBLIC.
5.REFER 7.2.5.5. OF SYDNEY WATER INFRASTRUCTURE DESIGN GUIDELINES ADDITIONAL REQUIREMENTS.

LOW FLOW DIVERSION PIT. DIVERT 4EY FLOWS TO SEDIMENT BASIN.

HIGH FLOW BYPASS OUTLET TO DRAINAGE CHANNEL, PROVIDE SCOUR PROECTION IN ACCORDANCE WITH DETAIL ON C210.

ESTATE ROAD 1

ESTATE ROAD 1a

OFFTAKE LINE
IL56.933
Ø1200
52m
0.5%
IL56.35

POND INLET FROM BIORETENTION

BOX CULVERT CONNECTION FROM WETLAND TO BIORETENTION DETAIL, REFER C204 FOR DETAIL

HARVESTED STORAGE POND - AB/CC12
WL RL55.65

BIORETENTION AB/CC12
SL RL57.35

WETLAND AB/CC12
WL RL57.30

SEDIMENT BASIN AB/CC12
WL RL57.30

SEDIMENT BASIN CONNECTION TO WETLAND REFER DETAILS ON C202

SEDIMENT BASIN OVERFLOW PIT REFER DRAWING C202

LOW FLOW DIVERSION LINE

LOW FLOW DIVERSION PIT. DIRECT LOW FLOWS (4EY) TO SEDIMENT BASIN, REFER TABLE.

BIORETENTION BASIN DISCHARGE CONTROL PIT, REFER DETAIL ON C204

4.0M WIDE MAINTENANCE PATH AND ACTIVE TRANSPORT LINK

WETLAND OVERFLOW PIT REFER DRAWING C206

WETLAND WATER LEVEL CONTROL PIT REFER DRAWING C205

DISCHARGE HIGH FLOW BYPASS TO NATURLISED TRUNK DRAINAGE CHANNEL. REFER DETAIL ON C210. DISCHARGE IN ACCORDANCE WITH SYDNEY WATER GUIDELINES FOR DISCHARGE TO NATURAL WATERWAYS.

POND OVERFLOW PIT REFER DRAWING ON C207

POND WATER LEVEL CONTROL PIT, REFER DRAWING ON C207

POND OVERFLOW AND WATER LEVEL CONTROL PIT TO DISCHARGE TO NATURLISED DRAINAGE CHANNEL, PROVDIE SCOUR PROTECTION IN ACCORDANCE WITH C210.

OVERFLOW AND WATER LEVEL CONTROL LINE FROM WETLAND AND SEDIMNET BASIN TO DRAINAGE CHANNEL.

RIP RAP SCOUR PROTECTION. REFER DETAIL ON C210

PROPOSED OSD 1 CONTROL STRUCTURE. SHOWN INDICATIVELY. REFER TO CIVIL ENGINEERING REPORT FOR ADDITIONAL DETAILS. FINALISATION OF OUTLET STRUCTURE SUBJECT TO FINAL CREEK DESIGN AND SYDNEY WATER REQUIREMENTS.

1:3 BATTER MAX

DISCHARGE LOW FLOW BYPASS TO NATURLISED TRUNK DRAINAGE CHANNEL. REFER DETAIL ON C212. DISCHARGE IN ACCORDANCE WITH SYDNEY WATER GUIDELINES FOR DISCHARGE TO NATURAL WATERWAYS.

WETLAND AND SEDIMENT BASIN OVERFLOW TO DRAINAGE CHANNEL, PROVIDE SCOUR PROECTION IN ACCORDANCE WITH DETAIL ON C210.

NATURLISED TRUNK DRAINAGE CHANNEL TO COSGROVES CREEK. TYPE 3, REFER TO C209 FOR DETAILS.

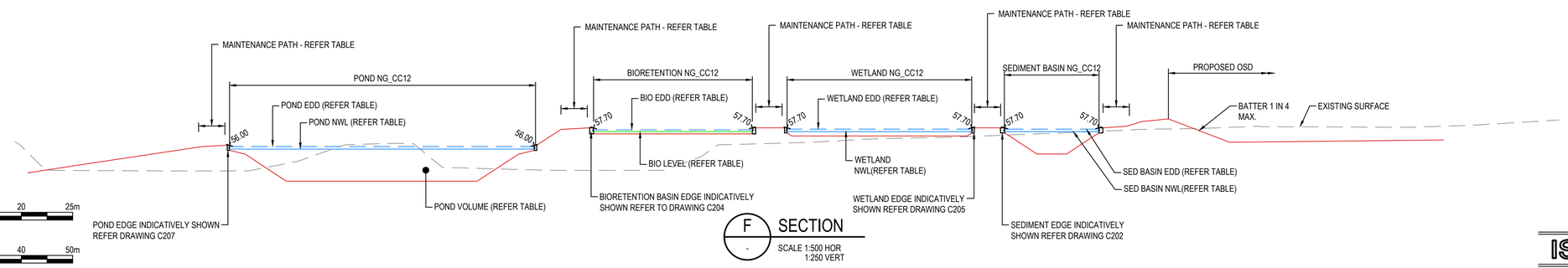
H=0.6m

H=0.6m

DETAIL PLAN

SCALE 1:500

Basin_NG12	
Basin AB	
(A) Bioretention Surface Level m(AHD)	57.35
(B) Wetland NWL m(AHD)	57.30
(C) Storage Pond NWL m(AHD)	55.65
(D) Bioretention EDD Level m(AHD)	57.65
(E) Wetland EDD Level m(AHD)	57.65
(F) Storage Pond EDD Level m(AHD)	55.75
(G) Sediment Pond NWL m(AHD)	57.30
Basin modelling allocation (ha) Refer C251	1.98
(I) Bioretention Filter Surface Area (m²)	2200.00
(J) Wetland Plan Area (m²)	2384.00
(K) Pond Plan Area (m²)	6326.00
(L) Pond Volume (m³)	13560.00
Sediment Basin Surface Area (m²)	852.00
Residual Allocation Area (Ha)	0.89
Maintenance Path	4.0m Wide
4EY Flow (m³/s)	2.44
Constructed in Stage	1.00
Catchment Area (ha)*	41.32
Bioretention Filter Surface Area (m²) % Catch	0.53
Wetland Plan Area (m²) % Catch	0.58
Pond Plan Area (m²) % Catch	1.53
Sediment Basins Area (m²) % Catch	0.21



F SECTION

SCALE 1:500 HOR
1:250 VERT

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

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

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	09.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
BASIN AB PLAN AND LONG SECTION

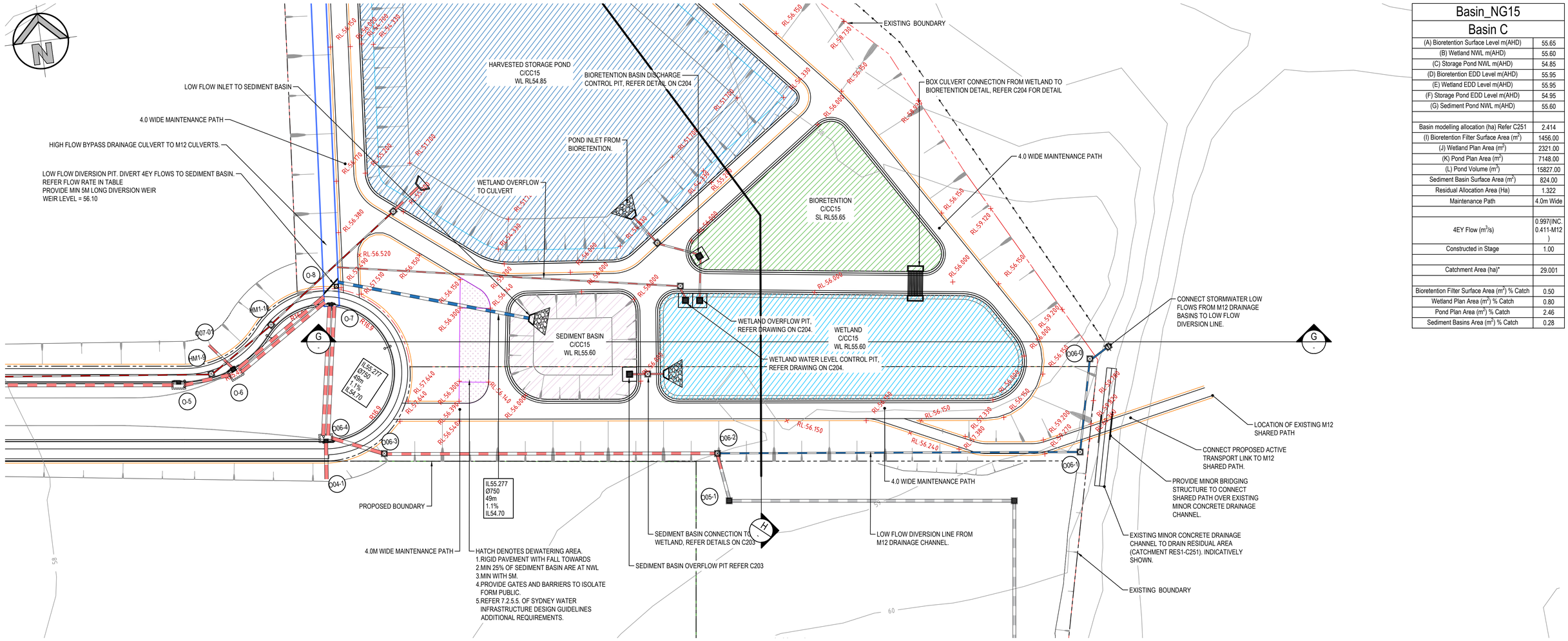
Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number
240518_DA_C226

Revision
05

File Path: N:\JOBS 2024\240518\Revit\240518_DA_C226.rvt 26/03/26 3:30:01 PM

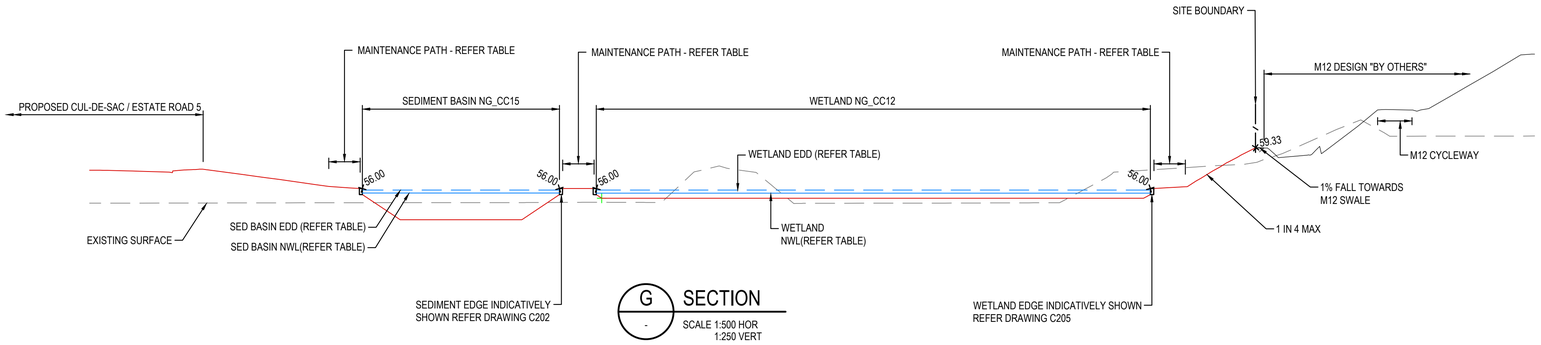
A1



DETAIL PLAN

SCALE 1:500

Basin_NG15	
Basin C	
(A) Bioretention Surface Level m(AHD)	55.65
(B) Wetland NWL m(AHD)	55.60
(C) Storage Pond NWL m(AHD)	54.85
(D) Bioretention EDD Level m(AHD)	55.95
(E) Wetland EDD Level m(AHD)	55.95
(F) Storage Pond EDD Level m(AHD)	54.95
(G) Sediment Pond NWL m(AHD)	55.60
Basin modelling allocation (ha) Refer C251	2.414
(I) Bioretention Filter Surface Area (m^2)	1456.00
(J) Wetland Plan Area (m^2)	2321.00
(K) Pond Plan Area (m^2)	7148.00
(L) Pond Volume (m^3)	15827.00
Sediment Basin Surface Area (m^2)	824.00
Residual Allocation Area (Ha)	1.322
Maintenance Path	4.0m Wide
4EY Flow (m^3/s)	0.997(INC. 0.411-M12)
Constructed in Stage	1.00
Catchment Area (ha)*	29.001
Bioretention Filter Surface Area (m^2) % Catch	0.50
Wetland Plan Area (m^2) % Catch	0.80
Pond Plan Area (m^2) % Catch	2.46
Sediment Basins Area (m^2) % Catch	0.28



G SECTION

SCALE 1:500 HOR
1:250 VERT

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

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

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	09.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
BASIN C PLAN AND LONG SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

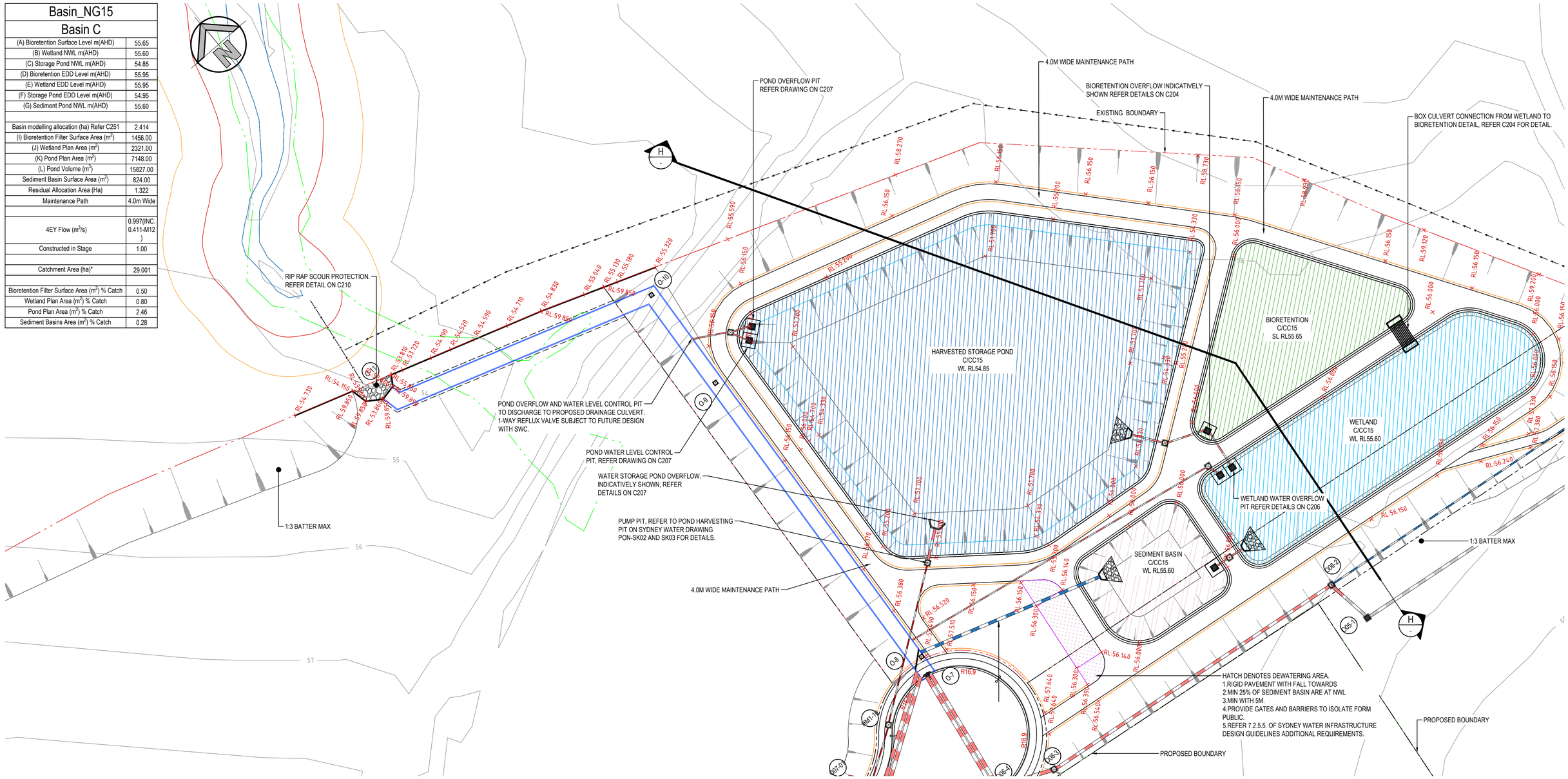
Drawing number
240518_DA_C227

Revision
05

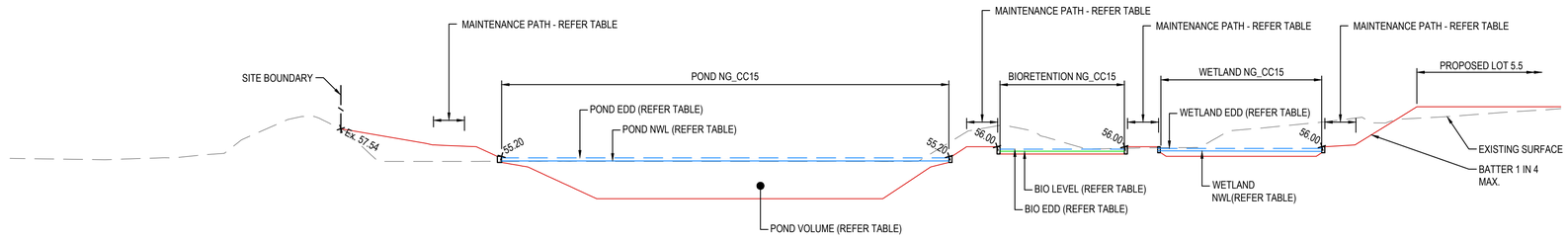
File Path: R:\PBS 2024\240518\ACAD\DA\240518_DA_C227.DWG - 240518_DA_C227[05]. DATE PRINTED: 16/04/2026 2:35:18 PM

A1

Basin_NG15	
Basin C	
(A) Bioretention Surface Level m(AHD)	55.65
(B) Wetland NWL m(AHD)	55.60
(C) Storage Pond NWL m(AHD)	54.85
(D) Bioretention EDD Level m(AHD)	55.95
(E) Wetland EDD Level m(AHD)	55.95
(F) Storage Pond EDD Level m(AHD)	54.95
(G) Sediment Pond NWL m(AHD)	55.60
Basin modelling allocation (ha) Refer C251	2.414
(I) Bioretention Filter Surface Area (m^2)	1456.00
(J) Wetland Plan Area (m^2)	2321.00
(K) Pond Plan Area (m^2)	7148.00
(L) Pond Volume (m^3)	15827.00
Sediment Basin Surface Area (m^2)	824.00
Residual Allocation Area (Ha)	1.322
Maintenance Path	4.0m Wide
4EY Flow (m^3/s)	0.997(INC. 0.411-M12)
Constructed in Stage	1.00
Catchment Area (ha)*	29.001
Bioretention Filter Surface Area (m^2) % Catch	0.50
Wetland Plan Area (m^2) % Catch	0.80
Pond Plan Area (m^2) % Catch	2.46
Sediment Basins Area (m^2) % Catch	0.28



DETAIL PLAN
SCALE 1:500



SECTION
SCALE 1:500 HOR
1:250 VERT

SCALE 1:250

SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	09.04.2026
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR DRAFT	MP	NW	30.05.25

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: BASIN C PLAN AND LONG SECTION

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C228
Revision: 05

Plot Date: R:\JOBS\2024\5665\HCA\DTA\5665_DA_C221-C228.DWG - 5665R_DA_C228[05] - DATE PRINTED: 16/04/2026 1:11:41 PM

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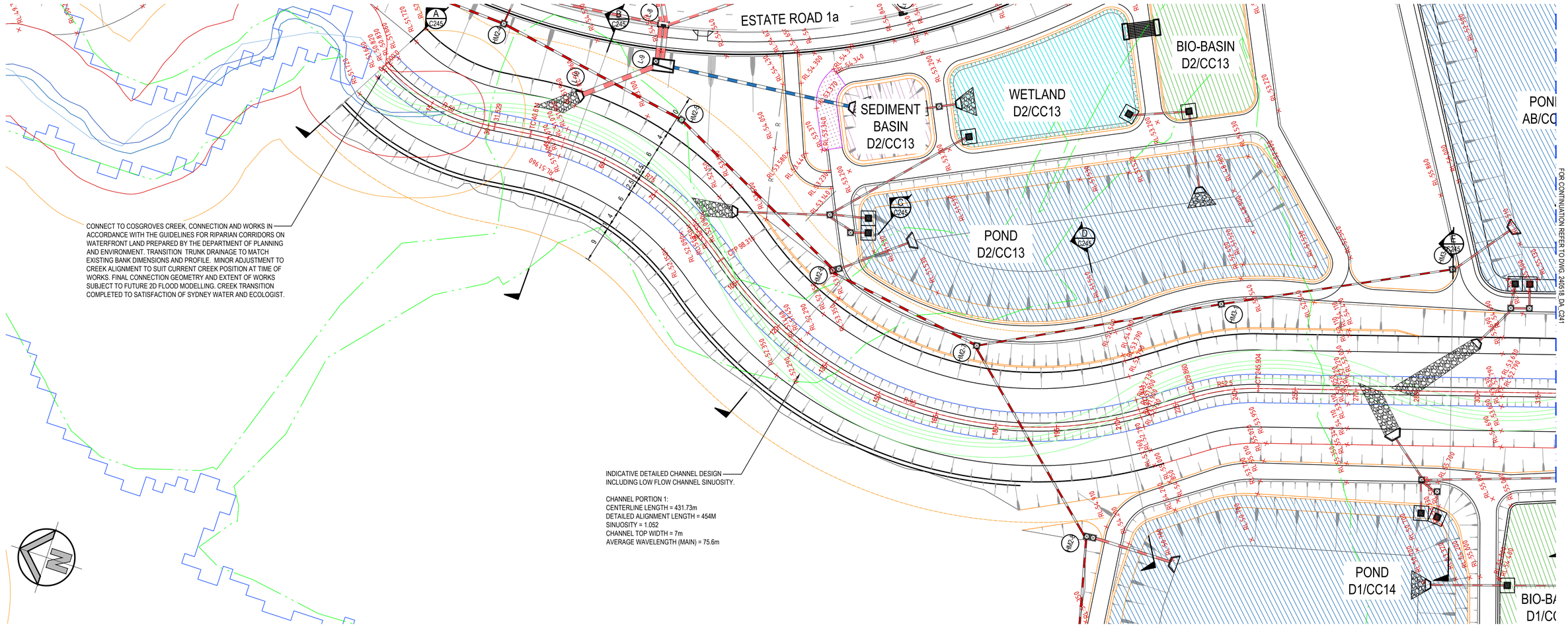

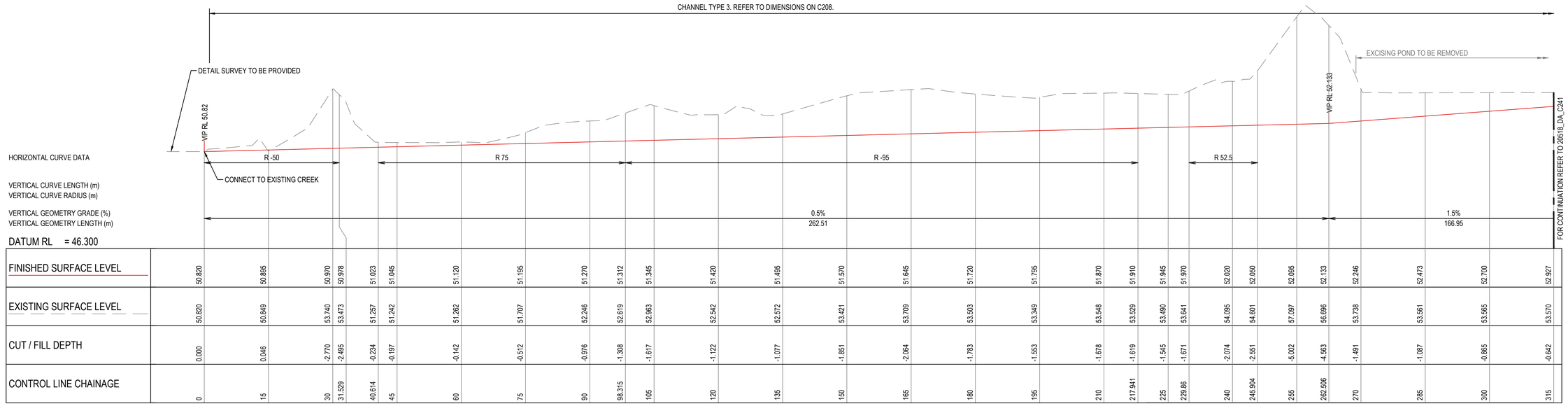

FINISHED SURFACE LEVEL	50.820	50.895	50.970	50.978	51.023	51.045	51.120	51.195	51.270	51.312	51.345	51.420	51.495	51.570	51.645	51.720	51.795	51.870	51.910	51.945	51.970	52.020	52.050	52.095	52.133	52.246	52.473	52.700	52.927
EXISTING SURFACE LEVEL	50.820	50.849	53.740	53.473	51.257	51.242	51.262	51.707	52.246	52.619	52.963	52.542	52.572	53.421	53.709	53.503	53.349	53.548	53.529	53.490	53.641	54.095	54.601	57.097	56.696	53.738	53.561	53.565	53.570
CUT / FILL DEPTH	0.000	0.046	-2.770	-2.495	-0.234	-0.197	-0.142	-0.512	-0.976	-1.308	-1.617	-1.122	-1.077	-1.851	-2.064	-1.783	-1.553	-1.678	-1.619	-1.545	-1.671	-2.074	-2.551	-5.002	-4.563	-1.491	-1.087	-0.865	-0.642
CONTROL LINE CHAINAGE	0	15	30	31.529	40.614	45	60	75	90	98.315	105	120	135	150	165	180	195	210	217.941	225	229.86	240	245.904	255	262.506	270	285	300	315

CENTER LINE OF PROPOSED CREEK LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

BEFORE YOU DIG www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 1 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C240
Revision: 08

File Path: N:\JOBS\2024\240518\CAD\CIVIL\240518_DA_C240.DWG, 240518_DA_C240[08], DATE PRINTED: 16/04/2026 1:13:41 PM

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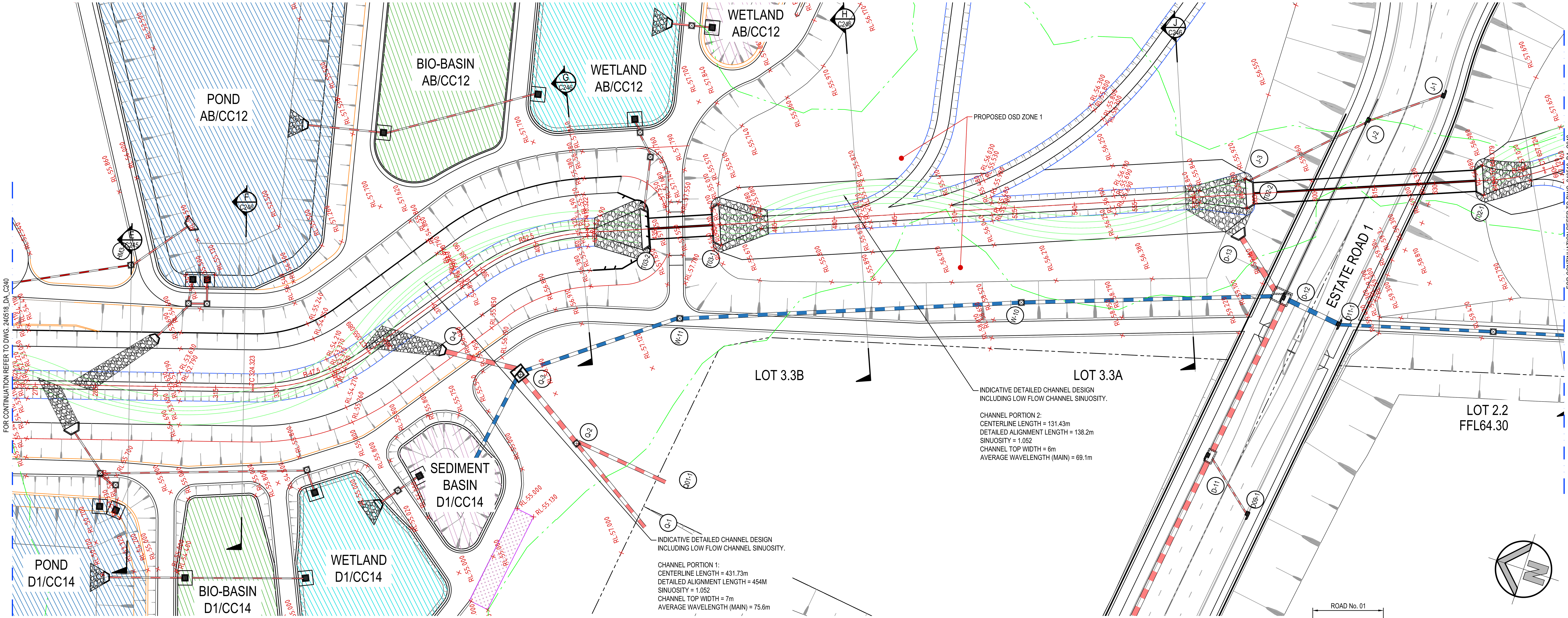

PROPOSED CREEK PLAN

SCALE 1:500

DATUM RL = 47.400

CONTROL LINE CHAINAGE	315	324.323	330	345	355.089	360	375	388.19	390	405	418.322	420	429.459
FINISHED SURFACE LEVEL	52.927	53.069	53.154	53.382	53.534	53.609	53.836	54.035	54.063	54.290	54.491	54.517	54.660
EXISTING SURFACE LEVEL	53.570	53.572	53.574	53.579	53.582	53.584	53.582	53.556	53.554	53.569	53.588	53.589	53.588
CUT / FILL DEPTH	-0.642	-0.504	-0.420	-0.198	-0.048	0.025	0.254	0.479	0.509	0.721	0.903	0.928	1.072

CONTROL LINE CHAINAGE	431.441	435	449.436	450	451.418	465	480	495	510	525	540	555	562.941
FINISHED SURFACE LEVEL	54.660	54.729	55.010	55.010	55.010	55.104	55.208	55.312	55.417	55.521	55.625	55.729	55.784
EXISTING SURFACE LEVEL	53.586	53.582	53.568	53.567	53.570	53.500	53.506	56.207	57.628	55.351	56.075	56.401	56.717
CUT / FILL DEPTH	1.074	1.147	1.442	1.443	1.440	1.605	1.703	-0.895	-2.211	0.169	-0.451	-0.672	-0.933

CONTROL LINE CHAINAGE	570	585	586.884	588.866	600	615	630	640.204	642.186	644.779	64[illegible]	657.724
FINISHED SURFACE LEVEL	55.833	55.937	55.950	55.950	56.173	56.473	56.773	56.977	56.977	56.990	56.991	57.054
EXISTING SURFACE LEVEL	56.761	56.581	56.648	56.721	57.312	57.532	57.630	57.468	57.462	57.454	57.453	57.922
CUT / FILL DEPTH	-0.928	-0.644	-0.698	-0.771	-1.139	-1.060	-0.857	-0.492	-0.485	-0.464	-0.462	-0.868

CENTER LINE OF PROPOSED CREEK LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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Suite 2.01
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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

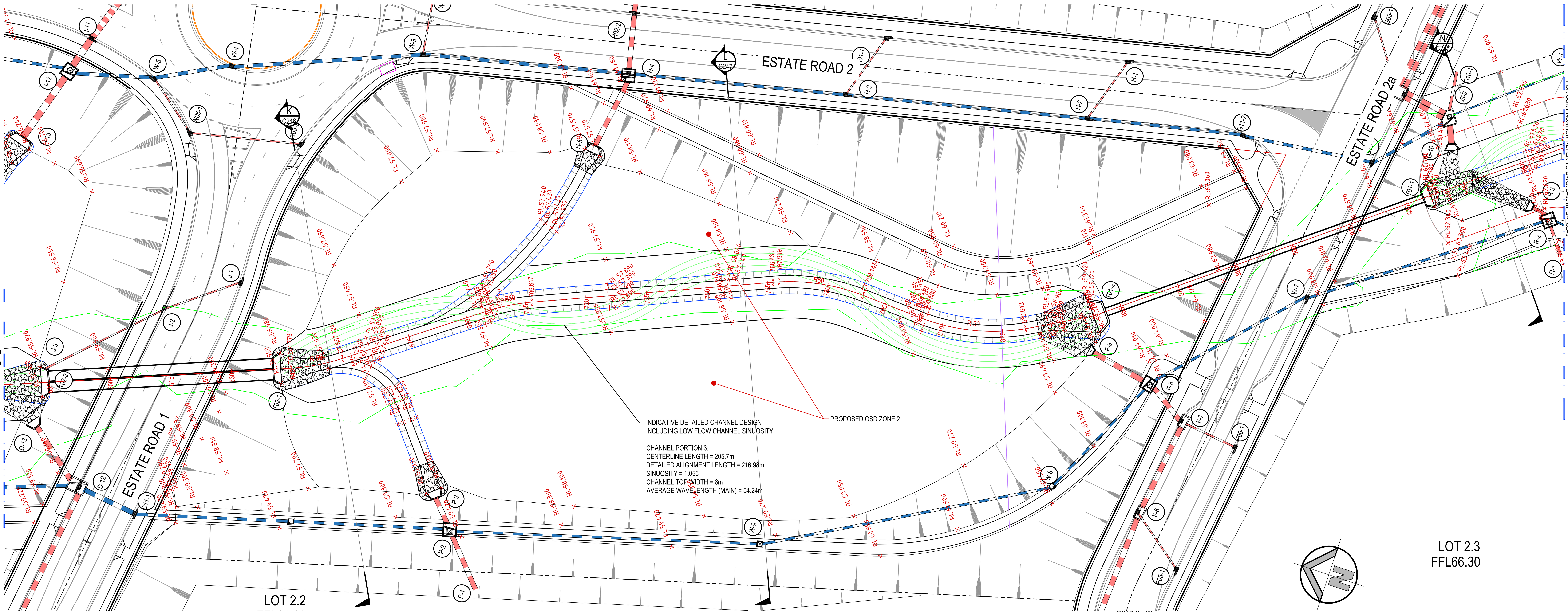
Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 2 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

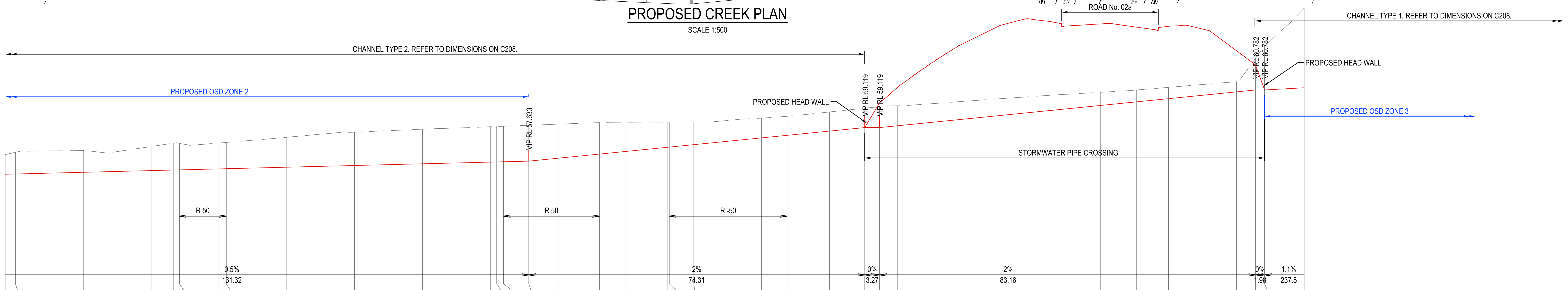
Drawing number: 240518_DA_C241
Revision: 08

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C240_C243.DWG - 240518_DA_C241[08] - DATE PRINTED: 16/04/2026 1:12:32 PM



PROPOSED CREEK PLAN

SCALE 1:500



HORIZONTAL CURVE DATA: R 50; R 50; R -50

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

VERTICAL GEOMETRY GRADE (%) / VERTICAL GEOMETRY LENGTH (m): 0.5% / 131.32; 2% / 74.31; 0% / 3.27; 2% / 83.16; 0% / 1.98; 1.1% / 237.5

DATUM RL = 51.200

FINISHED SURFACE LEVEL	57.054	57.066	57.141	57.216	57.240	57.247	57.291	57.299	57.366	57.441	57.516	57.591
EXISTING SURFACE LEVEL	57.922	58.025	58.101	58.281	58.427	58.421	58.435	58.462	58.690	58.917	59.047	59.157
CUT / FILL DEPTH	-0.868	-0.959	-0.960	-1.065	-1.186	-1.174	-1.144	-1.163	-1.325	-1.476	-1.532	-1.566
CONTROL LINE CHAINAGE	657.724	660	675	690	694.893	696.246	705	706.617	720	735	750	765

FINISHED SURFACE LEVEL	57.598	57.605	57.633	57.763	57.946	58.063	58.245	58.255	58.363	58.663	58.776	58.963
EXISTING SURFACE LEVEL	59.168	59.179	59.220	59.269	59.342	59.357	59.362	59.363	59.367	59.538	59.617	59.810
CUT / FILL DEPTH	-1.570	-1.574	-1.587	-1.506	-1.395	-1.294	-1.117	-1.108	-1.004	-0.875	-0.841	-0.847
CONTROL LINE CHAINAGE	766.431	767.919	773.506	780	789.147	795	804.113	804.588	810	825	830.643	840

FINISHED SURFACE LEVEL	59.119	59.119	59.198	59.498	59.798	60.098	60.256	60.398	60.698	60.782	60.782	60.879
EXISTING SURFACE LEVEL	59.977	60.041	60.084	60.284	60.496	60.681	60.784	60.899	61.150	62.193	62.700	64.407
CUT / FILL DEPTH	-0.858	-0.922	-0.886	-0.787	-0.698	-0.584	-0.528	-0.502	-0.453	-1.411	-1.918	-3.528
CONTROL LINE CHAINAGE	847.819	851.09	855	870	885	900	907.941	915	930	934.249	936.231	945

CENTER LINE OF PROPOSED CREEK LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 3 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C242
Revision: 08

File Path.: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C240_C243.DWG - 240518_DA_C242[08] - DATE PRINTED: 16/04/2026 1:12:50 PM

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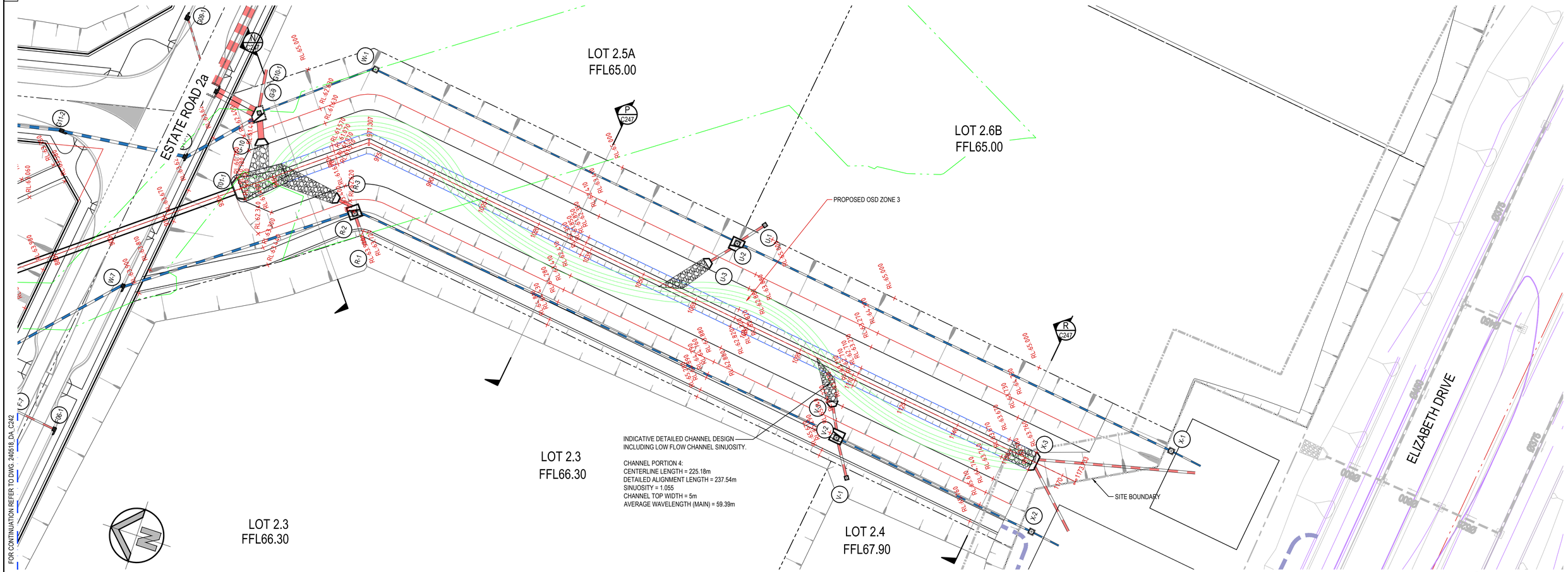
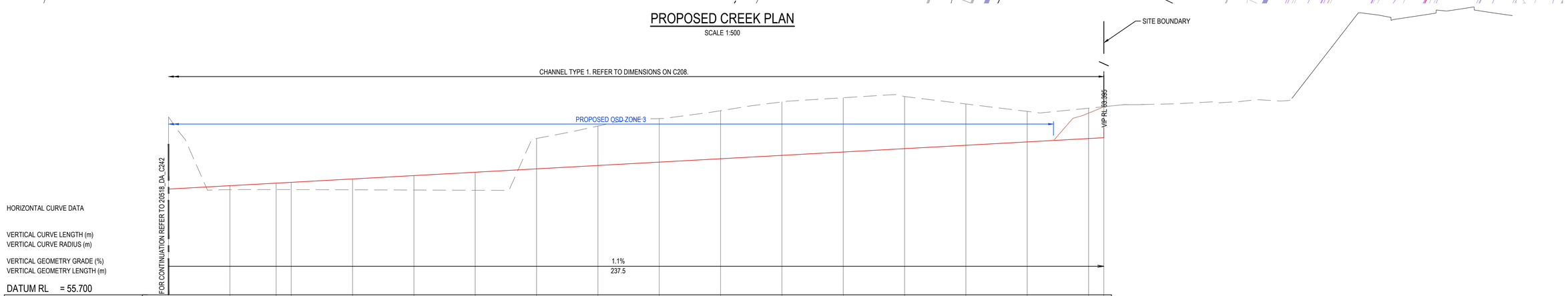


PROPOSED CREEK PLAN
SCALE 1:500



HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)

VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)

DATUM RL = 55.700

FINISHED SURFACE LEVEL	60.879	61.044	61.168	61.209	61.374	61.539	61.704	61.869	62.034	62.199	62.364	62.529	62.694	62.859	63.024	63.189	63.354	63.395
EXISTING SURFACE LEVEL	64.407	60.850	60.854	60.852	60.842	60.831	60.820	63.358	63.963	64.329	64.716	65.146	65.350	65.408	65.045	64.882	64.838	64.912
CUT / FILL DEPTH	-3.528	0.194	0.314	0.357	0.532	0.708	0.884	-1.489	-1.929	-2.130	-2.352	-2.617	-2.656	-2.549	-2.021	-1.693	-1.485	-1.517
CONTROL LINE CHAINAGE	945	960	971.307	975	990	1005	1020	1035	1050	1065	1080	1095	1110	1125	1140	1155	1170	1173.733

CENTER LINE OF PROPOSED CREEK LONGITUDINAL SECTION - CONTINUATION
HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

BEFORE YOU DIG www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025					
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025					
05	ISSUED FOR DRAFT	JG	NW	30.05.25					
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024					
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024					
02	ISSUED FOR CONCEPT	MP	NW	16.08.2024					
01	ISSUED FOR CONCEPT	MP	NW	25.07.24	08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
PROPOSED CREEK PLAN AND LONGITUDINAL SECTION, SHEET 4 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_C243
Revision: 08

File (Path) - R:\DBS\20240801\ACAD\SAVED\20518_DA_C243.DWG - JW/18 DA_C243.DWG - DATE PRINTED: 16/4/2026 1:13:09 PM

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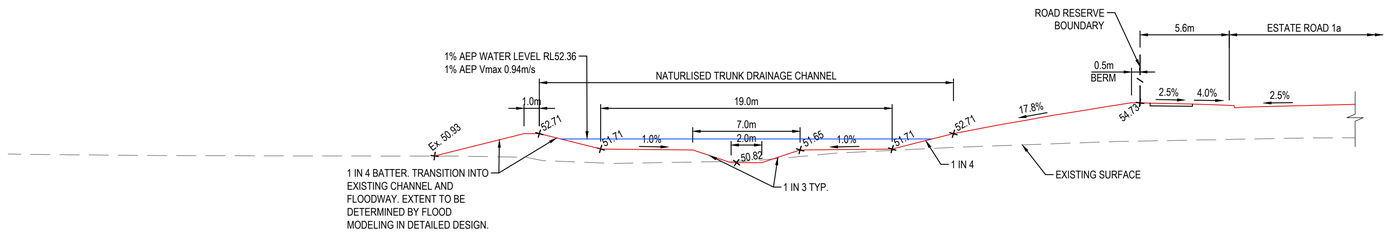

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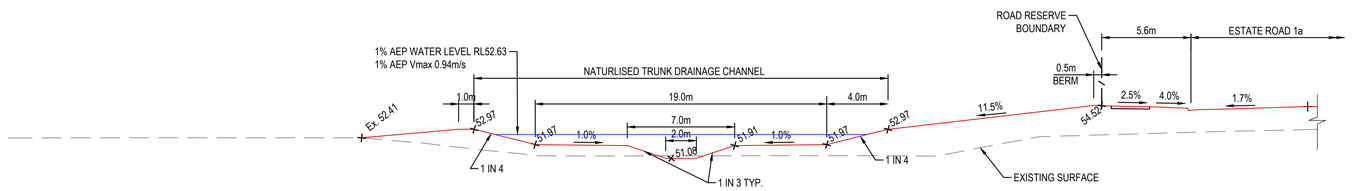

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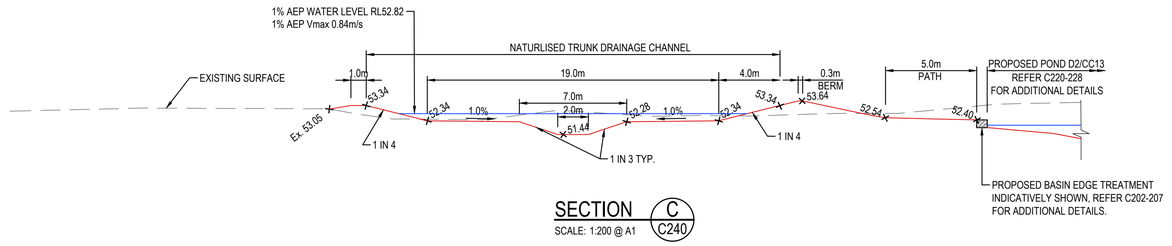

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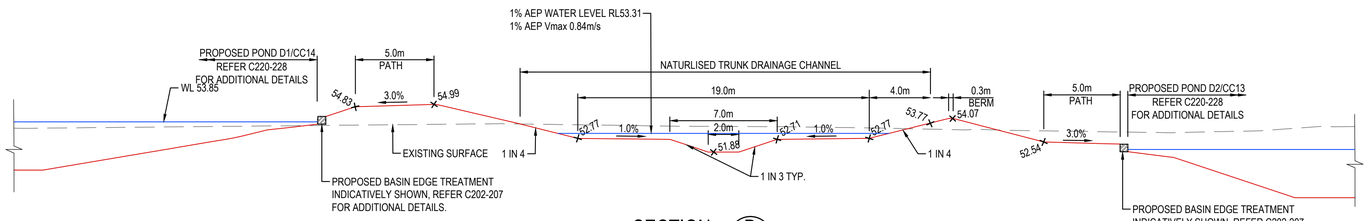

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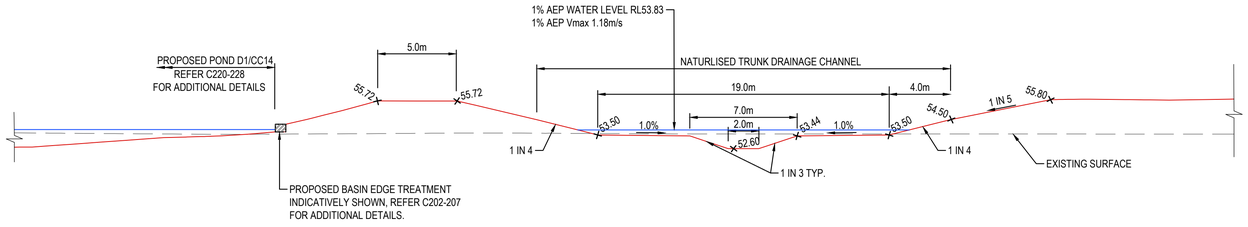

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SCALE: 1:200 @ A1 — C240

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	31.10.2024
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: TYPICAL CREEK SECTIONS , SHEET 1 OF 3

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:200

Drawing number: 240518_DA_C245
Revision: 06

FilePath: N:\240\240518\ACAD\240518-DA-CIVIL-C247.DWG, 240518_DA_CIVIL (247).DWG, DATE PRINTED: 16/04/2026 1:13:26 PM

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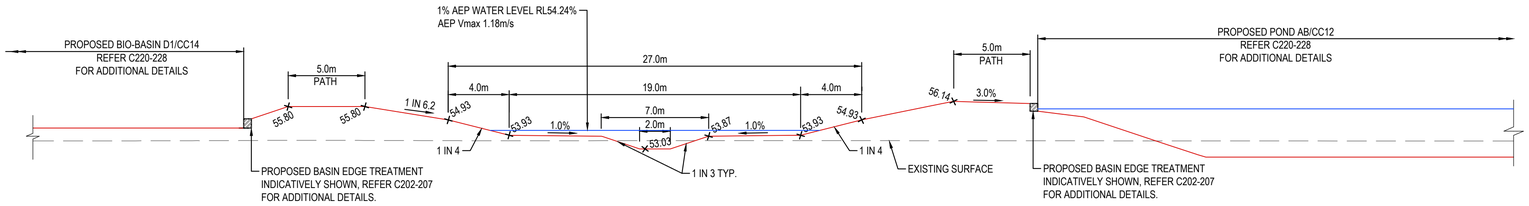

SECTION F
SCALE: 1:200 @ A1
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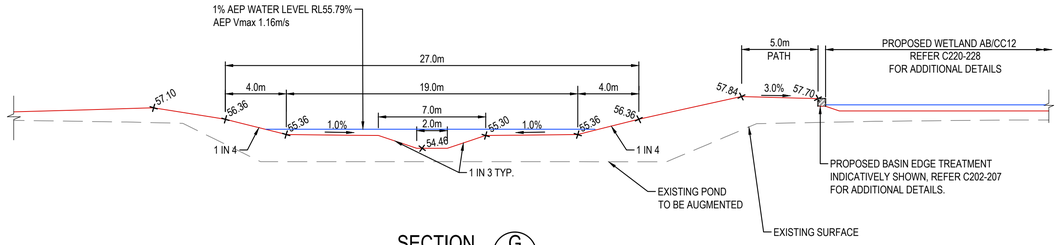

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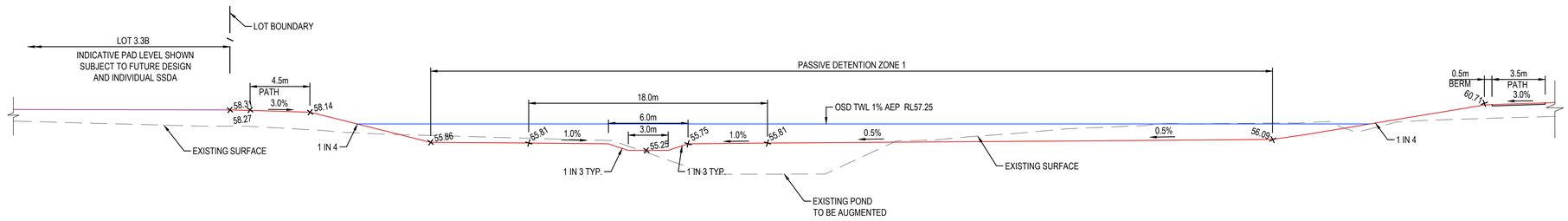

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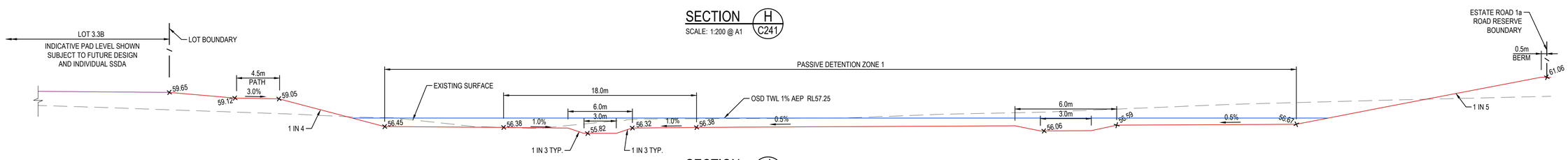

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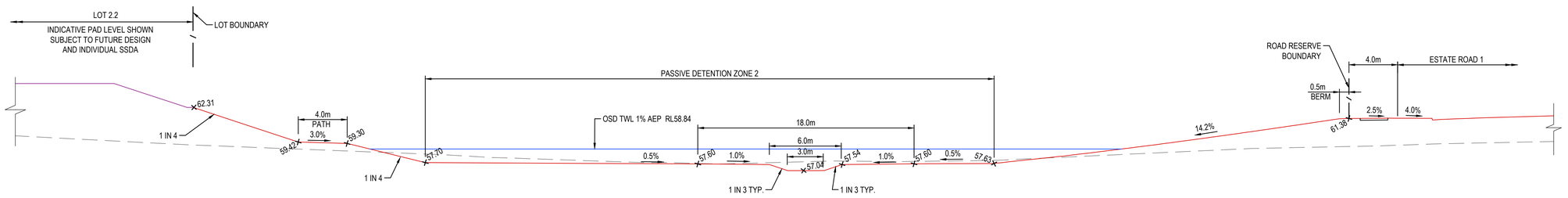

SECTION K
SCALE: 1:200 @ A1
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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
TYPICAL CREEK SECTIONS, SHEET 2 OF 3

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:200

Drawing number 240518_DA_C246
Revision 01

File Path: N:\PROJ\240518\PACKS\240518_DA_C241.DWG, 240518_DA_C246[01], DATE PRINTED: 16/04/2026 1:13:27 PM

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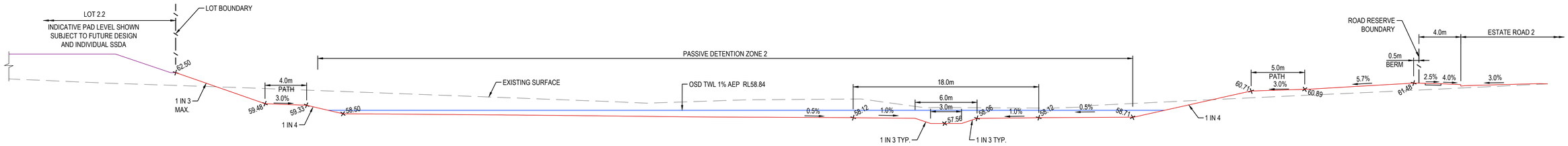

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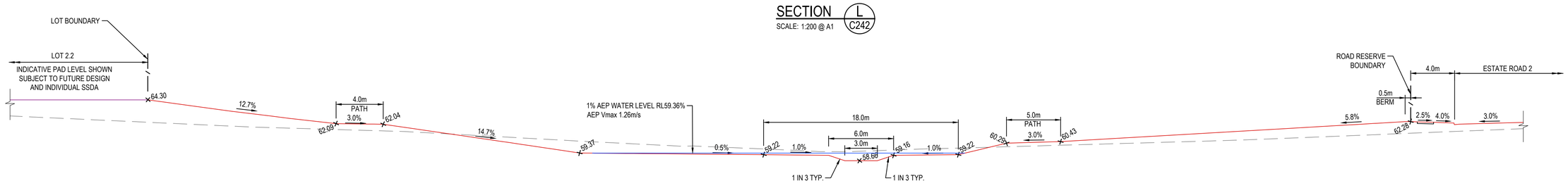
SCALE: 1:200 @ A1 — C242



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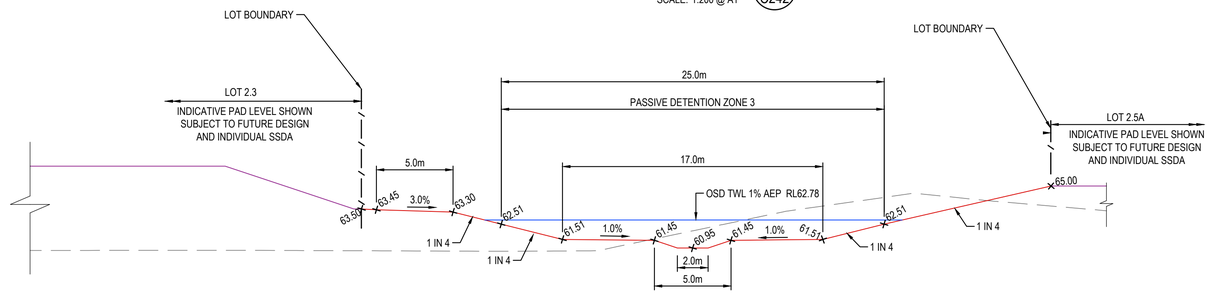

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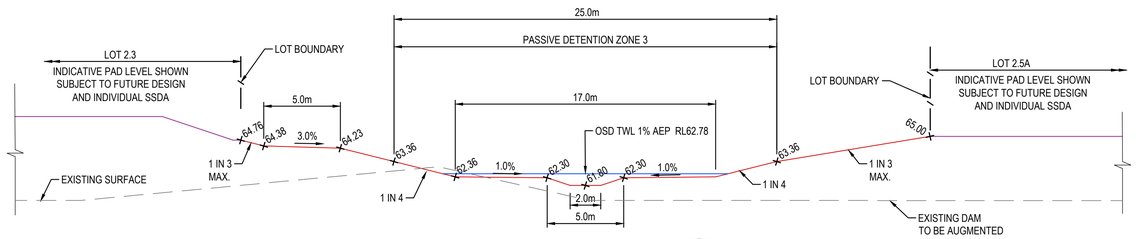

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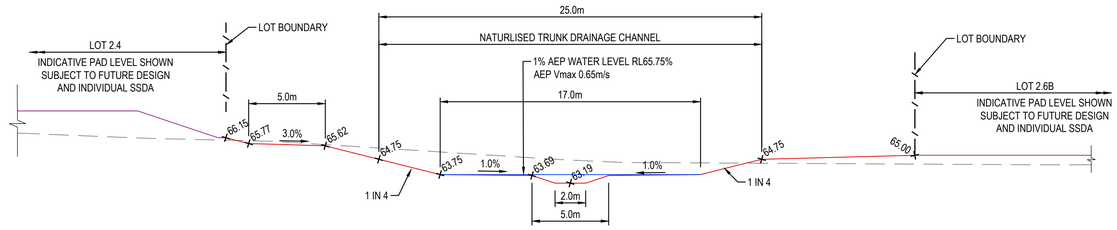

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SCALE: 1:200 @ A1 — C243

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Email email@hhconsult.com.au
Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
TYPICAL CREEK SECTIONS, SHEET 3 OF 3

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:200

Drawing number: 240518_DA_C247
Revision: 01

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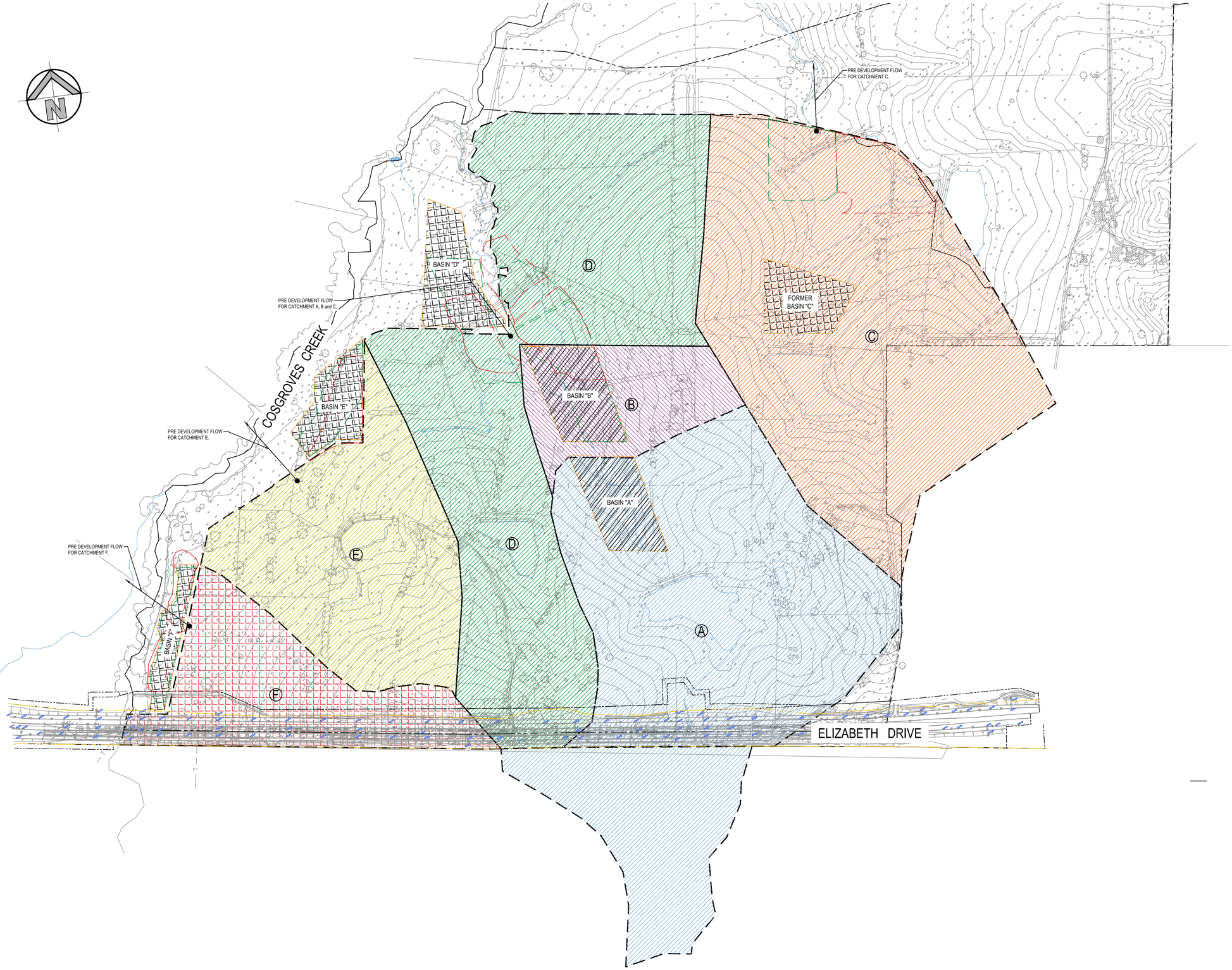

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- FLOOD EXTENT 1% AEP
- COSGROVES CREEK
- SYDNEY WATER REGIONAL COMBINED WSUD WETLANDS AND INDICATIVE DETENTION ZONE ALLOCATION (INITIAL PRECINCTS)
- SYDNEY WATER REGIONAL WSUD WETLAND ALLOCATION. (INITIAL PRECINCTS)
- BASIN ALLOCATIONS UNDER AEROTROPOLIS DRAFT INTEGRATED STORMWATER SCHEMES
- PROPOSED AMENDED BASIN ALLOCATIONS FOLLOWING CONSOLATION DURING EXHIBITION PERIOD

- IMPORTANT NOTE: REFER C252 FOR DETAILED CATCHMENT SUMMARY
- REFER C290 FOR PREDEVELOPMENT OSD CATCHMENT PLAN

SYDNEY WATER REGIONAL WSUD WETLAND ALLOCATION (INITIAL PRECINCTS)

	BASIN ALLOCATION AREA [M²]
BASIN "A"	24853.35
BASIN "B"	27414.48
BASIN "C"	13877.75
BASIN "D"	26675.60
BASIN "E"	20273.72
BASIN "F"	12369.91

IMPORTANT NOTE: REFER C252 FOR PROPOSED CATCHMENTS ALLOCATION SIZES

SYDNEY WATER REGIONAL CATCHMENTS (INITIAL PRECINCTS)

	SYDNEY WATER CATCHMENT [HA]
CATCHMENT "A"	47.0896
CATCHMENT "B"	8.8816
CATCHMENT "C"	42.5824
CATCHMENT "D"	42.4396
CATCHMENT "E"	20.2628
CATCHMENT "F"	13.2537

IMPORTANT NOTE: REFER C251 AND C252 FOR PROPOSED CATCHMENT PLAN AND DETAILS

PRE-DEVELOPMENT - SYDNEY WATER CATCHMENT PLAN

SCALE 1:4000

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	MP	NW	25.07.24

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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Email email@hhconsult.com.au
Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: PRE-DEVELOPMENT SYDNEY WATER CATCHMENT PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:4000

Drawing number: 240518_DA_C250 | Revision: 04

File Path: R:\JOBS\2024\240518\CAD\DA\240518_DA_C250.DWG, 240518_DA_C250(04), DATE PRINTED: 12/12/2025 12:01:01 PM

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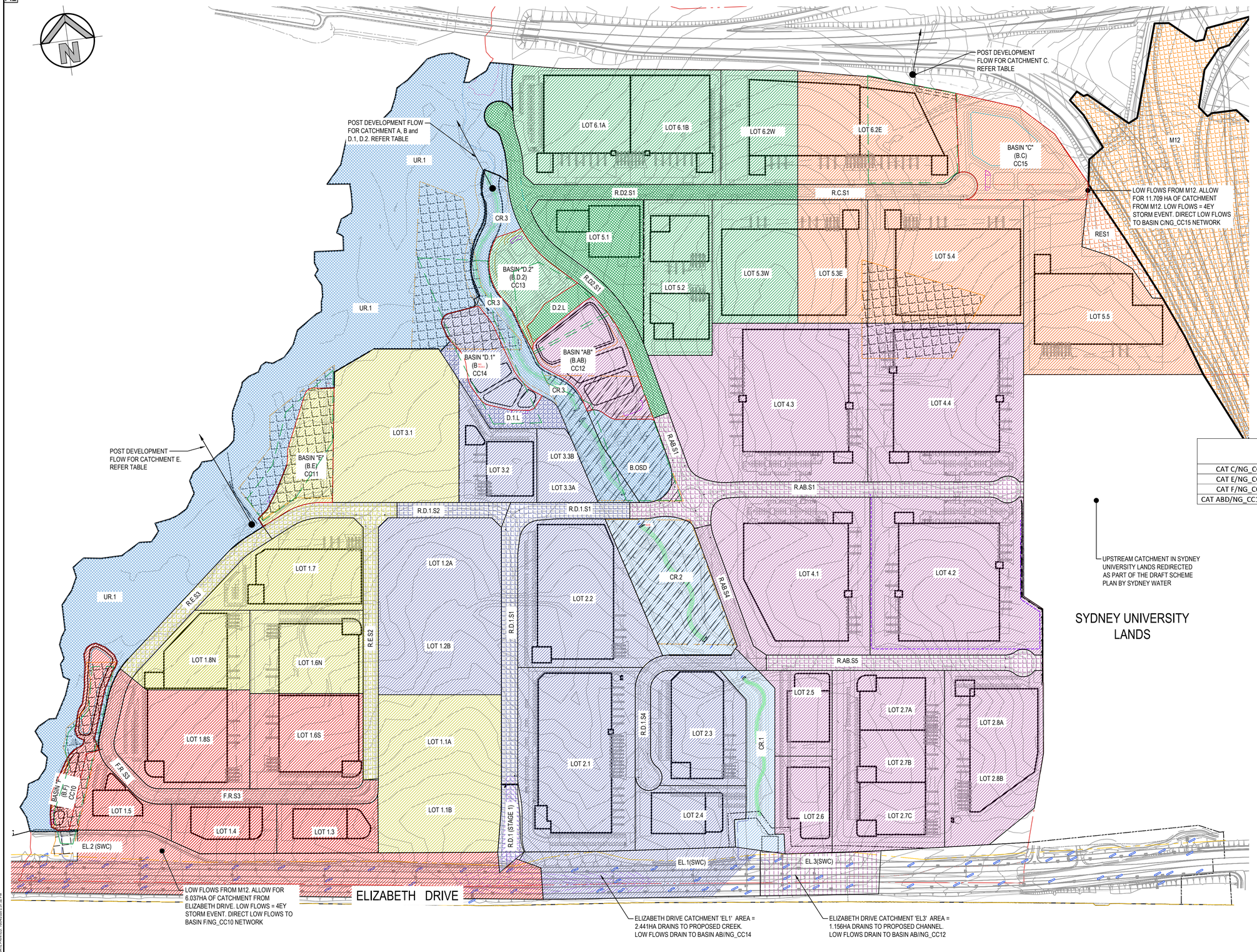

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- FLOOD EXTENT 1% AEP COSGROVES CREEK
- SYDNEY WATER REGIONAL COMBINED WSUD WETLANDS AND INDICATIVE DETENTION ZONE ALLOCATION (INITIAL PRECINCTS)
- SYDNEY WATER REGIONAL WSUD WETLAND ALLOCATION. (INITIAL PRECINCTS)
- BASIN ALLOCATIONS UNDER AEROTROPOLIS DRAFT INTEGRATED STORMWATER SCHEMES
- PROPOSED AMENDED BASIN ALLOCATIONS FOLLOWING CONSOLATION DURING EXHIBITION PERIOD

IMPORTANT NOTE:
1. REFER C252 FOR DETAILED CATCHMENT SUMMARY
2. REFER C250 FOR PREDEVELOPED CATCHMENT - SYDNEY WATER
3. REFER C290 FOR PREDEVELOPED CATCHMENTS - ONSITE STORMWATER DETENTION
4. REFER C295 FOR IRRIGATION PLAN

CATCHMENT TYPES

- CATCHMENT AB/NG_CC12, REFER C252
- CATCHMENT C/NG_CC15, REFER C252
- CATCHMENT D.1/NG_CC14, REFER C252
- CATCHMENT D.2//NG_CC13, REFER C252
- CATCHMENT E/NG_CC11, REFER C252
- CATCHMENT F//NG_CC10, REFER C252
- RESIDUAL AREAS AND CENTRAL TRUNK DRAINAGE CHANNEL, REFER C252

	Post developed Flow Rate 20% AEP Storm Event (m3/s)	Post Flow Rate 5% AEP Storm Event (m3/s)	Post Flow Rate 1% AEP Storm Event (m3/s)
CAT C/NG_CC15	1.85	3.71	5.66
CAT E/NG_CC11	0.96	2.08	3.66
CAT F/NG_CC10	0.599	1.21	2.13
CAT ABD/NG_CC12,13,14	3.73	7.25	14.6

TABLE: POST DEVELOPED FLOWS

MASTER PLAN
POST-DEVELOPMENT CATCHMENT
SCALE 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	LC	NW	16.08.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: MASTER PLAN POST-DEVELOPMENT CATCHMENT PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C251
Revision: 08

File Path: R:\PROJ\2024\240518\ACAD\DA\240518_DA_C251.DWG - 240518_DA_C251(B1) - DATE PRINTED: 16/04/2026 3:47:57 PM

A1

	Lot #	Lot Area (Ha)	Type	Project Stage	Basin #	Roof Area (Ha)	Hardstand (Ha)	Landscaping (Ha)	Detention Strategy	Water Quality	Gross Pollutant Trap	On-Lot OSD Parameters	Irrigation Classification and Parameters	Irrigation Notes (and staging requirements)
CC12, BASIN AB	2.5	1.2432	ENT - LOT	5	CC12	0.746	0.311	0.186	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	2.6	1.3208	ENT - LOT	5	CC12	0.792	0.330	0.198	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	Stage 5 - On Lot - lot area x 6000kL/ha/year (100% APPLICATION)
	2.7	4.9664	ENT - LOT	5	CC12	2.980	1.242	0.745	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	2.8	3.8635	ENT - LOT	5	CC12	2.318	0.966	0.580	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	4.1	5.4273	ENT - LOT	1	CC12	3.06	1.45	0.9173	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	4.2	6.1625	ENT - LOT	1	CC12	3.366	1.956	0.8405	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	4.3	7.3214	ENT - LOT	1	CC12	3.72	1.794	1.8074	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	4.4	6.0408	ENT - LOT	1	CC12	3.741	1.683	0.6168	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	R.AB.S1	2.1356	ROAD - INT	1	CC12	0.000	1.794	0.342	Communal	Communal - Scheme	na.	0	na.	
	R.AB.S4	0.5892	ROAD - INT	4	CC12	0.000	0.495	0.094	Communal	Communal - Scheme	na.	0	na.	
	R.AB.S5	1.0899	ROAD - INT	5	CC12	0.000	0.916	0.174	Communal	Communal - Scheme	na.	0	na.	
	B.AB	1.9831	WQBASIN	1	CC12	0	REFTABLE2	REFTABLE2	Communal	Communal - Scheme	na.	0	POS - remaining landscape area x 0.9 x 6000kL/ha/year (100% APPLICATION)	
	EL.3	1.156	ROAD - EXT	-	CC12	0	0.4393	0.7167	Communal	Communal - Scheme	na.	0	na.	
CC15, BASIN C	5.3E	2.1209	ENT - LOT	1	CC15	1.273	0.530	0.318	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	5.4	4.7261	ENT - LOT	1	CC15	2.836	1.182	0.709	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	5.5	5.0336	ENT - LOT	1	CC15	3.020	1.258	0.755	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	6.2E	4.0871	ENT - LOT	6	CC15	2.452	1.022	0.613	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	Stage 3 - Stage 5 - On Lot - lot area x 6000kL/ha/year (100% APPLICATION)
	R.C.S1	0.7331	ROAD - INT	1	CC15	0.000	0.616	0.117	Bypass	Communal - Scheme	na.	na.	na.	
	B.C	2.414	WQBASIN	1	CC15	0	REFTABLE2	REFTABLE2	Bypass	Communal - Scheme	na.	na.	POS - remaining landscape area x 0.9 x 6000kL/ha/year (100% APPLICATION)	
	RES1	0.5911	POS - EX	-	CC15	0	0	0.5911	na. external	Communal - Scheme	na.	na.	na.	
	M12	11.709	ROAD - EXT	-	CC15	0	4.597 (SWC)	7.112 (SWC)	na. Low flows (4EY) only	Communal - Scheme	na.	na.	na.	
CC14, BASIN D.1	1.2	5.3189	ENT - LOT	2	CC14	3.591	1.045	0.683	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	2.1	5.2579	ENT - LOT	4	CC14	3.155	1.314	0.789	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	2.2	4.2382	ENT - LOT	4	CC14	2.543	1.060	0.636	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	2.3	2.5351	ENT - LOT	4	CC14	1.521	0.634	0.380	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	2.4	1.6223	ENT - LOT	5	CC14	0.973	0.406	0.243	Communal	Communal - Scheme	On-Lot	0	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	3.2	1.599	ENT - LOT	6	CC14	0.959	0.400	0.240	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	Stage 5 - On Lot - lot area x 6000kL/ha/year (100% APPLICATION)
	3.3	0.8254	ENT - LOT	6	CC14	0.495	0.206	0.124	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	Stage 4 - Stage 5 - On Lot - lot area x 6000kL/ha/year (100% APPLICATION)
	R.D1.S1	1.9882	ROAD - INT	1	CC14	0.000	1.601	0.388	Communal	Communal - Scheme	na.	na.	na.	
	R.D1.S2	0.432	ROAD - INT	2	CC14	0.000	0.363	0.069	Communal	Communal - Scheme	na.	na.	na.	
	R.D1.S4	0.8974	ROAD - INT	4	CC14	0.000	0.754	0.144	Communal	Communal - Scheme	na.	na.	na.	
	D.1.L	0.636	POS - INT	2	CC14	0.000	0.000	0.636	Bypass	Communal - Scheme	na.	na.	POS - 6000kL/ha/year (100% APPLICATION)	
	EL_1	2.441	ROAD - EXT	-	CC14	0	0.92758	1.51342	Communal	Communal - Scheme	na.	na.	na.	
	B.D1	1.2082	WQBASIN	2	CC14	0	REFTABLE2	REFTABLE2	Bypass	Communal - Scheme	na.	na.	POS - remaining landscape area x 0.9 x 6000kL/ha/year (100% APPLICATION)	
CC13, BASIN D.2	5.1	2.0085	ENT - LOT	6	CC13	1.205	0.502	0.301	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	Stage 5 - On Lot - lot area x 6000kL/ha/year (100% APPLICATION)
	5.2	2.6229	ENT - LOT	1	CC13	1.574	0.656	0.393	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	6.1	5.7946	ENT - LOT	6	CC13	3.477	1.449	0.869	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	Stage 3 - Stage 5 - On Lot - lot area x 6000kL/ha/year (100% APPLICATION)
	5.3W	2.5951	ENT - LOT	1	CC13	1.557	0.649	0.389	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	6.2W	2.1549	ENT - LOT	6	CC13	1.293	0.539	0.323	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	Stage 3 - Stage 5 - On Lot - lot area x 6000kL/ha/year (100% APPLICATION)
	R.D2.S1	2.5717	ROAD - INT	1	CC13	0.000	2.109	0.463	Bypass	Communal - Scheme	na.	na.	na.	
	D.2.L	0.3526	POS - INT	1	CC13	0.000	0.000	0.353	Bypass	Communal - Scheme	na.	na.	POS - 6000kL/ha/year (100% APPLICATION)	
	B.D2	1.1451	WQBASIN	1	CC13	0	REFTABLE2	REFTABLE2	Bypass	Communal - Scheme	na.	na.	POS - remaining landscape area x 0.9 x 6000kL/ha/year (100% APPLICATION)	
CC11, BASIN E	1.1	4.7484	ENT - LOT	2	CC11	3.164	0.903	0.681	On-Lot	Communal - Scheme	On-Lot	Refer D1_C101-C104	na.	
	1.6N	2.3141	ENT - LOT	3	CC11	1.388	0.579	0.347	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	1.7	2.7123	ENT - LOT	3	CC11	1.627	0.678	0.407	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	1.8N	1.7692	ENT - LOT	3	CC11	1.062	0.442	0.265	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	3.1	4.5492	ENT - LOT	2	CC11	3.072	0.696	0.781	On-Lot	Communal - Scheme	On-Lot	Refer D1_C109-C112	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	R.E.S2	1.5133	ROAD - INT	2	CC11	0.000	1.271	0.242	Bypass	Communal - Scheme	na.	na.	na.	
	R.E.S3	0.7536	ROAD - INT	3	CC11	0.000	0.633	0.121	Bypass	Communal - Scheme	na.	na.	na.	
	B.E	1.3337	WQBASIN	2	CC11	0	REFTABLE2	REFTABLE2	Bypass	Communal - Scheme	na.	na.	POS - remaining landscape area x 0.9 x 6000kL/ha/year (100% APPLICATION)	
CC10, BASIN F	1.3	1.2337	ENT - LOT	3	CC10	0.7402	0.3084	0.1851	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	1.4	1.2416	ENT - LOT	4	CC10	0.7450	0.3104	0.1862	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	1.5	1.1724	ENT - LOT	4	CC10	0.7034	0.2931	0.1759	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	1.8S	3.0797	ENT - LOT	3	CC10	1.8478	0.7699	0.4620	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	1.6S	2.6372	ENT - LOT	3	CC10	1.5823	0.6593	0.3956	On-Lot	Communal - Scheme	On-Lot	Refer Tables below for PSD	On Lot - Landscpaing area x 3000kL/ha/year (50% APPLICATION) - Stage 5 Onwards	
	R.F.S3	1.4246	ROAD - INT	3	CC10	0.0000	1.1967	0.2279	Bypass	Communal - Scheme	na.	na.	na.	
	EL.2	6.037	ROAD - EXT	-	CC10	0	2.29406	3.74294	na. Low flows (4EY) only	Communal - Scheme	na.	na.	na.	
	B.F	0.974	WQBASIN	3	CC10	0	REFTABLE2	REFTABLE2	Bypass	Communal - Scheme	na.	na.	POS - remaining landscape area x 0.9 x 6000kL/ha/year (100% APPLICATION)	
NO BASIN	UR1	17.4798	POS - INT	-	RESIDUAL	0	0	17.480	Bypass	Communal - Scheme	na.	na.	POS - 6000kL/ha/year (100% APPLICATION)	VMP requires irrigation in VRZs. Refer C295 and Chapter 6.11 of report
	CR1	1.4507	CHANNEL - INT	-	RESIDUAL	0	0	1.451	Communal	Communal - Scheme	na.	na.	POS - 6000kL/ha/year (100% APPLICATION) (Subtracting LF channel area)	4EY low flow line diverts flow - no low flows VMP requires irrigation, ref 6.11
	CR2	2.739	CHANNEL - INT	-	RESIDUAL	0	0	2.739	Communal	Communal - Scheme	na.	na.	POS - 6000kL/ha/year (100% APPLICATION) (Subtracting LF channel area)	4EY low flow line diverts flow - no low flows. VMP requires irrigation, ref 6.11
	CR3	2.3129	CHANNEL - INT	-	RESIDUAL	0	0	2.313	Ref C254, C256)	Communal - Scheme	na.	na.	POS - 6000kL/ha/year (100% APPLICATION) (Subtracting LF channel area)	4EY low flow line diverts flow - no low flows. VMP requires irrigation, ref 6.11
	OSD 1	1.096	CHANNEL - INT	-	RESIDUAL	0	0	1.096	Communal	Communal - Scheme	na.	na.	POS - 6000kL/ha/year (100% APPLICATION) (Subtracting LF channel area)	4EY low flow line diverts flow - no low flows. VMP requires irrigation, ref 6.11

TABLE: WATER QUALITY, REUSE AND DETENTION - LOT SUMMARY

Lot No.	Catchment	20% AEP (m3/s)	5% AEP (m3/s)	1% AEP (m3/s)
1.3	NG_CC10	0.061	0.147	0.302
1.4	NG_CC10	0.060	0.145	0.298
1.5	NG_CC10	0.060	0.145	0.297
1.8S	NG_CC10	0.124	0.284	0.571
1.6S	NG_CC10	0.106	0.243	0.489
1.1	NG_CC11	0.178	0.464	0.941
1.6N	NG_CC11	0.082	0.215	0.438
1.7	NG_CC11	0.135	0.351	0.675
1.8N	NG_CC11	0.068	0.177	0.36
3.1	NG_CC11	0.226	0.588	1.13
5.1	NG_CC13	0.120	0.321	0.47
5.2	NG_CC13	0.159	0.422	0.622
5.3W	NG_CC13	0.157	0.417	0.615
6.2W	NG_CC13	0.131	0.347	0.511
6.1	NG_CC13	0.313	0.838	1.28
5.3E	NG_CC15	0.176	0.436	0.635
5.4	NG_CC15	0.44	1.05	1.5
5.5	NG_CC15	0.36	0.917	1.38
6.2E	NG_CC15	0.38	0.904	1.315
3.2	NG_CC14	0.121	0.309	0.458
3.3	NG_CC14	0.068	0.171	0.250

TABLE: PSD SUMMARY FOR ON-LOT OSD LOTS

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
05	ISSUED FOR DRAFT	JG	NW	30.05.25
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	LC	NW	16.08.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.24
08	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: WATER QUALITY, REUSE AND DETENTION - LOT SUMMARY

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_DA_C252
Revision: 08

File Path: N:\JOBS\240426\01\ACAD\DWG\01 DA_C252.DWG, 29/01 DA_C252(08), DATE PRINTED: 4/04/2026 1:41:01 PM

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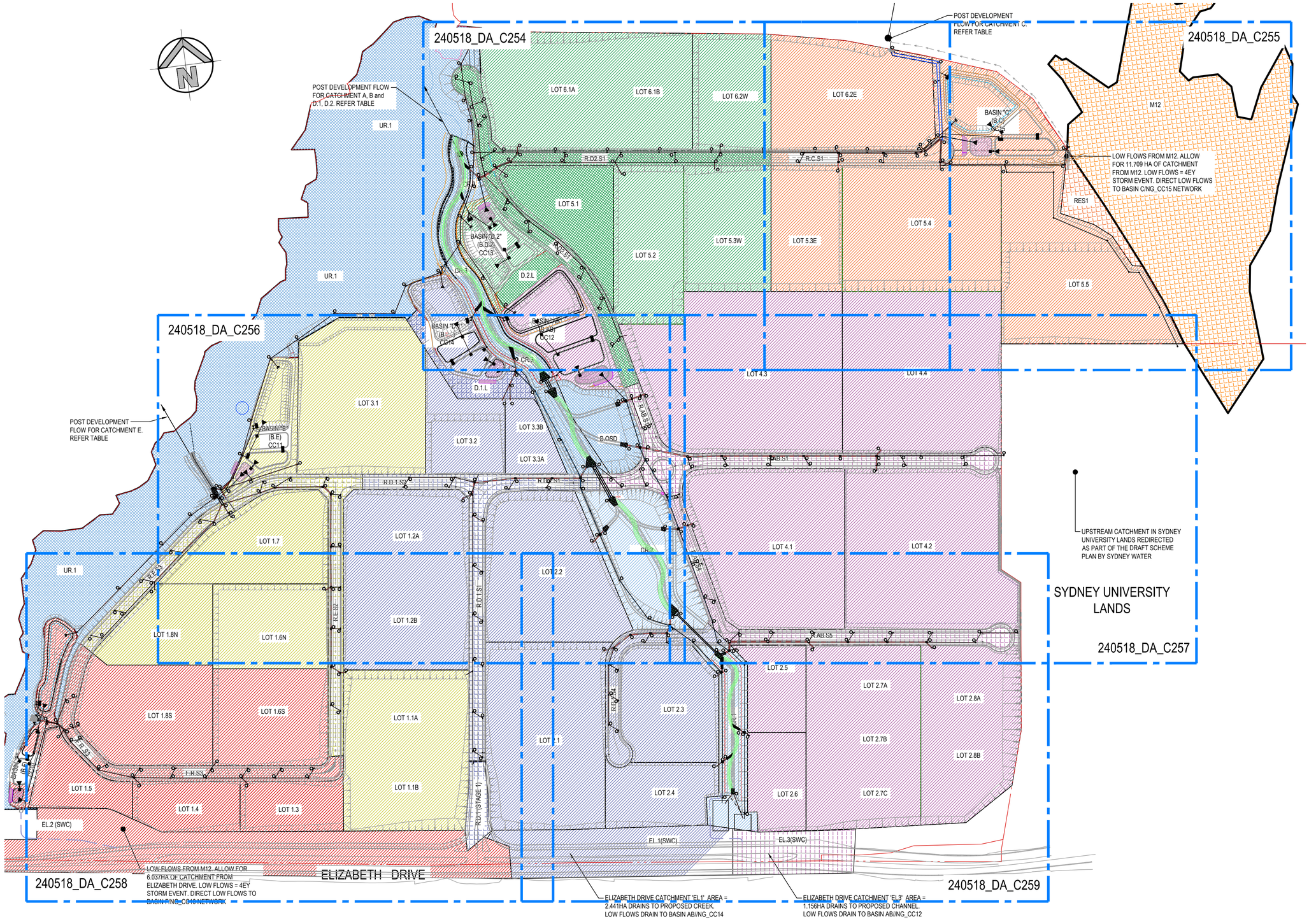

STORMWATER DETAILED CATCHMENT PLAN-GENERAL ARRANGEMENT PLAN

SCALE: 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER DETAILED CATCHMENT PLAN-GENERAL ARRANGEMENT PLAN

Drawn	Designed	Original issue date
A.Fernandes	N.Wetzlar	45566
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C253
Revision: 05

File Path: R:\JOBS\2024\240518\ACAD\DA\240518_DA_C253.DWG JOB:18_DA_C253(B1) DATE PRINTED: 16/04/2026 3:57:39 PM

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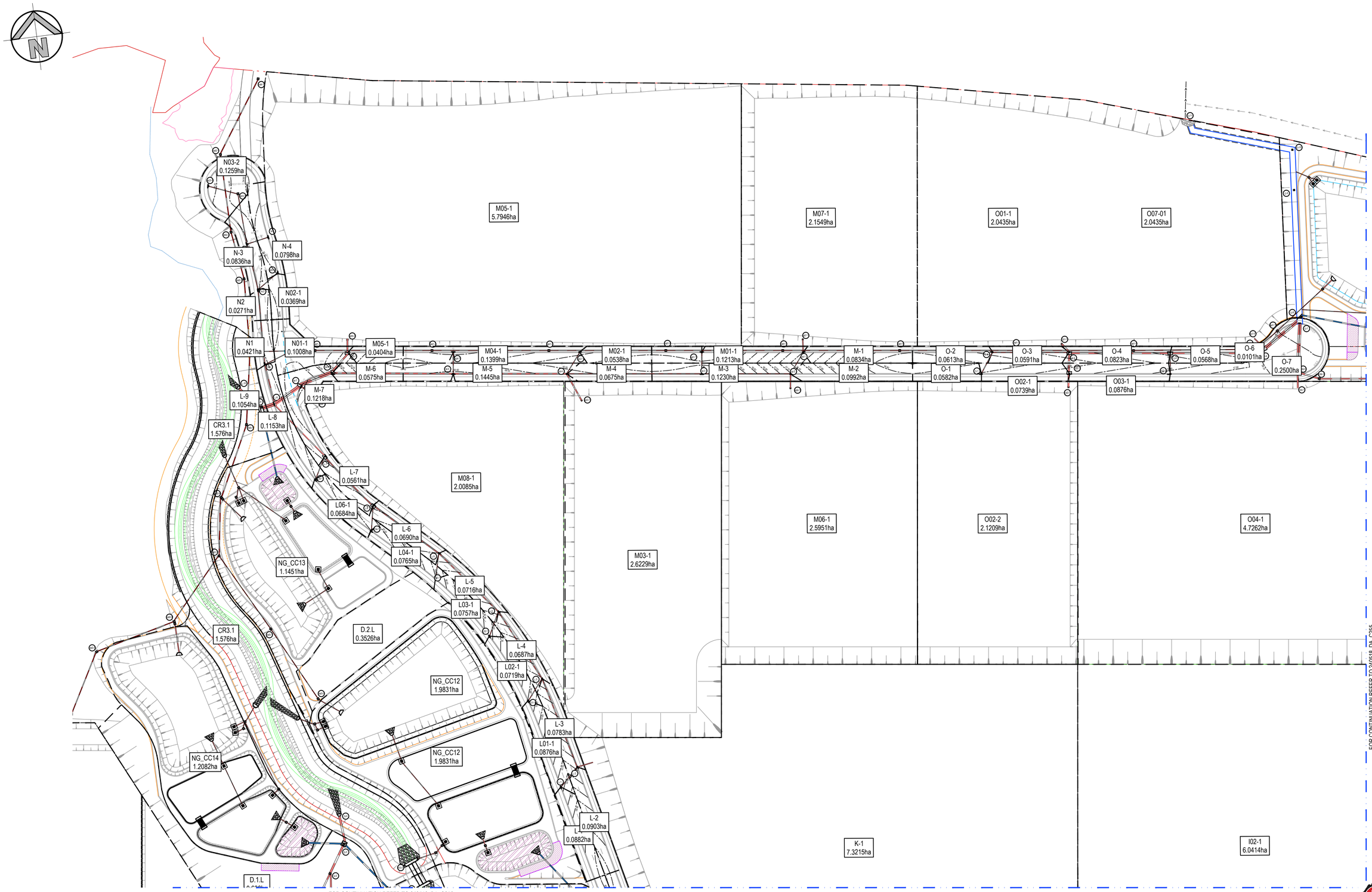

STORMWATER DETAILED CATCHMENT PLAN

SCALE: 1:1250

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SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER DETAILED CATCHMENT PLAN SHEET 1 OF 6

Drawn	Designed	Original issue date
A.Fernandes	N.Wetzlar	45566
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1250

Drawing number: 240518_DA_C254

Revision: 05

File Path: N:\250\250528\SCAD\240518_DA_C254.DWG, 240518_DA_C254(1).DWG, DATE PRINTED: 16/04/2026 1:14:25 PM

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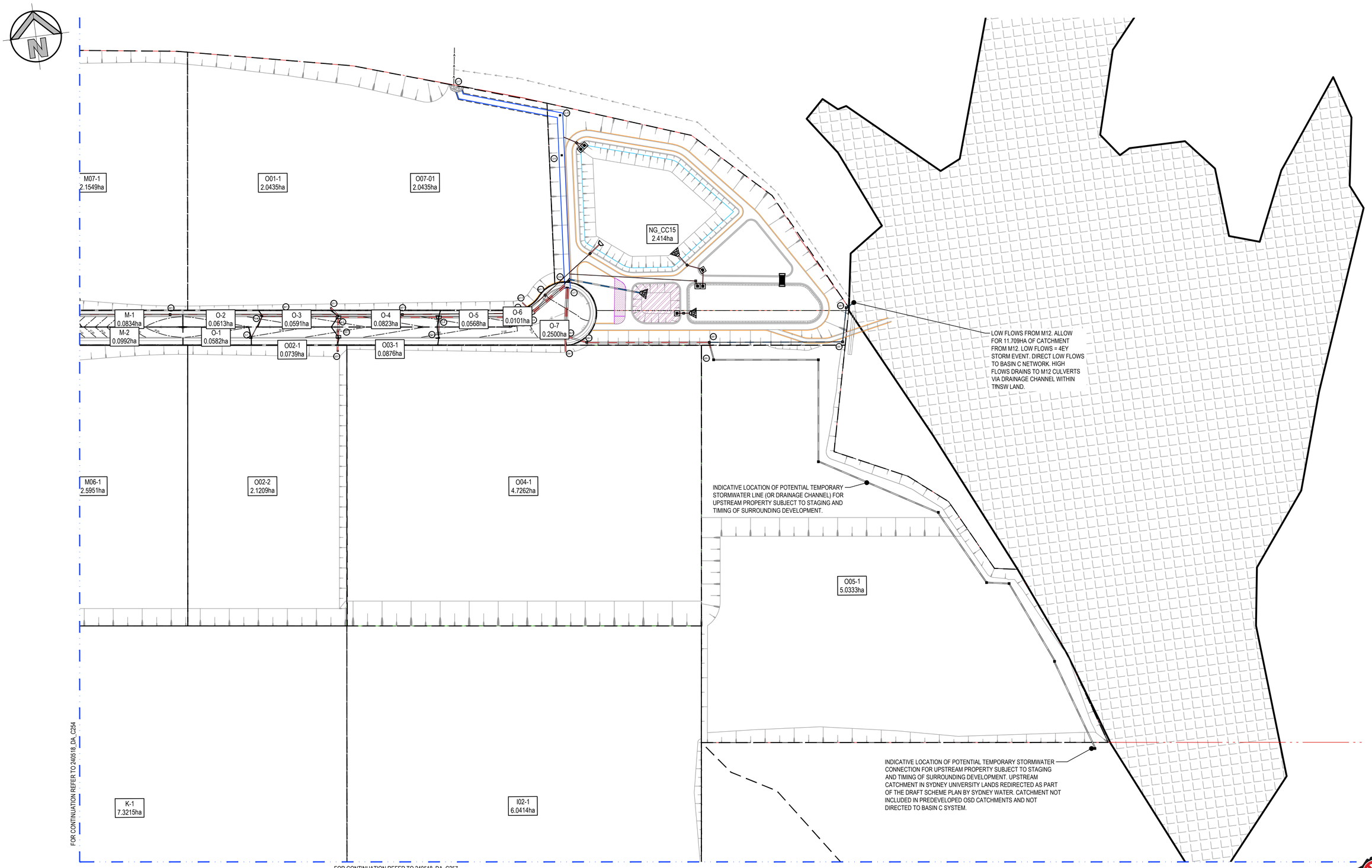

STORMWATER DETAILED CATCHMENT PLAN

SCALE: 1:1250

0 25 50 75 100 125m

25 15 5

SCALE 1:1250

BEFORE YOU DIG www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER DETAILED CATCHMENT PLAN SHEET 2 OF 6

Drawn	Designed	Original issue date
A.Fernandes	N.Wetzlar	45566
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1250

Drawing number: 240518_DA_C255

Revision: 05

File Path: R:\DWG\240518\ACAD\240518_DA_C254_C255_C257.dwg, 28/01/26, DA_C255(5), DATE PRINTED: 16/04/2026 11:43:24

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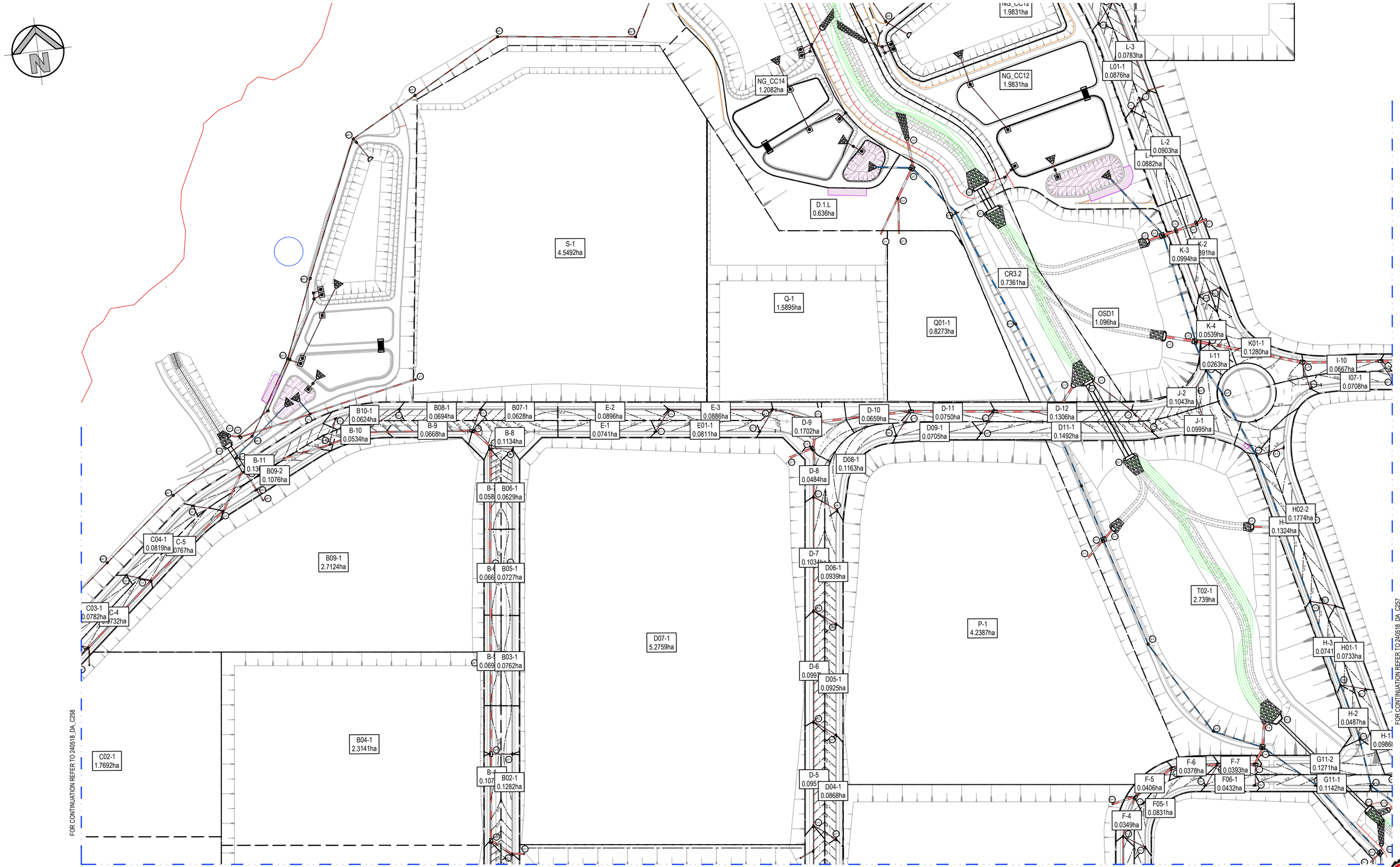

STORMWATER DETAILED CATCHMENT PLAN

SCALE: 1:1250

0 25 50 75 100 125m

25 15 5

SCALE 1:1250

BEFORE YOU DIG www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
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Architect / Surveyor
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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER DETAILED CATCHMENT PLAN SHEET 3 OF 6

Drawn	Designed	Original issue date
A.Fernandes	N.Wetzlar	45566
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1250

Drawing number
240518_DA_C256

Revision
05

PlotTime: 16/04/2026 9:14:24 PM | PlotDate: P:\JOBS\240518\ACAD\Civil\240518_DA_C256.DWG | PlotBy: DA_C256.DWG | DATE PRINTED: 16/04/2026 1:14:24 PM

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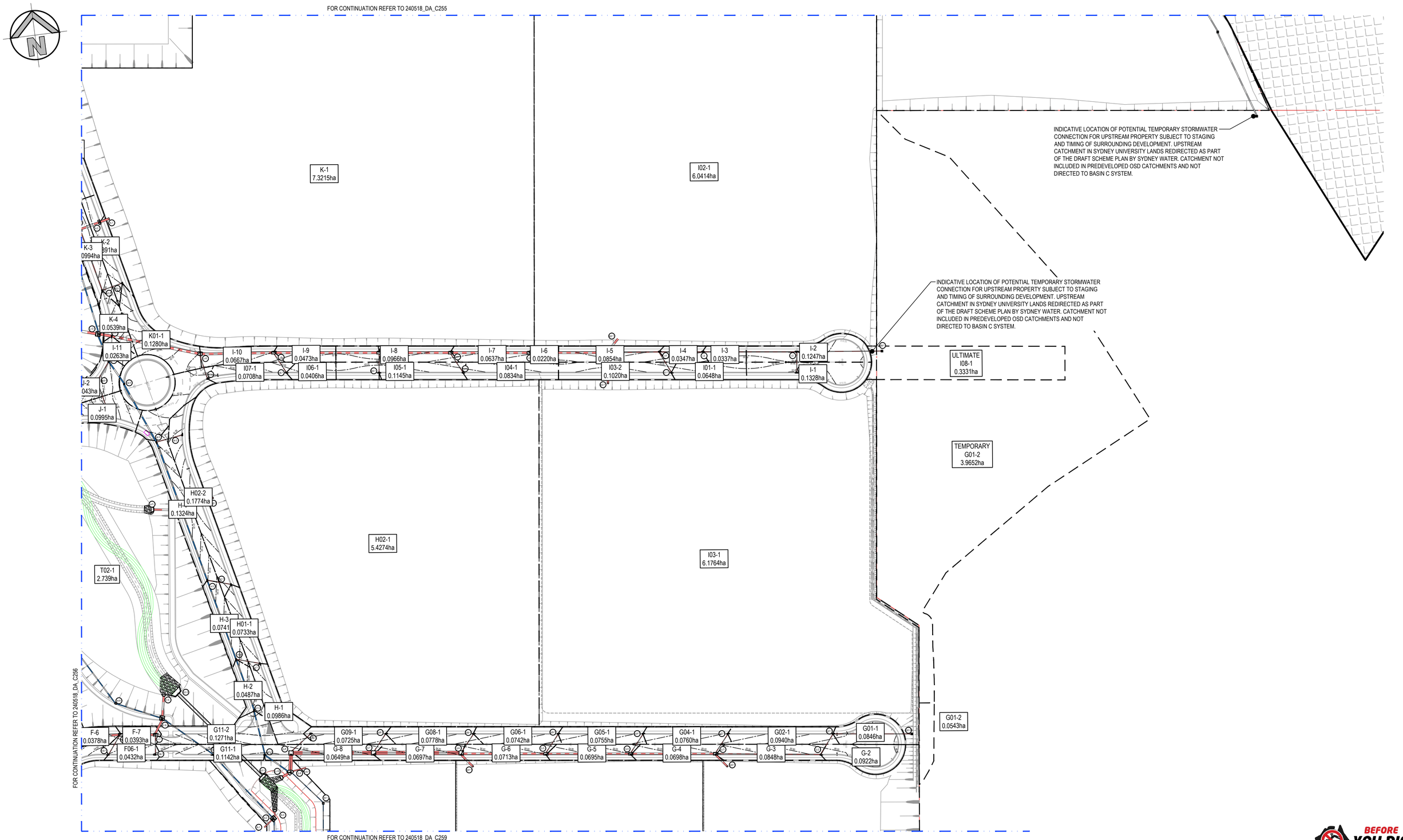

STORMWATER DETAILED CATCHMENT PLAN

SCALE: 1:1250

0 25 50 75 100 125m

25 15 5

SCALE 1:1250

BEFORE YOU DIG www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER DETAILED CATCHMENT PLAN SHEET 4 OF 6

Drawn	Designed	Original issue date
A.Fernandes	N.Wetzlar	45566
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1250

Drawing number: 240518_DA_C257

Revision: 05

File Path: R:\SYD\Projects\240518\DA\240518_DA_C256-C259.DWG 28/01/26 DATE PRINTED: 16/04/2026 1:43:37 PM

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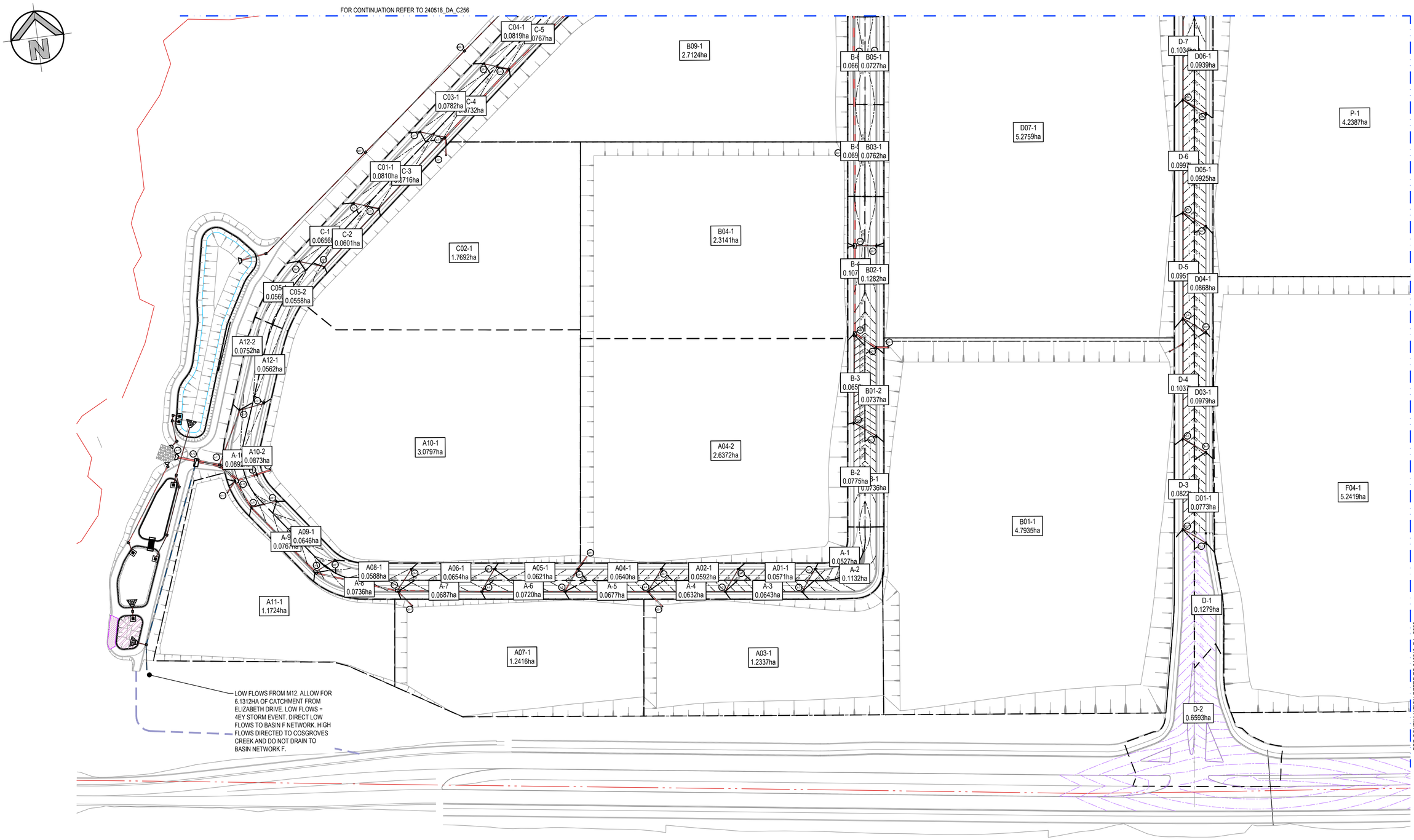

STORMWATER DETAILED CATCHMENT PLAN

SCALE: 1:1250

0 25 50 75 100 125m

25 15 5

SCALE 1:1250

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SURVEY INFORMATION

SURVEYED BY: LTSL

DATUM:AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER DETAILED CATCHMENT PLAN SHEET 5 OF 6

Drawn	Designed	Original issue date
A.Fernandes	N.Wetzlar	45566
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:1250

Drawing number: 240518_DA_C258 — Revision: 05

RefPath: N:\250\250426\R\SD\240518_DA_C04-C258.DWG , 240518_DA_C258(5) , DATE PRINTED: 16/04/2026 1:14:29 PM

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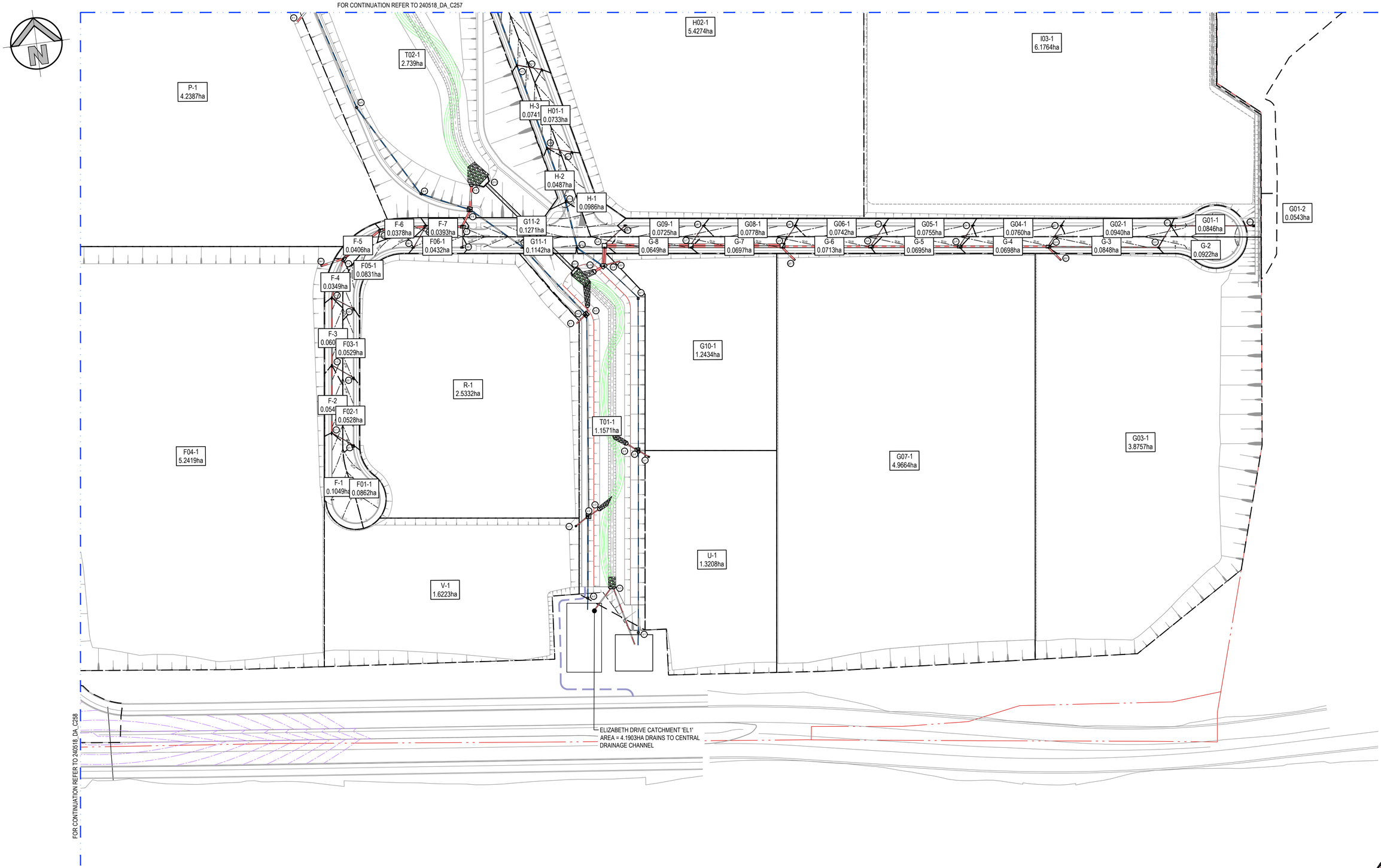
FOR CONTINUATION REFER TO 240518_DA_C257



FOR CONTINUATION REFER TO 240518_DA_C258

STORMWATER DETAILED CATCHMENT PLAN

SCALE: 1:1250

0 25 50 75 100 125m

25 15 5

SCALE 1:1250

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SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Gordon NSW 2072

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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Drawn	Designed	Original issue date
A.Fernandes	N.Wetzlar	45566
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1250

Title
STORMWATER DETAILED CATCHMENT PLAN SHEET 6 OF 6

Drawing number
240518_DA_C259

Revision
05

RevTime: R:\DWG\240518\ARCH\240518_DA_C04-C05.DWG - 240518_DA_C04[05]; DATE PRINTED: 16/04/2026 11:41:41 PM

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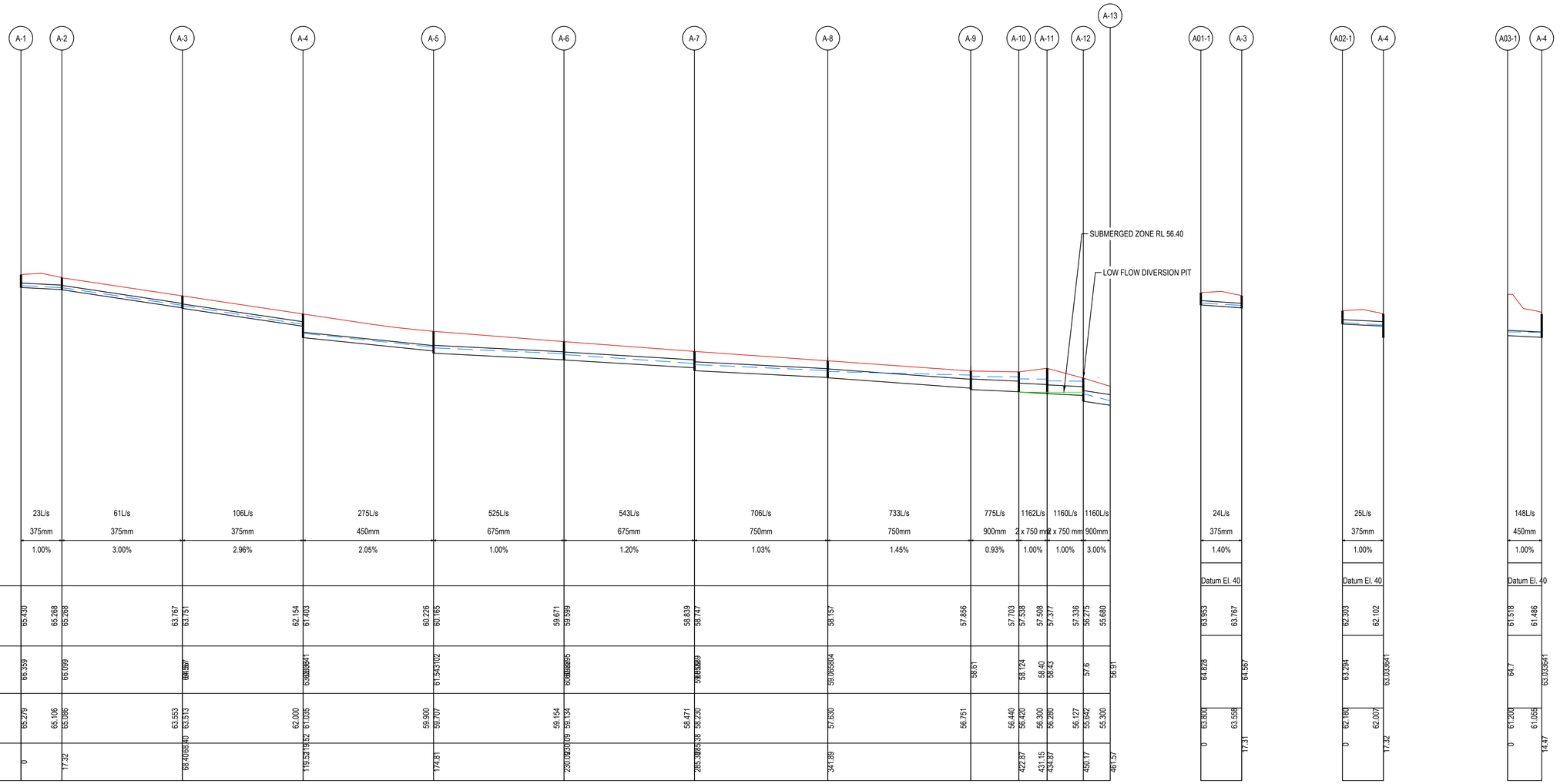

	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13
Flow (L/s)	23L/s	61L/s	106L/s	275L/s	525L/s	543L/s	706L/s	733L/s	775L/s	1162L/s	1160L/s	1160L/s	
Pipe Size & Class	375mm	375mm	375mm	450mm	675mm	675mm	750mm	750mm	900mm	2 x 750 mm	2 x 750 mm	900mm	
Grade (%)	1.00%	3.00%	2.96%	2.05%	1.00%	1.20%	1.03%	1.45%	0.93%	1.00%	1.00%	3.00%	
Datum El. 40													
H.G.L. LEVELS 1 in 20 Year ARI	65.430	65.268	63.767	62.154	60.226	59.671	58.839	58.157	57.856	57.703	57.538	57.377	57.336	56.275	55.680
SURFACE R.L.	66.359	66.099	64.327	63.026	61.543	60.665	59.839	59.065	58.61	58.124	58.40	58.43	57.6	56.91
INVERT R.L.	65.279	65.106	63.553	63.513	62.000	61.035	59.900	59.707	59.154	59.134	58.471	58.250	57.630	56.751	56.440	56.420	56.300	56.280	56.127	55.642	55.300
PIPE CHAINAGE (m)	0	17.32	68.40	68.40	119.52	119.52	174.81	174.81	230.10	230.10	265.38	265.38	341.89	422.87	431.15	434.87	450.17	461.57

	A01-1	A-3
Flow (L/s)	24L/s	
Pipe Size & Class	375mm	
Grade (%)	1.40%	
Datum El. 40		
	65.963	63.767
	64.828	64.567
	63.804	63.558
	0	17.31

	A02-1	A-4
Flow (L/s)	25L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
Datum El. 40		
	62.303	62.102
	63.294	63.033641
	62.180	62.007
	0	17.42

	A03-1	A-4
Flow (L/s)	148L/s	
Pipe Size & Class	450mm	
Grade (%)	1.00%	
Datum El. 40		
	61.518	61.486
	64.7	63.033641
	61.200	61.055
	0	14.47

LINE A
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A01
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A02
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A03
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS
SHEET 1 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C260
Revision: 05

File Path: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C260_C270.DWG JOHN DA_C260(1) DATE PRINTED: 16/04/2026 1:14:48 PM

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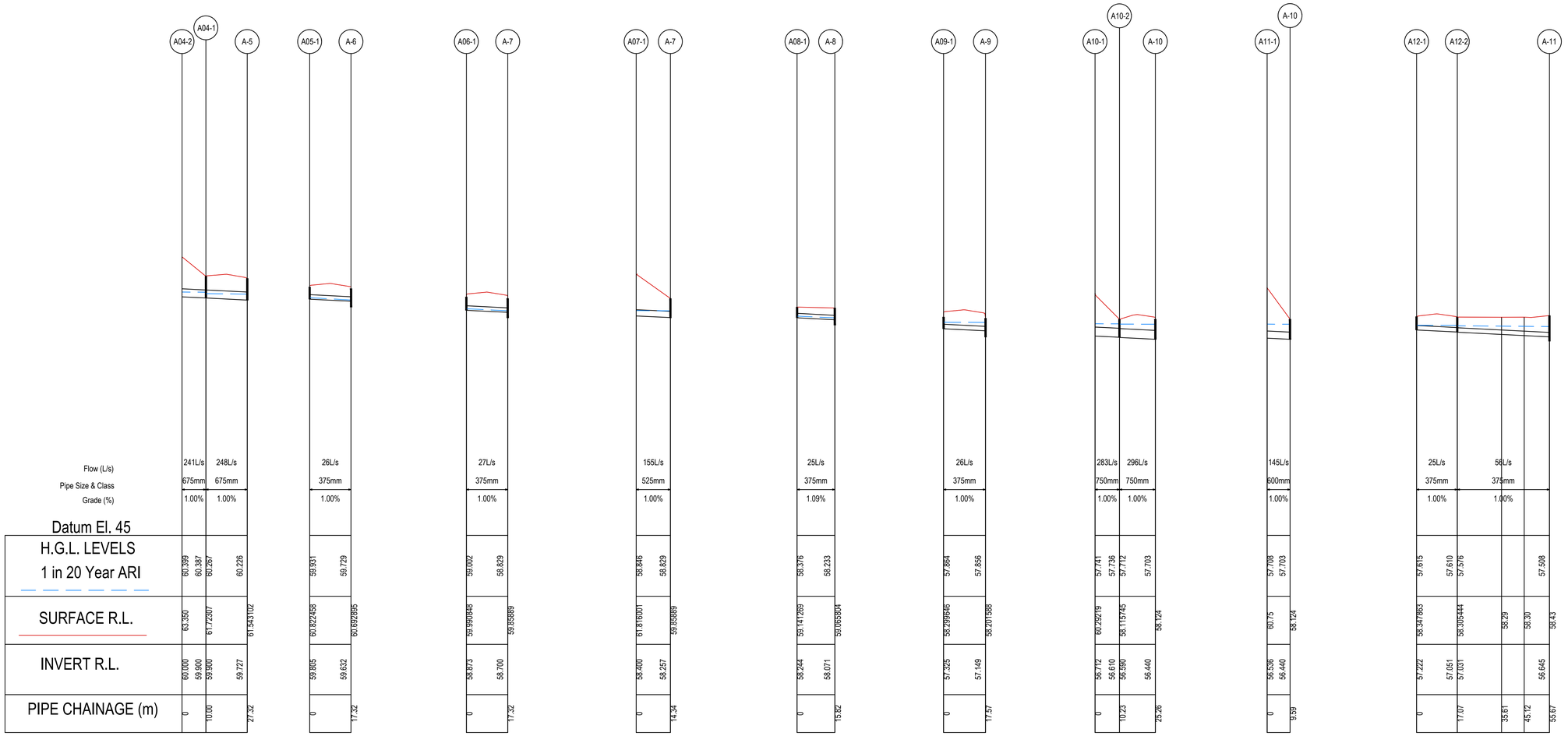

LINE A04
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A05
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A06
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A07
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A08
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A09
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A10
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A11
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE A12
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 2 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C261
Revision: 05

Plot Date: 16/04/2026 9:49:00 AM | PLOTTED BY: CHRISTOPHER | FILE NAME: N:\JOBS\2024\240518\CAD\DA\240518_DA_C261.DWG | JOB518_DA_C261.DWG | DATE PRINTED: 16/04/2026 1:41:01 PM

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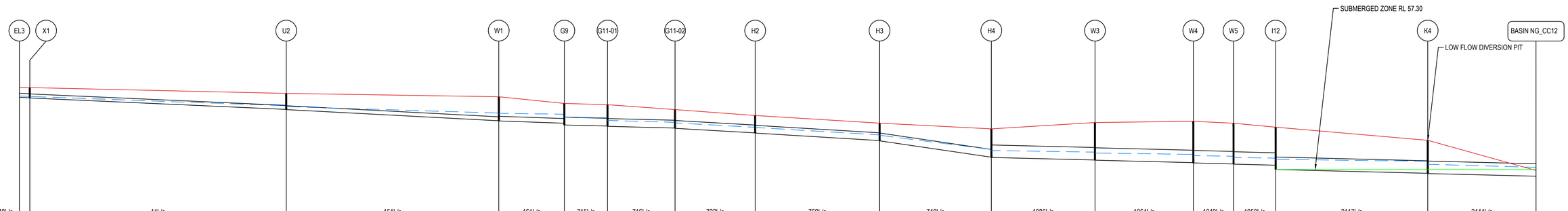

48L/s	44L/s	151L/s	161L/s	715L/s	716L/s	722L/s	769L/s	740L/s	1086L/s	1064L/s	1049L/s	1050L/s	2117L/s	2444L/s			
375mm	375mm	375mm	450mm	750mm	750mm	750mm	750mm	750mm	1200mm	1200mm	1200mm	1200mm	1200mm	1200mm			
1.00%	0.89%	1.04%	0.70%	0.50%	0.50%	1.14%	1.20%	2.93%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%			
Datum RL 45.00																	
H.G.L. LEVELS 4EY Year	64.125	64.167	64.125	63.229	63.145	62.530	62.507	62.415	62.148	62.063	61.817	61.638	61.583	61.152	61.140	60.425	60.389	59.027	58.924	58.771	58.681	58.552	58.432	58.375	58.264	58.189	58.074	57.891	57.599	57.305
SURFACE R.L.	65	64.98		64.423		64.10		63.458		63.333		62.861		62.295		61.56		61.005		61.62		61.74		61.55		61.17		59.91		57.00
INVERT R.L.	64.000	64.050	63.980	62.880	62.860	61.790	61.770	61.550	61.380	61.276	61.250	61.087	61.060	60.620	60.600	59.880	59.860	58.280	58.260	58.010	57.990	57.753	57.730	57.633	57.610	57.508	57.100	56.733	56.710	56.449
PIPE CHAINAGE (m)	0	5.00		128.65		231.16		262.77		283.60		316.14		354.79		414.79		468.69		518.66		566.07		585.47		605.78		679.12		731.36

LINE TREATED AB

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

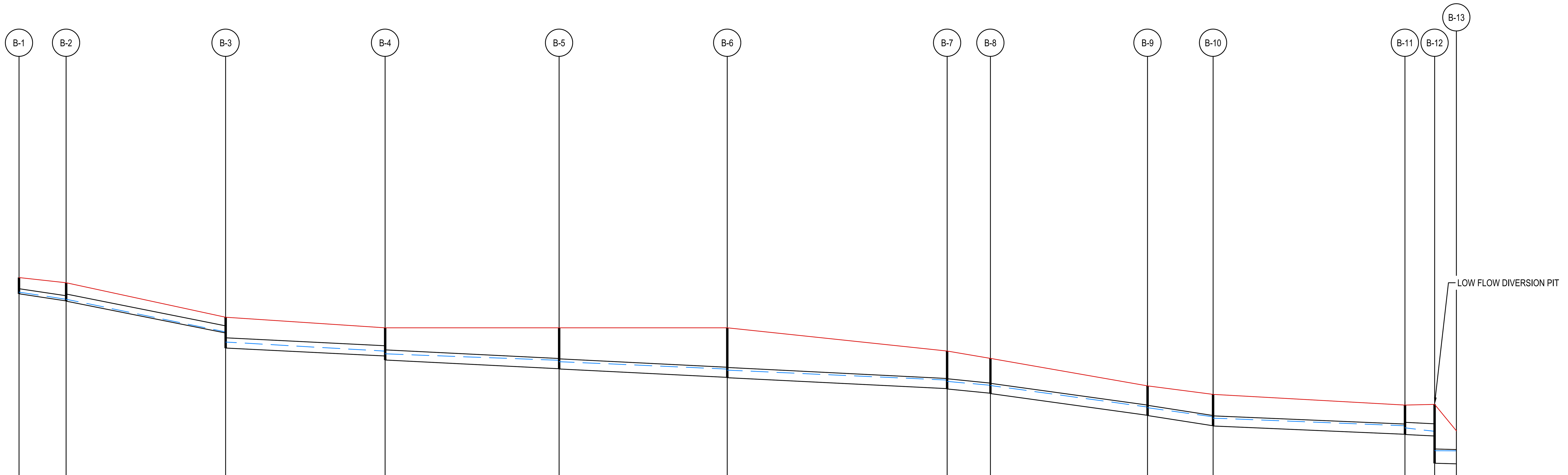
Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Title: STORMWATER LONGITUDINAL SECTIONS SHEET 3 OF 14
Drawing number: 240518_DA_C262
Revision: 05

File Path: R:\2024\240518\ACAD\240518_DA_C262.DWG, DATE PRINTED: 16/04/2026 11:45:07 PM

A1



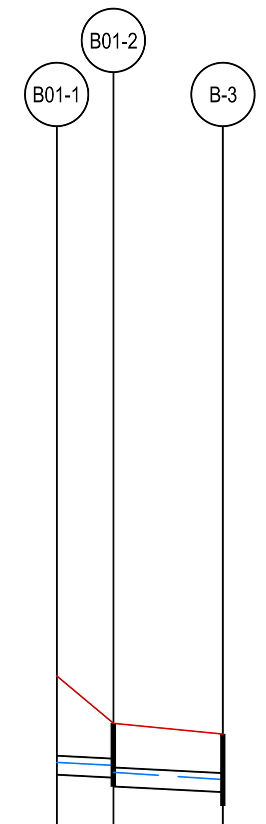
Pipe (Line B)	Flow (L/s)	Pipe Size & Class	Grade (%)
B-1 to B-2	27L/s	375mm	3.00%
B-2 to B-3	48L/s	525mm	4.00%
B-3 to B-4	515L/s	750mm	1.00%
B-4 to B-5	555L/s	750mm	1.00%
B-5 to B-6	767L/s	750mm	1.00%
B-6 to B-7	813L/s	750mm	1.00%
B-7 to B-8	814L/s	750mm	2.00%
B-8 to B-9	921L/s	750mm	2.77%
B-9 to B-10	871L/s	750mm	3.13%
B-10 to B-11	891L/s	750mm	0.86%
B-11 to B-12	1620L/s	1.5 x 0.9m	0.99%
B-12 to B-13	1580L/s	1.5 x 0.9m	0.50%

Datum El. 42

Pit	H.G.L. LEVELS 1 in 20 Year ARI	SURFACE R.L.	INVERT R.L.	PIPE CHAINAGE (m)
B-1	65.026	66.10	64.906	0
B-2	64.505 / 64.505	65.72	64.386 / 64.366	17.32
B-3	62.096 / 61.354	63.40 / 63.18	62.019 / 60.914	69.97 / 76.00
B-4	60.685 / 60.485	62.42 / 62.40	60.327 / 60.028	126.57 / 134.68
B-5	60.011 / 59.908	62.40	59.388 / 59.368	198.67
B-6	59.366 / 59.285	62.42 / 62.400523	58.749 / 58.729	251.58 / 260.52
B-7	58.554 / 58.456	61.05 / 60.689167	57.920 / 57.900	336.80 / 341.40
B-8	58.170 / 58.154	60.151768	57.582 / 57.562	357.33
B-9	56.568 / 56.518	58.76 / 58.127974	55.963 / 55.943	408.53 / 415.12
B-10	55.849 / 55.751	57.91 / 57.500913	55.189 / 55.169	435.93 / 439.22
B-11	55.186 / 55.036	56.714	54.564 / 54.544	509.82
B-12	54.778 / 53.348 / 53.344	56.767	54.436 / 52.429 / 52.389	520.71
B-13		54.816		528.74

LINE B

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Pipe (Line B01)	Flow (L/s)	Pipe Size & Class	Grade (%)
B01-1 to B01-2	464L/s	600mm	1.00%
B01-2 to B-3	470L/s	600mm	1.00%

Datum El. 42

Pit	H.G.L. LEVELS 1 in 20 Year ARI	SURFACE R.L.	INVERT R.L.	PIPE CHAINAGE (m)
B01-1	62.28	65.01	61.89	0
B01-2	62.19 / 61.97	63.52	61.80 / 61.52	8.98
B-3	61.74	63.18	61.35	26.31

LINE B01

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS
SHEET 4 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C263
Revision: 05

File Path:: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C260-C273.DWG - 240518_DA_C263[05] - DATE PRINTED: 16/04/2026 1:14:51 PM

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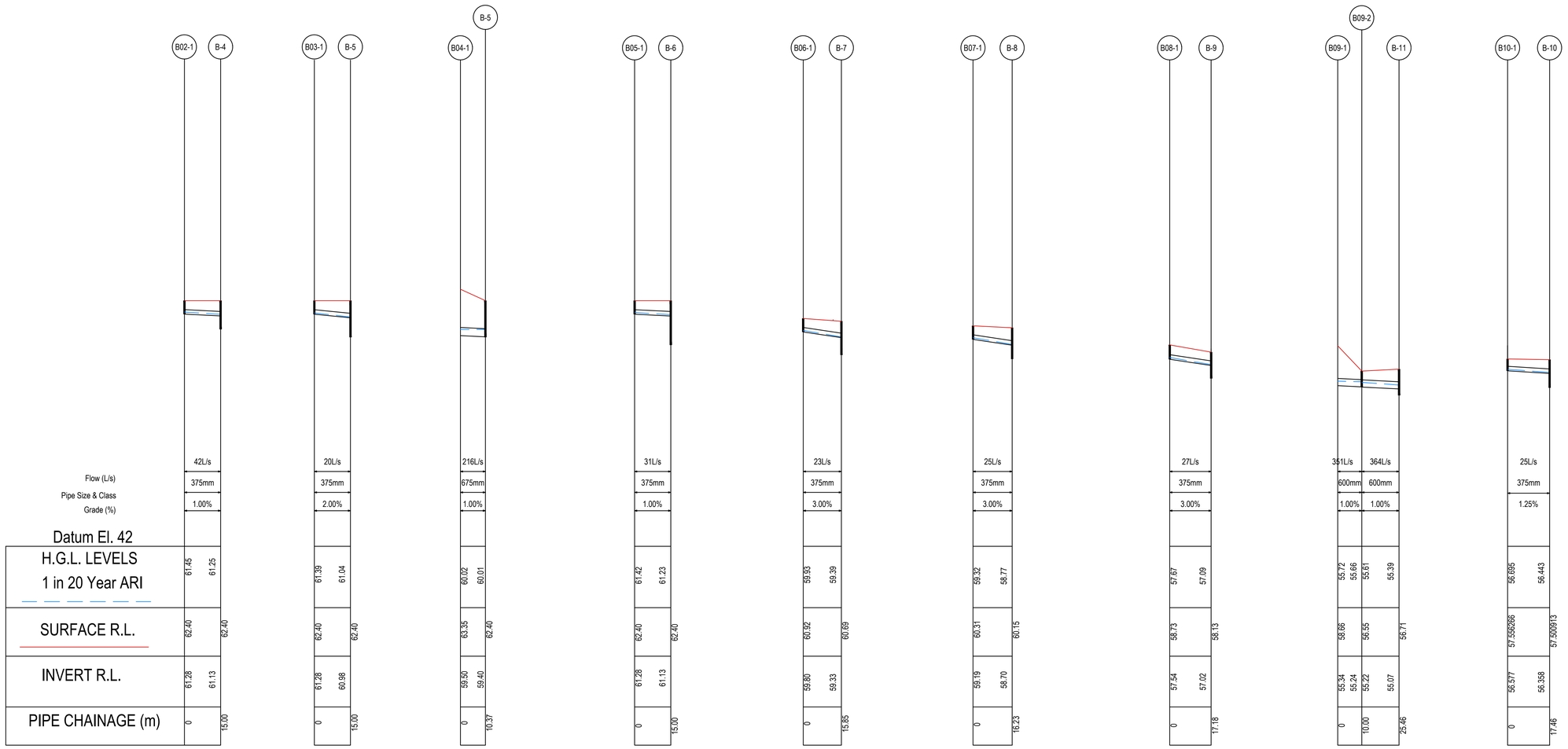

LINE B02
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B03
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B04
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B05
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B06
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B07
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B08
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B09
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE B10
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 5 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C264
Revision: 05

File Path: N:\JOBS\2024\240518\CAD\DA\240518_DA_C264[05].DWG, 240518_DA_C264[05], DATE PRINTED: 6/05/2026 1:14:51 PM

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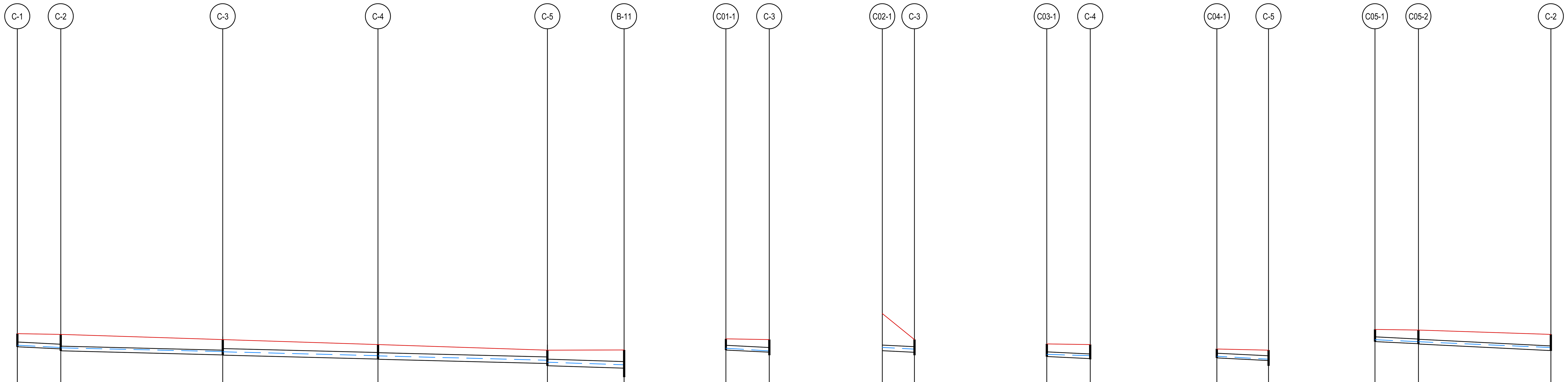

Datum El. 42

H.G.L. LEVELS 1 in 20 Year ARI

SURFACE R.L.

INVERT R.L.

PIPE CHAINAGE (m)

LINE C

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

	C-1 to C-2	C-2 to C-3	C-3 to C-4	C-4 to C-5	C-5 to B-11
Flow (L/s)	25L/s	89L/s	275L/s	305L/s	354L/s
Pipe Size & Class	375mm	375mm	2 x 525 mm	2 x 525 mm	2 x 525 mm
Grade (%)	1.00%	0.50%	0.50%	0.50%	0.62%
H.G.L. LEVELS 1 in 20 Year ARI	57.091 / 56.902	56.876 / 56.582	56.564 / 56.253	56.238 / 55.889	55.729 / 55.525
SURFACE R.L.	58.014331	57.958809 / 57.542142	57.79 / 57.14018	57.48 / 57.30	56.691067 / 56.714
INVERT R.L.	56.966 / 56.793	56.639 / 56.316	56.296 / 55.986	55.966 / 55.628	55.448 / 55.257
PIPE CHAINAGE (m)	0	17.32	81.99	143.96 / 209.04	211.59 / 242.21

LINE C01

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

	C01-1 to C-3
Flow (L/s)	30L/s
Pipe Size & Class	375mm
Grade (%)	1.00%
H.G.L. LEVELS 1 in 20 Year ARI	56.84 / 56.63
SURFACE R.L.	57.59 / 57.54
INVERT R.L.	56.70 / 56.53
PIPE CHAINAGE (m)	0 / 17.32

LINE C02

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

	C02-1 to C-3
Flow (L/s)	178L/s
Pipe Size & Class	450mm
Grade (%)	1.00%
H.G.L. LEVELS 1 in 20 Year ARI	56.91 / 56.78
SURFACE R.L.	59.39 / 57.54
INVERT R.L.	56.65 / 56.52
PIPE CHAINAGE (m)	0 / 12.82

LINE C03

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

	C03-1 to C-4
Flow (L/s)	30L/s
Pipe Size & Class	375mm
Grade (%)	1.00%
H.G.L. LEVELS 1 in 20 Year ARI	56.36 / 56.25
SURFACE R.L.	57.19 / 57.14
INVERT R.L.	56.18 / 56.01
PIPE CHAINAGE (m)	0 / 17.32

LINE C04

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

	C04-1 to C-5
Flow (L/s)	31L/s
Pipe Size & Class	375mm
Grade (%)	1.00%
H.G.L. LEVELS 1 in 20 Year ARI	56.21 / 55.97
SURFACE R.L.	56.78 / 56.69
INVERT R.L.	56.07 / 55.87
PIPE CHAINAGE (m)	0 / 20.63

LINE C05

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

	C05-1 to C05-2	C05-2 to C-2
Flow (L/s)	22L/s	43L/s
Pipe Size & Class	375mm	375mm
Grade (%)	1.00%	1.00%
H.G.L. LEVELS 1 in 20 Year ARI	57.53 / 57.37	57.37 / 56.90
SURFACE R.L.	58.36	58.30 / 57.96
INVERT R.L.	57.38 / 57.21	57.19 / 56.66
PIPE CHAINAGE (m)	0	17.33 / 70.21

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 SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS SHEET 6 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C265 Revision: 05

File Path:: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C260-C273.DWG - 240518_DA_C265[05] - DATE PRINTED: 16/04/2026 1:14:52 PM

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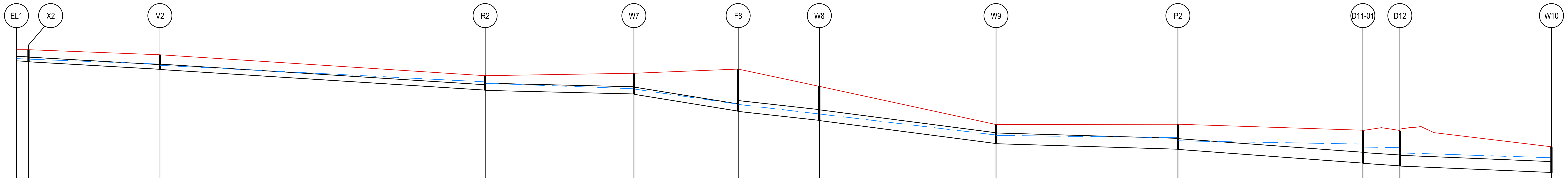


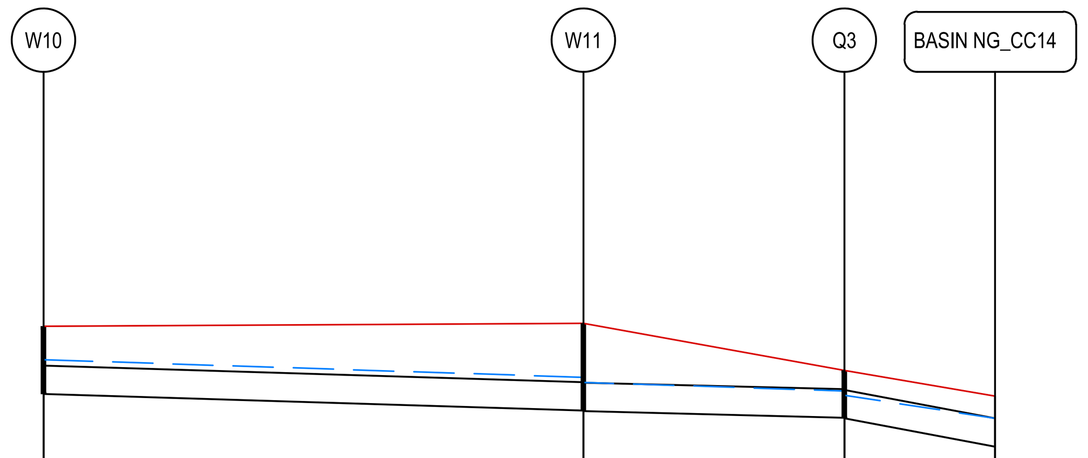
Pipe	Flow	Diameter	Grade
EL1–X2	102L/s	375mm	1.00%
X2–V2	100L/s	375mm	1.15%
V2–R2	251L/s	450mm	1.27%
R2–W7	444L/s	600mm	0.48%
W7–F8	448L/s	600mm	3.25%
F8–W8	980L/s	900mm	2.22%
W8–W9	959L/s	900mm	2.60%
W9–P2	927L/s	900mm	0.59%
P2–D11-01	1197L/s	900mm	1.48%
D11-01–D12	1194L/s	900mm	1.36%
D12–W10	1487L/s	900mm	0.84%

Datum RL 40.00

Pit	H.G.L. LEVELS 4 Year ARI (in)	H.G.L. LEVELS 4 Year ARI (out)	SURFACE R.L.	INVERT R.L. (in)	INVERT R.L. (out)	PIPE CHAINAGE (m)
EL1	64.819	64.855	65.6	64.620	64.670	0
X2		64.819	65.6		64.600	5.00
V2	64.403	64.301	65.181247	63.970	63.950	59.75
R2	62.917	62.810	63.435897	62.230	62.210	195.22
W7	62.347	62.326	63.64	61.910	61.890	257.20
F8	61.061	61.041	63.99	60.480	60.460	300.61
W8	60.242	60.242	62.55	59.710	59.690	334.43
W9	58.490	58.458	59.366	57.780	57.760	408.00
P2	58.272	58.008	59.385	57.310	57.290	483.81
D11-01	57.734	57.486	58.89	56.150	56.130	560.83
D12	57.434	57.003	58.845	55.920	55.900	576.24
W10	56.591	56.456	57.51	55.370	55.370	639.39

LINE TREATED D.1_PART 1

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Pipe	Flow	Diameter	Grade
W10–W11	1464L/s	900mm	0.61%
W11–Q3	1464L/s	900mm	0.50%
Q3–BASIN NG_CC14	1530L/s	900mm	3.78%

Datum RL 40.00

Pit	H.G.L. LEVELS 4 Year ARI (in)	H.G.L. LEVELS 4 Year ARI (out)	SURFACE R.L.	INVERT R.L. (in)	INVERT R.L. (out)	PIPE CHAINAGE (m)
W10	56.591	56.456	57.51	55.370	55.370	639.39
W11	55.898	55.736	57.61	54.846	54.826	724.70
Q3	55.467	55.330	56.12	54.620	54.600	765.93
BASIN NG_CC14	54.600		55.3	53.700		789.72

LINE TREATED D.1_PART 2

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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

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

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS
SHEET 7 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C266
Revision: 05

File Path:: R:\JOBS 2024\240518\ACAD\DA\240518_DA_C260-C273.DWG - 240518_DA_C266[05] - DATE PRINTED: 16/04/2026 1:14:53 PM

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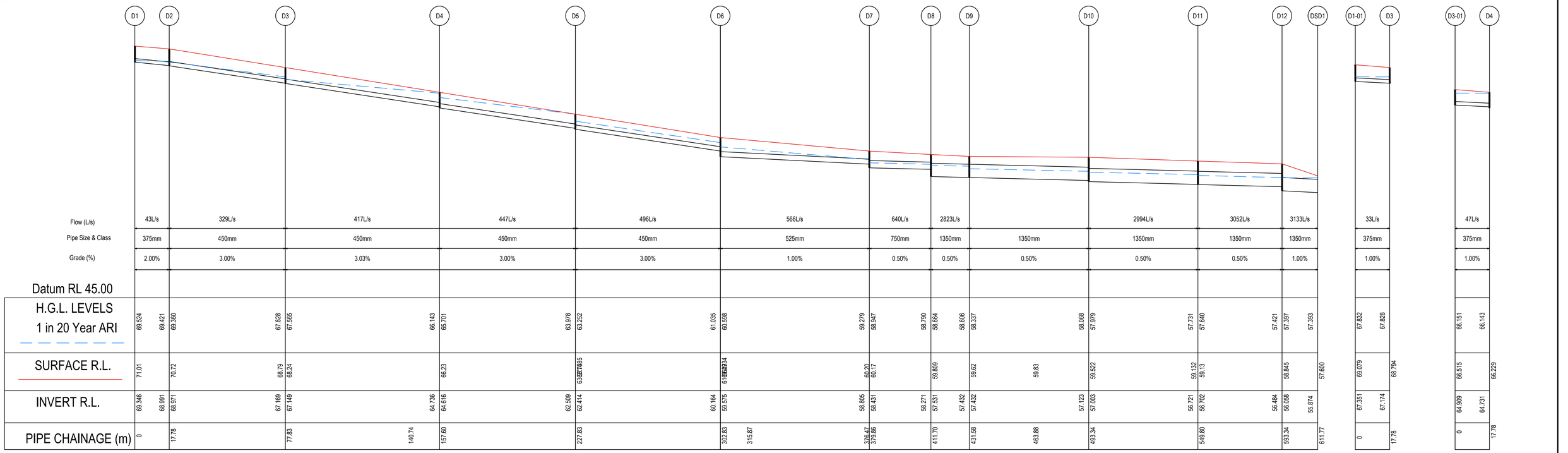


LINE D

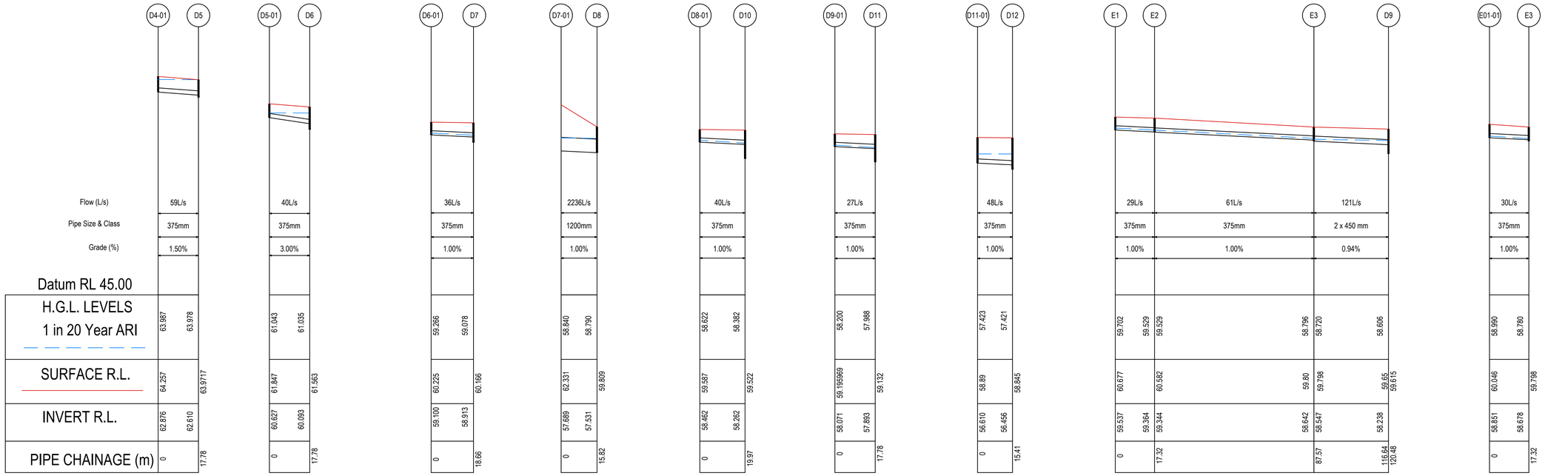
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D1

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D3

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE D4

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D5

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D6

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D7

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D8

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D9

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE D11

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE E

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE E1

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS SHEET 8 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C267
Revision: 05

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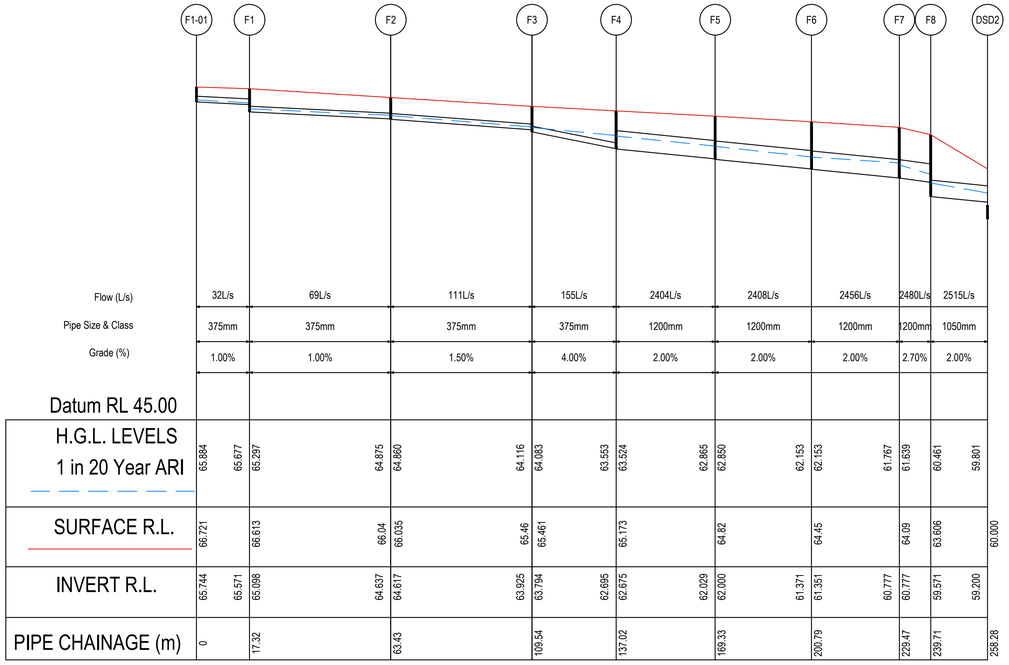
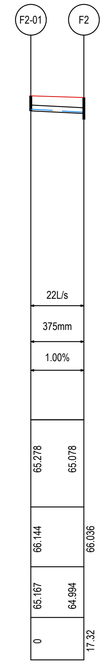
A1



Flow (L/s)	32L/s	69L/s	111L/s	155L/s	2404L/s	2408L/s	2456L/s	2480L/s	2515L/s
Pipe Size & Class	375mm	375mm	375mm	375mm	1200mm	1200mm	1200mm	1200mm	1050mm
Grade (%)	1.00%	1.00%	1.50%	4.00%	2.00%	2.00%	2.00%	2.70%	2.00%
Datum RL 45.00									
H.G.L. LEVELS 1 in 20 Year ARI	65.884	65.677	65.297	64.875	64.860	64.116	64.083	63.553	63.524	62.865	62.850	62.153	62.153	61.767	61.639	60.461	59.801	
SURFACE R.L.	66.721		66.613	66.04	66.035	65.46	65.461	65.173	64.82	64.45	64.09	63.606	60.000	
INVERT R.L.	65.744	65.571	65.098	64.637	64.617	63.925	63.794	62.695	62.675	62.029	62.000	61.371	61.351	60.777	60.777	59.571	59.200	
PIPE CHAINAGE (m)	0	17.32	63.43	109.54	137.02	169.33	200.79	229.47	239.71	258.28								

LINE F

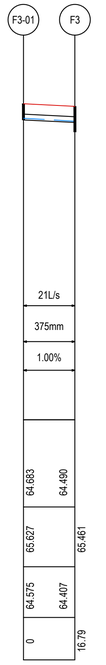
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	22L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
H.G.L. LEVELS 1 in 20 Year ARI	65.278	65.078
SURFACE R.L.	66.144	66.036
INVERT R.L.	65.167	64.994
PIPE CHAINAGE (m)	0	17.32

LINE F2

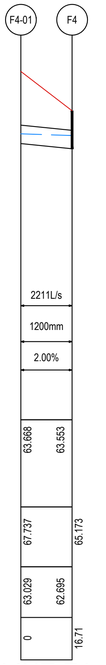
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	21L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
H.G.L. LEVELS 1 in 20 Year ARI	64.683	64.490
SURFACE R.L.	65.627	65.461
INVERT R.L.	64.575	64.407
PIPE CHAINAGE (m)	0	16.79

LINE F3

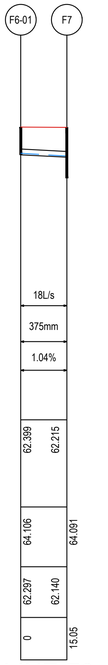
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	2211L/s	
Pipe Size & Class	1200mm	
Grade (%)	2.00%	
H.G.L. LEVELS 1 in 20 Year ARI	63.668	63.553
SURFACE R.L.	67.737	65.173
INVERT R.L.	63.029	62.695
PIPE CHAINAGE (m)	0	16.71

LINE F4

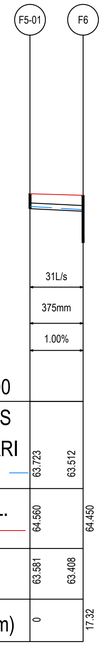
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	18L/s	
Pipe Size & Class	375mm	
Grade (%)	1.04%	
H.G.L. LEVELS 1 in 20 Year ARI	62.399	62.215
SURFACE R.L.	64.106	64.091
INVERT R.L.	62.297	62.140
PIPE CHAINAGE (m)	0	15.05

LINE F6

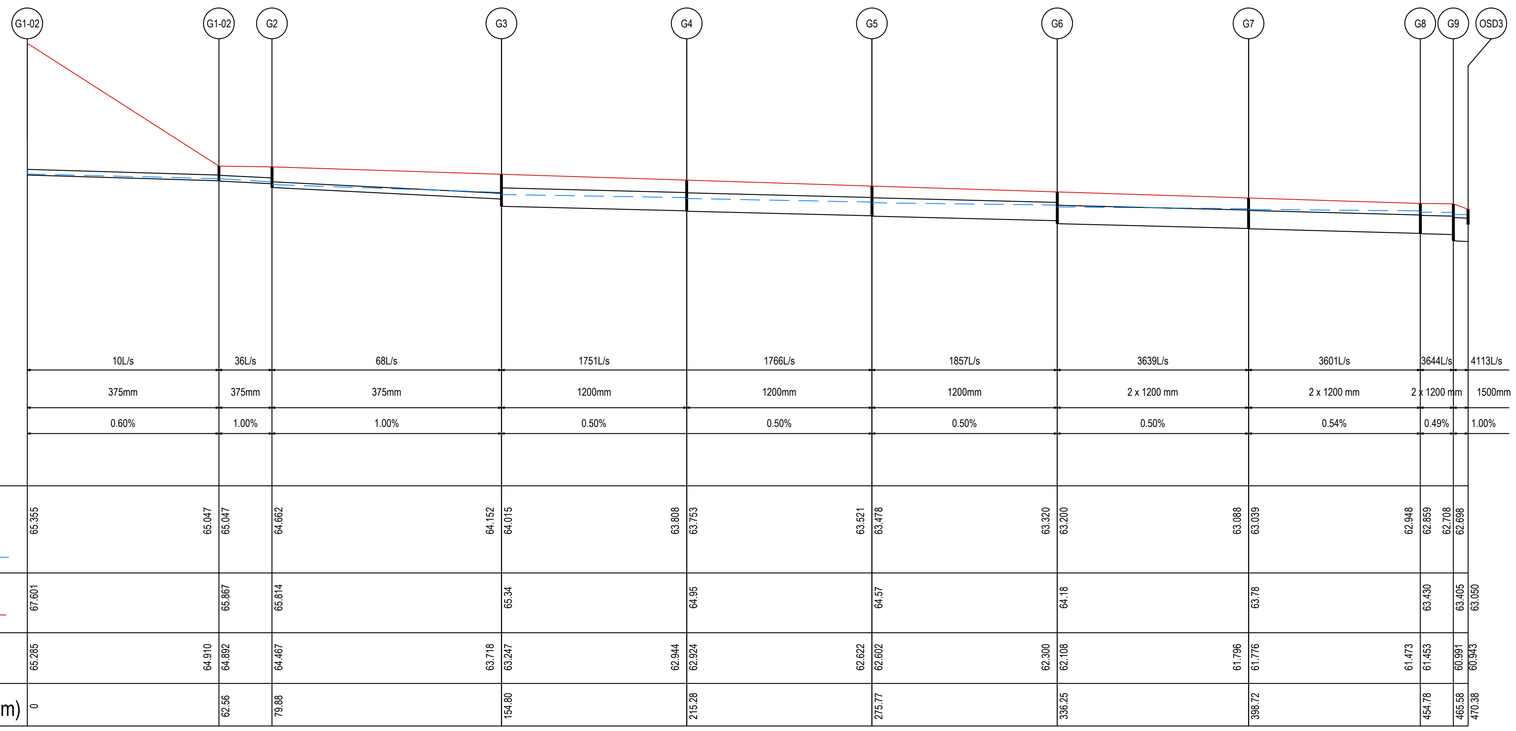
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	31L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
H.G.L. LEVELS 1 in 20 Year ARI	63.723	63.512
SURFACE R.L.	64.560	64.450
INVERT R.L.	63.581	63.408
PIPE CHAINAGE (m)	0	17.32

LINE F5

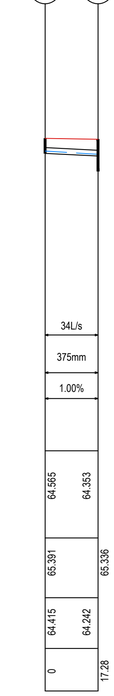
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	10L/s	36L/s	68L/s	1751L/s	1766L/s	1857L/s	3639L/s	3601L/s	3644L/s	4113L/s
Pipe Size & Class	375mm	375mm	375mm	1200mm	1200mm	1200mm	2 x 1200 mm	2 x 1200 mm	2 x 1200 mm	1500mm
Grade (%)	0.60%	1.00%	1.00%	0.50%	0.50%	0.50%	0.50%	0.54%	0.49%	1.00%
Datum RL 45.00										
H.G.L. LEVELS 1 in 20 Year ARI	65.355	65.047	65.047	64.662	64.152	64.015	63.808	63.753	63.521	63.478	63.320	63.200	63.088	63.039	62.948	62.859	62.708	62.698	
SURFACE R.L.	67.601	65.867	65.614	65.34	64.95	64.57	64.18	63.78	63.430	63.405	63.050	
INVERT R.L.	65.285	64.910	64.882	64.467	63.718	63.247	62.944	62.924	62.622	62.602	62.300	62.108	61.796	61.776	61.473	61.453	60.991	60.943	
PIPE CHAINAGE (m)	0	62.56	79.88	154.80	215.28	275.77	336.25	398.72	454.78	465.58	470.38	

LINE G

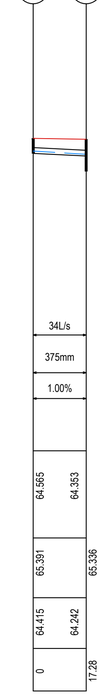
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	34L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
H.G.L. LEVELS 1 in 20 Year ARI	64.565	64.353
SURFACE R.L.	65.391	65.336
INVERT R.L.	64.415	64.242
PIPE CHAINAGE (m)	0	17.28

LINE G2

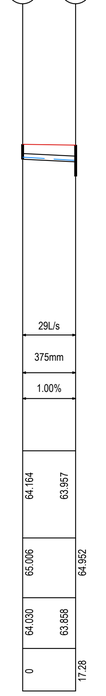
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	34L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
H.G.L. LEVELS 1 in 20 Year ARI	64.565	64.353
SURFACE R.L.	65.391	65.336
INVERT R.L.	64.415	64.242
PIPE CHAINAGE (m)	0	17.28

LINE G3

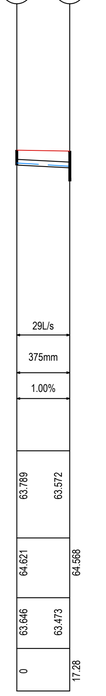
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



Flow (L/s)	29L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
H.G.L. LEVELS 1 in 20 Year ARI	64.164	63.957
SURFACE R.L.	65.006	64.952
INVERT R.L.	64.030	63.858
PIPE CHAINAGE (m)	0	17.28

LINE G4

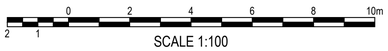
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



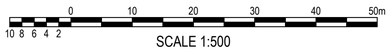
Flow (L/s)	29L/s	
Pipe Size & Class	375mm	
Grade (%)	1.00%	
H.G.L. LEVELS 1 in 20 Year ARI	63.789	63.572
SURFACE R.L.	64.621	64.568
INVERT R.L.	63.646	63.473
PIPE CHAINAGE (m)	0	17.28

LINE G5

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



SCALE 1:100



SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 9 OF 14

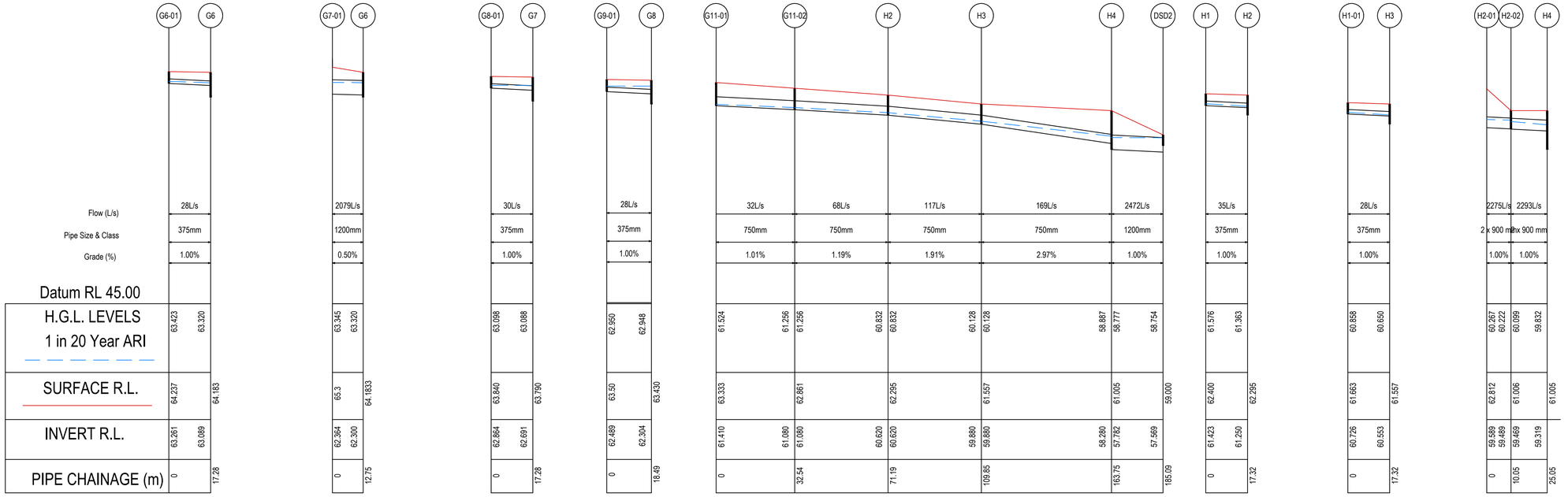
Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number
240518_DA_C268

Revision
05

PlotTime: 8/1/2026 2:57:24 PM | PLOTTED BY: RACHEL CHANDRA | PLOT SCALE: 1.000 | PLOT DRIVER: DWG To PDF.pc3 | PAPER SIZE: A1 | DRAWING: C:\Users\RACHEL.CHANDRA\Henry & Hymas\BURRAH PARK - Documents\Working\240518_DA_C268.dwg | DATE PRINTED: 8/01/2026 2:57:19 PM

A1



LINE G6
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE G7
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE G8
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

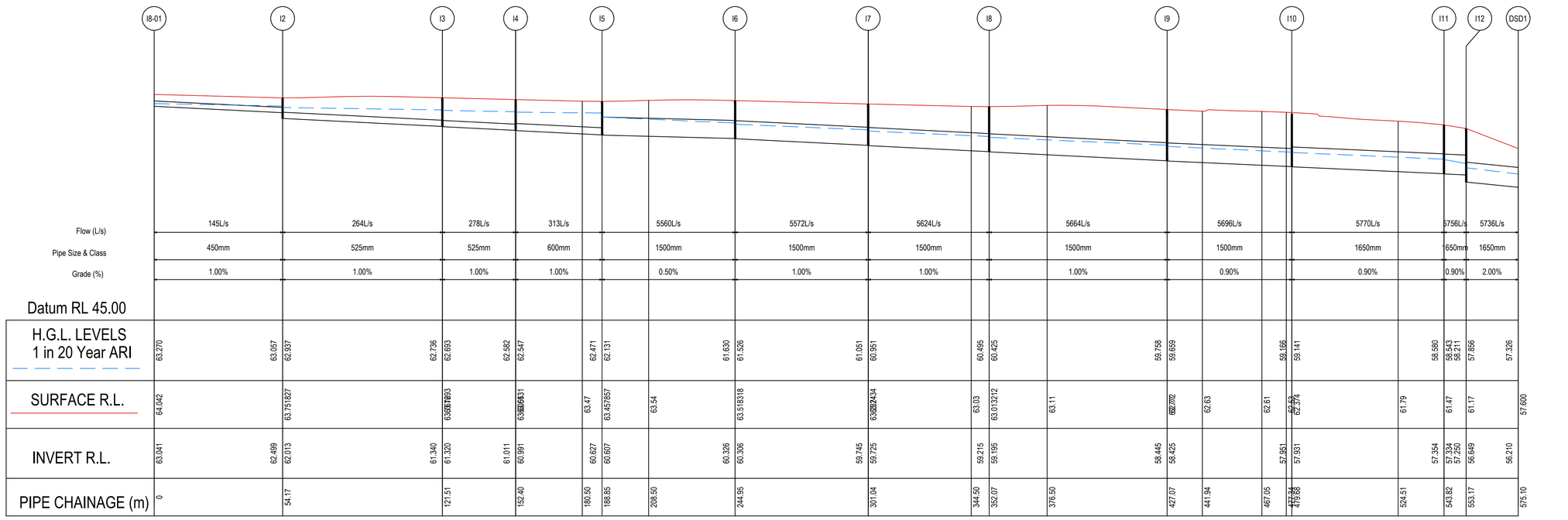
LINE G9
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE H
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE H1
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE H1-01
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE H2
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE I
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE I1
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE I1-01
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Suite 2.01
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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
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

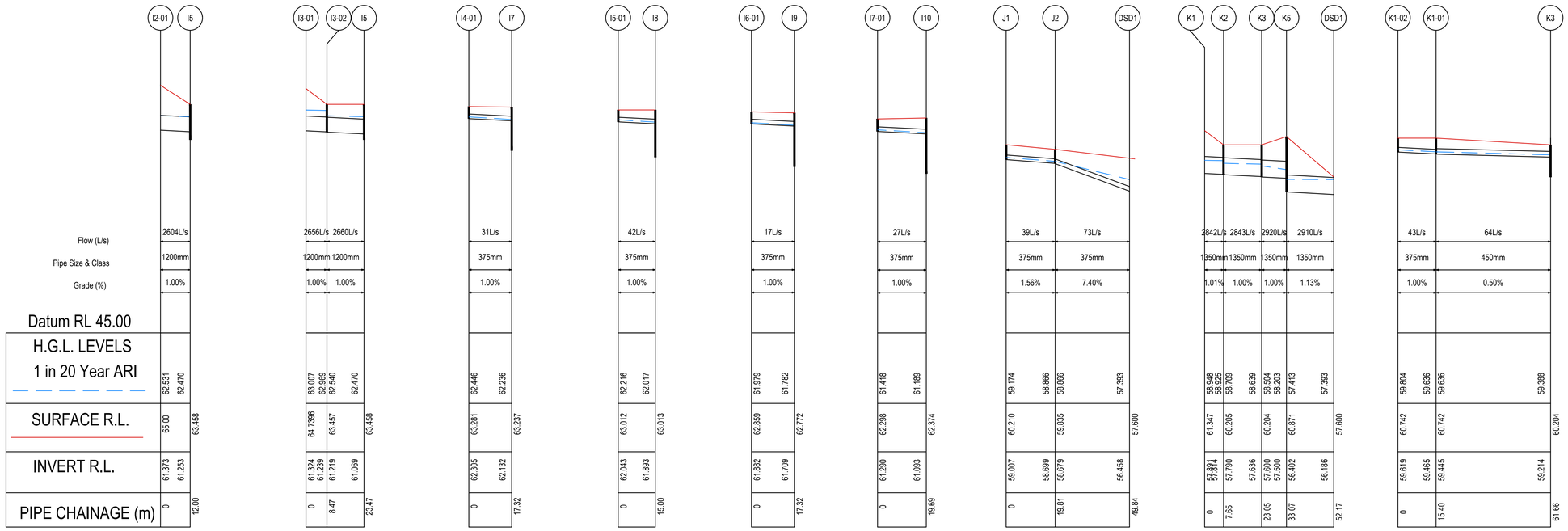
Drawn: L.Caha | Designed: N.Wetzlar | Original issue date: 45413
Checked: N.Wetzlar | Approved: A.Francis | Scale @A1: AS NOTED

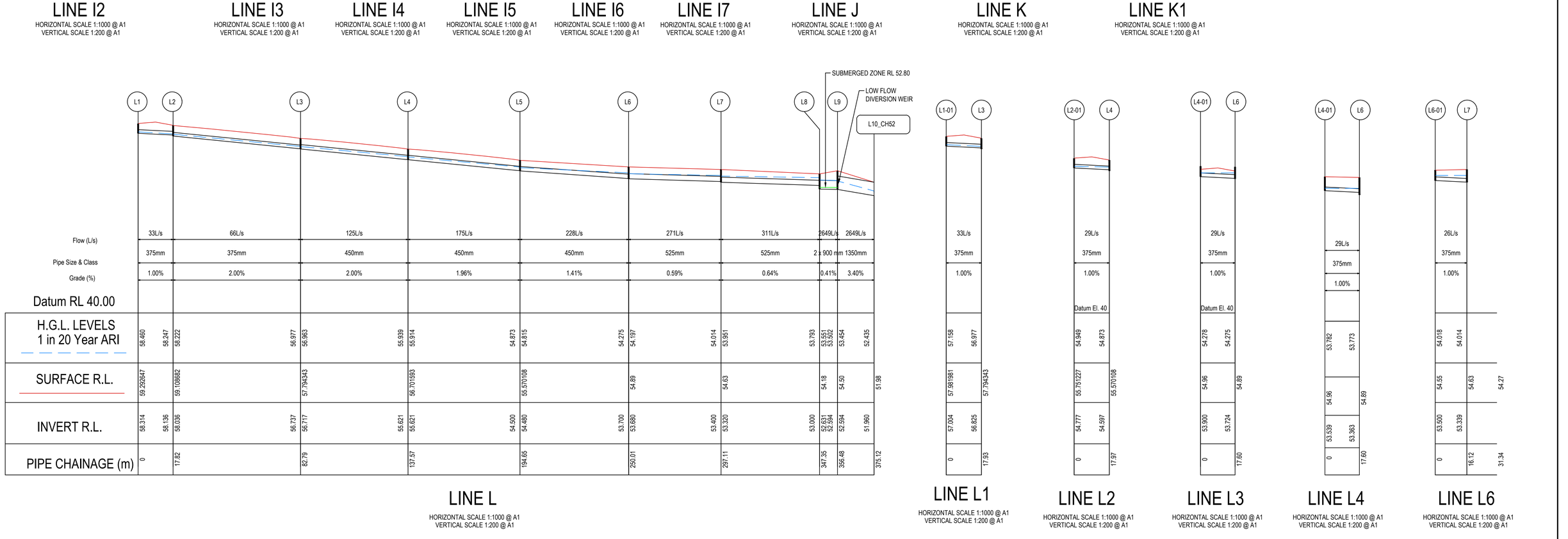
Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 10 OF 14

Drawing number: 240518_DA_C269 | Revision: 05

PlotDate: Fri,2026\04\17\Fri,17 Apr 2026 08:58:58 AM, C:\MSC\STORM_SW\18_DA_C269.DWG, DATE PRINTED: 16/04/2026 11:48 PM

A1





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 SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

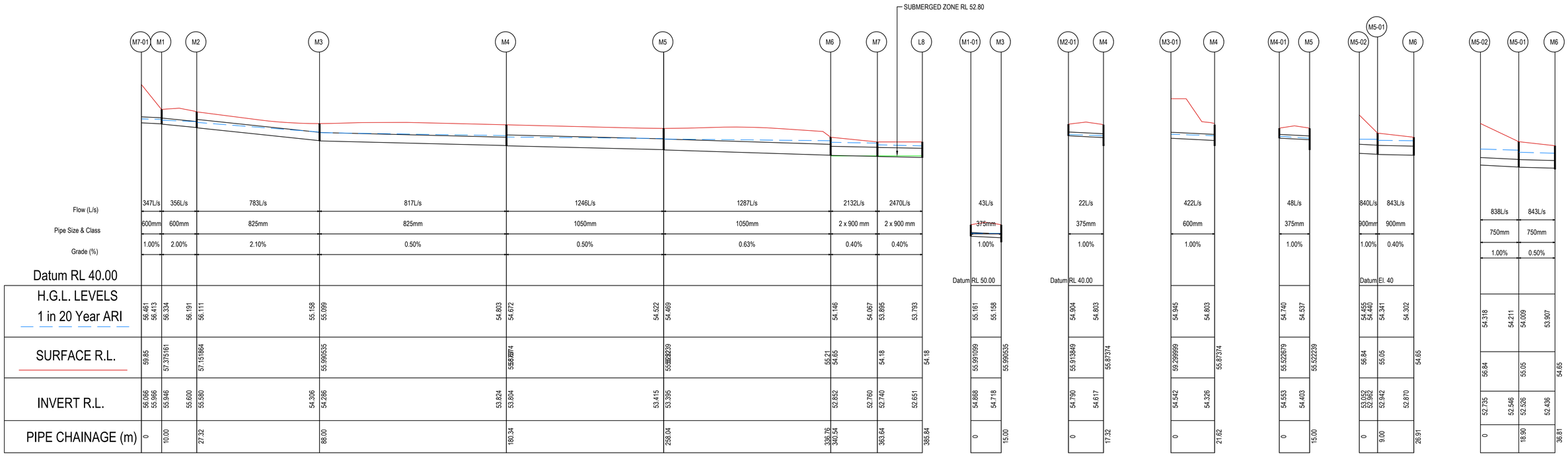
Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 11 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C270
Revision: 05

File Path: R:\240518\Drawings\DA\240518_DA_C270.dwg, 28/01/26, DATE PRINTED: 16/04/2026 11:47:54

A1



LINE M

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE M1

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE M2

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE M3

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE M4

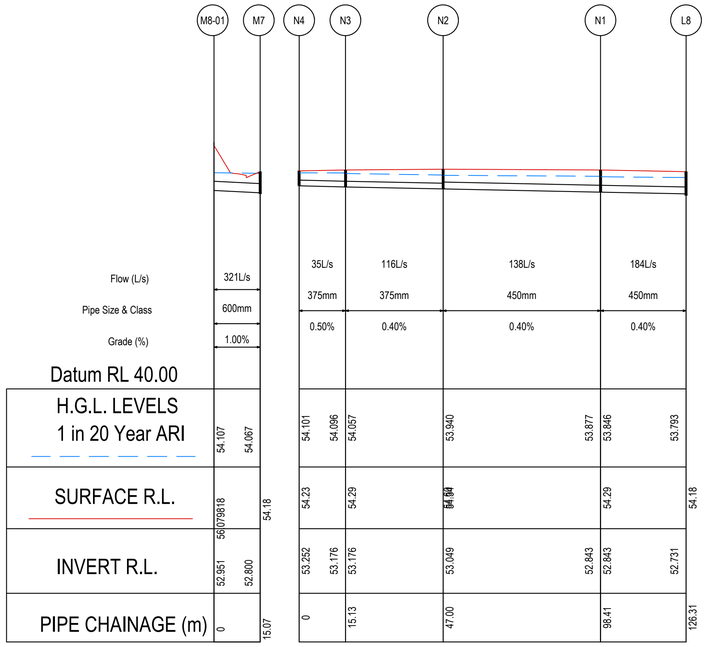
HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE M5

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE M6

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

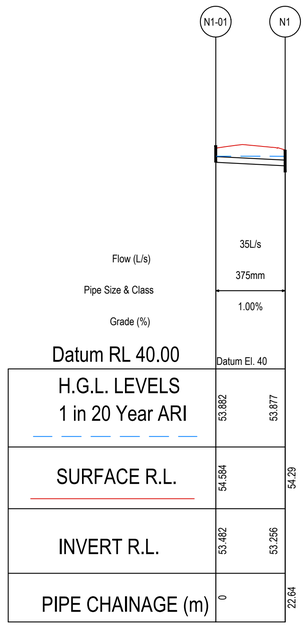


LINE M8

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

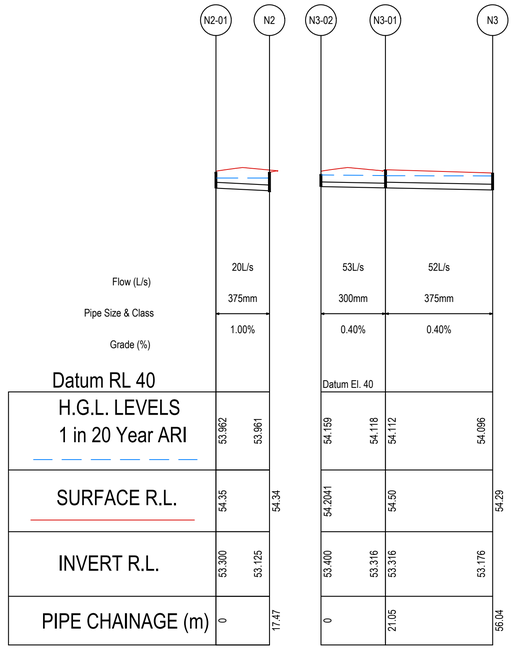
LINE N

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE N1

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE N2

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

LINE N3

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 12 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C271
Revision: 05

File Path: R:\2024\240518\ACAD\240518_DA_C000-C272.DWG, 240518_DA_C271[05], DATE PRINTED: 16/04/2026 11:45:08 PM

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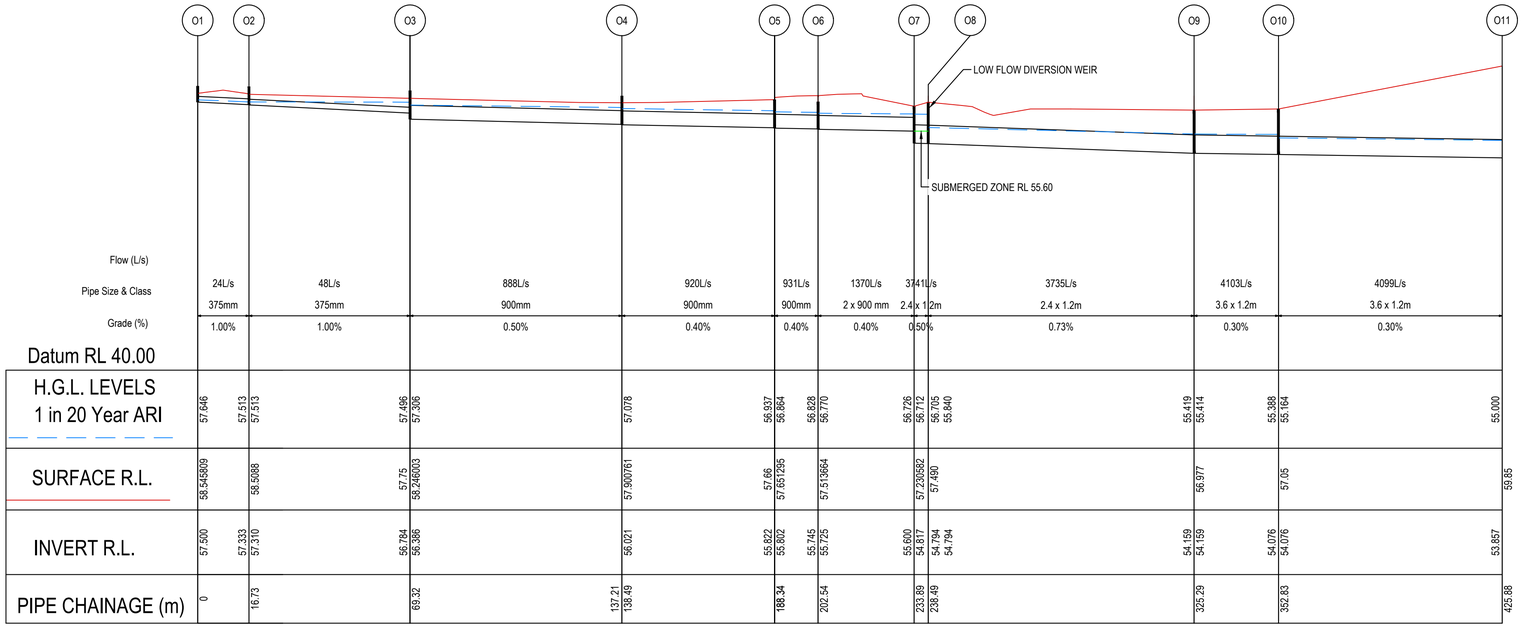

LINE O

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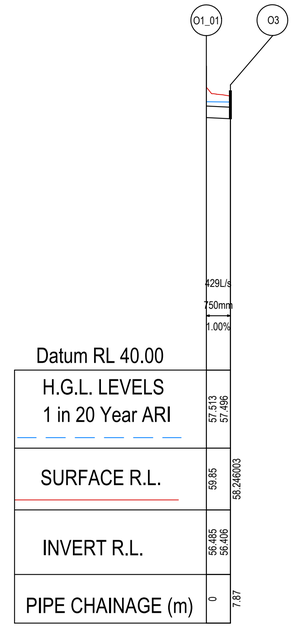
VERTICAL SCALE 1:200 @ A1



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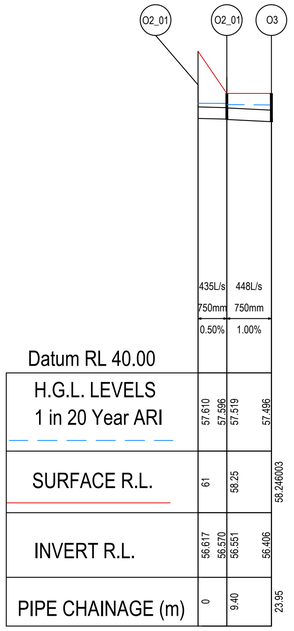

LINE O2

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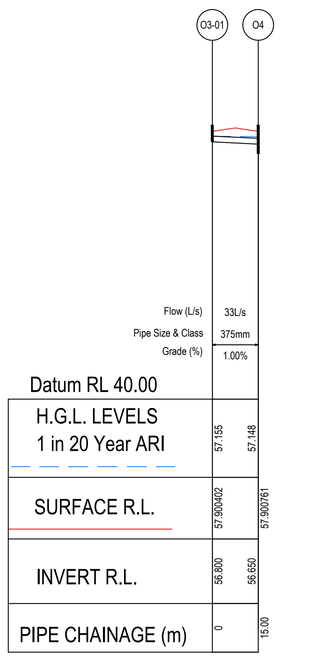

LINE O3

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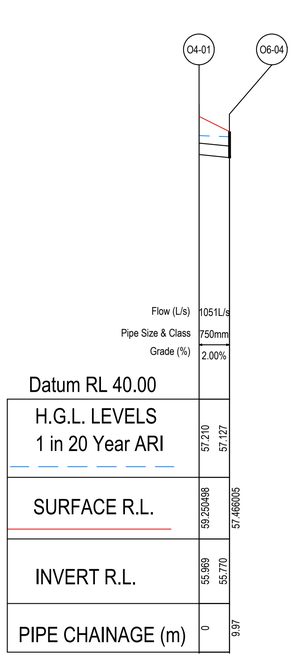
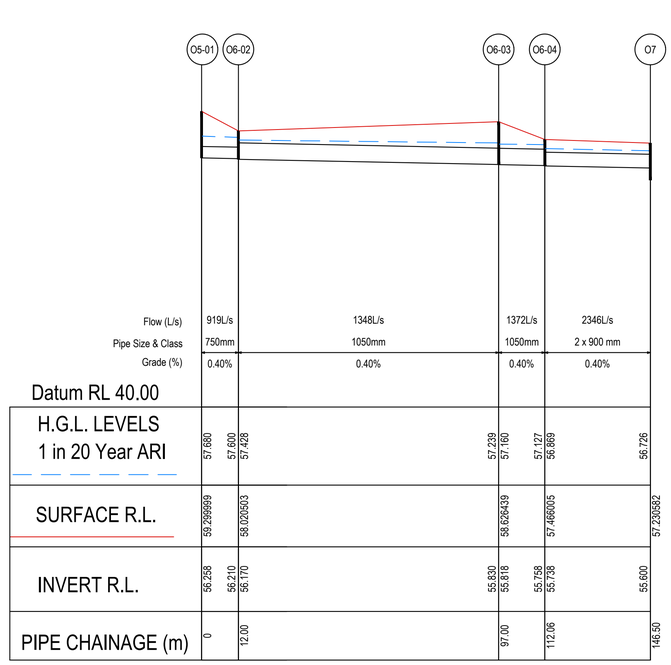
VERTICAL SCALE 1:200 @ A1



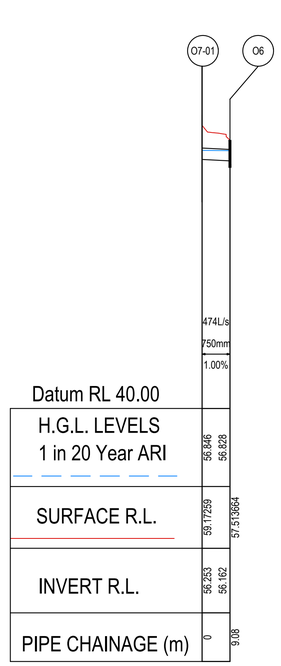
LINE O4

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



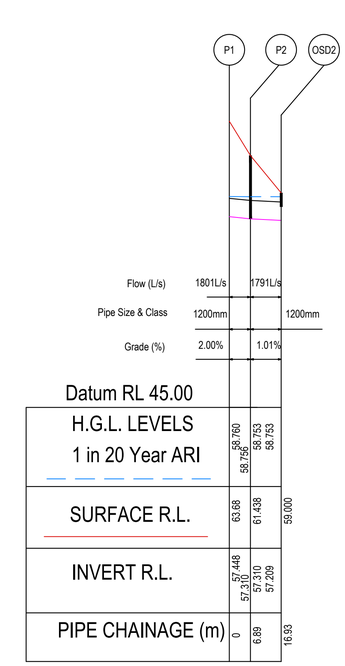
LINE O5

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE O7

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE P

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Gordon NSW 2072
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Email email@hhconsult.com.au
Web www.henryandhymas.com.au

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henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 13 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C272
Revision: 05

File Path: N:\JOBS\2024\240518\CAD\DA\240518_DA_C272[13].DWG, 16/04/26 DA, C272[13], DATE PRINTED: 16/04/2026 1:14:09 PM

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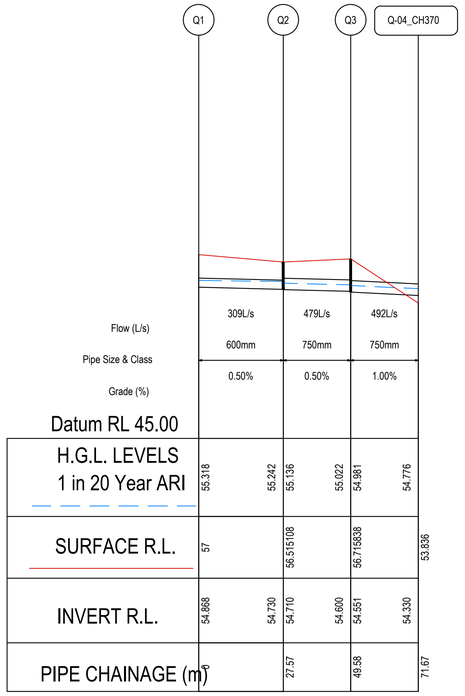

LINE Q

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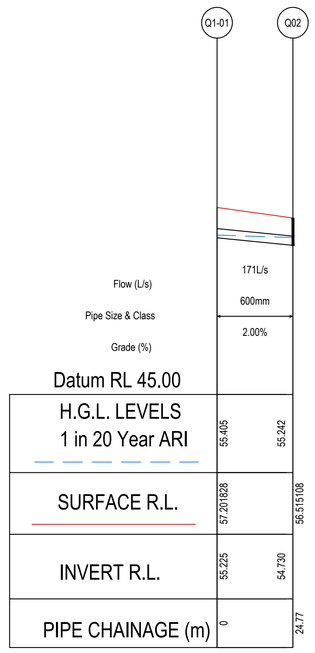
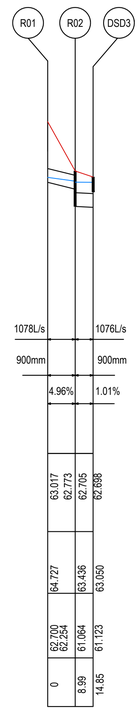


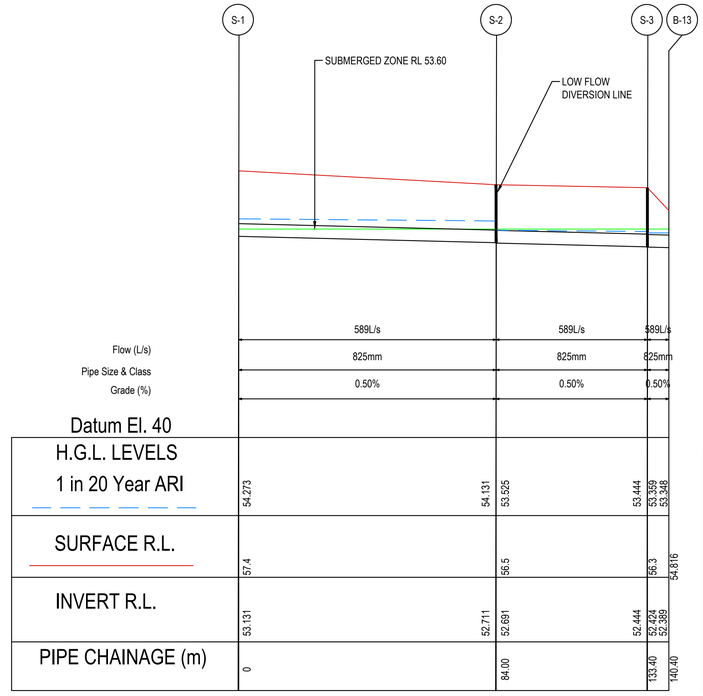
LINE Q1

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



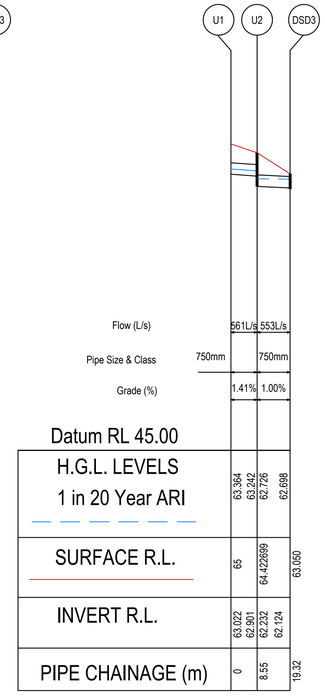
LINE R1

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



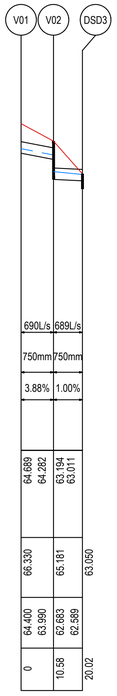
LINE S

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE U

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1



LINE V

HORIZONTAL SCALE 1:1000 @ A1
VERTICAL SCALE 1:200 @ A1

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 SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	DC	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SY	SY	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
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Gordon NSW 2072

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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

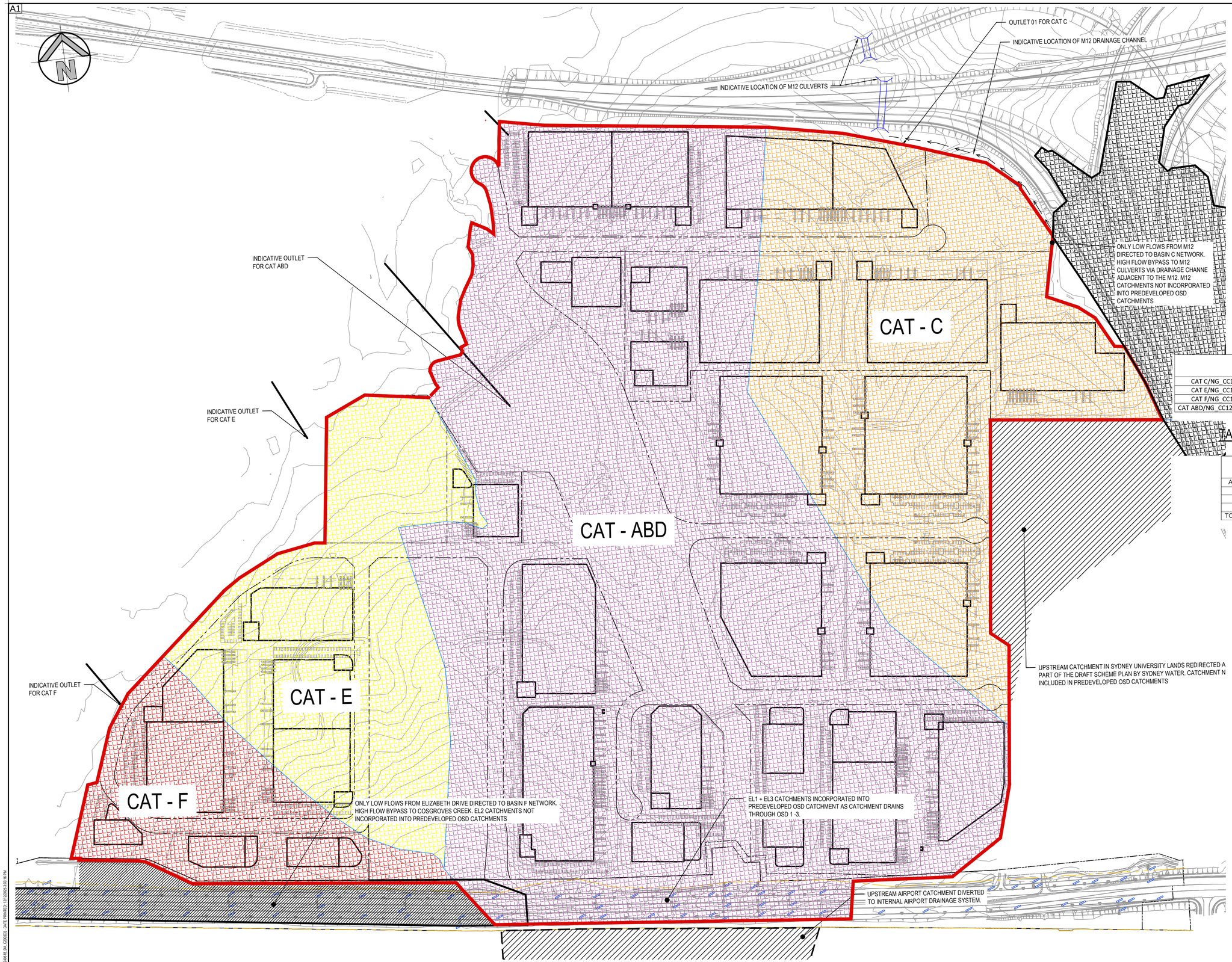
Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 14 OF 14

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_C273
Revision: 05

File Path: R:\JOBS\2024\240518\ACAD\SASSA DA_C00\C273.DWG JOB:518_DA_C273[05] DATE:PRINTED: 16/04/2026 11:55:00 PM

A1



LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- FLOOD EXTENT 1% AEP
- COSGROVES CREEK

IMPORTANT NOTE: REFER C252 FOR CATCHMENT BREAKDOWN

CATCHMENTS

- STUDY AREA
- CATCHMENT ABD (893347m^2)
- CATCHMENT C (335370m^2)
- CATCHMENT E 196470m^2)
- CATCHMENT F (73530m^2)

	Predeveloped Flow Rate 20% AEP Storm Event (m^3/s)	Predeveloped Flow Rate 5% AEP Storm Event (m^3/s)	Predeveloped Flow Rate 1% AEP Storm Event (m^3/s)
CAT C/NG_CC15	2.01	4.28	7.04
CAT E/NG_CC11	1.02	2.19	3.81
CAT F/NG_CC10	0.601	1.30	2.15
CAT ABD/NG_CC12,13,14	3.76	8.63	14.6

TABLE: PREDEVELOPMENT FLOW RATES

	Predevelopment Catchment Area (ha) (OSD STUDY)	Post development Catchment Area (ha) (OSD STUDY)	Difference
ABD	83.8	99.14	+18%
C	33.53	16.7	-50%
E	20.28	18.31	-10%
F	10.84	10.79	+0%
TOTAL	148.45	144.94	-0.02%

TABLE: PREDEVELOPMENT VS POSTDEVELOPMENT CATCHMENT AREAS

PRE-DEVELOPMENT CATCHMENT PLAN

SCALE 1:3000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MP	SY	31.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: MASTER PLAN PRE-DEVELOPMENT OSD CATCHMENT PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C290
Revision: 03

File Path: P:\240518\240518-MCA\DRAWING\DA_C290.DWG 28/01/26 DA_C290(01) DATE PRINTED: 12/12/2025 3:03:19 PM

A1

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- FLOOD EXTENT 1% AEP
- COSGROVES CREEK
- SYDNEY WATER REGIONAL COMBINED WSUD WETLANDS AND INDICATIVE DETENTION ZONE ALLOCATION (INITIAL PRECINCTS)
- SYDNEY WATER REGIONAL WSUD WETLAND ALLOCATION. (INITIAL PRECINCTS)
- BASIN ALLOCATIONS UNDER AEROTROPOLIS DRAFT INTEGRATED STORMWATER SCHEMES
- PROPOSED AMENDED BASIN ALLOCATIONS FOLLOWING CONSOLATION DURING EXHIBITION PERIOD

IMPORTANT NOTE: REFER C252 FOR DETAILED CATCHMENT SUMMARY

IRRIGATION TYPES

- (POS) REGIONAL STORMWATER BASINS LANDSCAPING CALCULATED AS BASIN ALLOCATION -(MINUS) SURFACE AREA (POND + BIORETENTION + SEDIMENT BASIN + WETLAND). MULTIPLIED BY 0.90 FOR FOOTPATHS AND MAINTENANCE PATHS.
- ON-LOT PRIVATE LANDSCAPING (15% OF LOT AREA) UNLESS NOTED ON C252
- POS - RESIDUAL OPEN SPACE (INTERNAL)
- NATURLISED TRUNK DRAINAGE CHANNEL
  NOTE: LOW FLOW DIVERSION LINE DIVERTS ALL FLOWS BELOW THE 4EY STORM EVENT HENCE IRRIGATION REQUIRED. COORDINATED WITH CREEK RESTORATION WORKS AND VMP REPORTING REQUIREMENTS. LOW FLOW CHANNEL AREA EXCLUDED FROM CALCUALTION
- (POS) RESIDUAL LAND - PUBLIC OPEN SPACE
  SOME VRZ AREAS INCLUDED AS PER CREEK RESTORATION STRATEGY AS DETAILED IN VMP REPORTING.

NOTES

1. REFER C252 FOR IRRIGATION AREAS, RATES AND % APPLICATION RATES
2. REFER C252 FOR ADDITIONAL NOTATION ON IRRIGATION AREAS.
3. SUBJECT TO PROJECT STAGING, REFER C171-C176

IRRIGATION PLAN

SCALE 1:3000

ISSUED FOR SSDA

File Path: K:\240518\01\Architectural\Drawings\DA_CD\[C295_240518_DA_CD.dwg]|| DATE PRINTED: 16/04/2026 2:42:37 PM

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Gordon NSW 2072

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

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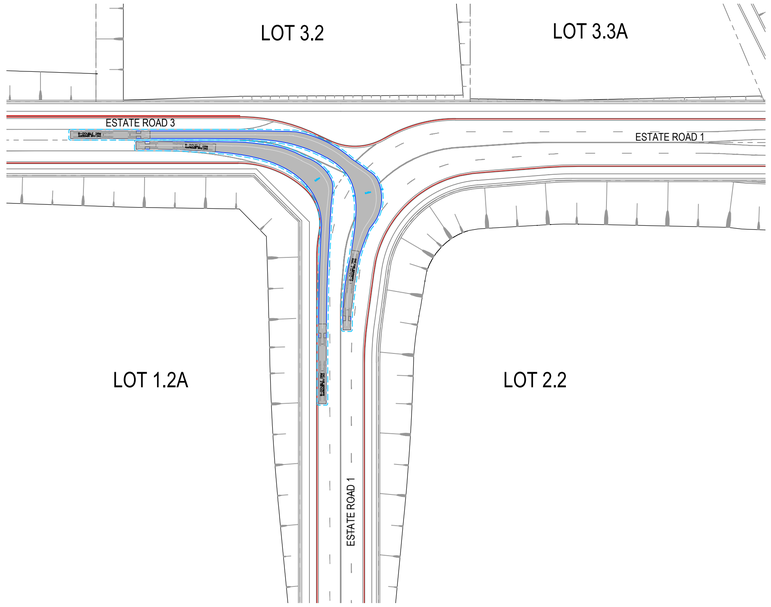
Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
MASTER PLAN IRRIGATION PLAN

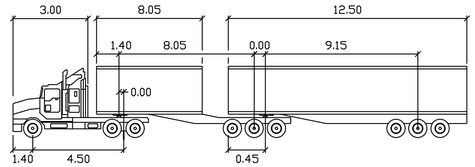
Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_C295
Revision: 03

A1



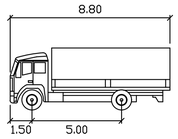
TURNING MOVEMENT No. 01
26m B-DOUBLE
SCALE 1:1000



B-double

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

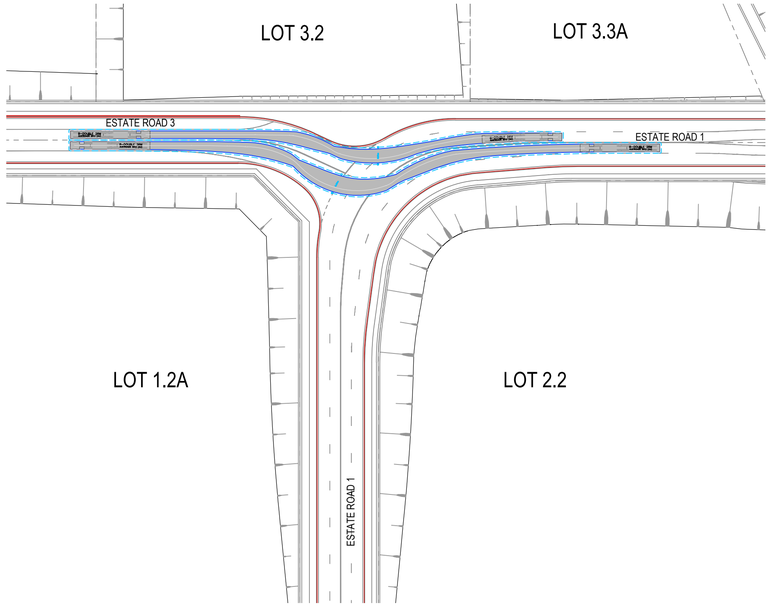
26m B-DOUBLE
N.T.S



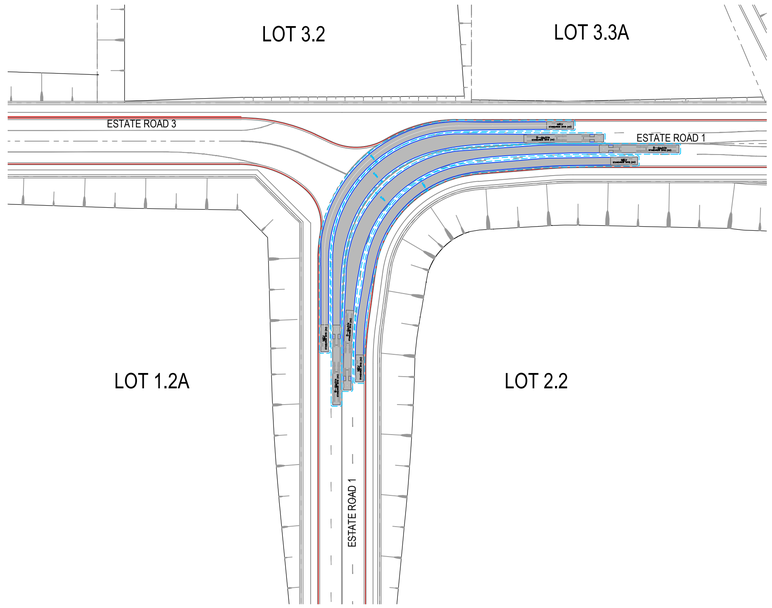
MRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	6.0
Steering Angle	: 34.0

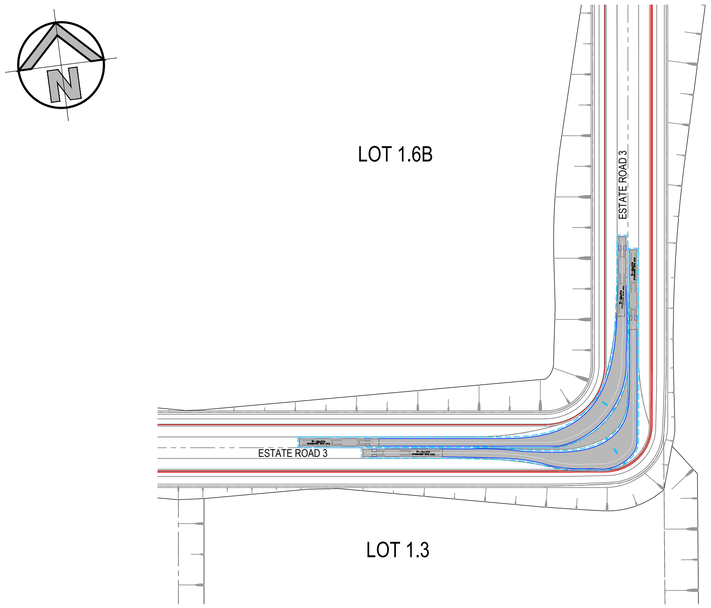
8.8m MRV
N.T.S



TURNING MOVEMENT No. 02
26m B-DOUBLE
SCALE 1:1000



TURNING MOVEMENT No. 03
26m B-DOUBLE & MRV
SCALE 1:1000



TURNING MOVEMENT No. 04
26m B-DOUBLE
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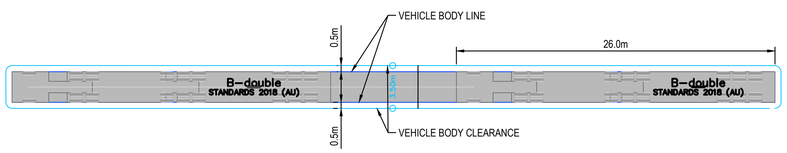

LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 1 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C651
Revision: 04

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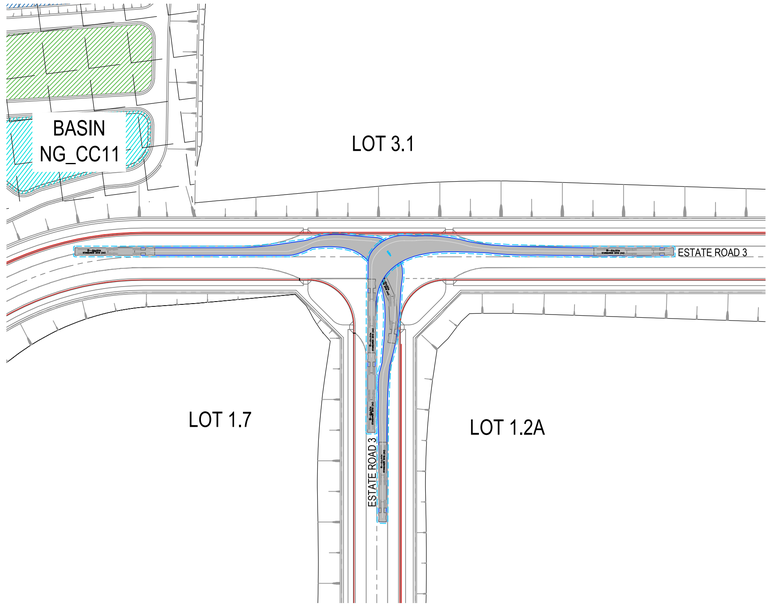
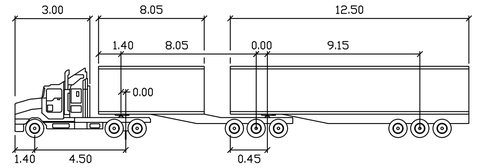


TURNING MOVEMENT No. 05
26m B-DOUBLE
SCALE 1:1000

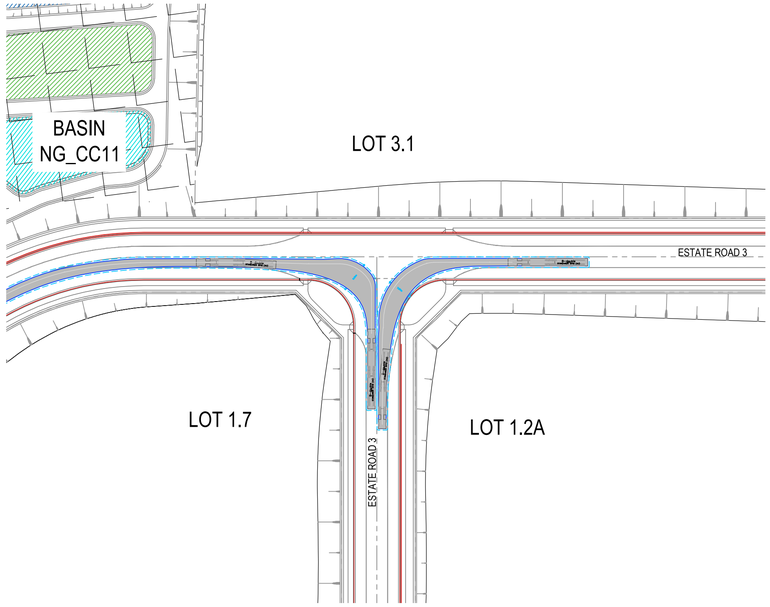


B-double

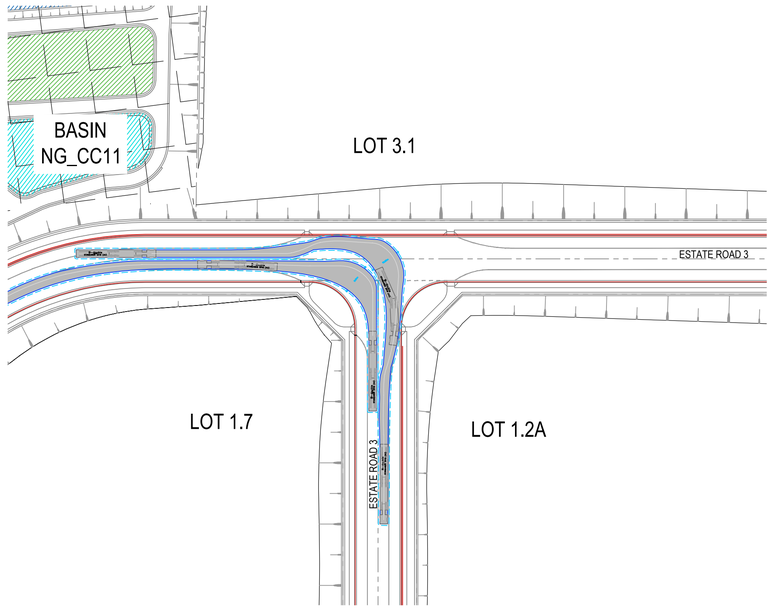
meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

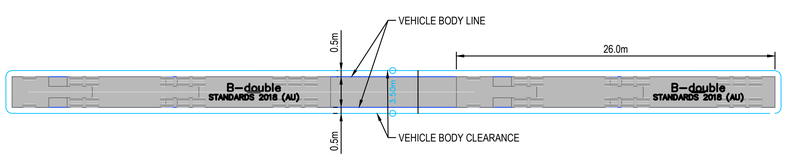
26m B-DOUBLE
N.T.S



TURNING MOVEMENT No. 06
26m B-DOUBLE
SCALE 1:1000



TURNING MOVEMENT No. 07
26m B-DOUBLE
SCALE 1:1000



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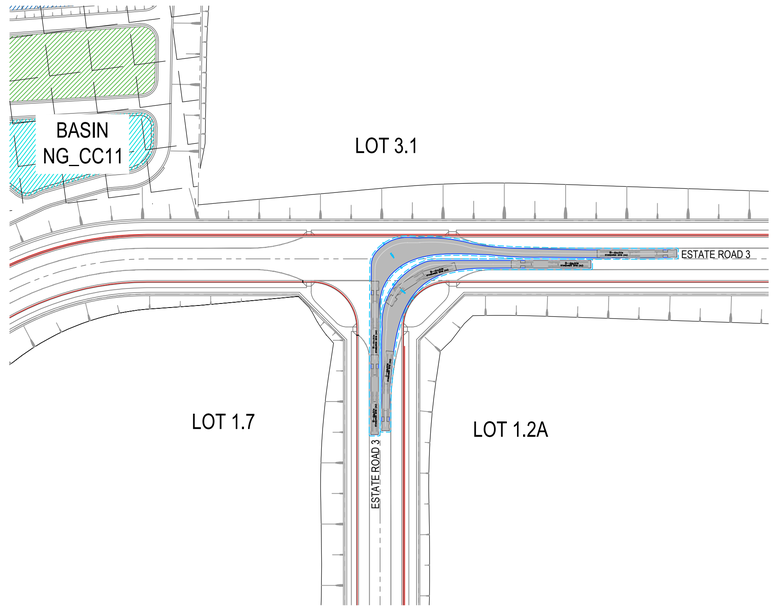

TURNING MOVEMENT No. 08
26m B-DOUBLE
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 2 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number
240518_DA_C652

Revision
04

File Path: R:\2024\240518\240518DA\240518_DA_C652.DWG, 240518_DA_C652(04), DATE PRINTED: 12/12/2025 3:05:38 PM

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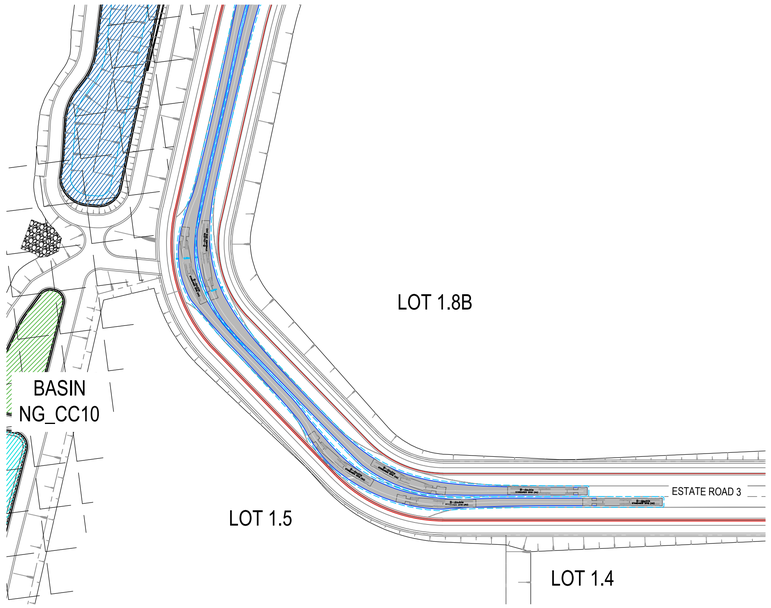
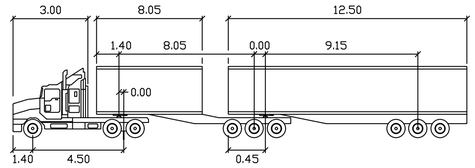




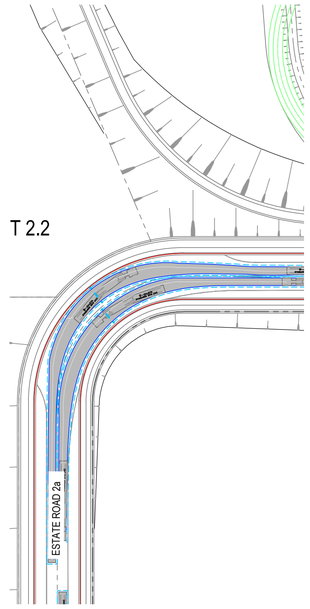
B-double

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

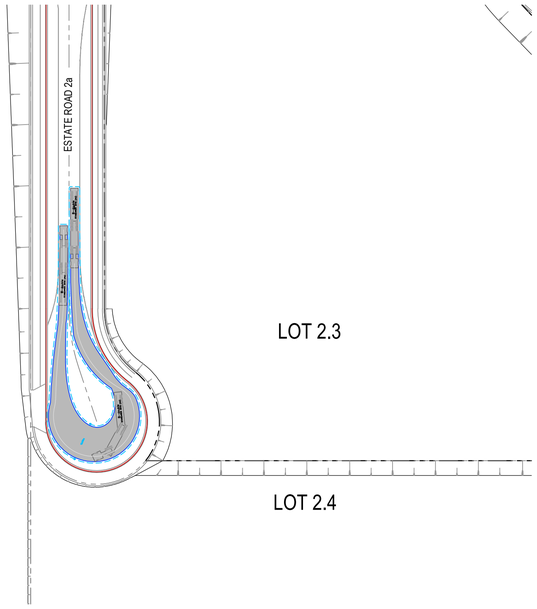
26m B-DOUBLE

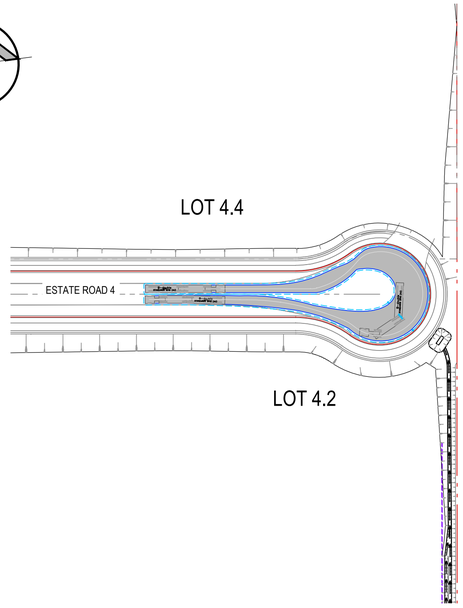
N.T.S

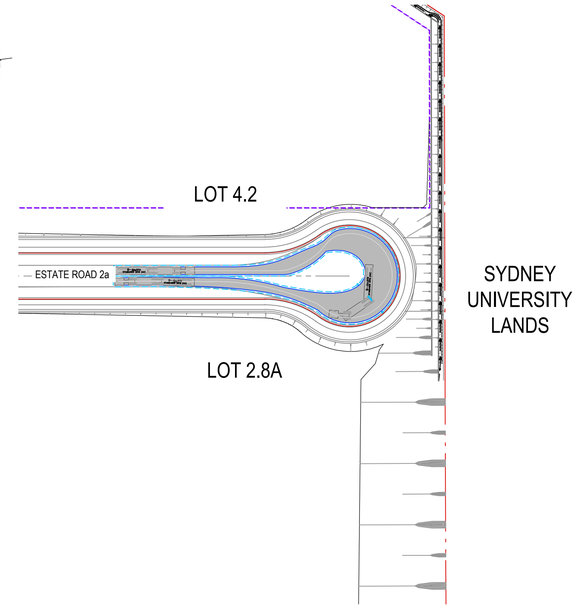


TURNING MOVEMENT No. 09
26m B-DOUBLE
SCALE 1:1000

TURNING MOVEMENT No. 10
26m B-DOUBLE
SCALE 1:1000



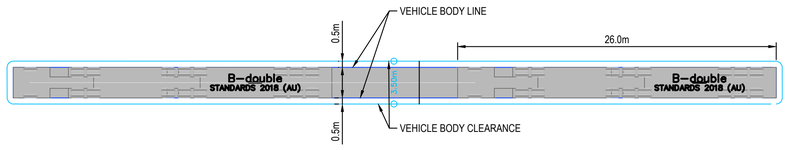




TURNING MOVEMENT No. 11
26m B-DOUBLE
SCALE 1:1000

TURNING MOVEMENT No. 12
26m B-DOUBLE
SCALE 1:1000

TURNING MOVEMENT No. 13
26m B-DOUBLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 3 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C653
Revision: 04

File Path: N:\JOBS\2024\240518\CAD\DA\240518_DA_C651-C658.DWG, 240518_DA_C653(04), DATE PRINTED: 12/12/2025 1:06:46 PM

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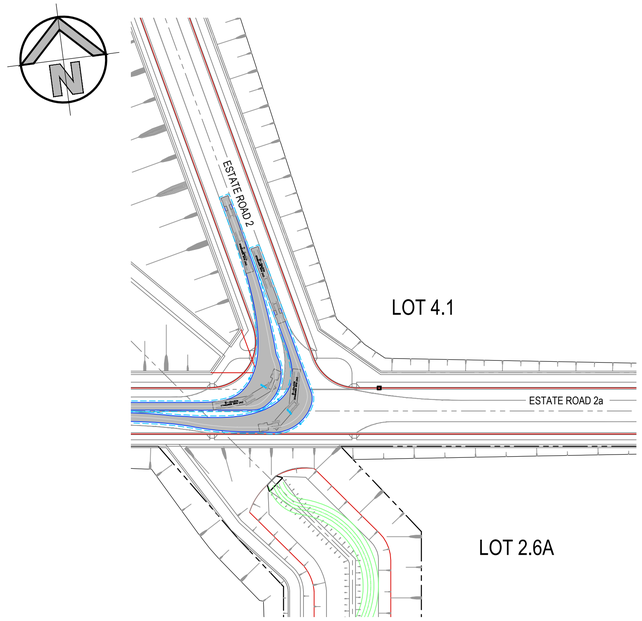
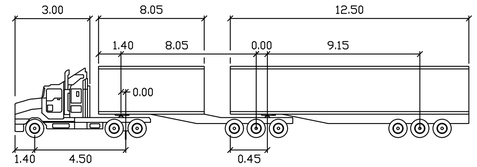


TURNING MOVEMENT No. 14
26m B-DOUBLE
SCALE 1:1000

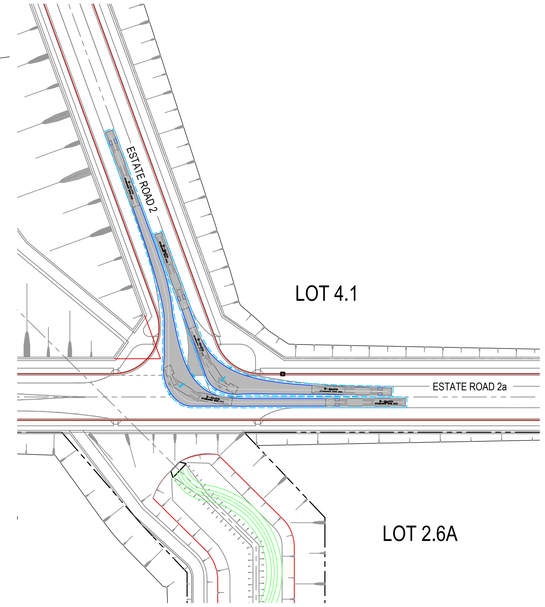


B-double

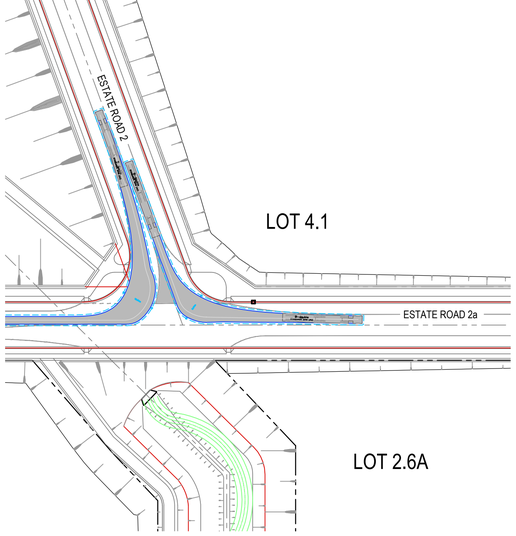
meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

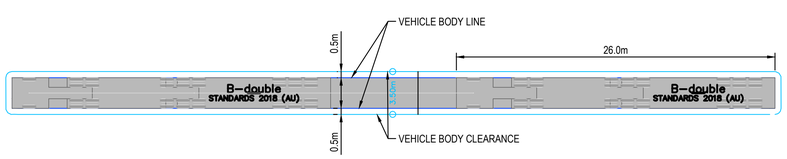
26m B-DOUBLE
N.T.S



TURNING MOVEMENT No. 15
26m B-DOUBLE
SCALE 1:1000



TURNING MOVEMENT No. 16
26m B-DOUBLE
SCALE 1:1000



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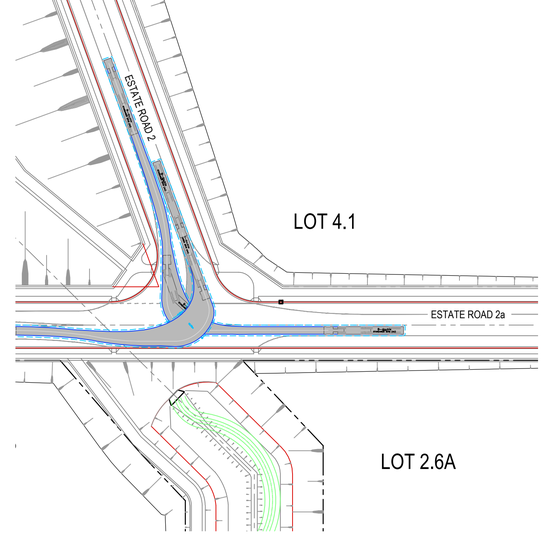

TURNING MOVEMENT No. 17
26m B-DOUBLE
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 4 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C654
Revision: 04

drawing No:240518\240518_DA_C654.DWG, JOB18, DA, C654(4), DATE PRINTED: 12/12/2025 7:07:43 PM

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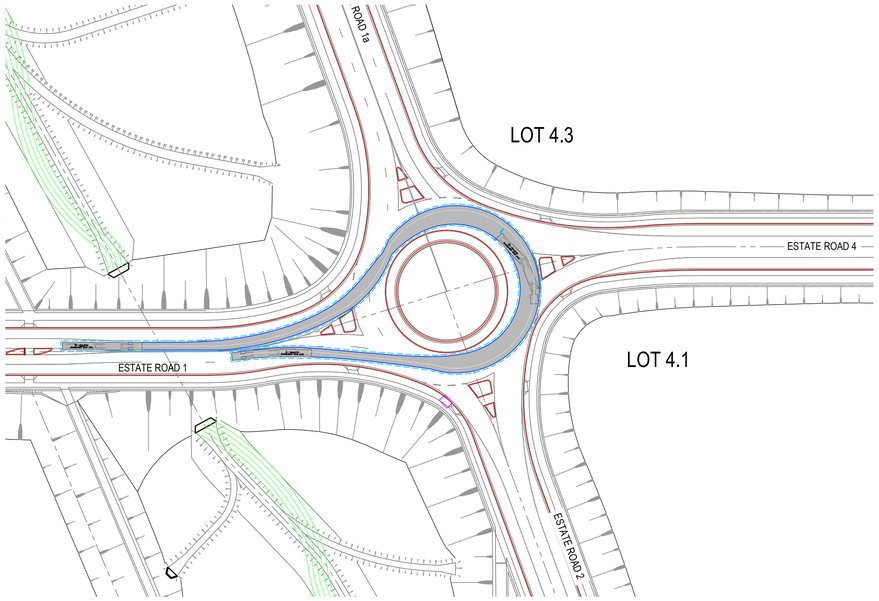
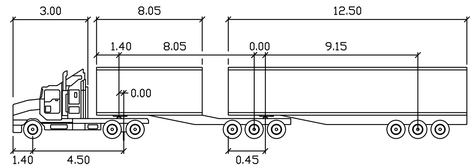


TURNING MOVEMENT No. 18
26m B-DOUBLE
SCALE 1:1000

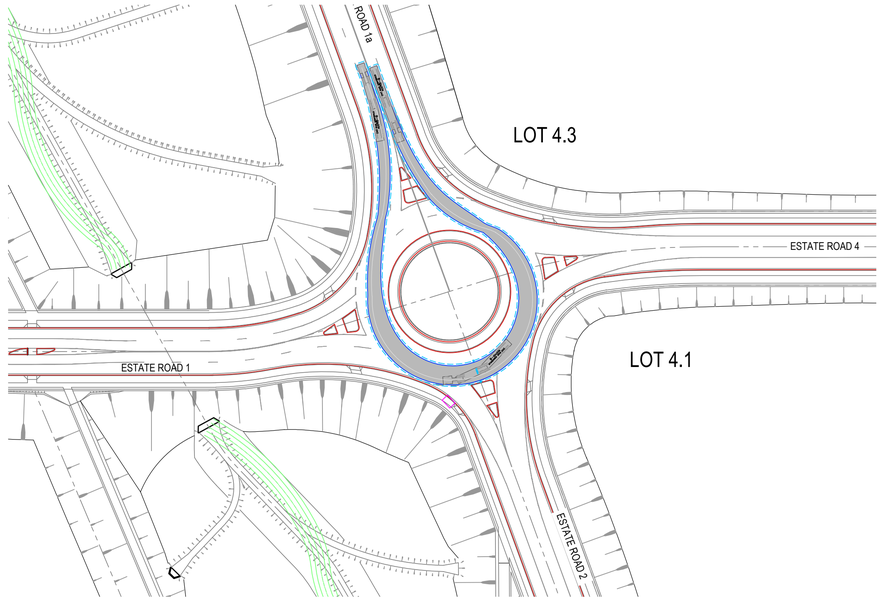


B-double

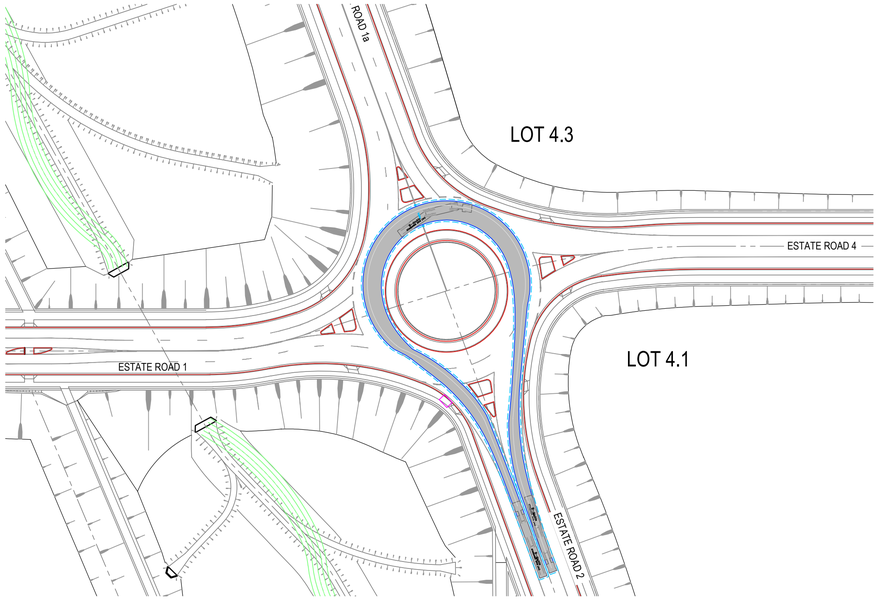
meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

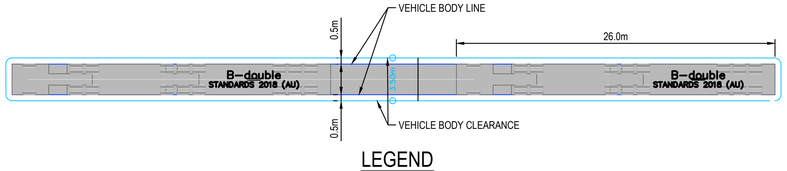
26m B-DOUBLE
N.T.S



TURNING MOVEMENT No. 19
26m B-DOUBLE
SCALE 1:1000



TURNING MOVEMENT No. 20
26m B-DOUBLE
SCALE 1:1000



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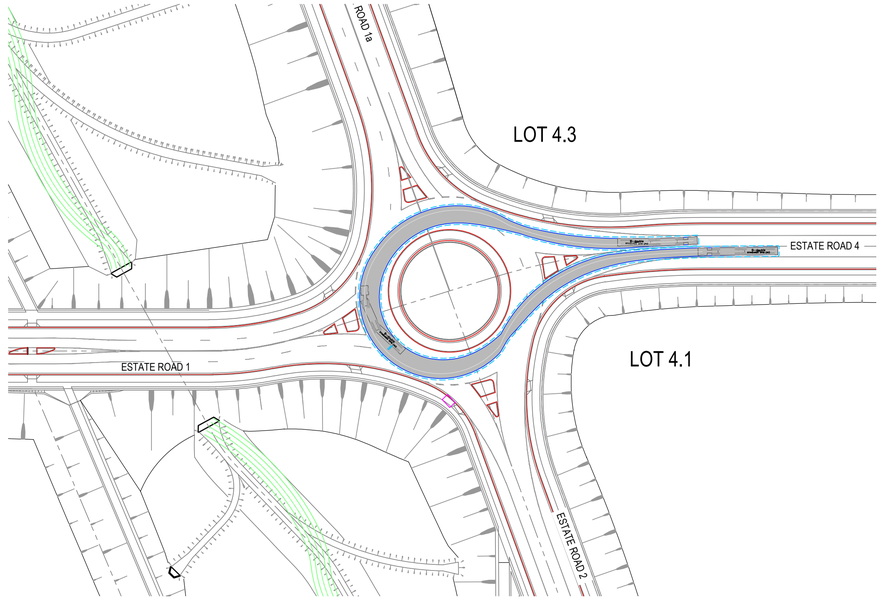

TURNING MOVEMENT No. 21
26m B-DOUBLE
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 5 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C655
Revision: 04

File Path: R:\240518\Drawings\04-CAD\Civil\SSDA\240518_DA_C655.DWG - 240518_DA_C655[04] - DATE PRINTED: 12/12/2025 3:06:41 PM

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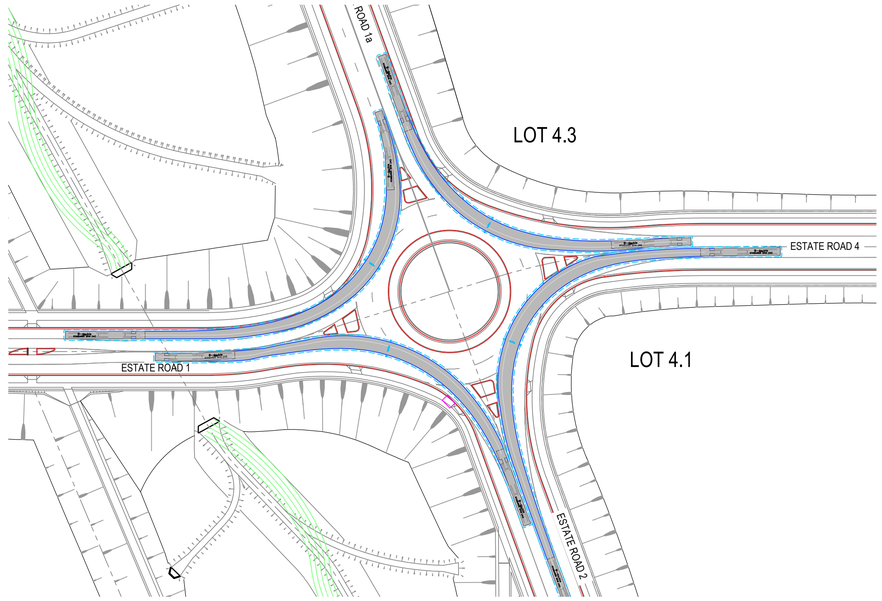
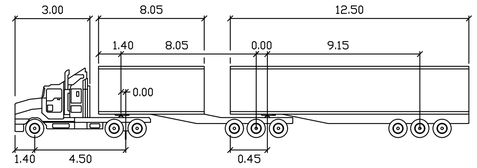


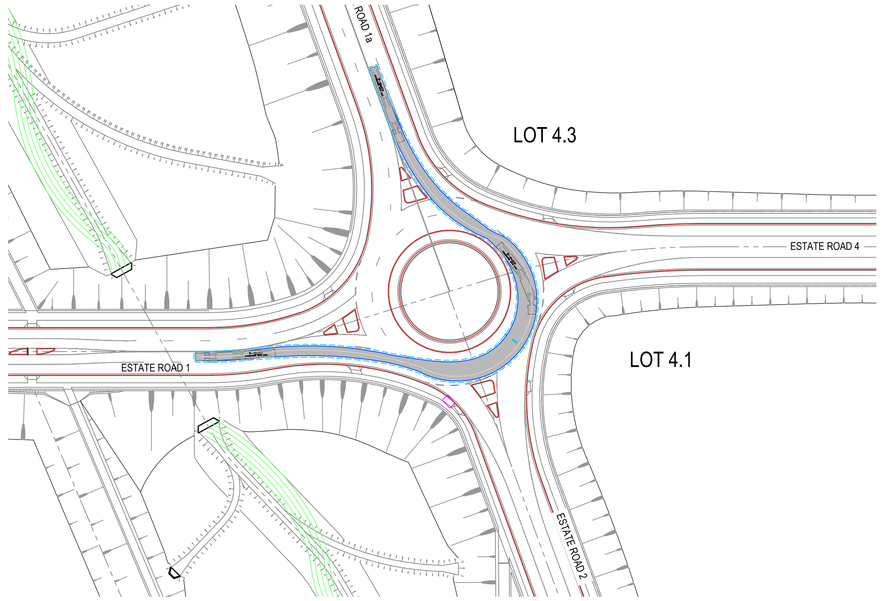
TURNING MOVEMENT No. 22
26m B-DOUBLE
SCALE 1:1000



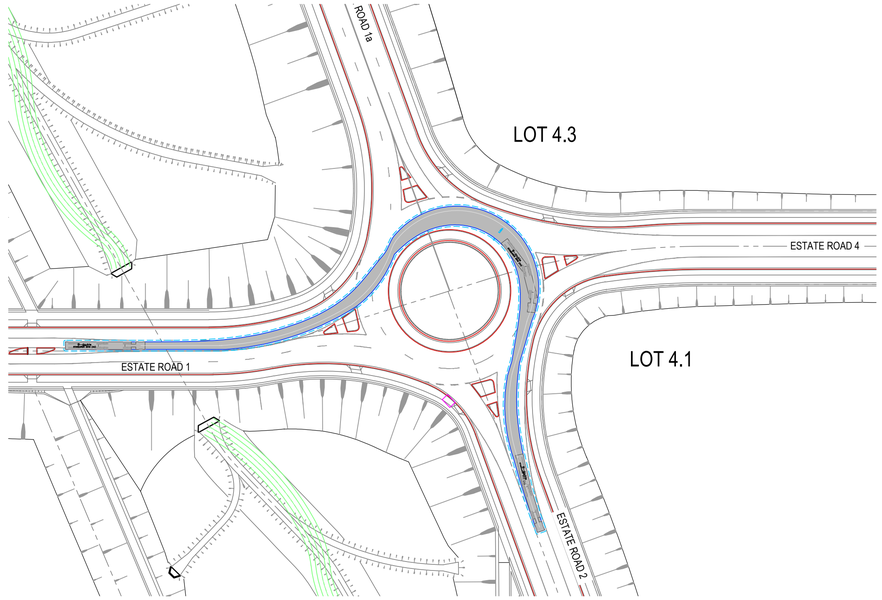
B-double

meters			
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

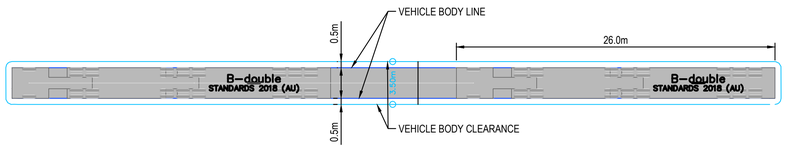
26m B-DOUBLE
N.T.S



TURNING MOVEMENT No. 23
26m B-DOUBLE
SCALE 1:1000



TURNING MOVEMENT No. 24
26m B-DOUBLE
SCALE 1:1000



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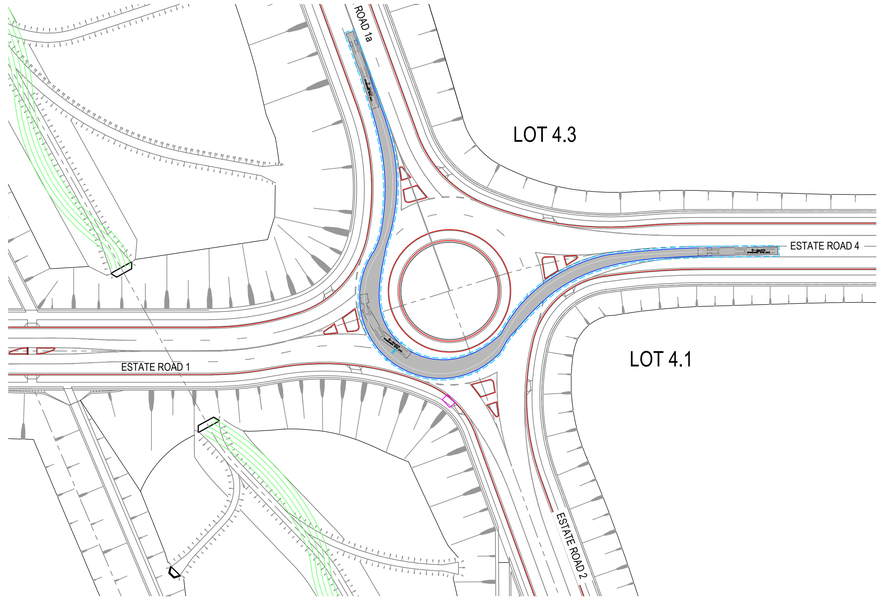

TURNING MOVEMENT No. 25
26m B-DOUBLE
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 6 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C656
Revision: 04

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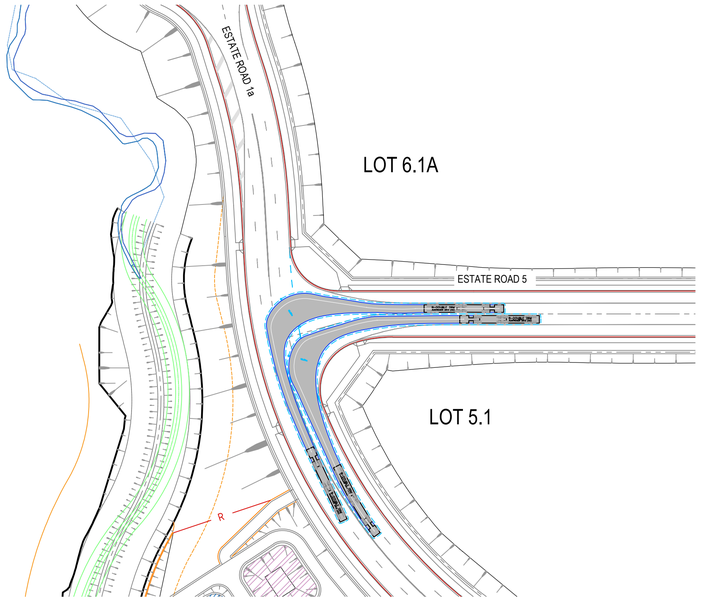
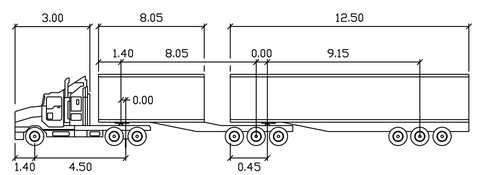


TURNING MOVEMENT No. 26
26m B-DOUBLE
SCALE 1:1000

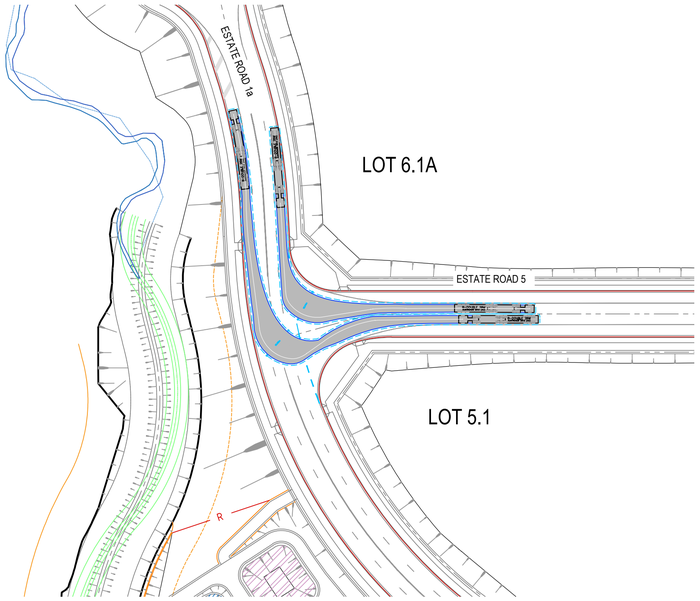


B-double

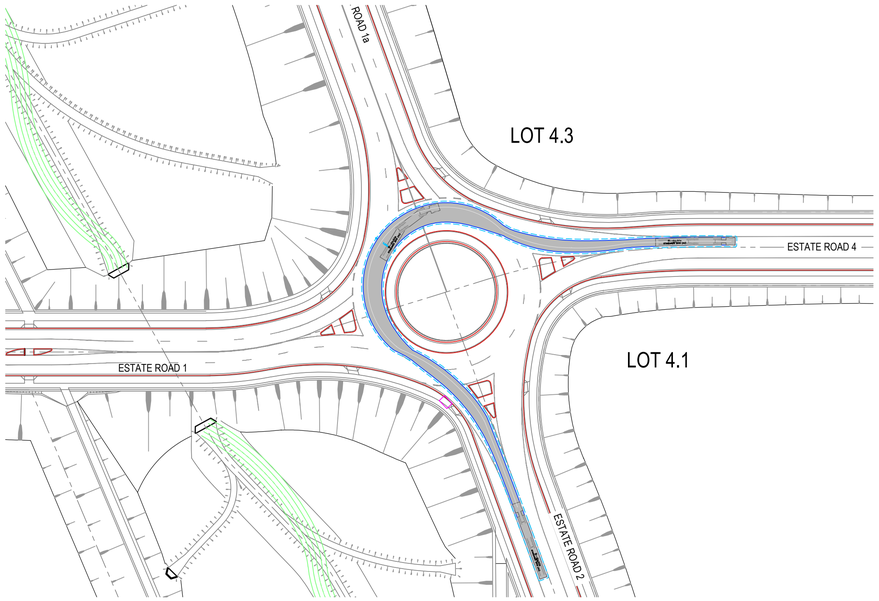
meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

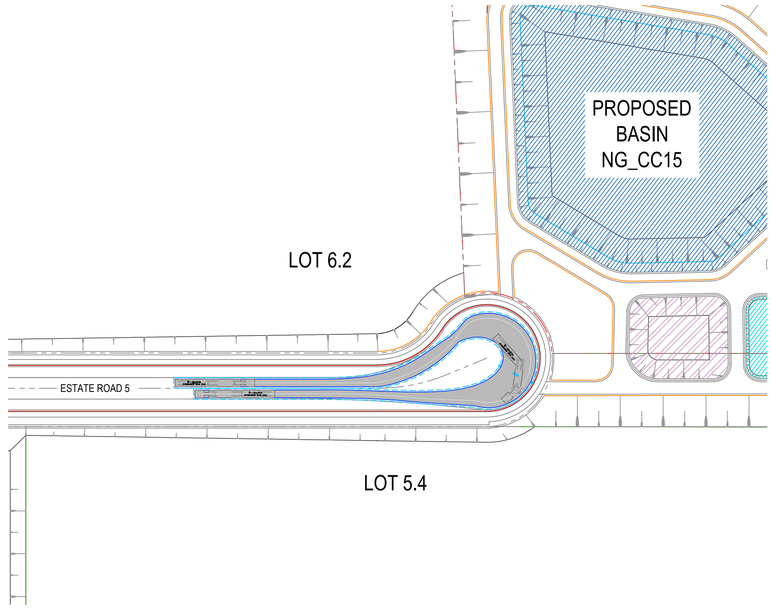
26m B-DOUBLE
N.T.S



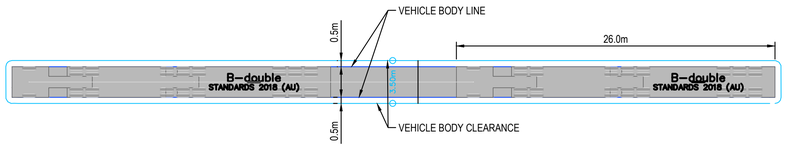
TURNING MOVEMENT No. 27
26m B-DOUBLE
SCALE 1:1000



TURNING MOVEMENT No. 28
26m B-DOUBLE
SCALE 1:1000



TURNING MOVEMENT No. 29
26m B-DOUBLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 7 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C657
Revision: 04

C:\Revit_Pc\PROJECTS\240518_BURRAH PARK\240518_DA_C657_R24_NW.rvt, 240518_DA_C657PM, DATE PRINTED: 12/12/2025 1:57:28 PM

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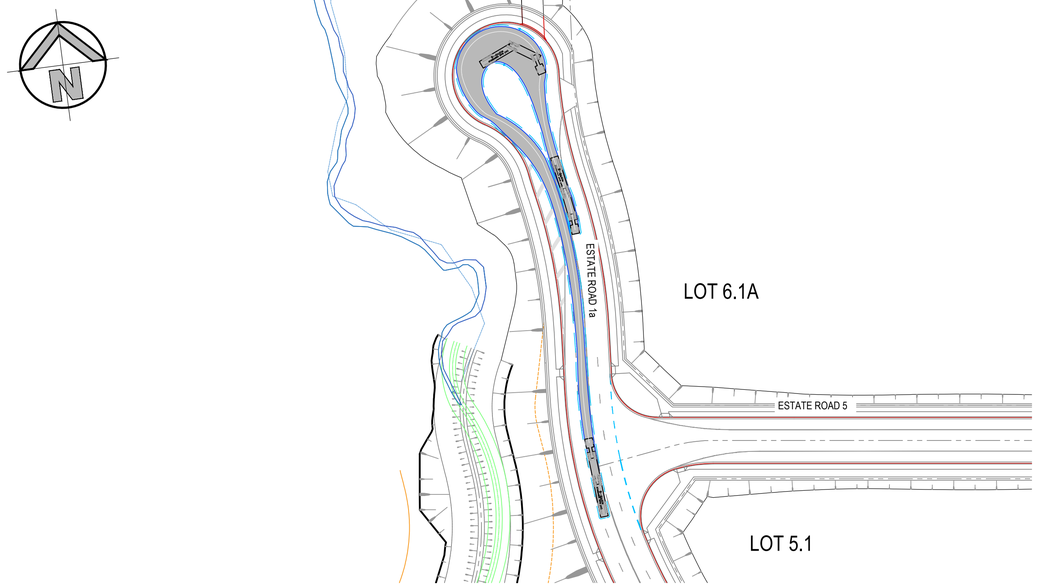
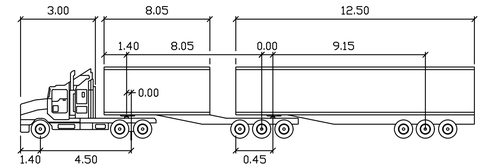


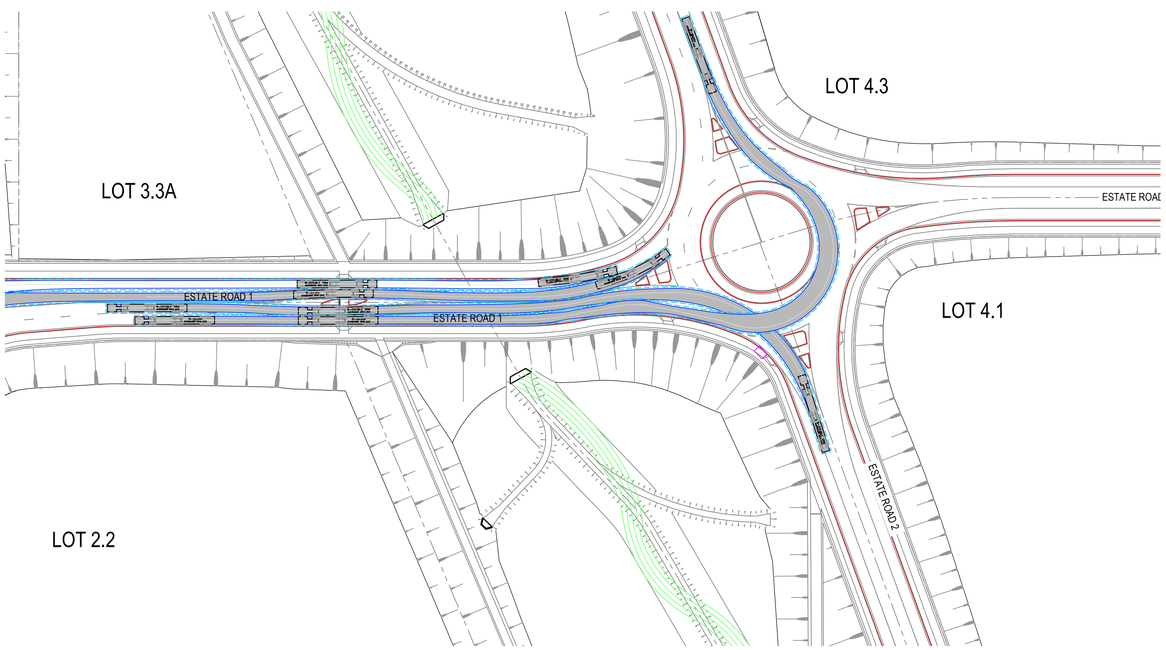
TURNING MOVEMENT No. 30
26m B-DOUBLE
SCALE 1:1000



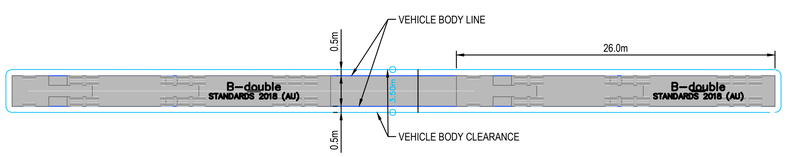
B-double

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

26m B-DOUBLE
N.T.S



TURNING MOVEMENT No. 31
26m B-DOUBLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
26m B-DOUBLE TURNING PATH SHEET 8 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C658
Revision: 04

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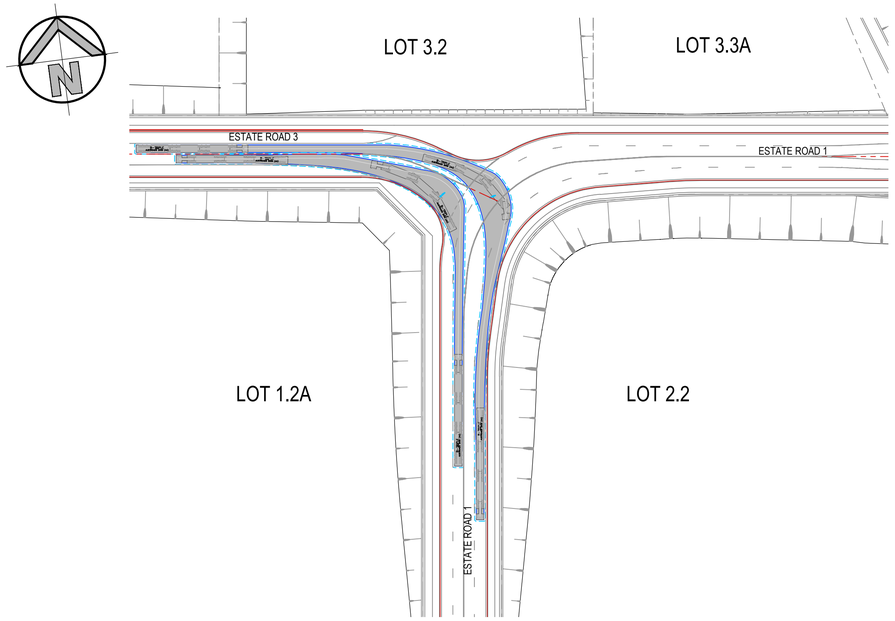
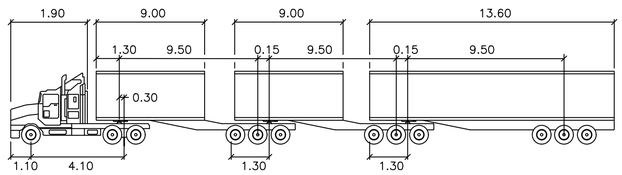


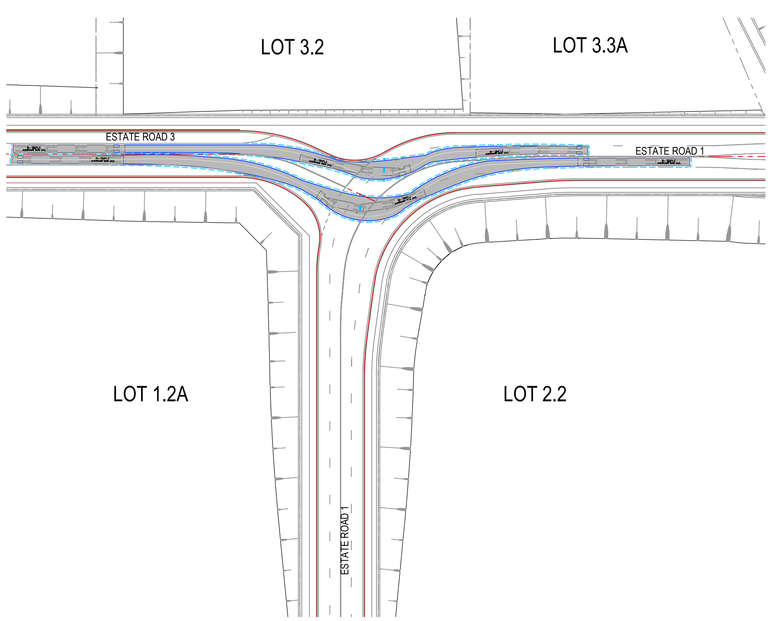
TURNING MOVEMENT No. 01
36.5m B-TRIPLE
SCALE 1:1000



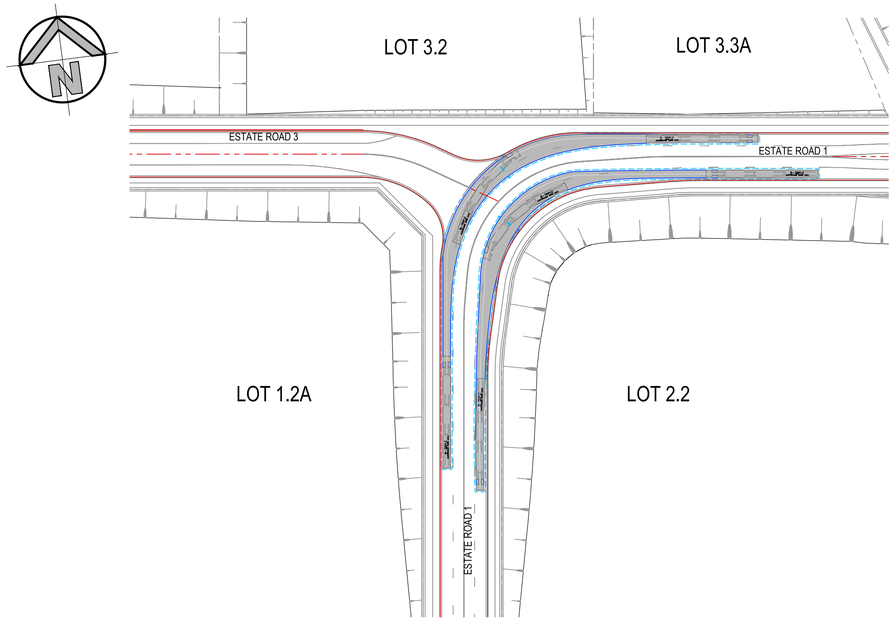
B–TRIPLE

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

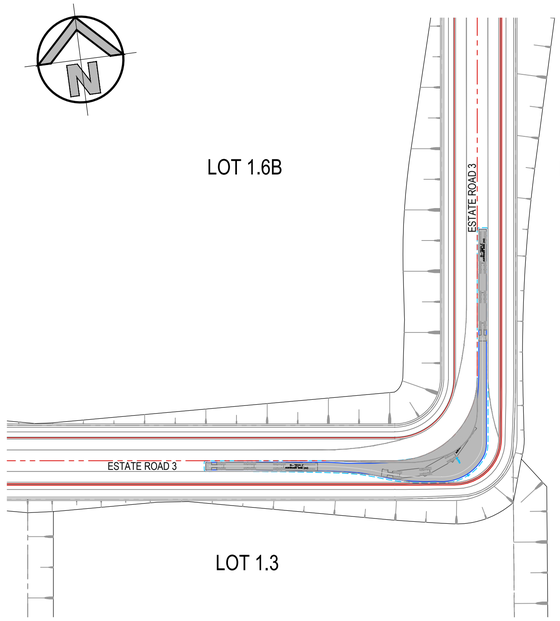
36.5m B-TRIPLE
N.T.S



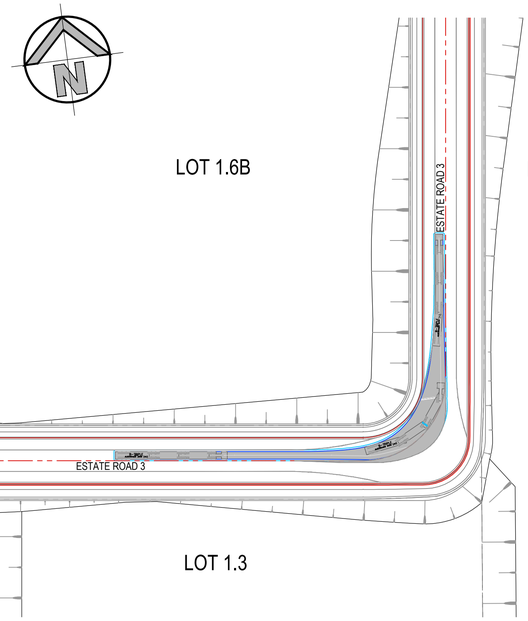
TURNING MOVEMENT No. 02
36.5m B-TRIPLE
SCALE 1:1000



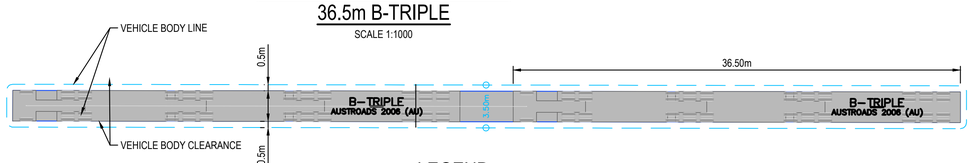
TURNING MOVEMENT No. 03
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 04a
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 05
36.5m B-TRIPLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
36.5m B-TRIPLE TURNING PATH SHEET 1 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:1000

Drawing number
240518_DA_C661

Revision
04

FilePath: N:\ORS\240518\ACAD\DA\240518_DA_C661.DWG, 240518_DA_C661(PLOT), DATE PRINTED: 12/12/2025 1:12:21 PM

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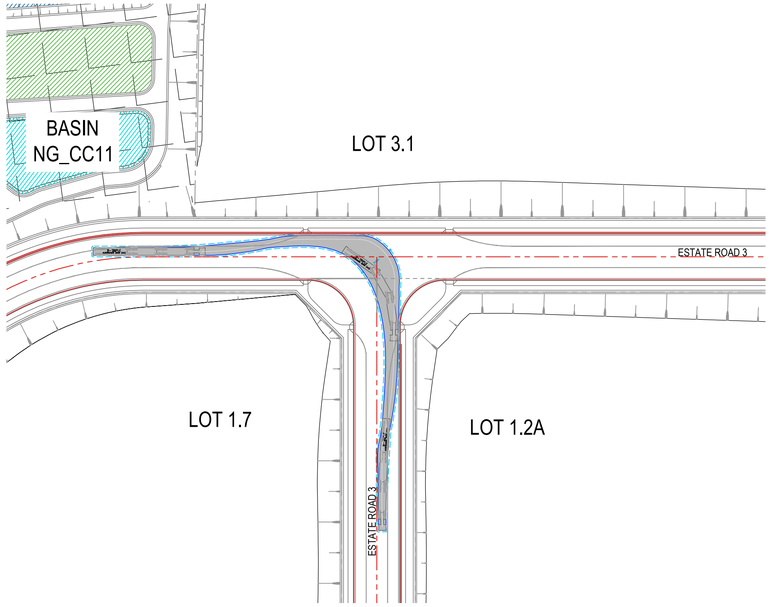
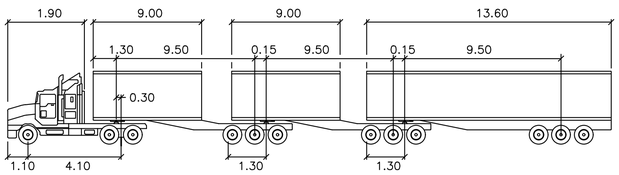


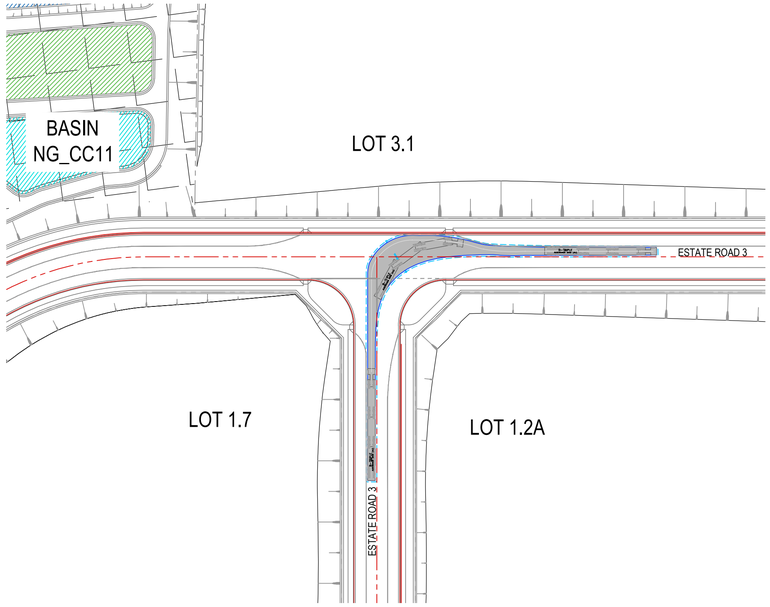
TURNING MOVEMENT No. 06
36.5m B-TRIPLE
SCALE 1:1000



B–TRIPLE

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

36.5m B-TRIPLE
N.T.S



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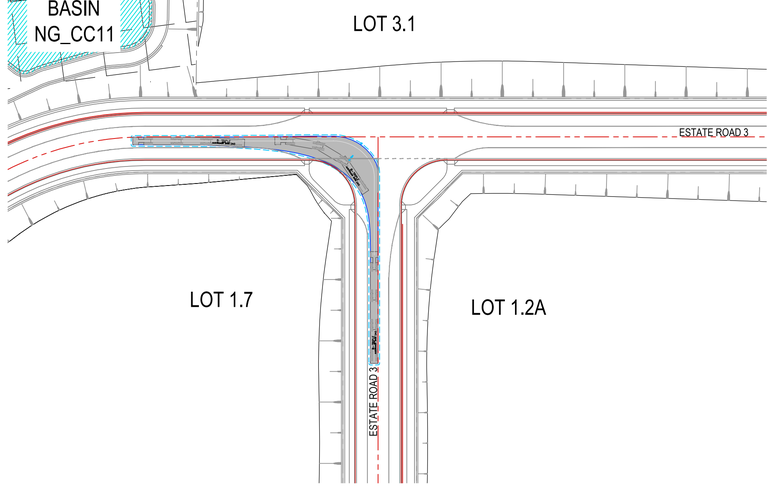
36.5m B-TRIPLE
SCALE 1:1000



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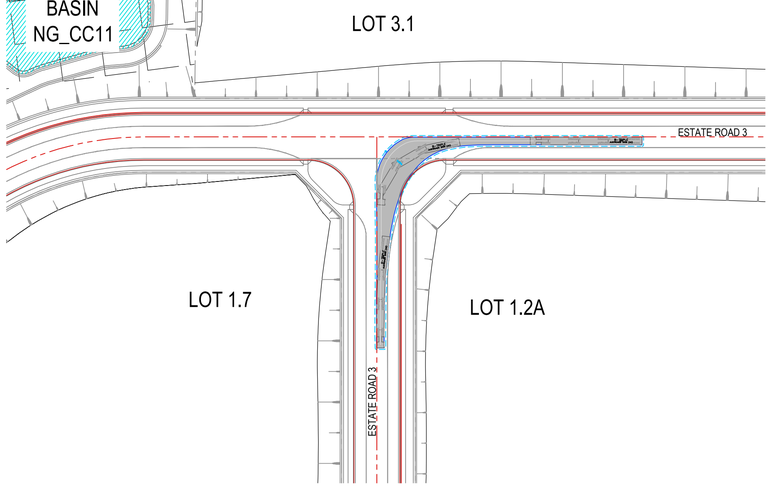
36.5m B-TRIPLE
SCALE 1:1000



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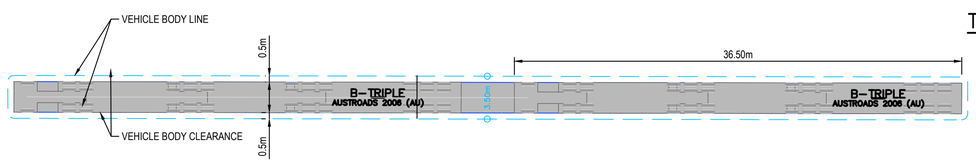
36.5m B-TRIPLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025					
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025					
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024					
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024					

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
36.5m B-TRIPLE TURNING PATH SHEET 2 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C662
Revision: 04

File/Path: R:\240\240518\ACAD\240518_DA_C661-C666.DWG - 240518_DA_C662SSL | DATE PRINTED: 12/12/2025 3:13:19 PM

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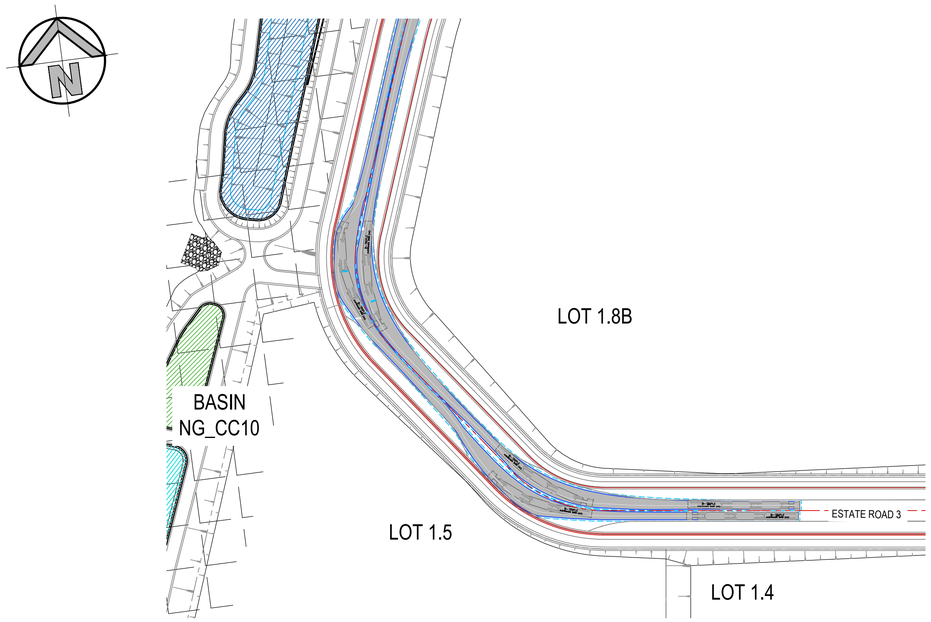
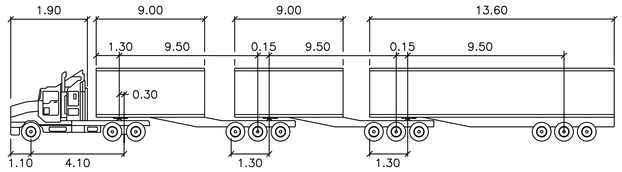
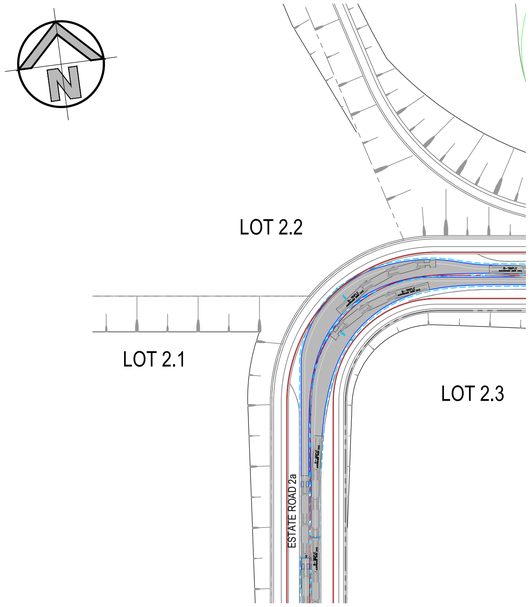




B–TRIPLE

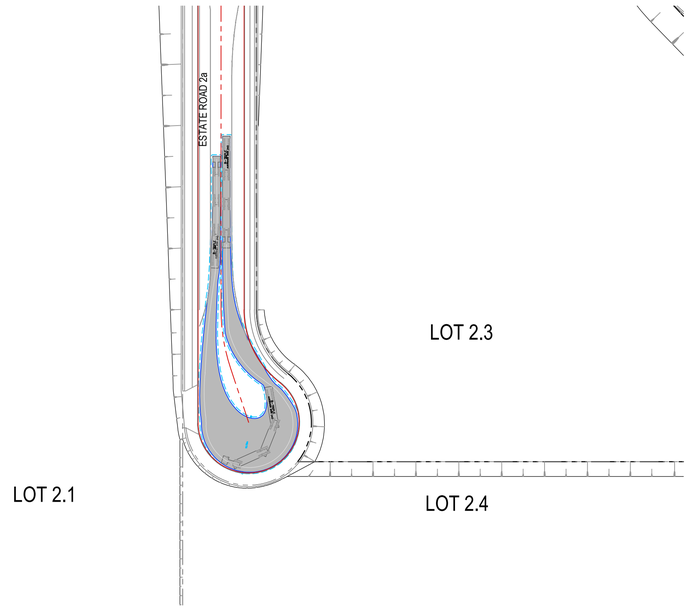
	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

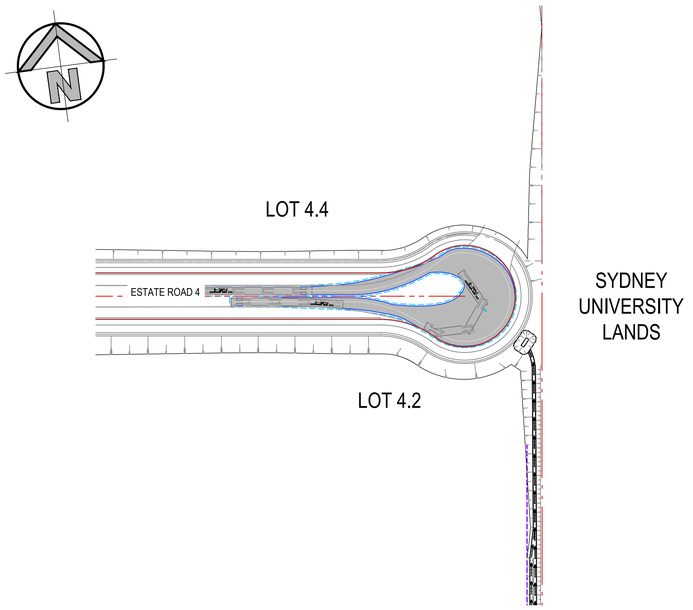
36.5m B-TRIPLE
N.T.S

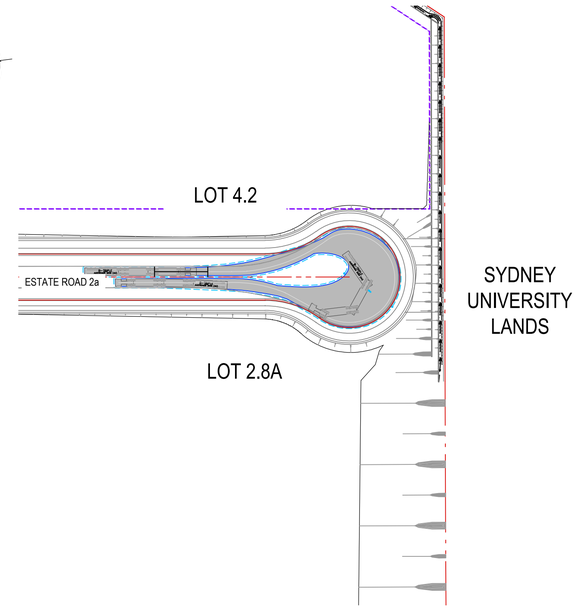


TURNING MOVEMENT No. 10
36.5m B-TRIPLE
SCALE 1:1000

TURNING MOVEMENT No. 11
36.5m B-TRIPLE
SCALE 1:1000







TURNING MOVEMENT No. 12
36.5m B-TRIPLE
SCALE 1:1000

TURNING MOVEMENT No. 13
36.5m B-TRIPLE
SCALE 1:1000

TURNING MOVEMENT No. 14
36.5m B-TRIPLE
SCALE 1:1000

LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
36.5m B-TRIPLE TURNING PATH SHEET 3 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C663
Revision: 04

File Path: R:\PROJECTS\240518_BADGERYS CREEK\DRAWINGS\DA_CIVIL\240518_DA_C663.DWG - 240518_DA_C663(1) - DATE PRINTED: 12/12/2025 3:41:16 PM

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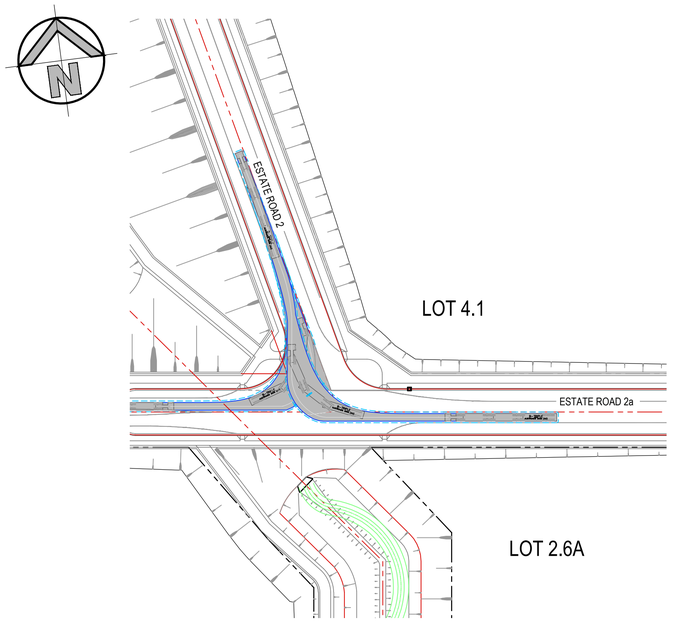
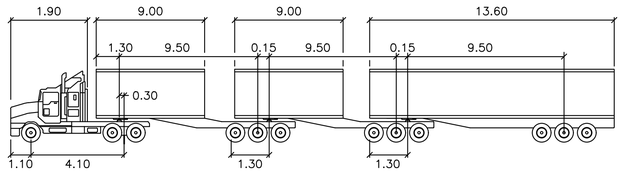


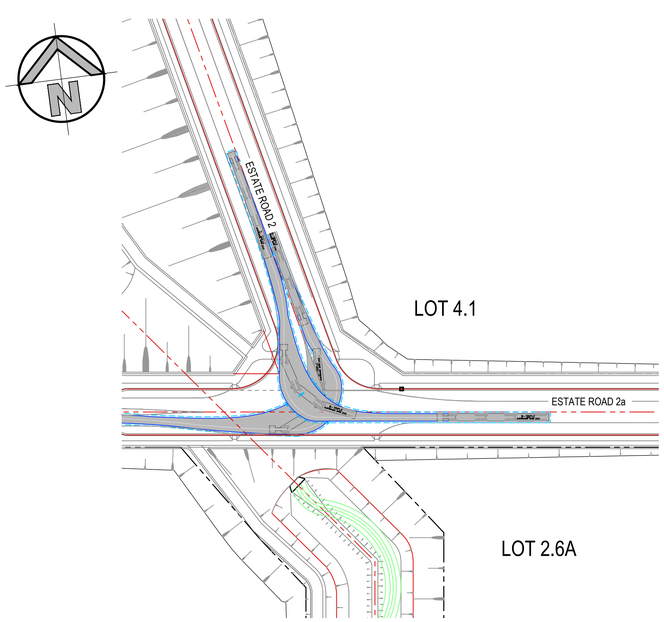
TURNING MOVEMENT No. 15
36.5m B-TRIPLE
SCALE 1:1000



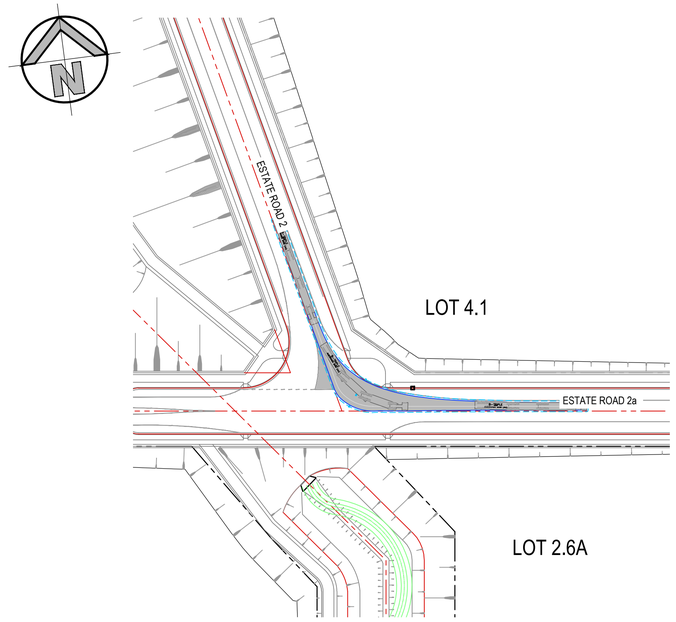
B–TRIPLE

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

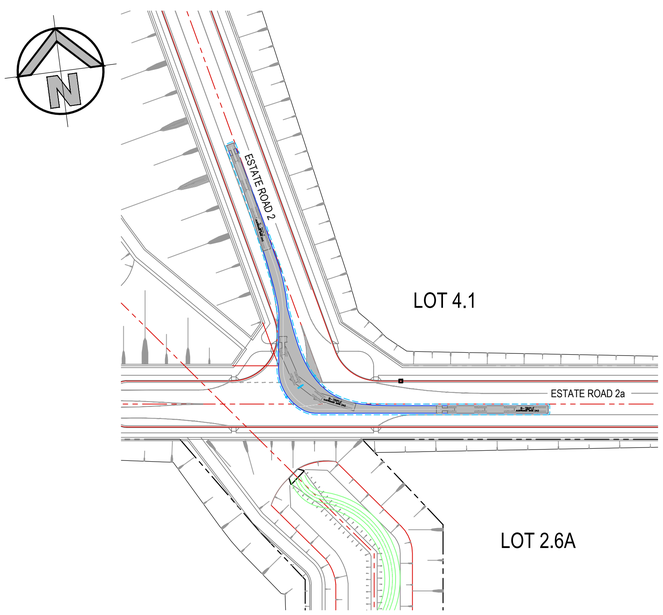
36.5m B-TRIPLE
N.T.S



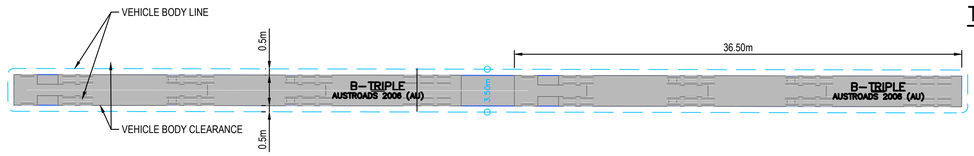
TURNING MOVEMENT No. 16
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 17
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 18
36.5m B-TRIPLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

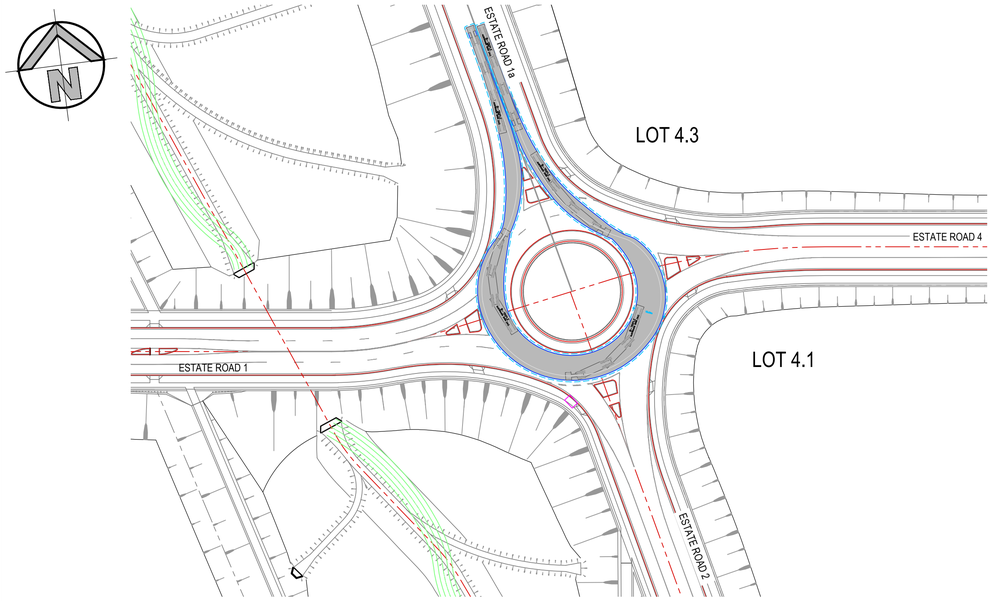
Title
36.5m B-TRIPLE TURNING PATH SHEET 4 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

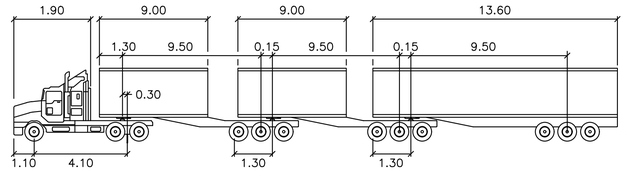
Drawing number: 240518_DA_C664
Revision: 04

File Path: R:\240518\Drawings\Architectural\240518_DA_C664.dwg, 240518_DA_C664(04), DATE PRINTED: 12/12/2025 3:16:41 PM

A1



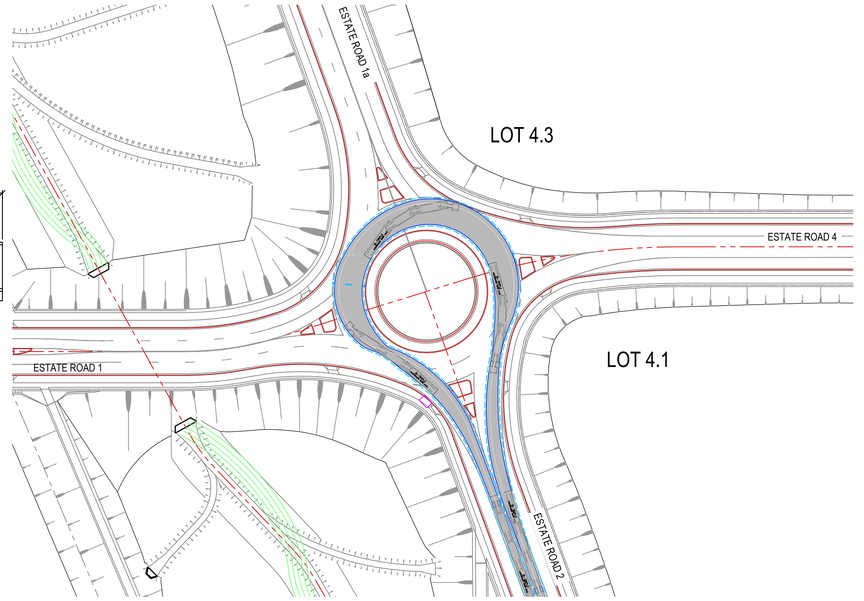
TURNING MOVEMENT No. 19
36.5m B-TRIPLE
SCALE 1:1000



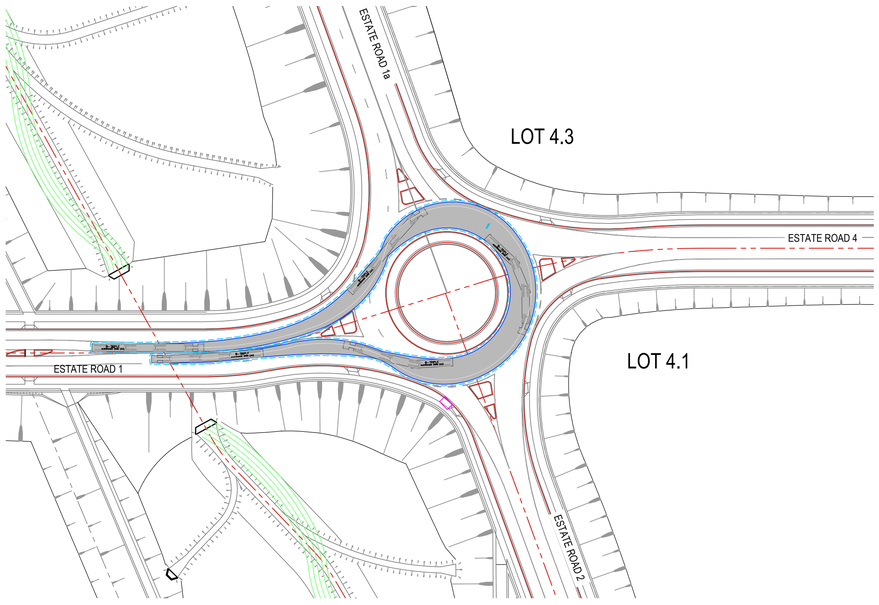
B–TRIPLE

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

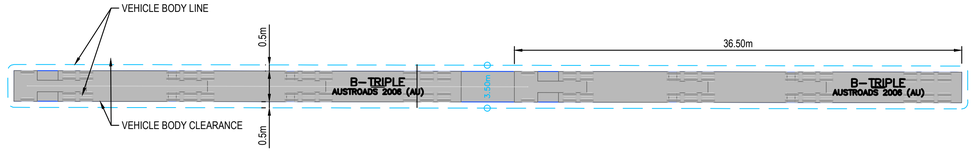
36.5m B-TRIPLE
N.T.S



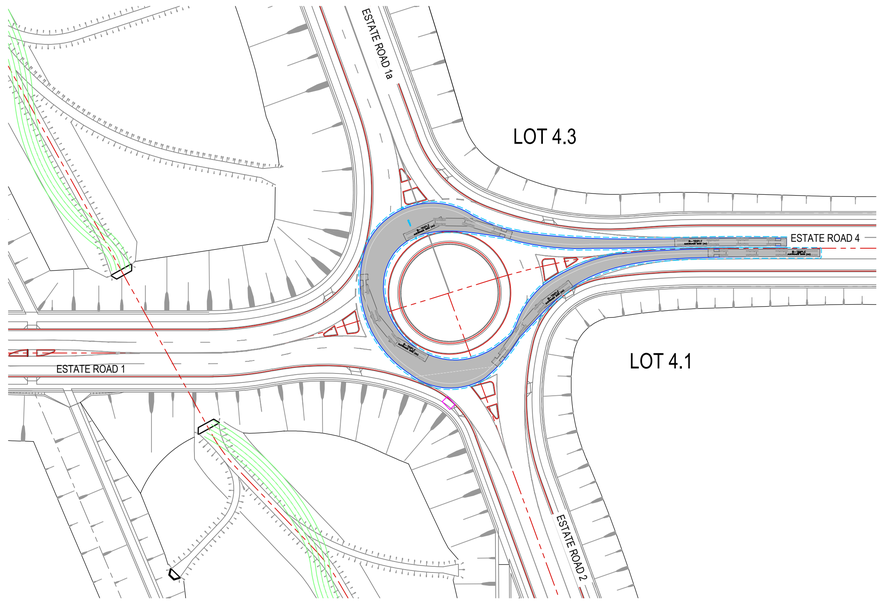
TURNING MOVEMENT No. 20
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 21
36.5m B-TRIPLE
SCALE 1:1000



LEGEND



TURNING MOVEMENT No. 22
36.5m B-TRIPLE
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
36.5m B-TRIPLE TURNING PATH SHEET 5 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C665
Revision: 04

File Path: N:\240518\04 DA\01 CAD\DWG\240518_DA_C665.DWG - 24518_DA_C665.DWG, DATE PRINTED: 12/12/2025 3:16:15 PM

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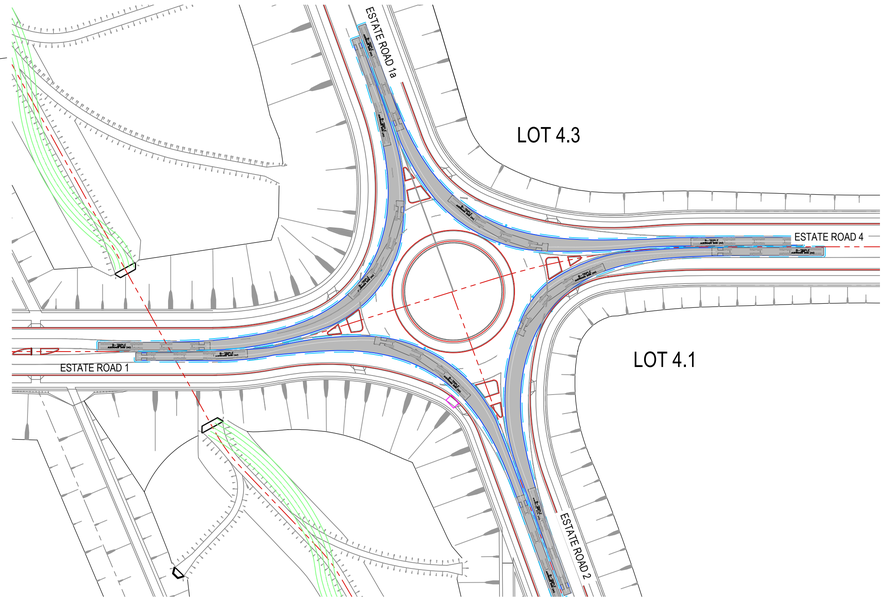
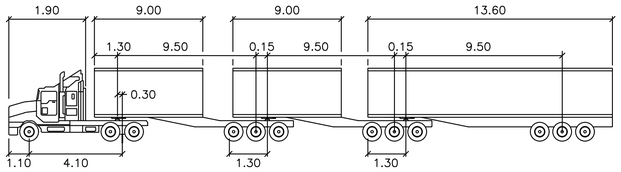


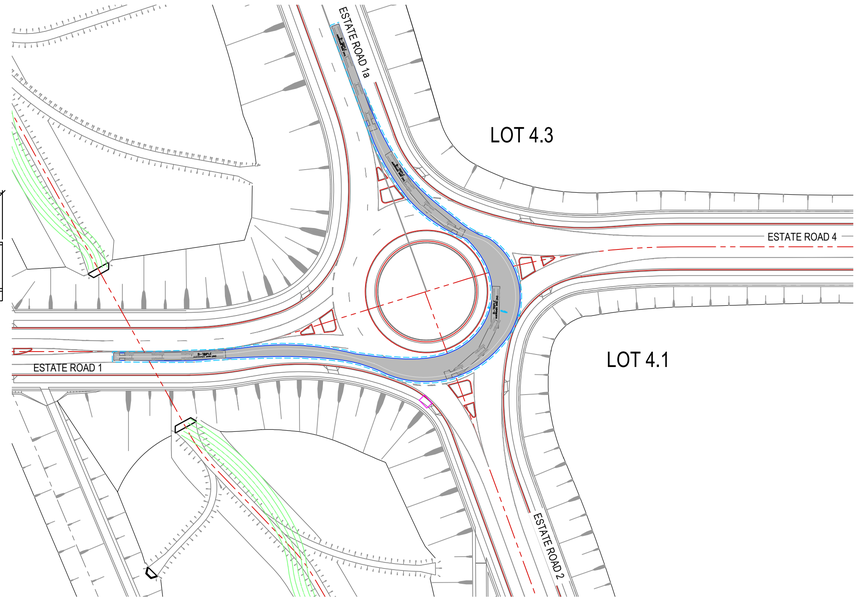
TURNING MOVEMENT No. 23
36.5m B-TRIPLE
SCALE 1:1000



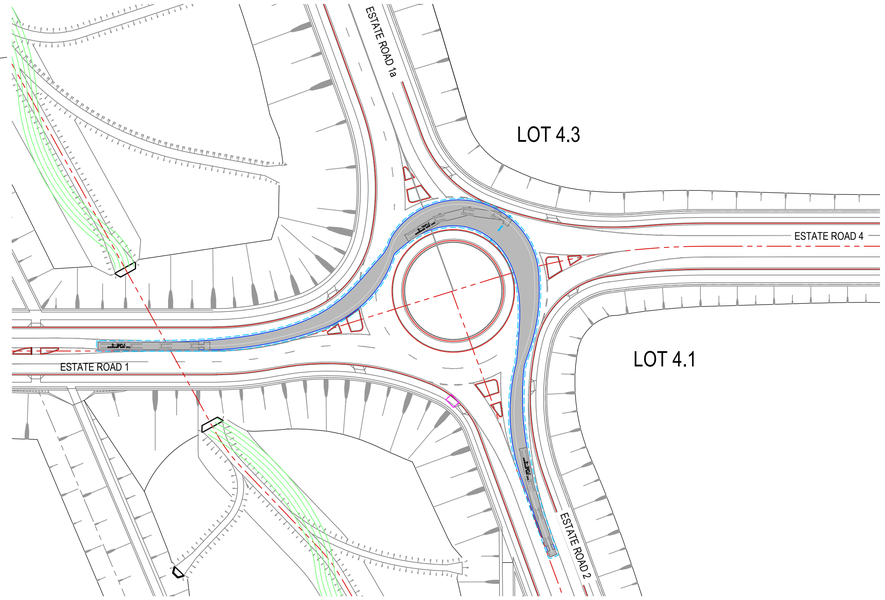
B–TRIPLE

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

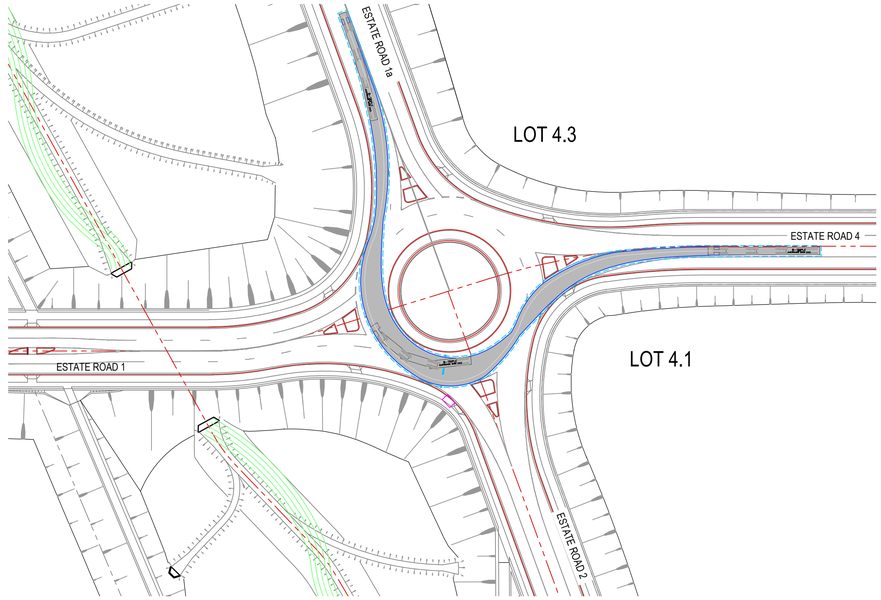
36.5m B-TRIPLE
N.T.S



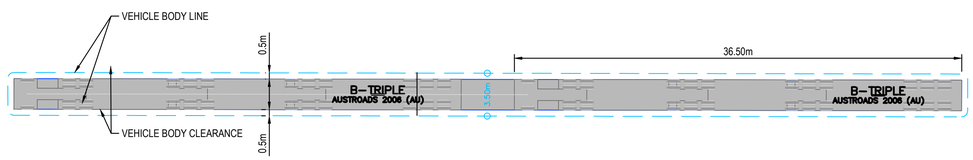
TURNING MOVEMENT No. 24
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 25
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 26
36.5m B-TRIPLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
36.5m B-TRIPLE TURNING PATH SHEET 6 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C666
Revision: 04

Plot Date: Fri,05/12/2025 4:17:14 PM, Plot By: Nicholas Wetzlar, File Name: P:\240518 BURRAH PARK\DRAWINGS\240518_DA_C666.DWG, DATE PRINTED: 12/12/2025 3:17:14 PM

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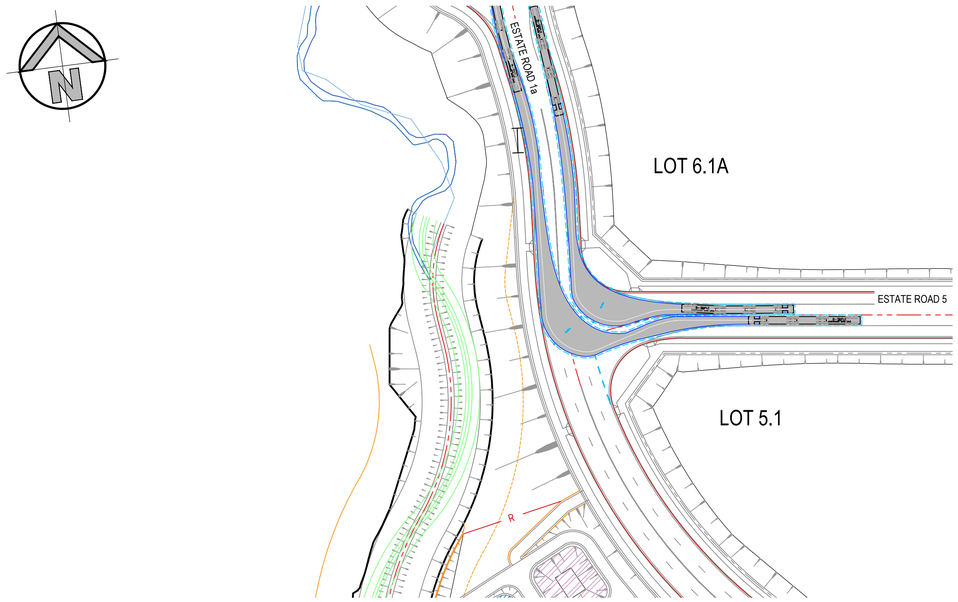
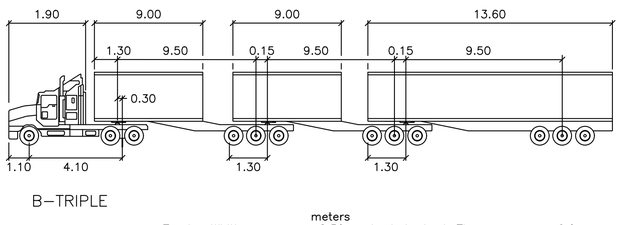


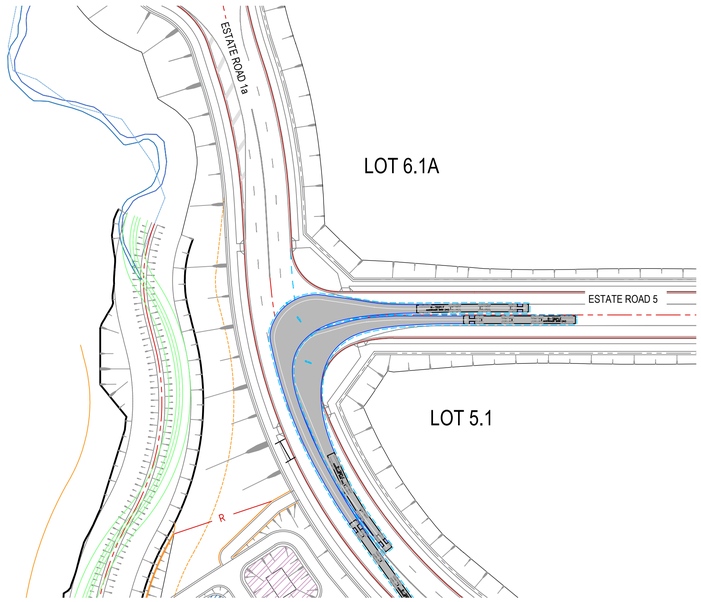
TURNING MOVEMENT No. 27
36.5m B-TRIPLE
SCALE 1:1000



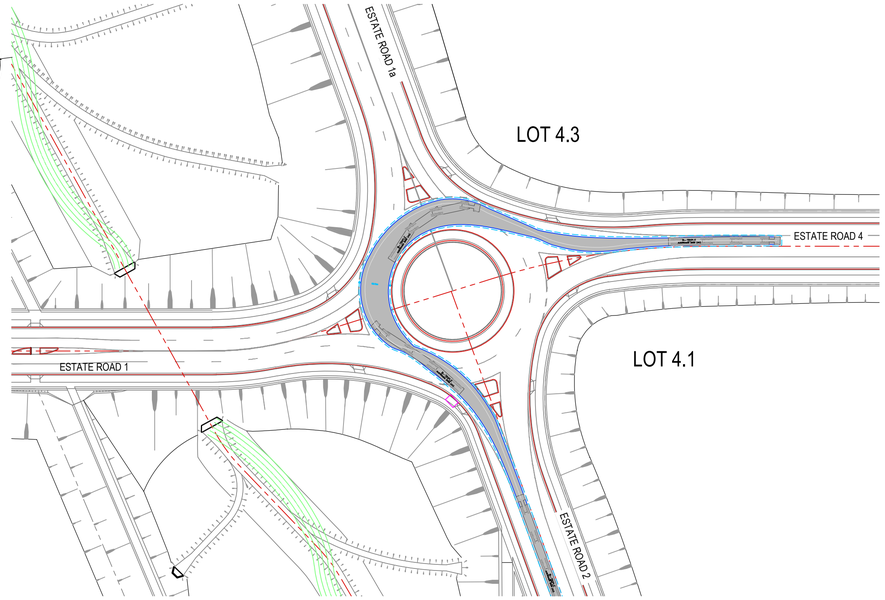
B–TRIPLE

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

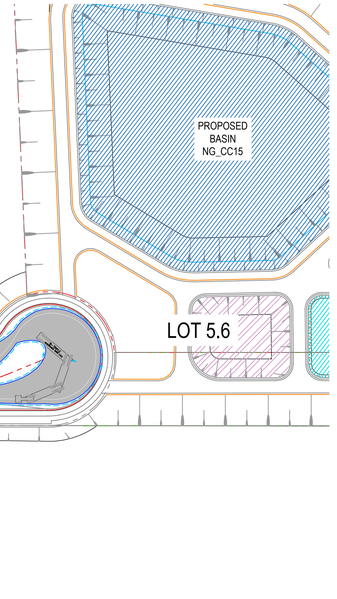
36.5m B-TRIPLE
N.T.S



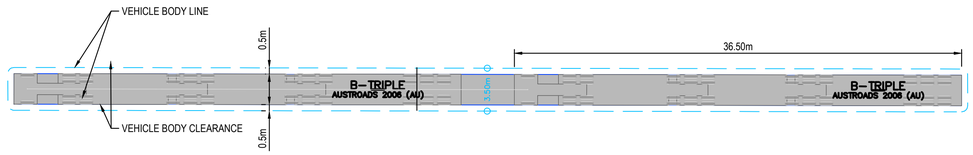
TURNING MOVEMENT No. 28
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 29
36.5m B-TRIPLE
SCALE 1:1000



TURNING MOVEMENT No. 30
36.5m B-TRIPLE
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
36.5m B-TRIPLE TURNING PATH SHEET 7 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C667
Revision: 04

File Path: R:\JOBS\2024\240518\ACAD\SASSET\240518_DA_C667.DWG, 240518_DA_C667(B), DATE PRINTED: 12/12/2025 5:19:43 PM

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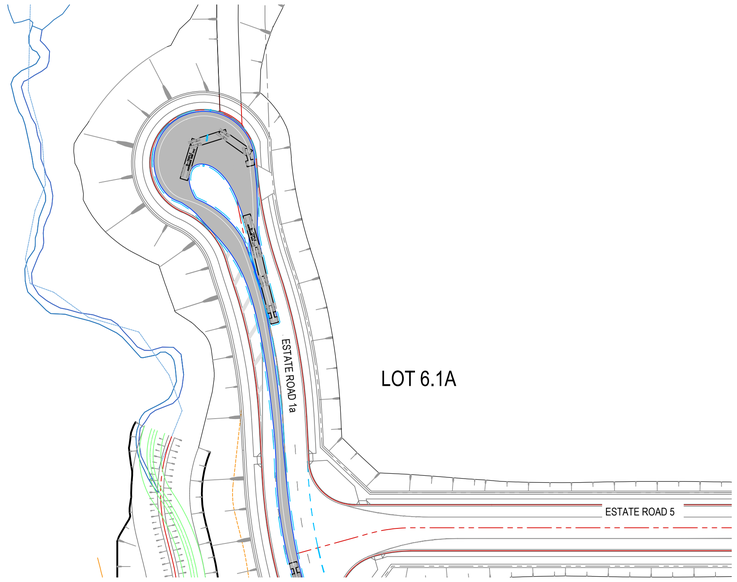
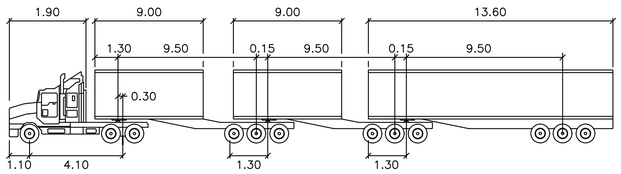


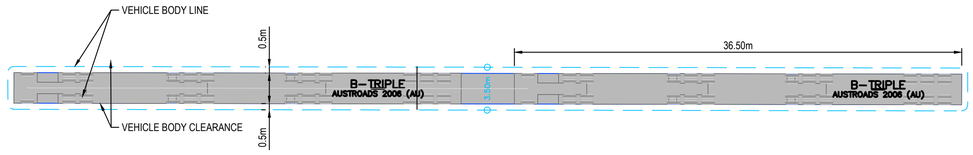
TURNING MOVEMENT No. 30
26m B-DOUBLE
SCALE 1:1000



B–TRIPLE

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 17.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

36.5m B-TRIPLE
N.T.S



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
36.5m B-TRIPLE TURNING PATH SHEET 8 OF 8

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C668
Revision: 04

File Path: N:\JOBS\2024\240518\CAD\CIVIL\240518_DA_C668.DWG , 240518_DA_C668.DWG, DATE PRINTED: 12/12/2025 1:18:26 PM

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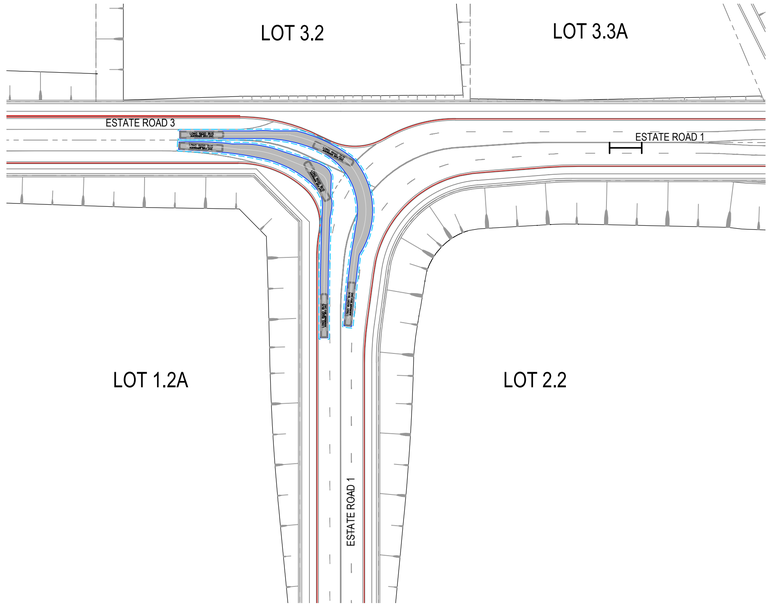
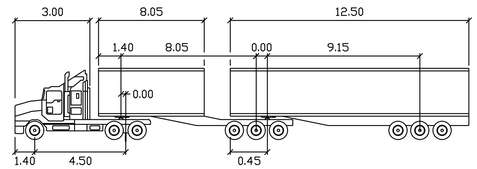


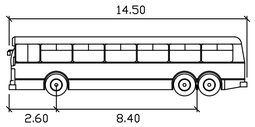
TURNING MOVEMENT No. 01
14.5m LONG BUS
SCALE 1:1000



B-double

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

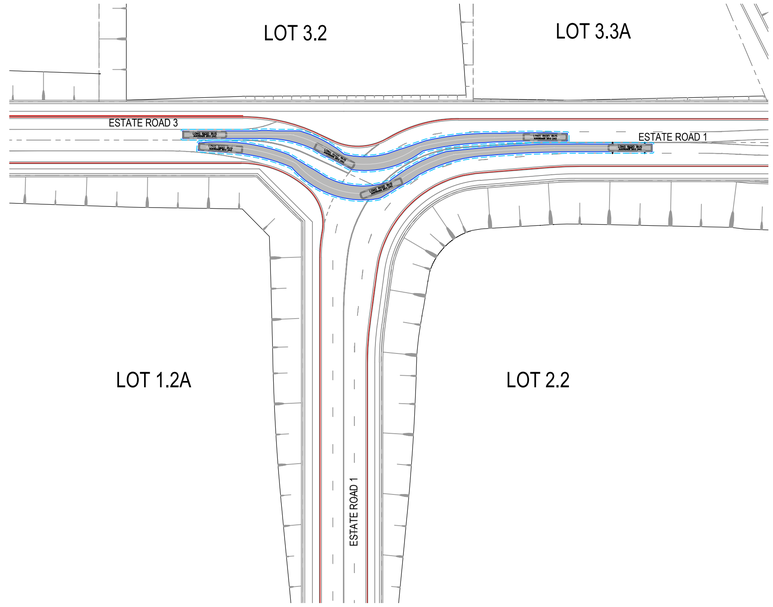
26m B-DOUBLE
N.T.S



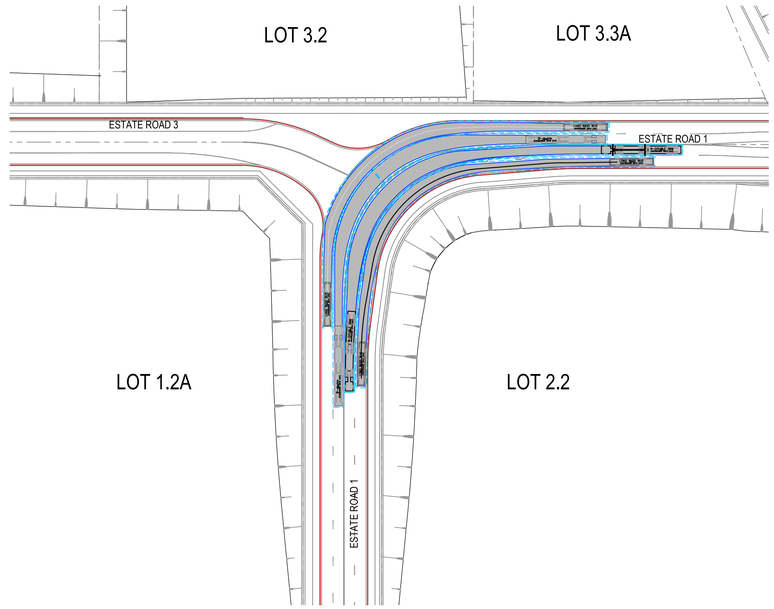
LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

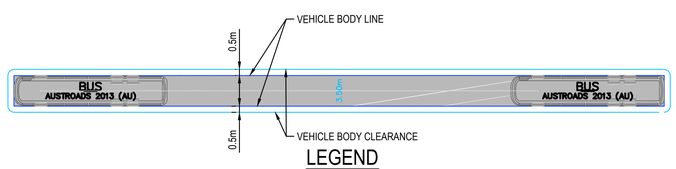
14.5m LONG BUS
N.T.S



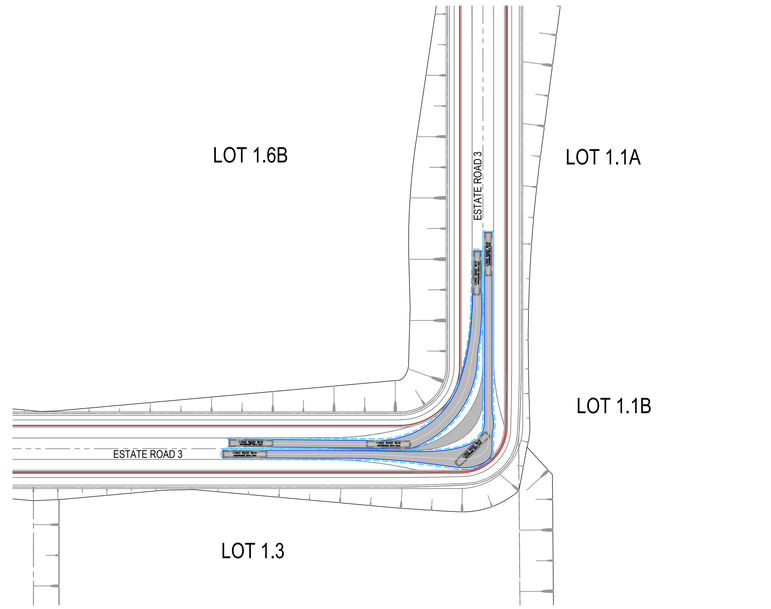
TURNING MOVEMENT No. 02
14.5m LONG BUS
SCALE 1:1000



TURNING MOVEMENT No. 03
26m B-DOUBLE & 14.5m LONG BUS
SCALE 1:1000



LEGEND



TURNING MOVEMENT No. 04
14.5m LONG BUS
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

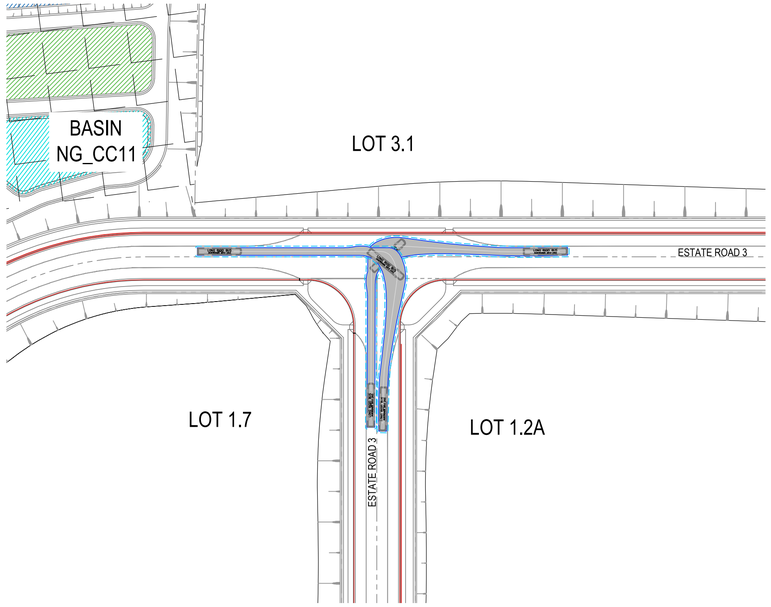
Title
14.5m LONG BUS TURNING PATH SHEET 1 OF 6

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

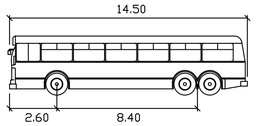
Drawing number: 240518_DA_C671
Revision: 02

File Path: R:\2024\240518\Architectural\240518_DA_C671.DWG - 240518_DA_C671(SSD) - DATE PRINTED: 12/12/2025 3:19:39 PM

A1



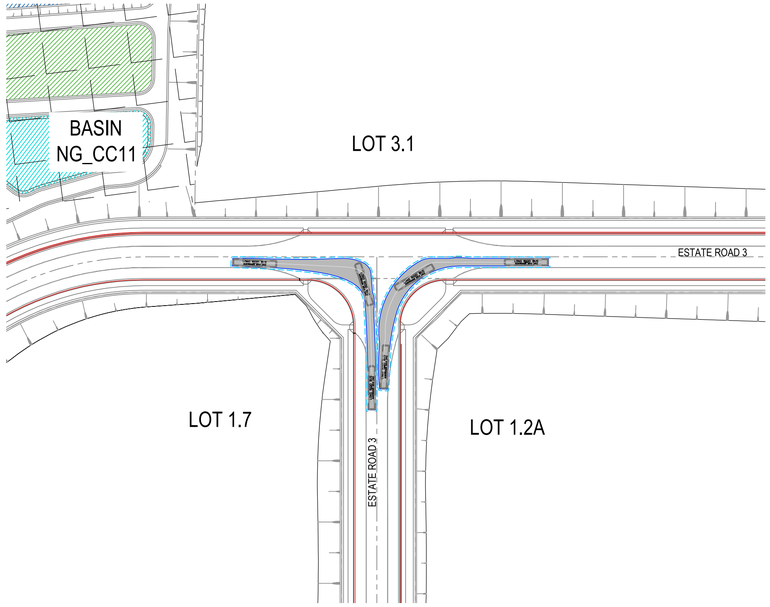
TURNING MOVEMENT No. 05
14.5m LONG BUS
SCALE 1:1000



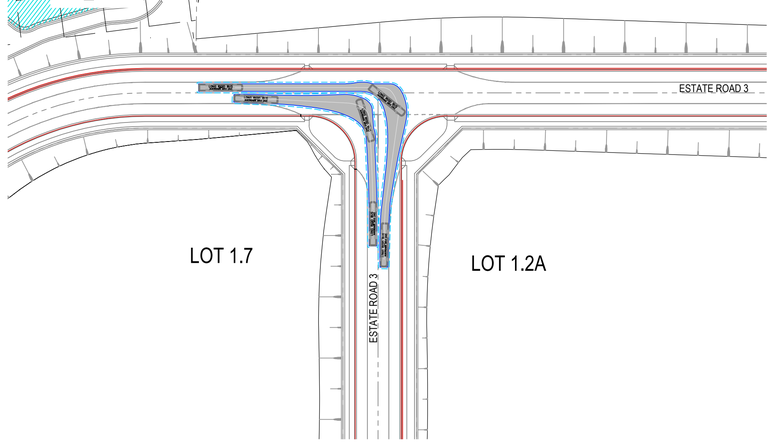
LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

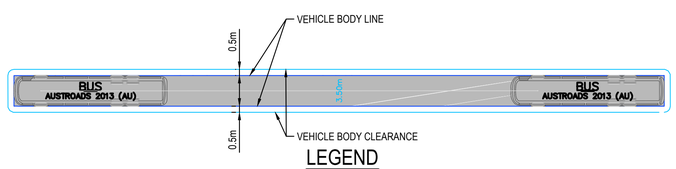
14.5m LONG BUS
N.T.S



TURNING MOVEMENT No. 06
14.5m LONG BUS
SCALE 1:1000



TURNING MOVEMENT No. 07
14.5m LONG BUS
SCALE 1:1000



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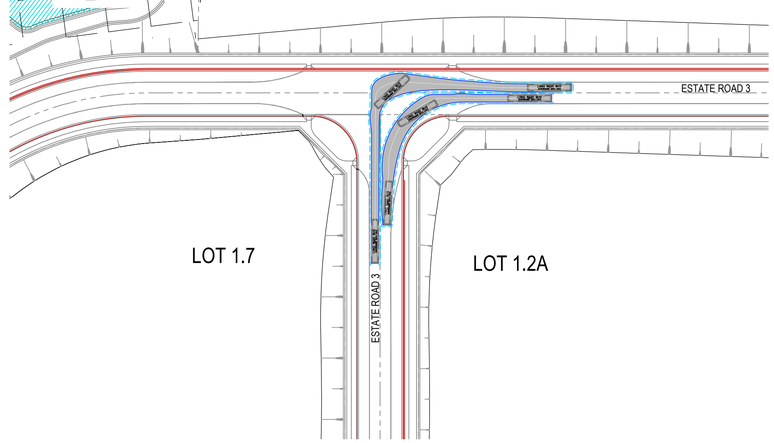

TURNING MOVEMENT No. 08
14.5m LONG BUS
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
14.5m LONG BUS TURNING PATH SHEET 2 OF 6

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C672
Revision: 02

File Path: R:\JOBS\2024\240518-ACAD\ACAD\SSDA_DA_C672.DWG, 240518_DA_C672[2], DATE PRINTED: 12/12/2025 2:20:28 PM

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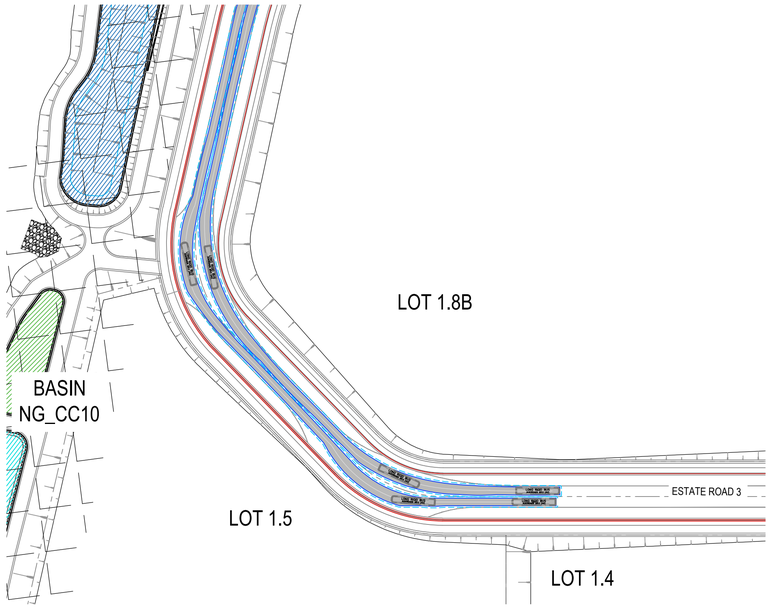
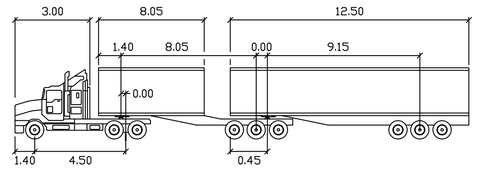


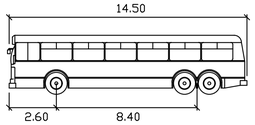
TURNING MOVEMENT No. 09
14.5m LONG BUS
SCALE 1:1000



B-double

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

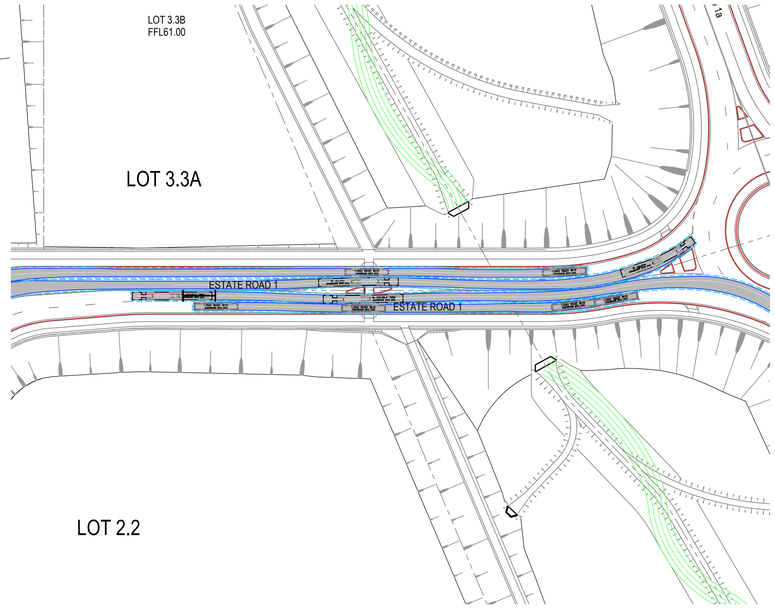
26m B-DOUBLE
N.T.S



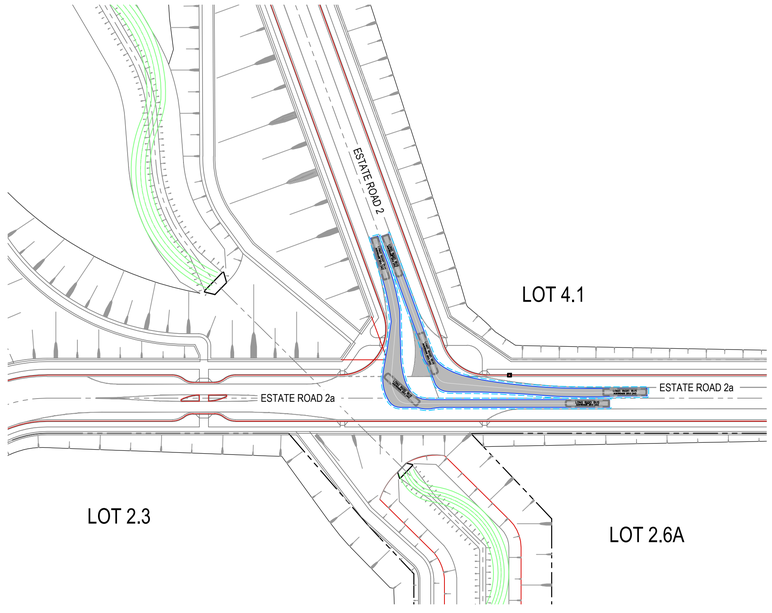
LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

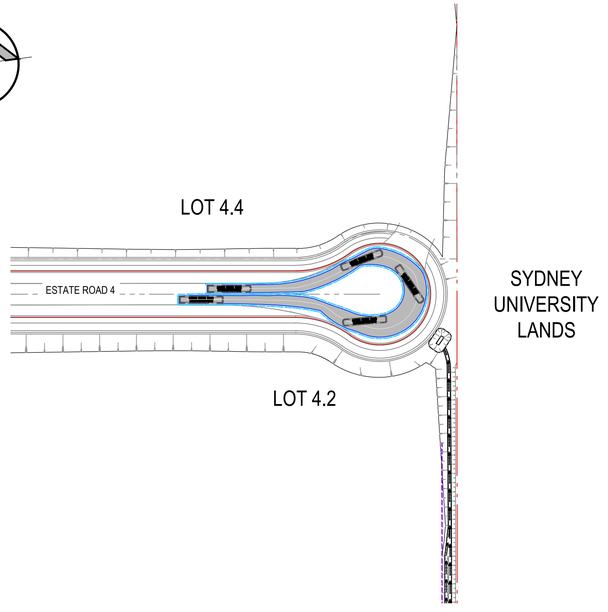
14.5m LONG BUS
N.T.S



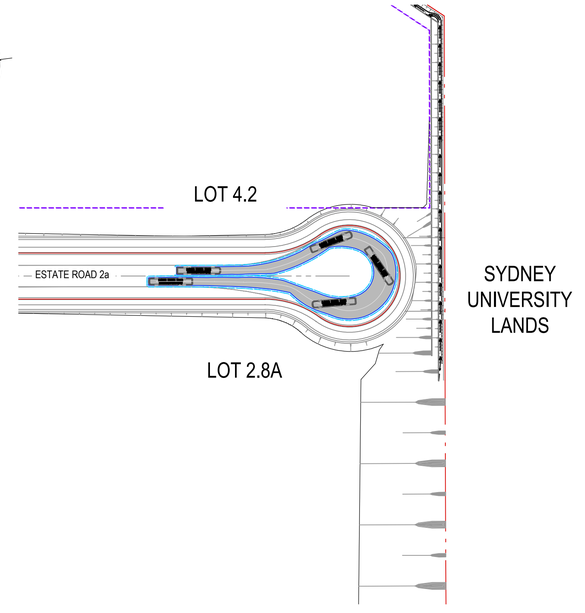
TURNING MOVEMENT No. 10
26m B-DOUBLE & 14.5m LONG BUS
SCALE 1:1000



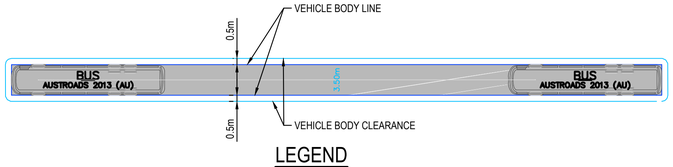
TURNING MOVEMENT No. 11
14.5m LONG BUS
SCALE 1:1000



TURNING MOVEMENT No. 12
14.5m LONG BUS
SCALE 1:1000



TURNING MOVEMENT No. 13
14.5m LONG BUS
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

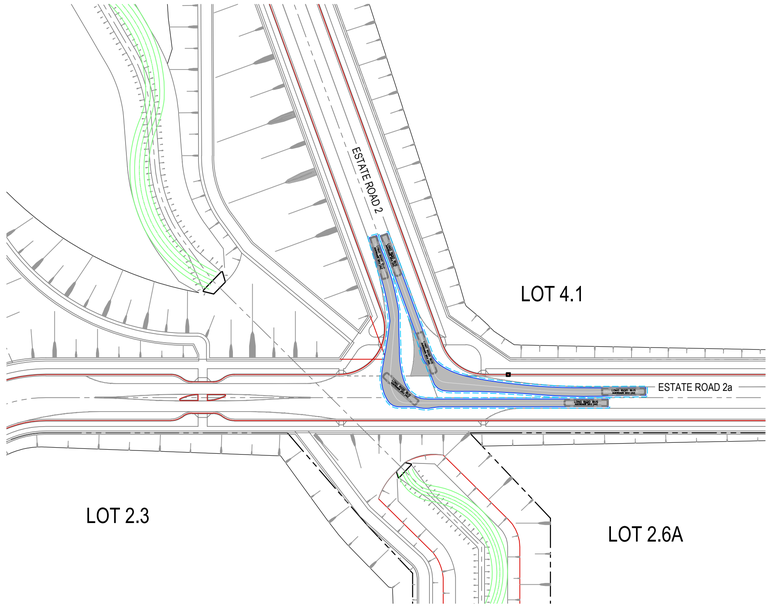
Title
14.5m LONG BUS TURNING PATH SHEET 3 OF 6

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

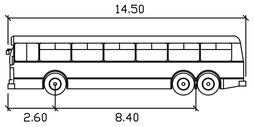
Drawing number: 240518_DA_C673
Revision: 02

File Path: X:\JOBS\240518\ACAD\240518_DA_C673.DWG 240518_DA_C673(3) DATE PRINTED: 12/12/2025 3:21:44 PM

A1



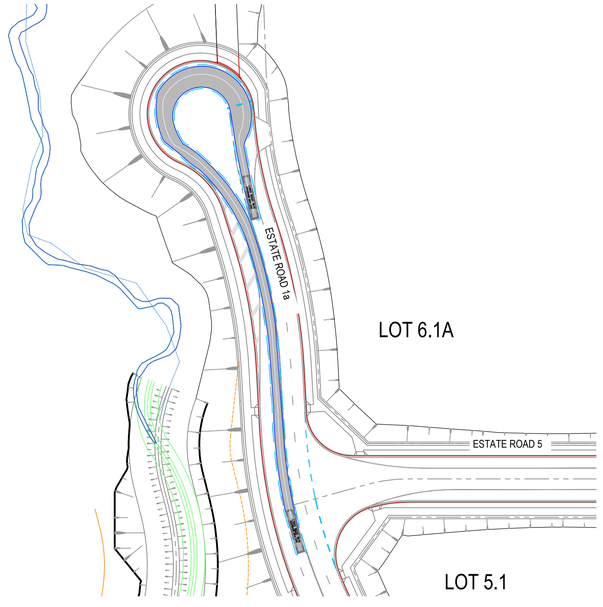
TURNING MOVEMENT No. 14
14.5m LONG BUS
SCALE 1:1000



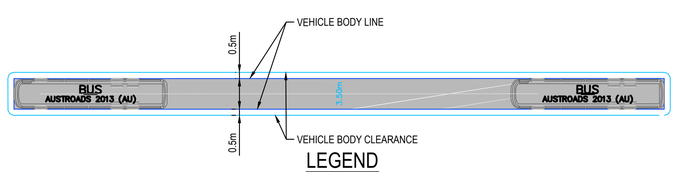
LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

14.5m LONG BUS
N.T.S



TURNING MOVEMENT No. 15
14.5m LONG BUS
SCALE 1:1000



LEGEND

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
14.5m LONG BUS TURNING PATH SHEET 4 OF 6

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C674
Revision: 02

PlotTime: 9:12PM 3/12/2025 PLACEHOLDER FILE C:\21-CIVIL\DWG_240518_DA_C674.DWG, DATE PRINTED: 3/12/2025 1:20:17 PM

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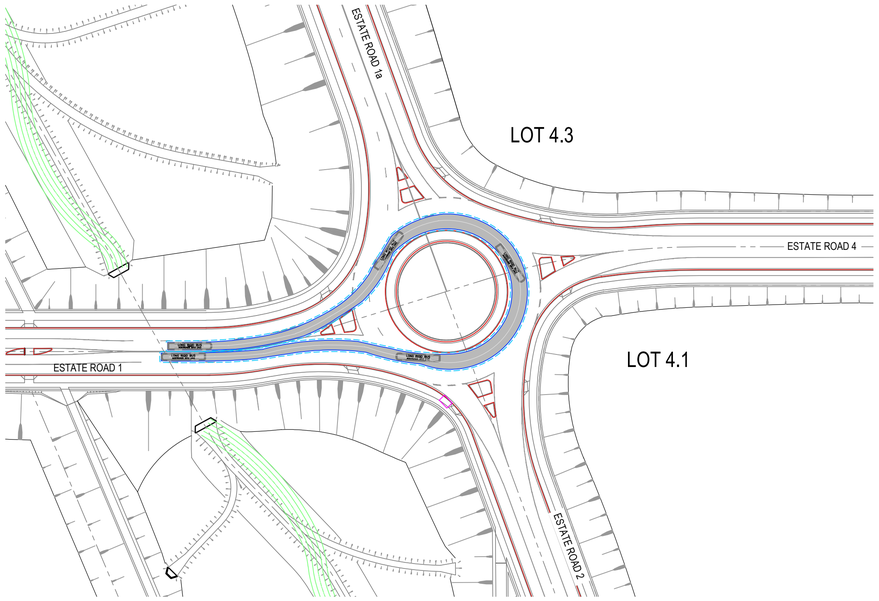
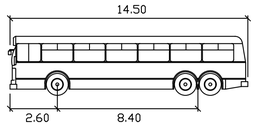


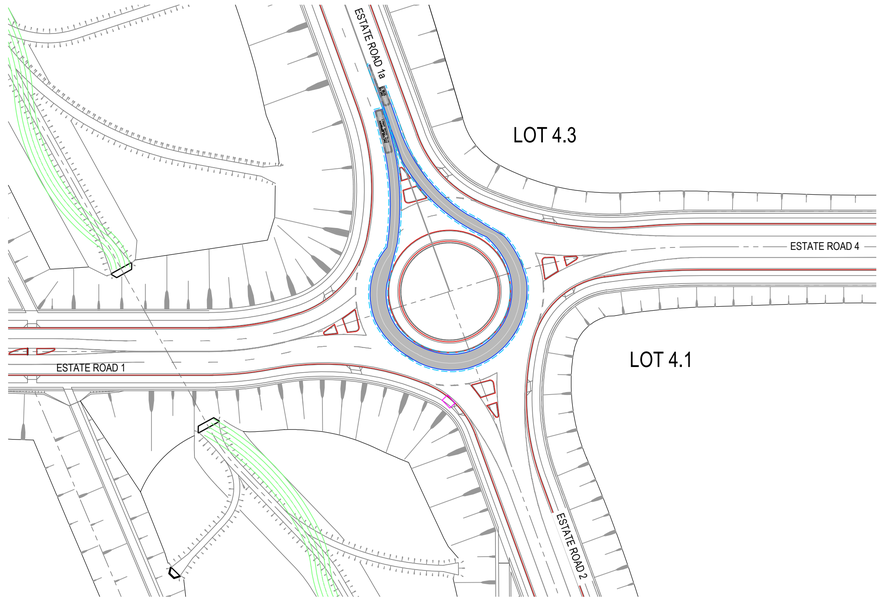
TURNING MOVEMENT No. 18
14.5m LONG BUS
SCALE 1:1000



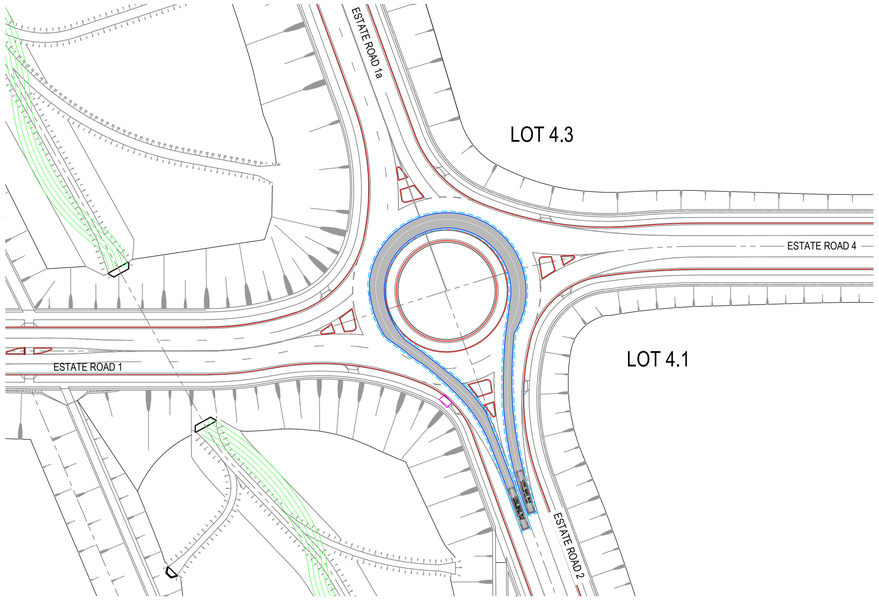
LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

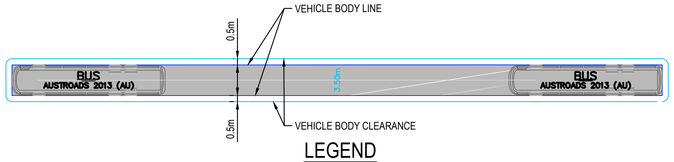
14.5m LONG BUS
N.T.S



TURNING MOVEMENT No. 19
14.5m LONG BUS
SCALE 1:1000



TURNING MOVEMENT No. 20
14.5m LONG BUS
SCALE 1:1000



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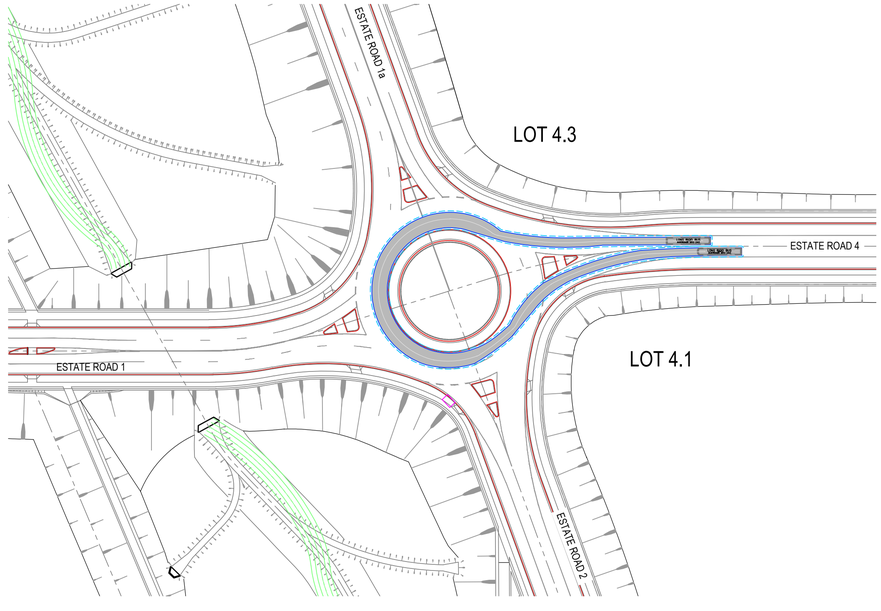

TURNING MOVEMENT No. 21
14.5m LONG BUS
SCALE 1:1000

ISSUED FOR SSDA

File Path: R:\2025\240518\ACAD\DA\240518_DA_C671-C676.DWG - 240518_DA_C671[02]_DATE PRINTED: 03/12/2025 3:23:15 PM

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

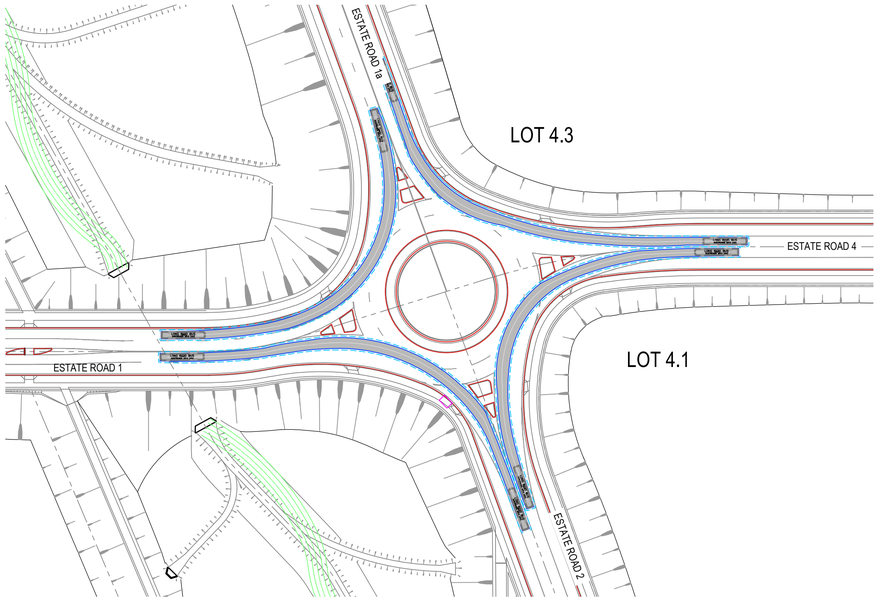
Title
14.5m LONG BUS TURNING PATH SHEET 5 OF 6

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

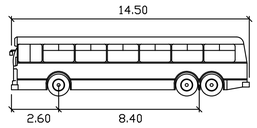
Drawing number
240518_DA_C675

Revision
02

A1



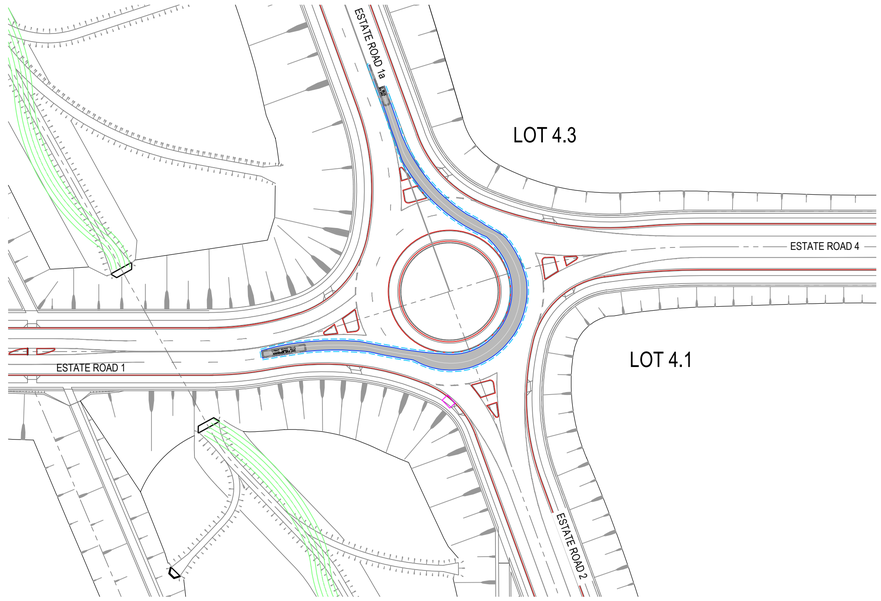
TURNING MOVEMENT No. 22
14.5m LONG BUS
SCALE 1:1000



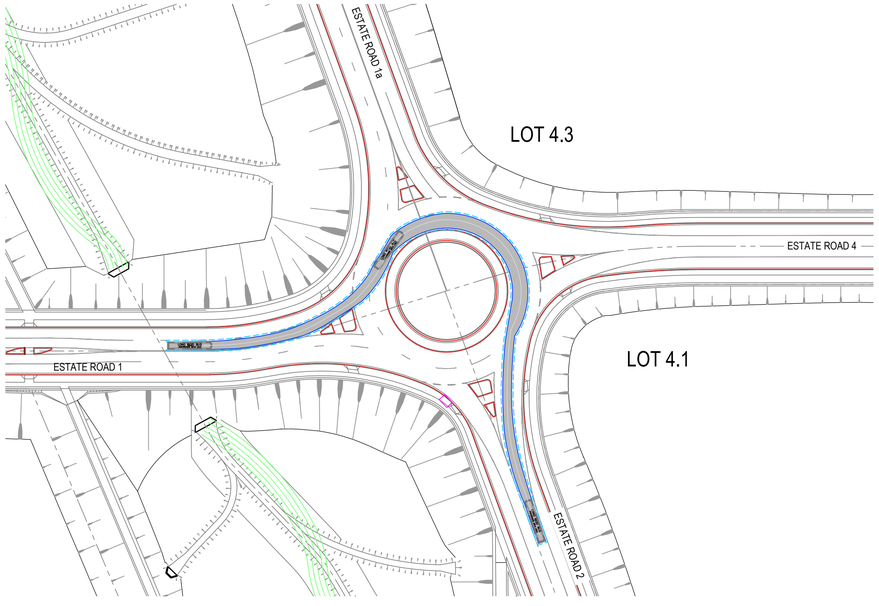
LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

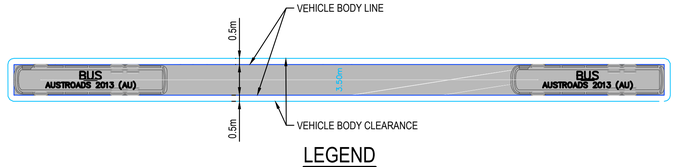
14.5m LONG BUS
N.T.S



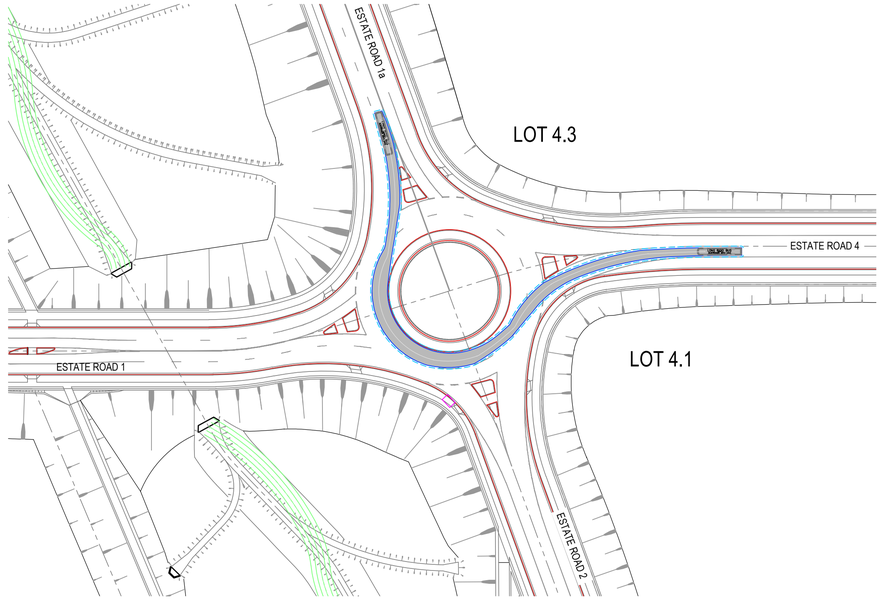
TURNING MOVEMENT No. 23
14.5m LONG BUS
SCALE 1:1000



TURNING MOVEMENT No. 24
14.5m LONG BUS
SCALE 1:1000



LEGEND



TURNING MOVEMENT No. 25
14.5m LONG BUS
SCALE 1:1000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
14.5m LONG BUS TURNING PATH SHEET 6 OF 6

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_DA_C676
Revision: 02

File Path: - R:\240518\04\Architectural\DA\DA_CAD\240518_DA_C676.DWG - JASON_DA_C676(02) - DATE PRINTED: 12/12/2025 3:24:13 PM

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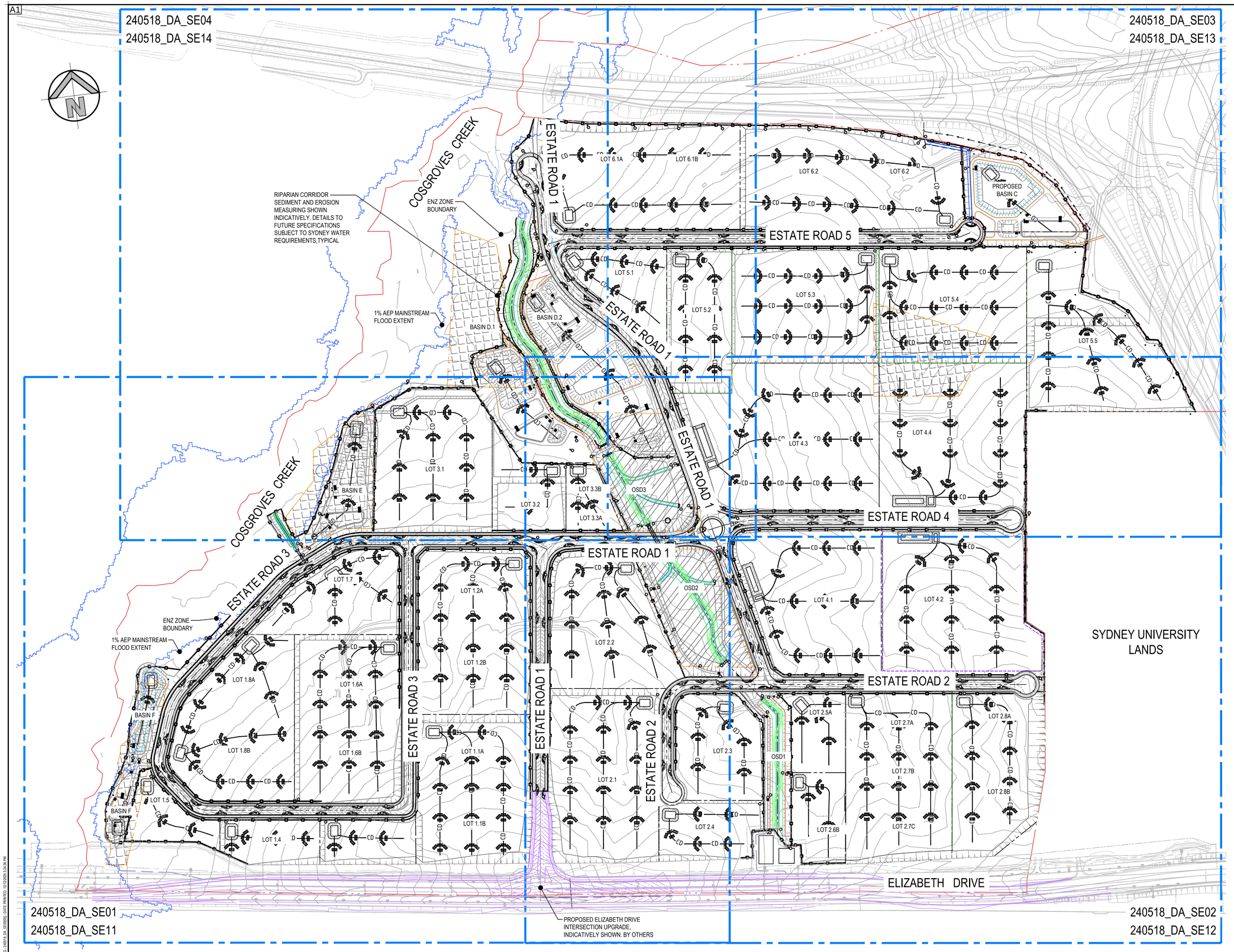
240518_DA_SE04
240518_DA_SE14

240518_DA_SE03
240518_DA_SE13

240518_DA_SE01
240518_DA_SE11

240518_DA_SE02
240518_DA_SE12



LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- PROPOSED SEDIMENTATION FENCE
- PROPOSED CATCH DIVERSION DRAIN
- PROPOSED HAYBALE FILTER/ OR CHECK DAM
- PROPOSED MESH & GRAVEL INLET FILTER
- GEOTEXTILE INLET FILTER
- PROPOSED SEDIMENT BASIN - TYPE B (INDICATIVE LOCATION SUBJECT TO DETAILED EARTHWORKS DESIGN). REFER DETAIL ON SE07

IMPORTANT NOTE: REFER SE11-SE14 FOR EARLY WORKS SEDIMENT AND EROSION CONTROL PLAN

SEDIMENT & EROSION CONTROL NOTES

- ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH RESPECTIVE COUNCIL 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. CATCH DRAINS, AND HAYBALE/ CHECK DAM LOCATIONS INDICATIVELY SHOWN.
- 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.

HIGHLY DISPERSIVE SOILS

THE FOLLOWING ALLOWANCES HAVE BEEN MADE TO ACCOUNT FOR HIGHLY DISPERSIVE SOILS TYPICAL OF THE REGION. UNDERTAKE TESTING FOR HIGHLY DISPERSIVE SOILS AND UPDATE THE SEDIMENT AND EROSION CONTROL PLAN FOR THE FOLLOWING IF PRESENT:

- FLOW DIVERSION BANKS ARE TO BE SPECIFIED IN LEU OF CATCH DRAINS TO DIVERT FLOWS TO SEDIMENT BASINS. 'BACK-PUSH' BANKS ARE FORMED BY PUSHING MATERIAL UP-SLOPE TO FORMA FLOW DIVERSION BANK. IN SUCH CASES THE DIVERTED WATER FLOWS UP-SLOPE OF THE EMBANKMENT INSTEAD OF WITHIN A EXCAVATED TRENCH REDUCING THE LIKELIHOOD OF ENCOUNTERING HIGHLY DISPERSIVE SUBSOILS.
- ALL FLOW DIVERSION BANKS SHOULD HAVE A STABLE OUTLET AND SEEDED AND MULCHED IF THERE WORKING LIFE IS EXPECTED TO EXCEED 30 DAYS, OR AS REQUIRED BY THE SEDIMENT AND CONTROL STANDARD.
- DISPERSIVE SOILS ARE HIGHLY SUSCEPTIBLE TO DEEP, NARROW RILLING ON EXPOSED SLOPES. THESE SOILS MUST BE APPROPRIATELY TREATED OR BURIED UNDER AN APPROPRIATE LAYER OF NON-DISPERSIVE SOIL (USUALLY 100MM MIN) BEFORE PLACING ANY EROSION CONTROL MEASURES.
- A PRACTICE BECOMING INCREASINGLY COMMON IS TO USE THE STRIPPED TOPSOIL TO FORM FLOW DIVERSION BANKS UPSLOPE OF THE SOIL DISTURBANCE, INSTEAD OF PLACING THE TOPSOIL ON STOCKPILES.
- ADJUST SOIL ERODIBILITY (K-FACTOR) FOR AN ADDITION 20% FOR HIGHLY DISPERSIVE SOILS.
- TOPSOIL AND VEGETATION: CONSIDER TREATMENT (E.G. GYPSUM) PRIOR TO VEGETATION OR SEEDING SUBJECT TO SITE REQUIREMENTS.
- AVOID EXPOSING DISPERSIVE SOILS. IF EXPOSED THESE SOILS SHOULD BE TREATED TO STABILIZE THEIR DISPERSIVE NATURE OR BURIED BENEATH A LAYER OF NON DISPERSIVE SOILS.
- BENCHES CUT INTO DISPERSIVE OR SILTY SOILS HAVE A HIGH RISK OF TUNNEL EROSION AND SLOPE FAILURE. DISPERSIVE NATURE OF SOIL IS TO BE INVESTIGATED IF ENCOUNTERED ONSITE AND BENCHING DESIGN APPROPRIATELY UPDATED IF ENCOUNTERED.

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	Afe	NW	06.09.2024
01	ISSUED FOR CONCEPT	MP	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
SEDIMENT AND EROSION CONTROL PLAN OVERALL

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_SE00
Revision: 05

Plot Date: 15/12/2025 3:24:36 PM
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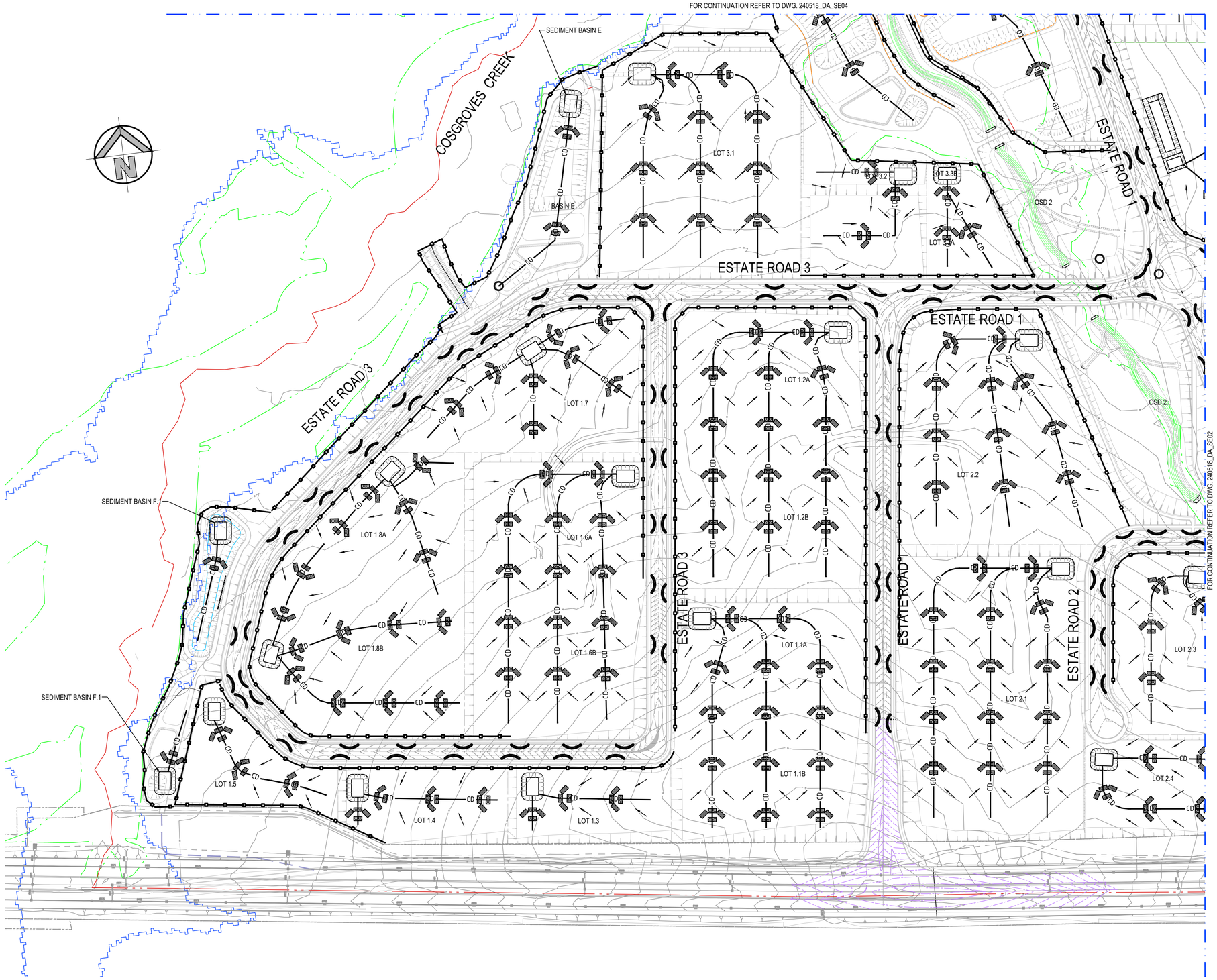

SEDIMENT AND EROSION CONTOL PLAN

SCALE: 1:2000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	Afe	NW	06.09.2024
01	ISSUED FOR CONCEPT	MP	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:2000

Title
SEDIMENT AND EROSION CONTROL PLAN
SHEET 1 OF 4

Drawing number: 240518_DA_SE01

Revision: 05

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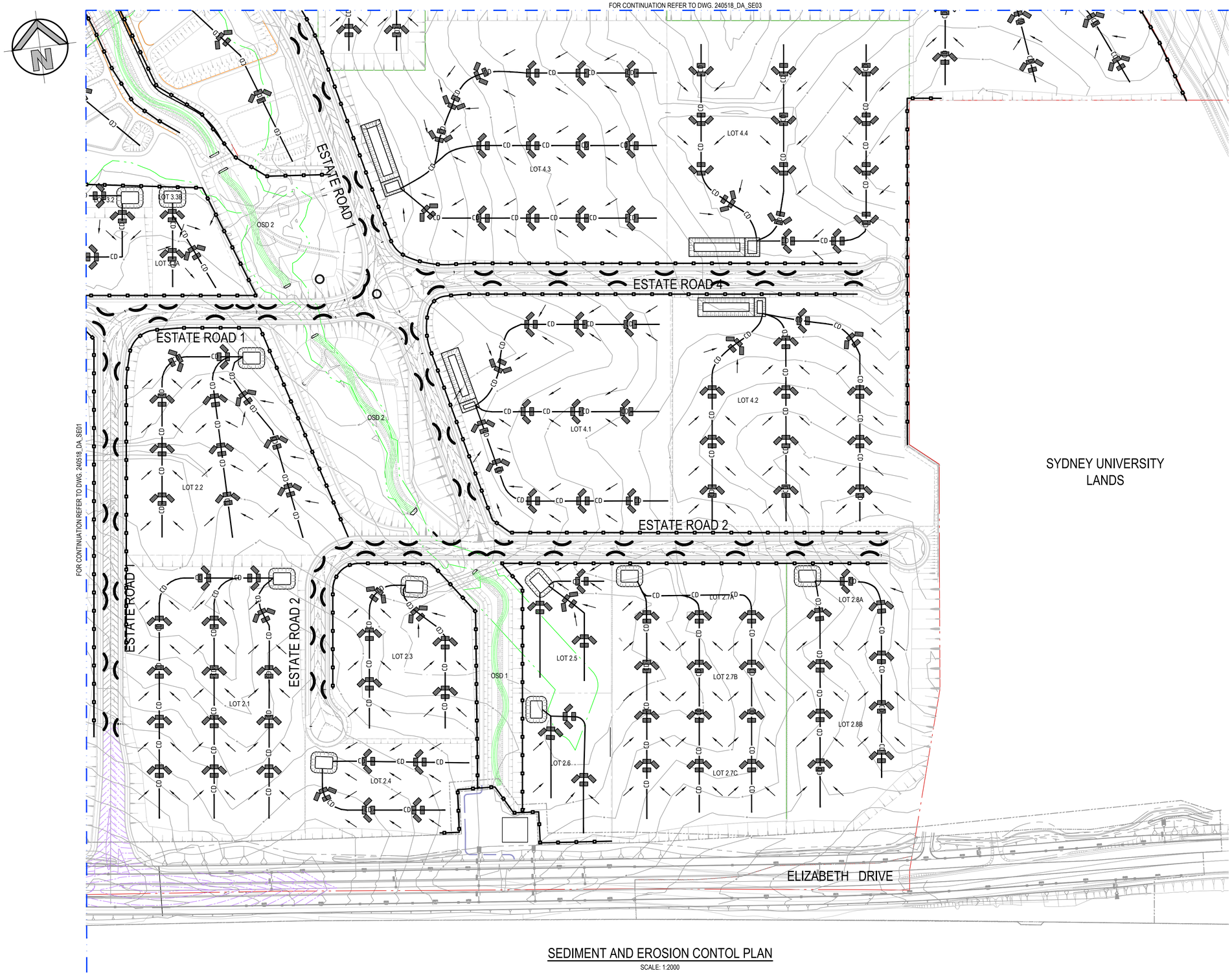

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SEDIMENT AND EROSION CONTOL PLAN

SCALE: 1:2000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

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04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	Ale	NW	06.09.2024
01	ISSUED FOR CONCEPT	MP	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
SEDIMENT AND EROSION CONTROL PLAN
SHEET 2 OF 4

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:2000

Drawing number: 240518_DA_SE02
Revision: 05

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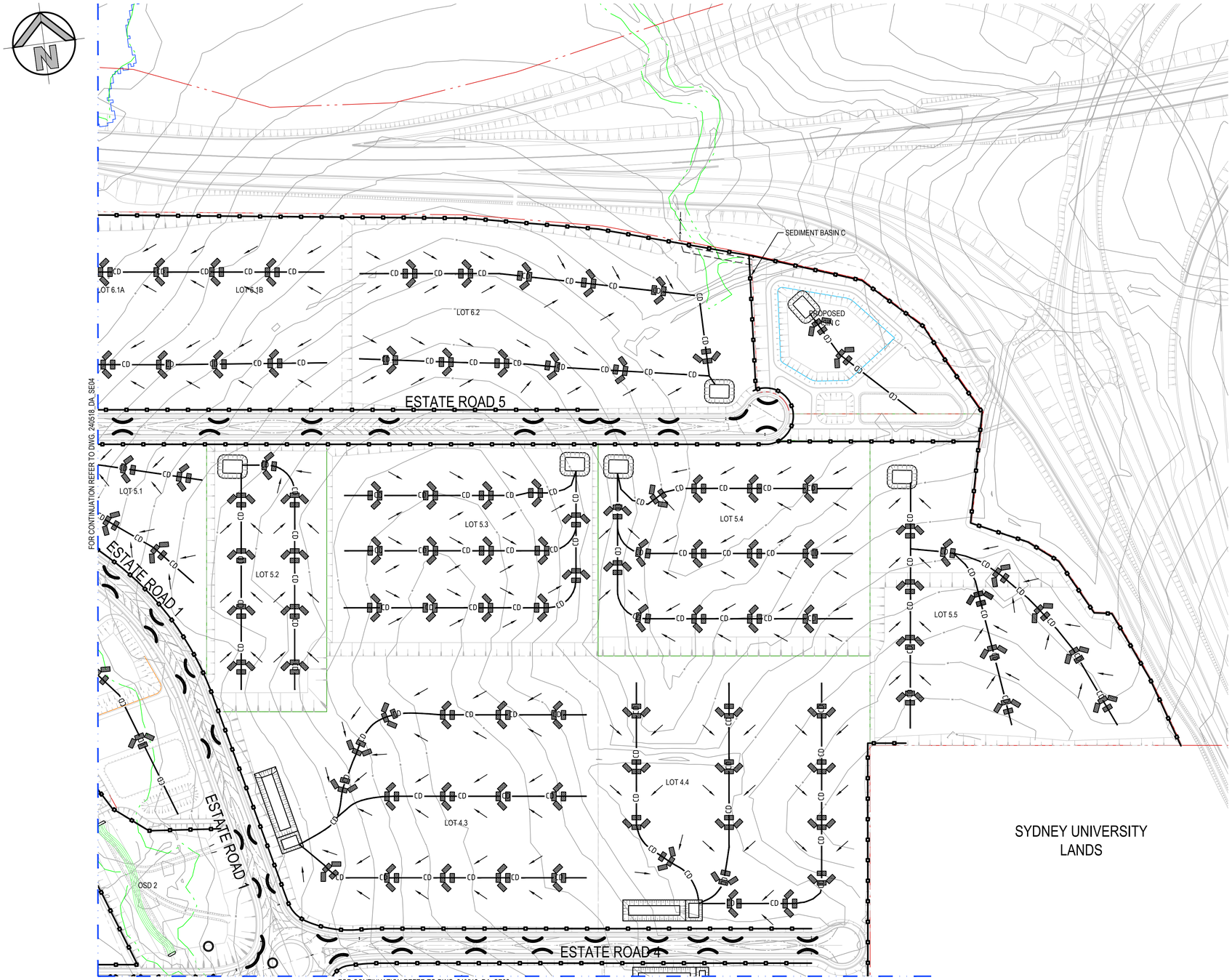

SEDIMENT AND EROSION CONTOL PLAN

SCALE: 1:2000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	Ale	NW	06.09.2024
01	ISSUED FOR CONCEPT	MP	NW	16.08.2024

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: SEDIMENT AND EROSION CONTROL PLAN
SHEET 3 OF 4

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:2000

Drawing number: 240518_DA_SE03

Revision: 05

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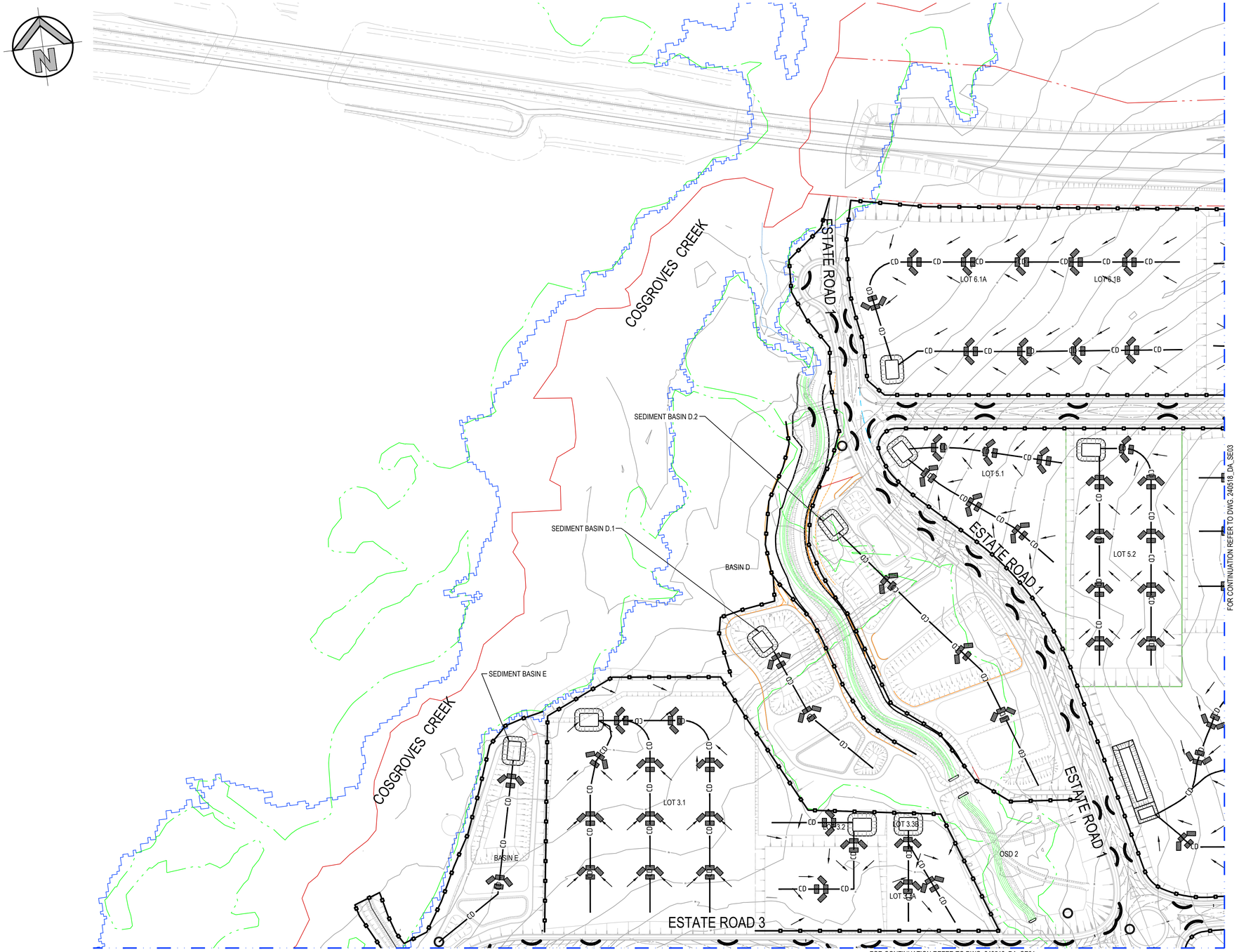

SEDIMENT AND EROSION CONTOL PLAN

SCALE: 1:2000

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DATUM: AHD										
ORIGIN OF LEVELS: PM25501, RL59.659										
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	01	ISSUED FOR CONCEPT	MP	NW	16.08.2024					
	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Facsimile +61 2 9417 8337
Email email@hhconsult.com.au
Web www.henryandhymas.com.au

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
SEDIMENT AND EROSION CONTROL PLAN
SHEET 4 OF 4

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:2000

Drawing number: 240518_DA_SE04

Revision: 05

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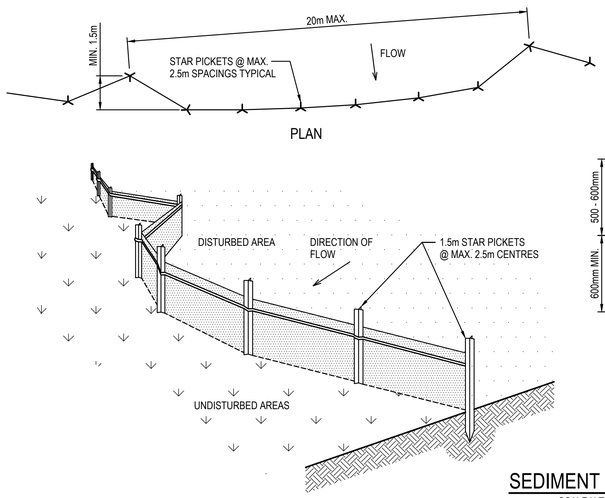
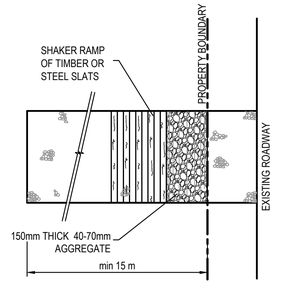


SEDIMENT FENCE

SCALE N.T.S.

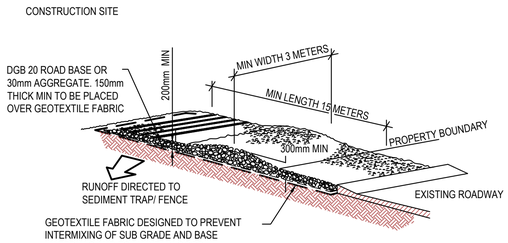
SEDIMENT FENCE CONSTRUCTION NOTES:

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. 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. 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. 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.



PLAN
STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

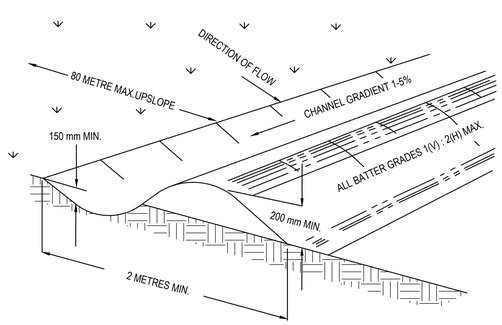


STABILISED SITE ACCESS WITH SHAKER RAMP

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.



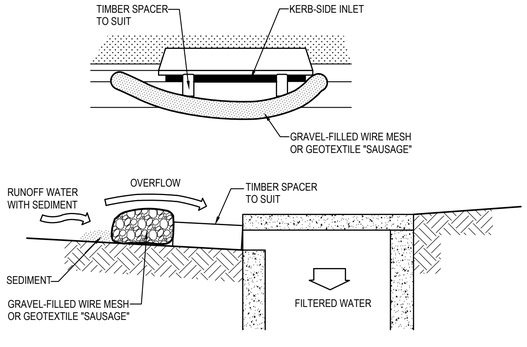
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAC.UPSLOPE LENGTH IS 80 METERS.

CATCH DRAIN CONSTRUCTION NOTES:

1. CONSTRUCT ALONG GRADIENT AS SPECIFIED.
2. MAXIMUM SPACING BETWEEN BANKS SHALL BE 80 METRES.
3. DRAINS TO BE OF PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. CONSTRUCTION IS OF A TEMPRORARY NATURE AND SHALL BE COMPACTED AT THE END A DAYS WORK OR IMMEDIATELY PRIOR RAIN.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUNOFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL AISTE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

CATCH DRAINS

SCALE N.T.S.

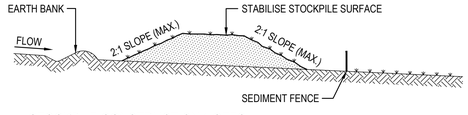


MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

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.

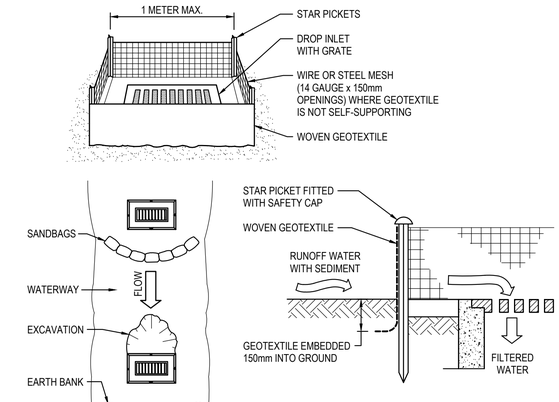


STOCKPILE CONSTRUCTION NOTES:

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.



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.

ISSUED FOR SSDA

File Path: R:\JOBS\2024\240518\ACAD\DA\240518_DA_SE05.MID DSD DWG 2(H)1.0A SE05(B) DATE PRINTED: 12/12/2025 2:25:31 PM

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
02	ISSUED FOR CONCEPT	MP	NW	06.09.2024
01	ISSUED FOR CONCEPT	MP	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
828 Pacific Highway
Gordon NSW 2072

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

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

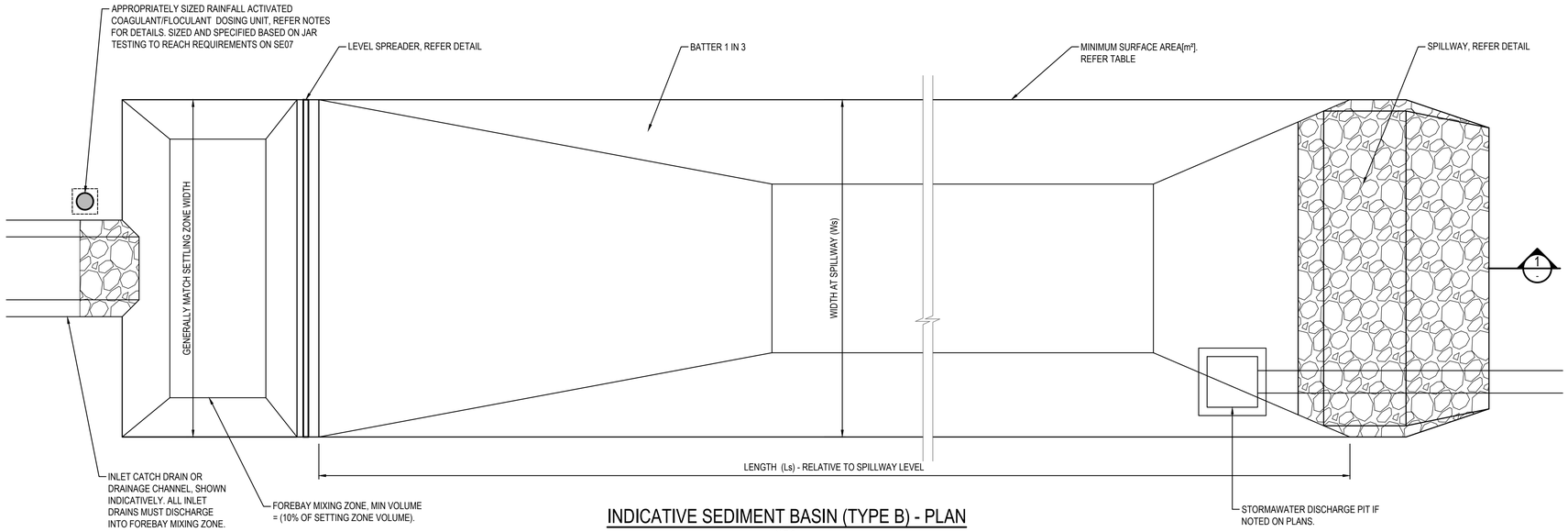
Project
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
SEDIMENT AND EROSION CONTROL DETAILS

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_DA_SE05
Revision: 05

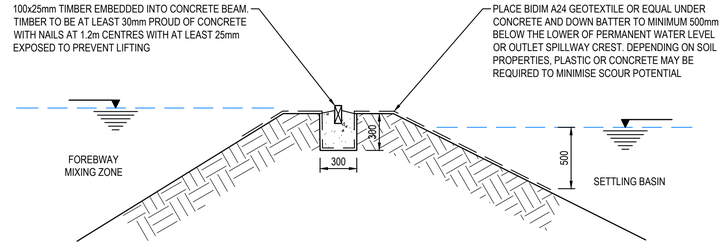
A1



INDICATIVE SEDIMENT BASIN (TYPE B) - PLAN

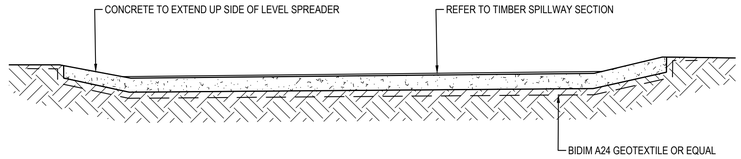
N.T.S.

NOTES:
1. REFER TO TABLE ON SE07 FOR SEDIMENT BASIN PARAMETERS
2. REFER SE01-SE04 FOR INDICATIVE BASIN LOCATION
3. REFER SE07 FOR BASIN NOTES
4. PLANNING PHASE ONLY, BASINS SIZING TO BE AMMENDED FOLLOWING SITE SPECIFIC JAR TESTING



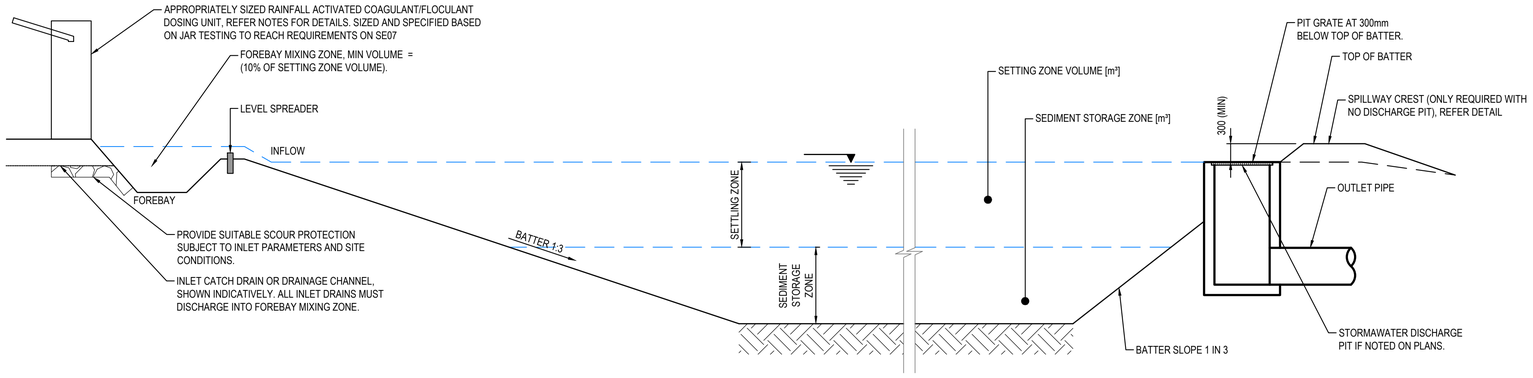
LEVEL SPREADER DETAILS - TYPICAL CROSS SECTION

N.T.S.



LEVEL SPREADER DETAILS - TYPICAL LONG SECTION

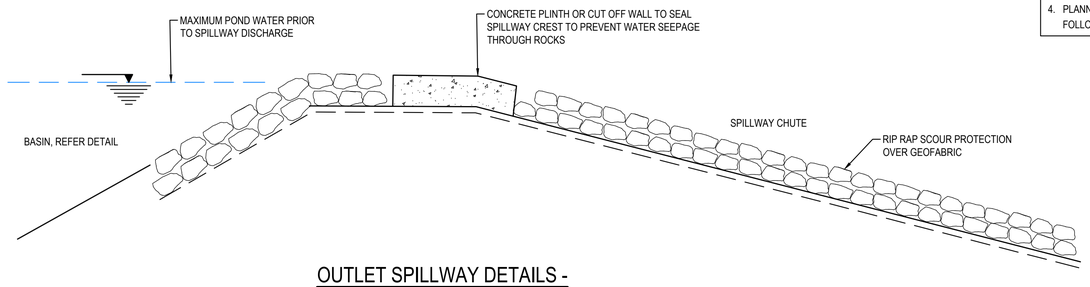
N.T.S.



INDICATIVE SEDIMENT BASIN - SECTION 1

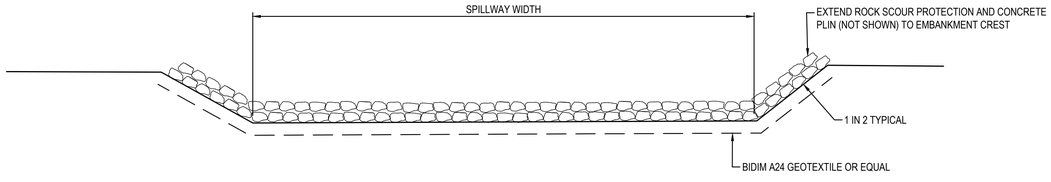
N.T.S.

NOTES:
1. REFER TO TABLE ON SE07 FOR SEDIMENT BASIN PARAMETERS
2. REFER SE01-SE04 FOR INDICATIVE BASIN LOCATION
3. REFER SE07 FOR BASIN NOTES
4. PLANNING PHASE ONLY, BASINS SIZING TO BE AMMENDED FOLLOWING SITE SPECIFIC JAR TESTING



OUTLET SPILLWAY DETAILS - TYPICAL CROSS SECTION

N.T.S.



OUTLET SPILLWAY DETAILS - TYPICAL LONG SECTION

N.T.S.

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

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01	ISSUED FOR CONCEPT	MP	NW	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: TYPE A BASIN TYPICAL PLAN ,SECTION AND DETAILS

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_DA_SE06
Revision: 05

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A1

PRELIMINARY BASIN SIZING - TYPE B SEDIMENT BASIN SIZING

THE SEDIMENT BASIN SHALL BE CONSTRUCTED ON A RATE PER HECTARE BASIS AND HAS BEEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018). THE DISTURBED AREA WITHIN THIS CATCHMENT AT ANY ONE TIME SHOULD BE LIMITED TO AN AREA FOR WHICH EACH SEDIMENT BASIN HAS BEEN DESIGNED FOR. EACH BASIN SHALL BE SIZED IN ACCORDANCE WITH THE TABLE BELOW AND ADJACENT.

VALUES PRESENTED IN THE TABLE ADJACENT ARE BASED ON FULL SITE AREA. SUBJECT TO FUTURE DETAIL DESIGN. DISTRUBTED SITE AREAS (AND THUS BASIN AREAS) MAY CHANGE OR BE DISTRIBUTED TO MULTIPLE BASINS AS SITE CONDITIONS DICTATE. A REVIEW OF SIZING (AND UPSIZING) TO BE UNDERTAKEN DURING DETAILED DESIGN PHASE USING THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018). DETAILED DESIGN OF BASIN TO BE UNDERTAKEN WHEN SITE CONDITIONS, SOIL CONDITIONS AND FINAL CONTRIBUTING CATCHMENTS ARE KNOW. FURTHERMORE, SITE CONDITIONS MAY VARY FROM THOSE DETAILED ABOVE IN THE TABLE BELOW.

JAR TESTING, IN ACCORDANCE WITH SECTION B3 OF THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018) IS REQUIRED IN ORDER TO DETERMINE THE CHEMCIAL DOSING RATES OF SEDIMENT BASINS. IT IS RECOMMENDED THAT THIS ANALYSIS IS UNDERTAKEN PRIOR TO BASIN CONSTRUCTION AS THE FINDINGS MAY POTENTIALLY IMPACT THE SEDIMENT AND EROSION CONTROL (BASIN SIZING ALSO) ADOPTED. IT SHOULD BE NOTED THAT THE MOST SUITABLE FLOCCULANT AND/OR COAGULANT IS LIKELY TO VARY WITH SOIL TYPE. CONSEQUENTLY, THERE IS A NEED TO REVIEW THE EFFICACY OF CERTAIN PRODUCTS OVER TIME AS SOIL CHARACTERISTICS CHANGE DURING THE VARIOUS STAGES OF CONSTRUCTION.

BASIN MANAGEMENT

IN ACCORDANCE WITH THE BLUE BOOK, THE SEDIMENT BASINS WILL BE MANAGED AND MAINTAINED UNTIL THE CONTRIBUTING CATCHMENT UPSTREAM IS COMPLETED AND FULLY STABILISED ON MORE THAN 90% OF THE TOTAL AREA. A GENERIC BASIN MAINTENANCE STRATEGY IS DETAILED BELOW - NOTE THIS STRATEGY WILL NEED TO BE TAILORED TO SITE CONDITIONS AND PARAMETERS:

- AN AUTOMATED SYSTEM OF FLOCCULANT DOSING IS REQUIRED AND A SUITABLE SUPPLY OF FLOCCULANT/COAGULANT. DOSER AND SUPPLY OF FLOCCULANT TO BE PROVIDED ON LEVEL PAD 4MX4M WITHIN 10M OF DOSING POINT. SELECTION OF AUTOMATIC DOSING SYSTEM IS BASED ON-SITE CHARACTERISTIC AND JAR TESTING OF PRODUCTS ONSITE SPECIFIC TURBID WATER. AUTOMATIC DOSING SYSTEM MUST ACHIEVE PERFORMANCE TARGETS DETAILED BELOW.
- FURTHER DETAILS FOR BASIN MANAGEMENT ARE PROVIDED IN CHAPTER 6 AND APPENDIX E4 OF LANDON'S 'BLUE BOOK'.
- FURTHER DETAILED BASIN MANAGEMENT ARE PROVIDED IN IECA (INTERNATIONAL EROSION CONTROL ASSOCIATION) (2008) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018), INTERNATIONAL EROSION CONTROL ASSOCIATION AUSTRALASIA.
- BASIN PERFORMANCE REQUIRMENTS AS FOLLOWS: AT LEAST 80% OF THE AVERAGE ANNUAL RUNOFF VOLUME (I.E. 80% HYDROLOGICAL EFFECTIVENESS) TO 50 MG/L TSS OR LESS, AND PH IN THE RANGE 6.5-8.5.
- JAR TESTING IS TO BE UNDERTAKEN TO SELECT THE APPROPRIATE COAGULANTS AND/OR FLOCCULATNS ALONG WITH DETERMINING THEIR OPTIMUM DOSE RATES. JAR TESTING IS TO BE UNDERTAKING IN ACCORDANCE WITH THE RECOMMENDATIONS AND TESTING PROCEDURE SPECIFIED IN THE CHAPTER 5 OF THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) CHEMICAL COAGULANTS AND FLOCCULANTS FACT SHEET (IECA 2018).
- TYPE A AND B BASINS REQUIRE A FAST ACTING COAGULANT AND FLOCCULANT TO PERFORM BASED ON THE JAR TESTING. A FACTOR OF SAFTEY (IN ACCORDANCE WITH ABOVE GUIDELINES) SHOULD BE APPLIED TO ALLOW FOR THE DIFFERENT SETTLING TIMES EXPERIENCED BY BASINS DUES TO DOSING, MIXING, FLOW VELOCITY AND WIND ACTION.
- REFER CIVIL ENGINEERING REPORT BY HENRY AND HYMAS, REFERENCE REV 1.2 FOR GENERIC BASIN MANAGEMENT AND OPERATION DETAILS.
- MAINTENANCE AND OPERATING PROCEDURES REPORT TO BE PREPARED AT DETAIL DESIGN PHASE. REPORT TO INCLUDE THE FOLLOWING:
- DECANT WATER QUALITY OBJECTIVES
- DESCRIPTION OF PROPOSED CHEMICAL TREATMENT OF THE BASIN, INCLUDING MINIMUM JAR TESTING PEFORMANCE REQUIREMENTS
- PERFORMANCE ASSESSMENT PROCEDURES
- GUIDANCE ON CORRECTIVE MEASURES BASED ON WATER QUALITY MONITORING OUTCOMES
- DESCRIPTION OF DE-WATERING TRIGGERS, INCLUDING TRIGGERS FOR TEMPORARY SHUT-OFF OF THE DECANT SYSTEM IN THE EVENT OF POOR WATER QUALITY
- DESCRIPTION OF DE-SILTING TRIGGERS
- DESCRIPTION OF THOSE CIRCUMSTANCES AND/OR WEATHER CONDITIONS THAT WOULD TRIGGER DE-WATERING OF THE BASIN PRIOR TO AN IMMINENT STORM.
- MAINTENANCE PROCEDURES AND PROTOCOLS INCLUDING DE-SILTING METHOD AND FREQUENCIES.

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.

PRELIMINARY BASIN SIZING - TYPE B SEDIMENT BASIN SIZING (PLANNING PHASE)

BASIN NAME	ADOPTED BASIN TYPE	LARGE BASIN WIDTH - Ws (m)	LARGE BASIN LENGTH - Ls (m)	SETTLING ZONE SURFACE AREA - As (m2)	DEPTH OF SETTLING ZONE - Ds (m)	SETTLING ZONE VOLUME - Vs (m3)	BASIN STORAGE (SOIL) VOLUME (m3)	TOTAL BASIN VOLUME TO SPILLWAY LEVEL (m3)
EWB1	OPTION 1B - L	13.03	39.09	509.2	1.5	763.9	914	1677.9
EWB2	OPTION 1B - L	19.89	59.66	1186.6	3	3559.7	3968	7527.7
EWB3	OPTION 1B - L	17.2	51.59	887.3	3	2661.8	3432	6093.8
EWB4	OPTION 1B - L	20.82	62.46	1300.6	3	3901.8	4633	8534.8
EWB5	OPTION 1B - L	20.68	62.03	1282.6	2	2565.2	2326	4891.2
EWB6	OPTION 1B - L	20.18	60.53	1221.3	2	2442.6	2686	5128.6
EWB7	OPTION 1B - L	17.14	51.43	881.5	2	1763.1	1904	3667.1
1.2	OPTION 1B - L	12.7	38.09	483.5	1.5	725.3	159	884.3
2.1	OPTION 1B - L	12.63	37.89	478.4	1.5	717.7	158	875.7
2.2	OPTION 1B - L	12.18	36.55	445.3	1.5	668	125	793
2.3	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	69	632.1
2.4	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	48	611.1
2.5	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	37	600.1
2.6	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	33	596.1
2.7	OPTION 1B - L	11.87	35.62	422.9	1.5	634.3	149	783.3
2.8	OPTION 1B - L	11.09	33.28	369.3	1.5	553.9	116	669.9
3.2	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	38	601.1
3.3	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	21	584.1
4.1	OPTION 1B - L	12.96	38.89	504	1.5	756.1	162	918.1
4.2	OPTION 1B - L	14.76	44.29	653.8	1.5	980.7	185	1165.7
4.3	OPTION 1B - L	17.45	52.36	913.8	1.5	1370.8	219	1589.8
4.4	OPTION 1B - L	14.43	43.29	624.4	1.5	936.9	181	1117.9
5.3	OPTION 1B - L	13.47	40.41	544.6	1.5	816.9	135	951.9
5.4	OPTION 1B - L	13.54	40.62	550	1.5	825	141	966
5.5	OPTION 1B - L	14.41	43.22	622.7	1.5	934.1	150	1084.1
6.2	OPTION 1B - L	14.23	42.69	607.4	1.5	911.1	120	1031.1
3.1	OPTION 1B - L	13.01	39.02	507.5	1.5	761.3	129	890.3
5.1	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	54	617.1
5.2	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	78	641.1
6.1	OPTION 1B - L	35.4	41.82	583	1.5	874.4	175	1049.4
1.1	OPTION 1B - L	13.61	40.82	555.4	1.5	833.2	139	972.2
1.6	OPTION 1B - L	14.18	42.55	603.6	1.5	905.4	148	1053.4
1.7	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	75	638.1
1.8 NORTH	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	61	624.1
1.3	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	36	599.1
1.4	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	37	600.1
1.5	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	24	587.1
1.8 SOUTH	OPTION 1BL(min)	12.51	37.52	469.2	1.2	563.1	68	631.1

IMPORTANT NOTES
1. REFER TYPE A BASIN TYPICAL PLAN, SECTION AND DETAILS FOR REFERENCE VALUES.
2. REVIEW OF SIZING (AND POTENTIAL UPSIZING) IS TO BE UNDERTAKEN DURING DETAILED DESIGN PHASE USING THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018).
3. CACULATIONS BASED ON ESTIMATED DESIGN SETTLMENT COEFFICIENT, K_d BASED OF 12000 (s/m). BASED ON 15 DEGREES SUGGESTED WATER TEMPERATURE.

REFERENCE PARAMETERS - FOR CALCULATION OF SOIL LOSS (NOT USED IN ABOVE CALCULATIONS)

SEDIMENT BASIN SIZING TYPE D SOILS	
VOLUMETRIC RUNOFF COEFFICIENT, CV	6.4
80TH PERCENTILE 5 DAY TOTAL RAINFALL DEPTH, R	35mm
CATCHMENT AREA, A	VARIES
SETTLING ZONE VOLUME (PER HECTARE) 10 CV A R	124 x A
DISTURBED CATCHMENT AREA	VARIES
R K LS P C	143 x Ls
SEDIMENT ZONE VOLUME (0.17 A (R K LS P C))/1.3	18.7 x Ls
TOTAL SEDIMENT BASIN VOLUME REQUIRED :	REFER ADJACENT TABLE

* (LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)

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

CONSTRAINT	VALUE	(SOURCE)*
RAINFALL EROSIVITY (R-FACTOR)	2200	APPENDIX B - MAP 10
LENGTH/SLOPE GRADIENT FACTOR, LS	VARIOUS	APPENDIX A - TABLE A1
SOIL ERODIBILITY (K-FACTOR)	0.05	(TABLE C19)
EROSION CONTROL PRACTICE FACTOR (P-FACTOR)	1.3	APPENDIX A - TABLE A2
COVER FACTOR (C-FACTOR)	1.0 (DURING EARTHWORKS)	APPENDIX A - FIGURE A5
CALCULATED SOIL LOSS, A (RUSLE EQUATION)	VARIES	A = R K LS P C
SOIL HYDROLOGIC GROUP	GROUP D	APPENDIX C TABLE 19
85TH PERCENTILE 5-DAY RAINFALL EVENT	35mm	TABLE 6.3A

* (LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MS	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
TYPE A BASIN SIZING TABLE AND NOTES

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	May-24
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_SE07
Revision: 02

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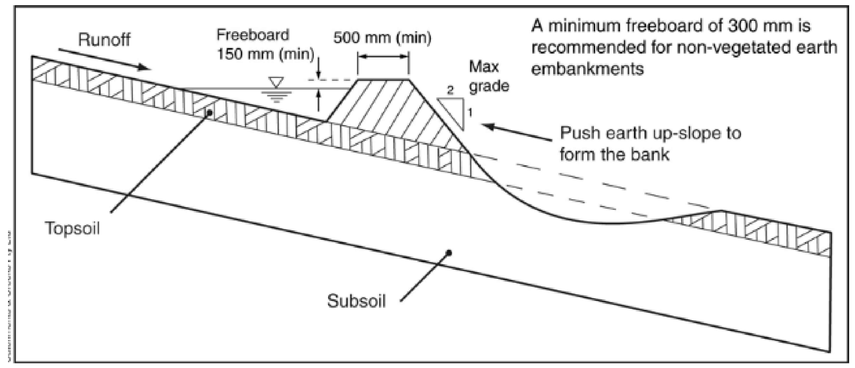


SEDIMENT AND EROSION CONTROL - PUSH BANK FLOW DIVERSION BANK DETAIL

SCALE: NTS

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. CLEAR THE LOCATION FOR THE BANK, CLEARING ONLY THE AREA THAT IS NEEDED TO PROVIDE ACCESS FOR PERSONNEL AND EQUIPMENT.

3. REMOVE ROOTS, STUMPS, AND OTHER DEBRIS AND DISPOSE OF THEM PROPERLY. DO NOT USE DEBRIS TO BUILD THE BANK.

4. FORM THE BANK FROM THE MATERIAL, AND TO THE DIMENSION SPECIFIED IN THE APPROVED PLANS.

5. IF EARTH IS USED, THEN ENSURE THE SIDES OF THE BANK ARE NO STEEPER THAN A 2:1 (H:V) SLOPE, AND THE COMPLETED BANK MUST BE AT LEAST 500mm HIGH.

6. IF FORMED FROM SANDBAGS, THEN ENSURE THE BAGS ARE TIGHTLY PACKED SUCH THAT WATER LEAKAGE THROUGH THE BAGS IS MINIMISED.

7. CHECK THE BANK ALIGNMENT TO ENSURE POSITIVE DRAINAGE IN THE DESIRED DIRECTION.

8. THE BANK SHOULD BE VEGETATED (TURFED, SEEDED AND MULCHED), OR OTHERWISE STABILISED IMMEDIATELY, UNLESS IT WILL OPERATE FOR LESS THAN 30 DAYS OR IF SIGNIFICANT RAINFALL IS NOT EXPECTED DURING THE LIFE OF THE BANK.

9. ENSURE THE EMBANKMENT DRAINS TO A STABLE OUTLET, AND DOES NOT DISCHARGE TO AN UNSTABLE FILL SLOPE.

MAINTENANCE

1. INSPECT FLOW DIVERSION BANKS AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.

2. INSPECT THE BANK FOR ANY SLUMPS, WHEEL TRACK DAMAGE OR LOSS OF FREEBOARD. MAKE REPAIRS AS NECESSARY.

3. CHECK THAT FILL MATERIAL OR SEDIMENT HAS NOT PARTIALLY BLOCKED THE DRAINAGE PATH UP-SLOPE OF THE EMBANKMENT. WHERE NECESSARY, REMOVE ANY DEPOSITED MATERIAL TO ALLOW FREE DRAINAGE.

4. DISPOSE OF ANY COLLECTED SEDIMENT OR FILL IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

5. REPAIR ANY PLACES IN THE BANK THAT ARE WEAKENED OR IN RISK OF FAILURE.

REMOVAL

1. WHEN THE SOIL DISTURBANCE ABOVE THE BANK IS FINISHED AND THE AREA IS STABILISED, THE FLOW DIVERSION BANK SHOULD BE REMOVED, UNLESS IT IS TO REMAIN AS A PERMANENT DRAINAGE FEATURE.

2. DISPOSE OF ANY SEDIMENT OR EARTH IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

3. GRADE THE AREA AND SMOOTH IT OUT IN PREPARATION FOR STABILISATION.

4. STABILISE THE AREA BY GRASSING OR AS SPECIFIED IN THE APPROVED PLAN.

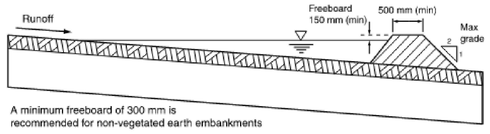


Figure 1 - Typical profile of flow diversion bank formed from earth

Table 1 - Recommended dimensions of flow diversion banks

Parameter	Earth banks	Vegetated banks	Compost berms	Sandbag berms
Height (min)	500 mm	500 mm	300 mm	N/A
Top width (min)	500 mm	500 mm	100 mm	N/A
Base width (min)	2500 mm	2500 mm	600 mm	N/A
Side slope (max)	2:1 (H:V)	2:1 (H:V)	1:1 (H:V)	N/A
Freeboard	300 mm	150 mm	100 mm	50 mm

Drawn:	Date:		
GMW	Dec-09	Flow Diversion Banks	DB-01

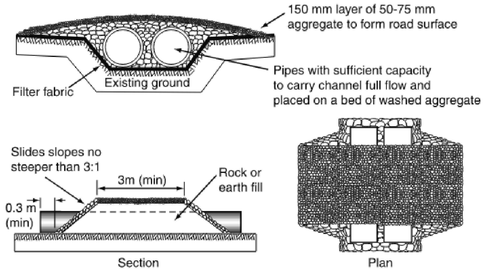
SEDIMENT AND EROSION CONTROL - PUSH BANK FLOW DIVERSION BANK NOTES

SCALE: NTS

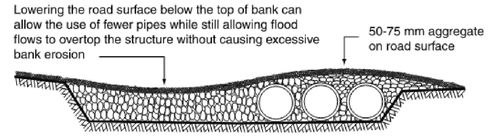
HIGHLY DISPERSIVE SOILS

THE FOLLOWING ALLOWANCES HAVE BEEN MADE TO ACCOUNT FOR HIGHLY DISPERSIVE SOILS TYPICAL OF THE REGION. UNDERTAKE TESTING FOR HIGHLY DISPERSIVE SOILS AND UPDATE THE SEDIMENT AND EROSION CONTROL PLAN FOR THE FOLLOWING IF PRESENT:

- FLOW DIVERSION BANKS ARE TO BE SPECIFIED IN LEU OF CATCH DRAINS TO DIVERT FLOWS TO SEDIMENT BASINS. 'BACK-PUSH' BANKS ARE FORMED BY PUSHING MATERIAL UP-SLOPE TO FORMA FLOW DIVERSION BANK. IN SUCH CASES THE DIVERTED WATER FLOWS UP-SLOPE OF THE EMBANKMENT INSTEAD OF WITHIN A EXCAVATED TRENCH REDUCING THE LIKELIHOOD OF ENCOUNTERING HIGHLY DISPERSIVE SUBSOILS.
- ALL FLOW DIVERSION BANKS SHOULD HAVE A STABLE OUTLET AND SEEDED AND MULCHED IF THERE WORKING LIFE IS EXPECTED TO EXCEED 30 DAYS, OR AS REQUIRED BY THE SEDIMENT AND CONTROL STANDARD.
- DISPERSIVE SOILS ARE HIGHLY SUSCEPTIBLE TO DEEP, NARROW RILLING ON EXPOSED SLOPES. THESE SOILS MUST BE APPROPRIATELY TREATED OR BURIED UNDER AN APPROPRIATE LAYER OF NON-DISPERSIVE SOIL (USUALLY 100MM MIN) BEFORE PLACING ANY EROSION CONTROL MEASURES.
- A PRACTICE BECOMING INCREASINGLY COMMON IS TO USE THE STRIPPED TOPSOIL TO FORM FLOW DIVERSION BANKS UPSLOPE OF THE SOIL DISTURBANCE, INSTEAD OF PLACING THE TOPSOIL ON STOCKPILES.
- ADJUST SOIL ERODIBILITY (K-FACTOR) FOR AN ADDITION 20% FOR HIGHLY DISPERSIVE SOILS.
- TOPSOIL AND VEGETATION: CONSIDER TREATMENT (E.G. GYPSUM) PRIOR TO VEGETATION OR SEEDING SUBJECT TO SITE REQUIREMENTS.
- AVOID EXPOSING DISPERSIVE SOILS. IF EXPOSED THESE SOILS SHOULD BE TREATED TO STABILIZE THEIR DISPERSIVE NATURE OR BURIED BENEATH A LAYER OF NON DISPERSIVE SOILS.
- BENCHES CUT INTO DISPERSIVE OR SILTY SOILS HAVE A HIGH RISK OF TUNNEL EROSION AND SLOPE FAILURE. DISPERSIVE NATURE OF SOIL IS TO BE INVESTIGATED IF ENCOUNTERED ONSITE AND BENCHING DESIGN APPROPRIATELY UPDATED IF ENCOUNTERED.

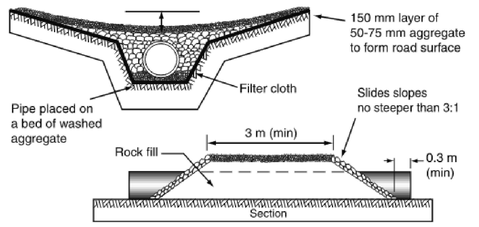


(a) Preferred arrangement for temporary culvert crossings

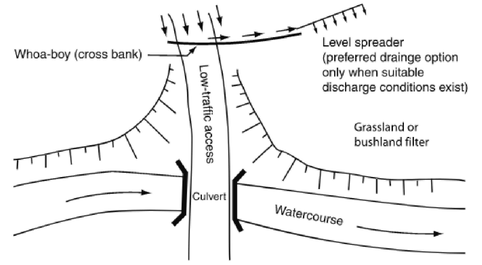


(b) Typical profile of temporary culvert crossings of wide channels

In situations where it is not practicable to allow overflows to initially passing around the culvert on a stable (well vegetated) stream bank, then the center must be set low to allow flow to pass over the culvert along the centreline of the channel



(c) Alternative layout for the crossing of confined channels



(d) Typical arrangement of surface runoff controls associated with approach ramps

SEDIMENT AND EROSION CONTROL - TEMPORARY CULVERT CROSSING DETAIL

SCALE: NTS

MATERIALS

CULVERTS: ANY COMMERCIAL CONDUIT THAT IS SUITABLE FOR THE REQUIRED TRAFFIC LOADING.

ROCK: MINIMUM 150mm NOMINAL ROCK SIZE.

AGGREGATE: 50–75mm CLEAN AGGREGATE.

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH (MINIMUM BIDIM A34 OR EQUIVALENT).

INSTALLATION

1. PRIOR TO COMMENCING ANY WORKS, OBTAIN ALL NECESSARY APPROVALS AND PERMITS REQUIRED TO CONSTRUCT THE TEMPORARY WATERCOURSE CROSSING, INCLUDING PERMITS FOR THE DISTURBANCE OF BANK VEGETATION, AQUATIC VEGETATION (e.g. MANGROVES) AND ANY TEMPORARY INSTREAM FLOW DIVERSION BARRIERS OR SEDIMENT CONTROL MEASURES.

2. REFER TO APPROVED PLANS FOR LOCATION AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

3. ENSURE THAT THE LOCATION OF THE CROSSING WILL NOT INTERFERE WITH FUTURE CONSTRUCTION WORKS.

4. PRIOR TO SIGNIFICANT LAND CLEARING OR CONSTRUCTION OF THE APPROACH RAMPS, ESTABLISH ALL NECESSARY SEDIMENT CONTROL MEASURES AND FLOW DIVERSION WORKS (INSTREAM AND OFF-STREAM AS REQUIRED), CLEARING ONLY THOSE AREAS NECESSARY FOR INSTALLATION OF THESE MEASURES.

5. TO THE MAXIMUM DEGREE PRACTICABLE, CONSTRUCTION ACTIVITIES AND EQUIPMENT MUST NOT OPERATE WITHIN OPEN FLOWING WATERS.

6. MAINTAIN CLEARING AND EXCAVATION OF THE WATERCOURSE BED AND BANKS TO A MINIMUM. INITIALLY CLEAR ONLY THE AREA NECESSARY TO ALLOW ACCESS FOR CONSTRUCTION. CLEAR THE REMAINDER OF THE APPROACH RAMPS ONLY WHEN ADEQUATE DRAINAGE AND SEDIMENT CONTROLS ARE IN PLACE.

7. IF FLOW DIVERSION SYSTEMS CANNOT BE INSTALLED, THEN CONDUCT BANK EXCAVATIONS BY PULLING THE SOIL AWAY FROM THE CHANNEL.

8. WHERE PRACTICABLE, CONSTRUCT THE WATERCOURSE CROSSING PERPENDICULAR TO THE CHANNEL.

9. WHERE PRACTICABLE, THE APPROACH RAMPS SHOULD BE STRAIGHT FOR AT LEAST 10m AND SHOULD BE ALIGNED WITH THE CROSSING.

10. WHERE PRACTICABLE, DIRECT STORMWATER RUNOFF FROM THE APPROACH RAMPS INTO STABLE DRAINS, ADJACENT VEGETATION, OR APPROPRIATE SEDIMENT TRAPS TO MINIMISE THE RELEASE OF SEDIMENT INTO THE WATERCOURSE.

11. SHAPE THE CHANNEL, IF NECESSARY, TO RECEIVE THE PIPE/S.

12. IF HIGHLY EROSIVE SOILS ARE DETECTED, THEN APPROPRIATELY STABILISE SUCH SOILS AS SOON AS PRACTICABLE.

13. COVER THE CROSSING FOOTING WITH HEAVY-DUTY FILTER CLOTH.

14. COVER THE FILTER CLOTH WITH A MINIMUM 150mm OF CLEAN, 50 TO 75mm AGGREGATE.

15. PLACE THE SPECIFIED SIZE AND NUMBER OF CULVERT CELLS AND ALIGN THEM WITH THE DIRECTION OF THE DOWNSTREAM CHANNEL.

16. ENSURE THE PIPES EXTEND AT LEAST 300mm BEYOND THE PROPOSED EXTEND OF ROCK FILL.

17. FILL BETWEEN THE PIPE/S WITH 75 TO 100mm AGGREGATE.

18. COVER PIPE/S WITH SUFFICIENT ROCK (MINIMUM 300mm LAYER) TO SATISFY MANUFACTURER'S LOADING REQUIREMENTS TO AVOID DAMAGE TO THE PIPE/S RESULTING FROM THE EXPECTED TRAFFIC LOAD. SLOPE OF ROCK FACE UPSTREAM AND DOWNSTREAM OF THE CULVERT NO STEEPER THAN 3:1 (H:V).

19. FORM THE SHAPE OF THE ROAD SURFACE IN ACCORDANCE WITH THE PLANS AND/OR STANDARD DRAWINGS.

20. APPLY A SUITABLE COVER OF AGGREGATE OVER THE ROCK FILL TO FORM THE TRAFFICABLE ROAD SURFACE.

21. FINISH CONSTRUCTION AND STABILISATION OF THE APPROACH ROADS INCLUDING THE APPROACH RAMPS EACH SIDE OF THE BRIDGE CROSSING.

22. TAKE ALL REASONABLE MEASURES TO PREVENT EXCESS ROCK, DEBRIS AND CONSTRUCTION MATERIAL FROM ENTERING THE WATERCOURSE, ESPECIALLY ANY STILL OR FLOWING WATER.

23. IF IT IS NOT PRACTICABLE TO STABILISE THE ACCESS RAMPS AGAINST EROSION, THEN INSTALL FLOW DIVERSION BANKS ACROSS THE WIDTH OF EACH ACCESS RAMP ADJACENT THE TOP OF THE CHANNEL BANK, AND AT REGULAR INTERVALS DOWN THE RAMPS (AS REQUIRED) TO PREVENT OR MINIMISE SEDIMENT-LADEN RUNOFF FLOWING DIRECTLY INTO THE WATERCOURSE.

24. APPROPRIATELY STABILISE ANY DISTURBED WATERCOURSE BANKS.

25. STABILISE ALL DISTURBED AREAS THAT ARE LIKELY TO BE SUBJECTED TO FLOWING WATER, INCLUDING BYPASS AND OVERFLOW AREAS, WITH ROCK OR OTHER SUITABLE MATERIALS.

MAINTENANCE

1. TEMPORARY WATERCOURSE CROSSINGS SHOULD BE INSPECTED WEEKLY AND AFTER ANY SIGNIFICANT CHANGE IN STREAM FLOW.

2. DEBRIS TRAPPED ON OR UPSTREAM OF THE CROSSING SHOULD BE REMOVED.

3. REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION TRAFFIC. IF TRAFFIC HAS EXPOSED BARE SOIL, STABILISED AS APPROPRIATE. MAINTAIN A MINIMUM 200mm COVER OVER THE CULVERTS.

4. CHECK FOR EROSION OF THE FORMED EMBANKMENT, CHANNEL SCOUR, OR ROCK DISPLACEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY.

5. CHECK THE BYPASS FLOODWAY MAKING SURE THE BANKS ARE STABLE.

6. CHECK FOR EXCESSIVE EROSION ON THE APPROACH ROADS.

7. CHECK THE CONDITIONS OF ANY FLOW DIVERSION CHANNELS/BANKS AND THE OPERATING CONDITIONS OF ASSOCIATED SEDIMENT TRAPS.

REMOVAL

1. TEMPORARY WATERCOURSE CROSSINGS SHOULD BE REMOVED AS SOON AS POSSIBLE AFTER ALTERNATIVE ACCESS IS ACHIEVED OR THE CULVERT IS NO LONGER NEEDED.

2. REMOVE ALL SPECIFIED MATERIALS AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. RESTORE THE WATERCOURSE CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILISE AND REVEGETATE ALL DISTURBED AREAS.

SEDIMENT AND EROSION CONTROL - TEMPORARY CULVERT CROSSING NOTES

SCALE: NTS

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY: LTSL

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: TEMPORARY CULVERT CROSSING DETAILS AND FLOW DIVERSIONS BANKS

Drawn	Designed	Original issue date
J.Garnham	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_SE08

Revision: 02

File Path: P:\240518\240518-ACAD\240518_DA_SE08.DWG 240518_DA_SE08(02) DATE PRINTED: 12/12/2025 3:29:47 PM

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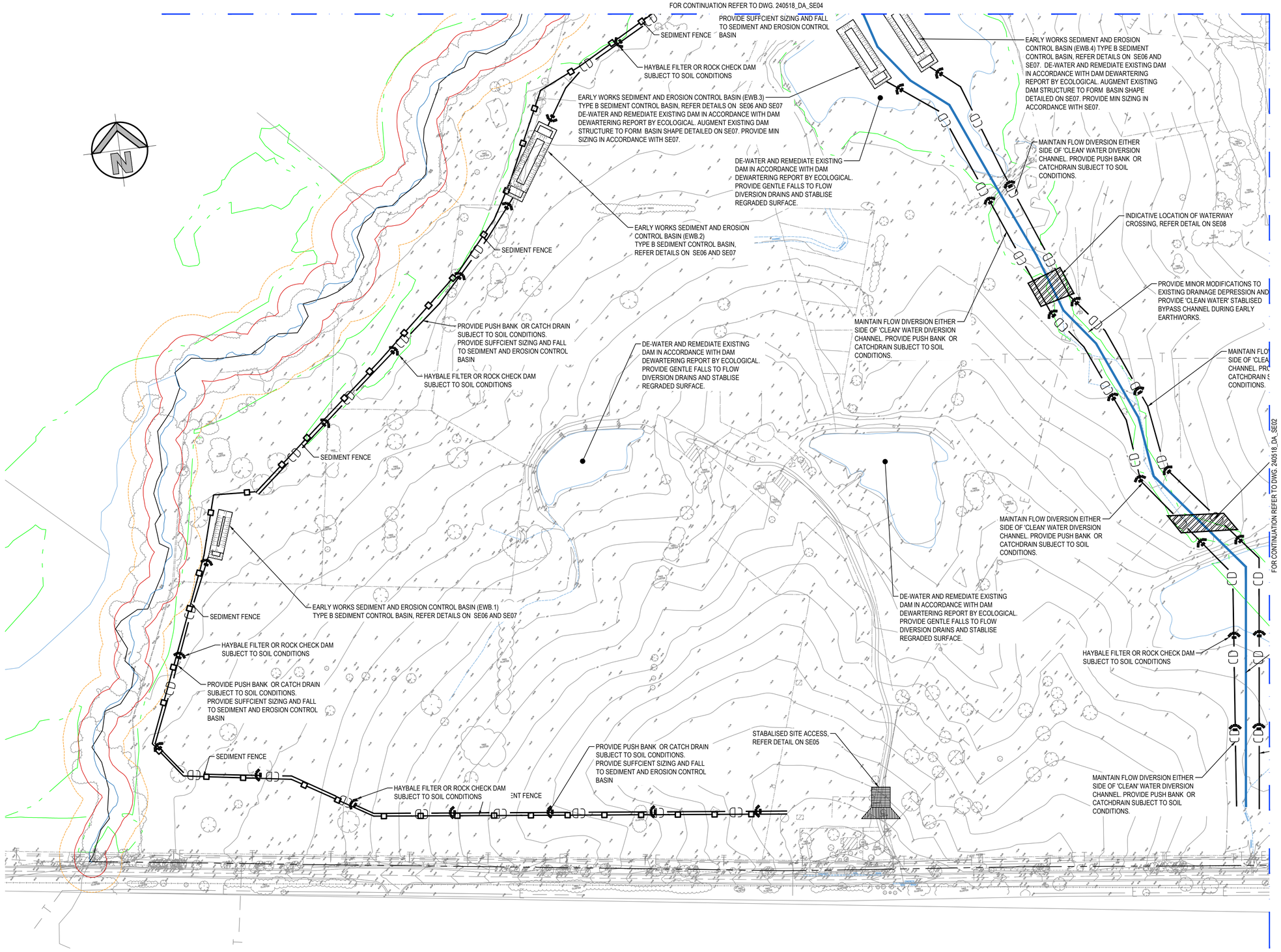

SEDIMENT AND EROSION CONTROL PLAN - EARLY WORKS

SCALE: 1:2000

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

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Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 1

Drawn	Designed	Original issue date
N.Wetzlar	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_SE11
Revision: 02

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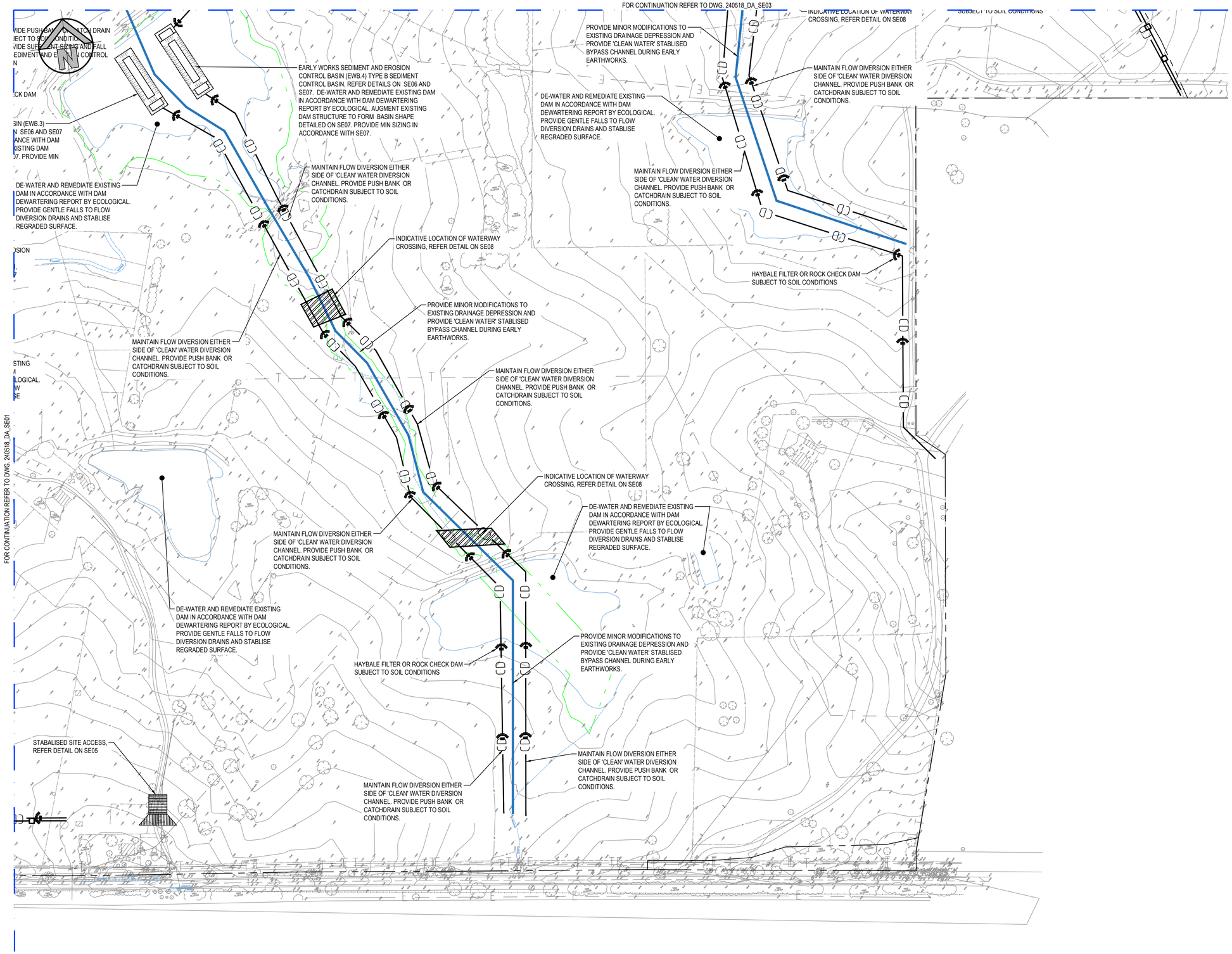

SEDIMENT AND EROSION CONTROL PLAN - EARLY WORKS

SCALE: 1:2000

ISSUED FOR SSDA

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 2

Drawn	Designed	Original issue date
N.Wetzlar	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_SE12
Revision: 02

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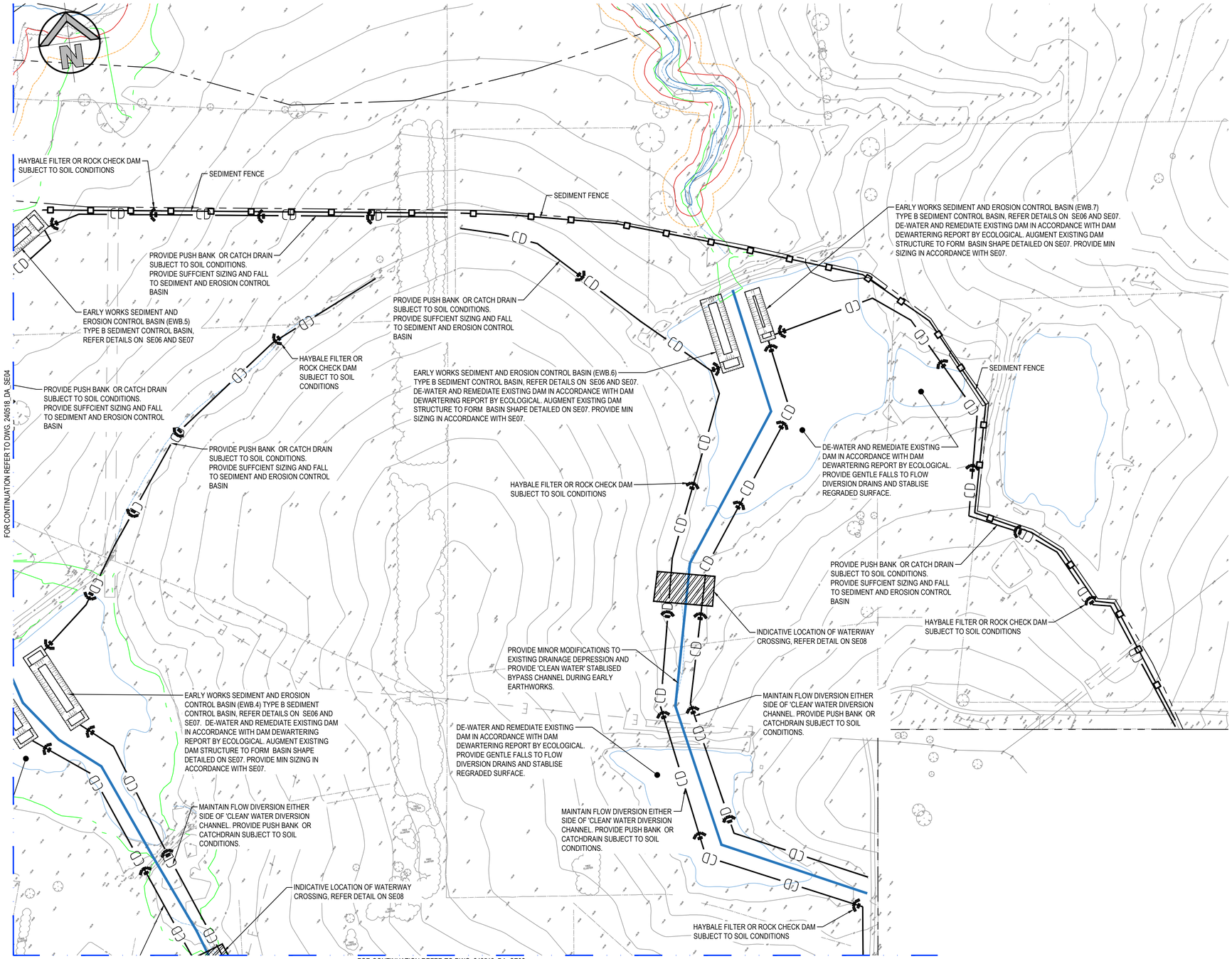

SEDIMENT AND EROSION CONTROL PLAN - EARLY WORKS

SCALE: 1:2000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 3

Drawn	Designed	Original issue date
N.Wetzlar	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_SE13
Revision: 02

File Path: R:\JOBS\2025\240518\CAD\240518_DA_SE13_SE14.DWG 240518_DA_SE13[02] DATE PRINTED: 12/12/2025 2:25:47 PM

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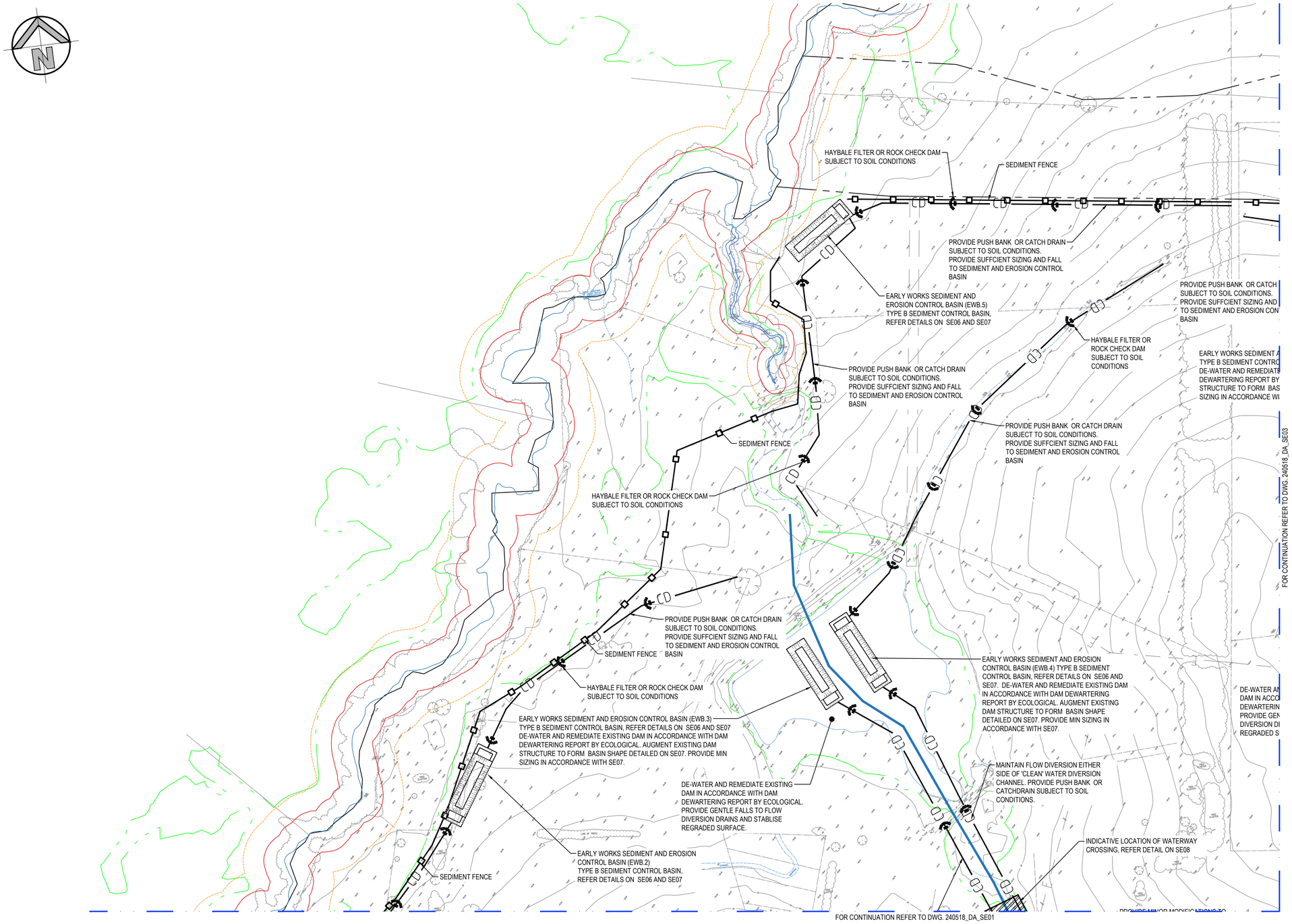

SEDIMENT AND EROSION CONTROL PLAN - EARLY WORKS

SCALE: 1:2000

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025

Client
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Architect / Surveyor
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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

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Project
BURRAH PARK
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
EARLY EARTHWORKS SEDIMENT AND EROSION CONTROL PLAN SHEET 4

Drawn	Designed	Original issue date
N.Wetzlar	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_DA_SE14
Revision: 02

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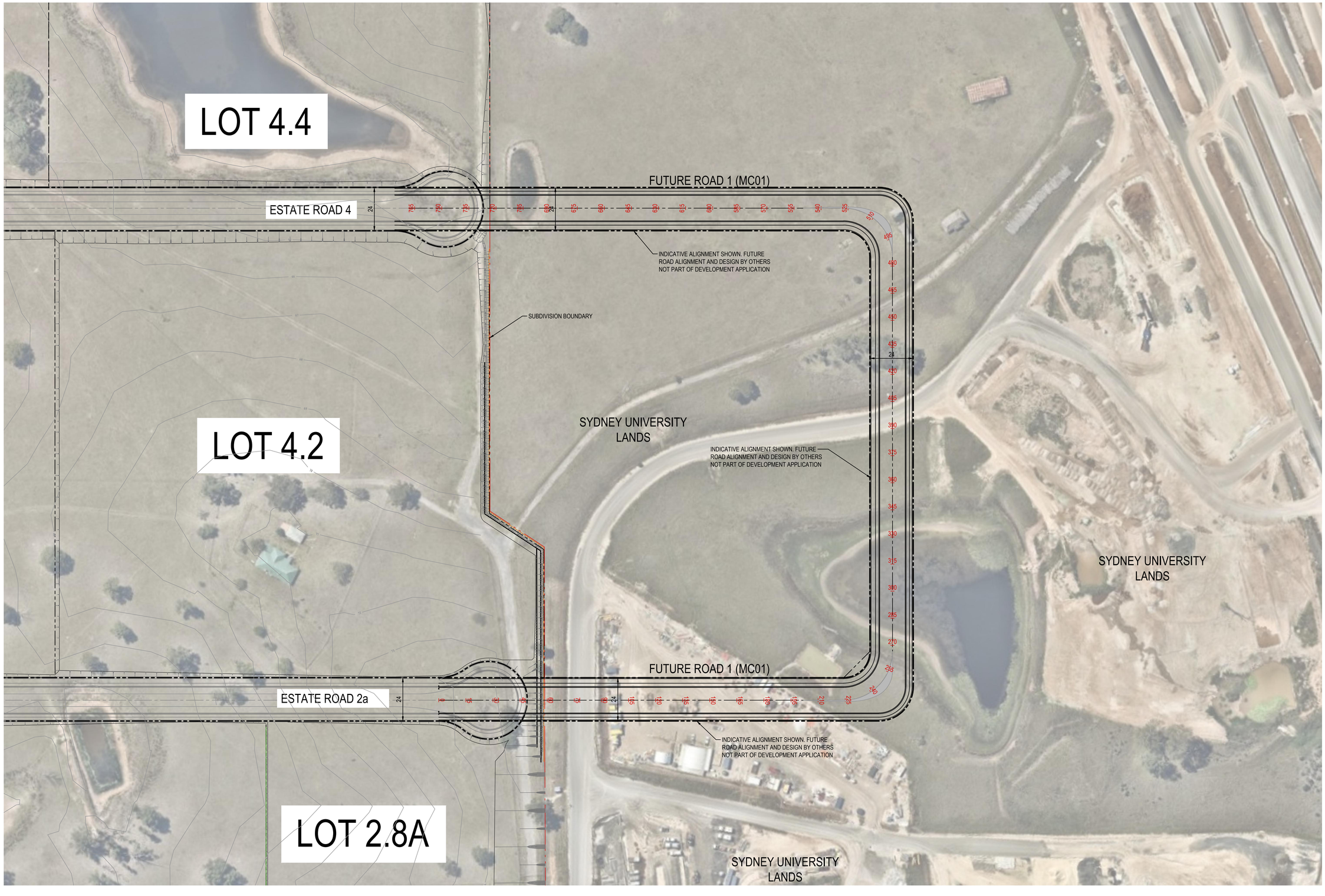

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SCALE 1:1000

CONCEPT

SURVEY INFORMATION

SURVEYED BY LTSL

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	CONCEPT	NW	LC	06.06.2025					

Client

HB&B Property Pty and ISPT Pty Ltd

Architect

NETTLETONTRIBE

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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

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Project

BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

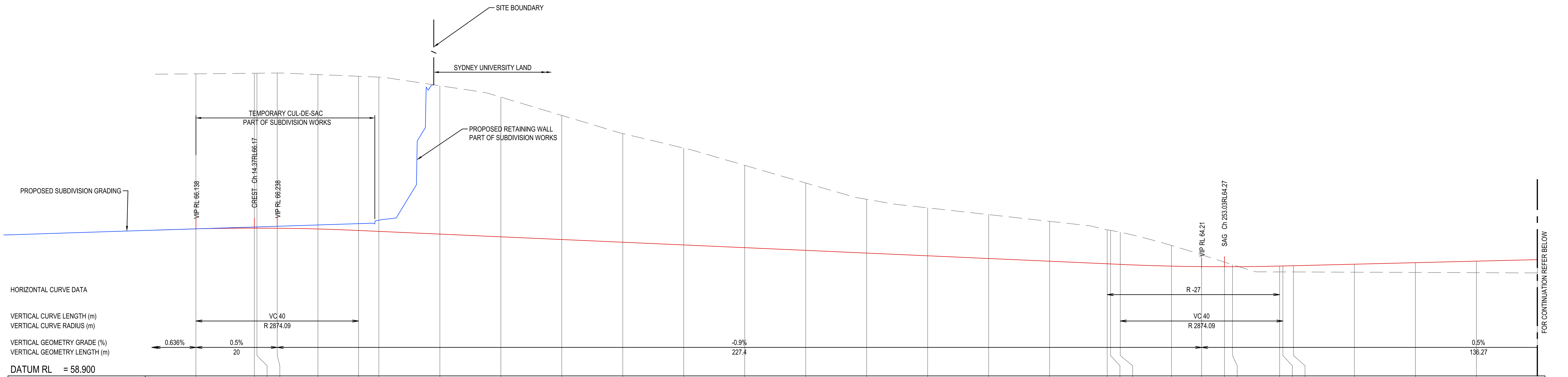
Title

FUTURE ROAD No. 01 LAYOUT

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_SK_011

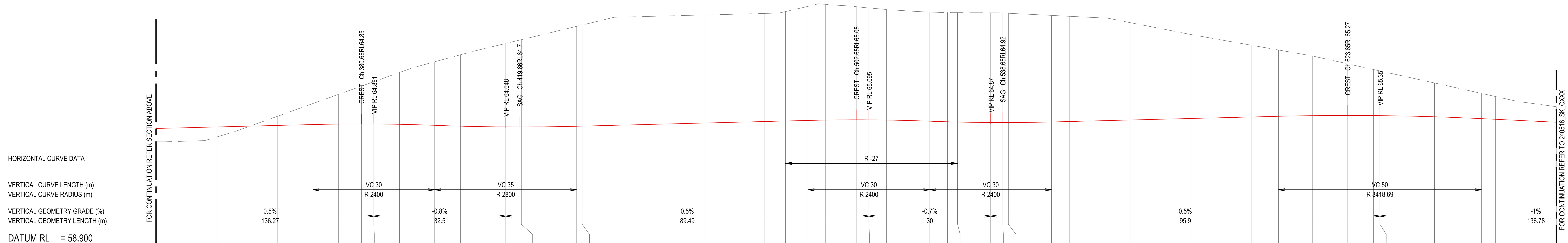
Revision: 01



CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
0	66.138	73.773	-7.634
14.37	66.174	73.800	-7.626
15	66.174	73.801	-7.628
20	66.168	73.811	-7.643
30	66.131	73.736	-7.605
40	66.059	73.651	-7.592
45	66.015	73.609	-7.594
60	65.881	73.186	-7.305
75	65.747	72.625	-6.878
90	65.614	71.724	-6.110
105	65.480	70.832	-5.352
120	65.346	70.117	-4.771
135	65.212	69.266	-4.053
150	65.079	68.396	-3.318
165	64.945	67.593	-2.648
180	64.811	67.173	-2.362
195	64.677	66.841	-2.163
210	64.543	66.508	-1.965
224.186	64.417	66.098	-1.681
225	64.410	66.068	-1.658
227.397	64.388	65.972	-1.584
240	64.304	65.320	-1.016
247.397	64.280	64.861	-0.582
253.027	64.274	64.500	-0.226
255	64.275	64.375	-0.100
266.601	64.306	64.018	0.288
267.397	64.310	64.018	0.292
270	64.323	64.016	0.307
285	64.398	64.004	0.394
300	64.473	63.992	0.481
315	64.548	63.981	0.567
330	64.623	63.969	0.654

FUTURE ROAD No.01 - MC 01 LONGITUDINAL SECTION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1



CONTROL LINE CHAINAGE	FINISHED SURFACE LEVEL	EXISTING SURFACE LEVEL	CUT / FILL DEPTH
330	64.623	63.969	0.654
345	64.698	64.206	0.492
360	64.773	65.232	-0.459
368.663	64.816	65.854	-1.038
375	64.840	66.309	-1.469
380.663	64.846	66.716	-1.869
383.663	64.844	66.931	-2.087
390	64.828	67.386	-2.558
398.663	64.779	67.915	-3.136
405	64.738	68.260	-3.522
416.163	64.702	68.818	-4.115
419.663	64.700	68.987	-4.287
420	64.700	69.003	-4.303
433.663	64.735	69.665	-4.930
435	64.742	69.729	-4.988
450	64.817	70.146	-5.329
465	64.892	70.223	-5.331
480	64.967	70.299	-5.333
485.079	64.992	70.390	-5.398
490.653	65.020	70.651	-5.631
495	65.038	70.748	-5.710
502.653	65.050	70.629	-5.579
505.653	65.048	70.569	-5.521
510	65.039	70.495	-5.456
520.653	64.983	70.367	-5.385
525	64.954	70.343	-5.390
527.487	64.941	70.338	-5.397
535.653	64.917	70.332	-5.415
538.653	64.915	70.321	-5.406
540	64.915	70.307	-5.392
550.653	64.945	70.203	-5.258
555	64.967	70.160	-5.193
570	65.042	69.849	-4.807
585	65.117	69.258	-4.141
600	65.192	68.727	-3.536
606.552	65.225	68.496	-3.271
615	65.256	68.196	-2.940
623.645	65.267	67.813	-2.546
630	65.261	67.532	-2.271
631.552	65.258	67.464	-2.206
645	65.201	66.869	-1.668
656.552	65.109	66.356	-1.247
660	65.076	66.202	-1.126
675	64.931	65.699	-0.768

FUTURE ROAD No.01 - MC 01 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

SCALE 1:500 (0 10 20 30 40 50m)

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

CONCEPT

SURVEY INFORMATION
SURVEYED BY LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	CONCEPT	NW	LC	06.06.2025					

Client: HB&B Property Pty and ISPT Pty Ltd
Architect: NETTLETONTRIBE

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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

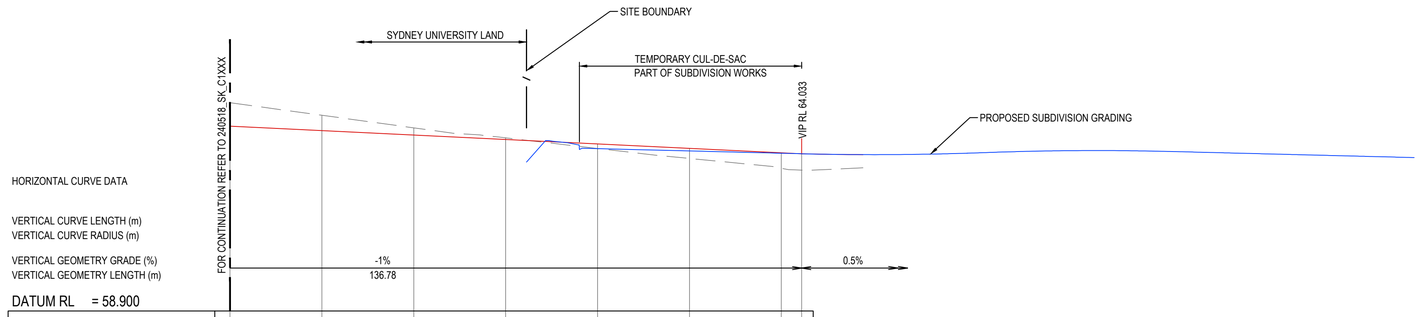
henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: ROAD LONGITUDINAL SECTIONS
FUTURE ROAD No. 01 (MC 01)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_SK_012
Revision: 01



HORIZONTAL CURVE DATA								
VERTICAL CURVE LENGTH (m)								
VERTICAL CURVE RADIUS (m)								
VERTICAL GEOMETRY GRADE (%)								
VERTICAL GEOMETRY LENGTH (m)								
DATUM RL = 58.900								
FINISHED SURFACE LEVEL	64.931	64.787	64.643	64.498	64.354	64.209	64.065	64.033
EXISTING SURFACE LEVEL	65.699	65.289	64.879	64.552	64.205	63.880	63.560	63.499
CUT / FILL DEPTH	-0.768	-0.502	-0.237	-0.054	0.149	0.329	0.505	0.534
CONTROL LINE CHAINAGE	675	690	705	720	735	750	765	768.327

FUTURE ROAD No.01 - MC 01 LONGITUDINAL SECTION - CONTINUATION

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

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

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

CONCEPT

SURVEY INFORMATION
SURVEYED BY LTSL
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	CONCEPT	NW	LC	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd
Architect: NETTLETONTRIBE

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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

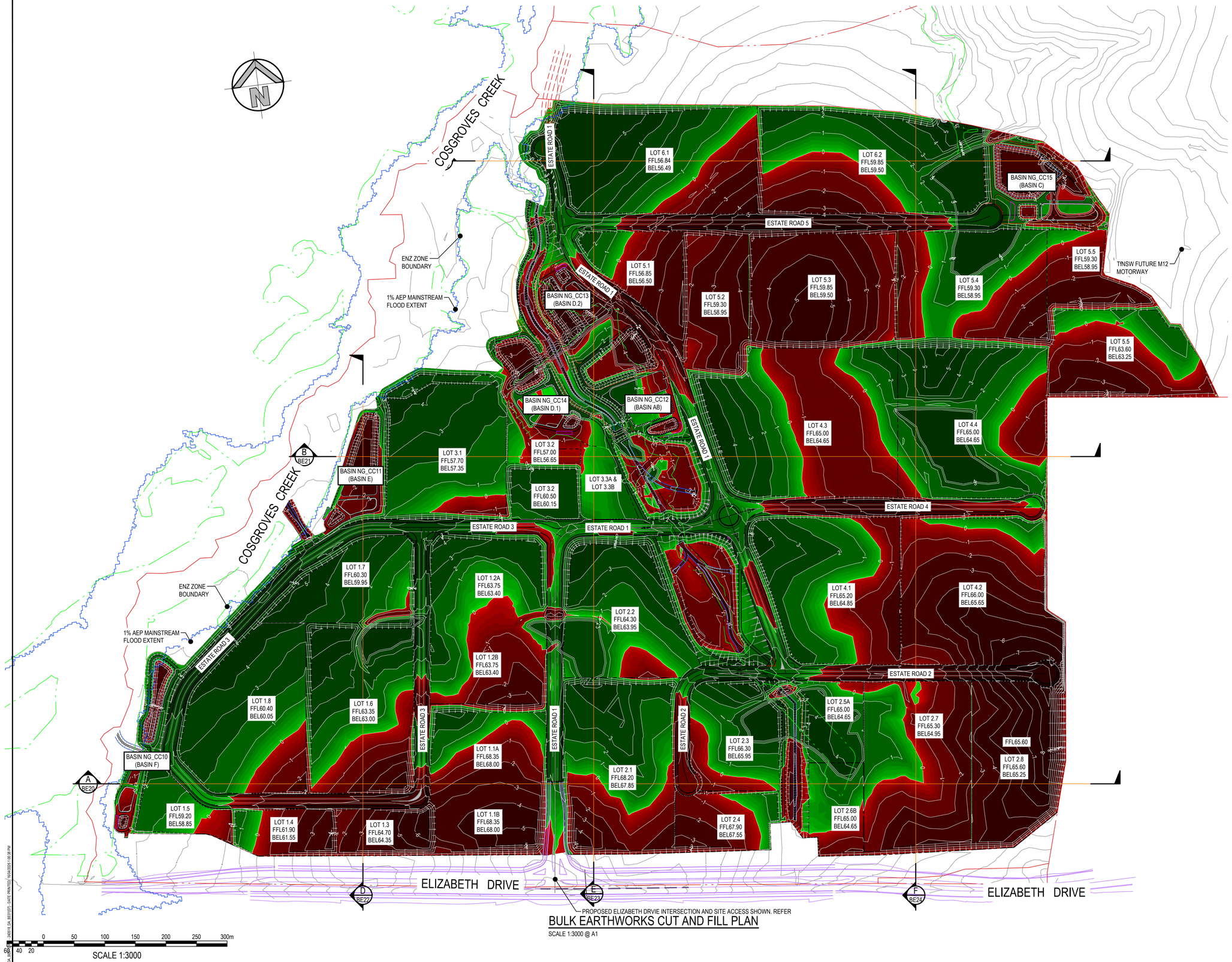
Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: ROAD LONGITUDINAL SECTIONS
FUTURE ROAD No. 01 (MC 01)

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:1000

Drawing number: 240518_SK_013
Revision: 01

A1



BULK EARTHWORKS CUT AND FILL PLAN

SCALE 1:3000 @ A1

LEGEND

- PROPOSED BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- 2 — DEPTH CONTOURS
- 61 — EXISTING CONTOURS
- FLOOD EXTENT 1% AEP
- FFL — FINISH FLOOR LEVEL (BUILDING)
- BEL — BULK EARTHWORKS LEVEL

DEPTH RANGE Lower_value		Upper_value	Colour
-90	to	-10	Meters
-10	to	-6	Meters
-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
6	to	10	Meters
10	to	90	Meters

- EARTHWORKS QUANTITIES -	
TOTAL AREA (148.8 ha)	
CUT	1467780m³
FILL	1534220m³
EXCESS OF FILL "SHORTFALL"	66440m³
200mm TOPSOIL TO BE REMOVED, NOT INCLUDED IN CALCULATION.	
EXCAVATION FOR SERVICE TRENCHES NOT INCLUDED IN CALCULATION	
350mm SETDOWN WITHIN LOTS	
570mm SETDOWN FOR COLLECTOR ROAD PAVEMENT.	
530mm SETDOWN FOR LOCAL ROAD PAVEMENT.	
150mm SETDOWN FOR PROPOSED CREEK	
ALLOWANCE FOR ALL FFL'S AND BEL'S +-1000MM FROM DISPLAYED LEVEL	
NO ALLOWANCE HAS BEEN MADE FOR INDIVIDUAL LOT DESIGNS.	
EXISTING PONDS ASSUME 2.5m DEEP	

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ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY: LTSL

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	16.04.2026
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
03	ISSUED FOR CONCEPT	LC	NW	16.08.2024
02	ISSUED FOR CONCEPT	LC	NW	07.08.2024
01	ISSUED FOR CONCEPT	LC	NW	24.07.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

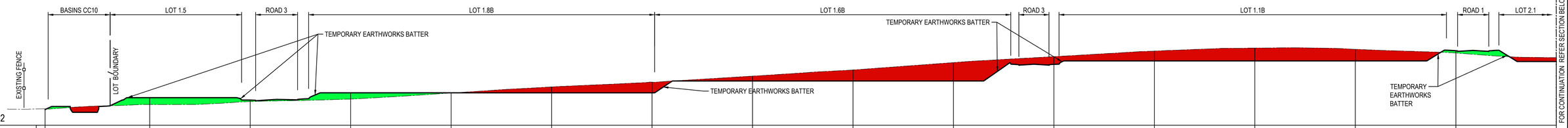
Title: BULK EARTHWORKS CUT AND FILL PLAN - i5

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_DA_BE01 — Revision: 07

File Path: R:\JOBS 2024\240518\CAD\DA\240518_DA_BE01.dwg - DATE PRINTED: 16/04/2026 1:05:38 PM

A1



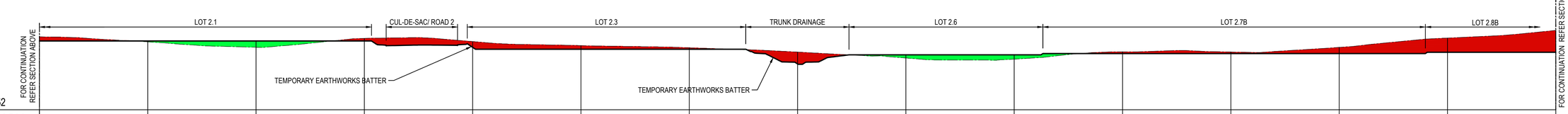
Datum RL52

BE DESIGN LEVELS	55.892	58.850	58.251	60.050	60.050	60.050	60.050	63.000	63.000	63.000	67.137	68.000	68.000	68.000	70.515	67.850								
EXISTING LEVELS	56.070	57.156	57.880	58.501	60.007	61.517	62.695	64.201	65.743	67.567	69.055	70.435	71.178	70.875	69.970	68.805								
CUT / FILL DEPTH	-0.177	1.694	0.371	1.549	0.043	-1.467	-2.645	-1.201	-2.743	-4.567	-1.917	-2.435	-3.178	-2.875	0.544	-0.955								
CHAINAGE	-52.078	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	650.000	700.000								

2x VERTICAL EXAGGERATION

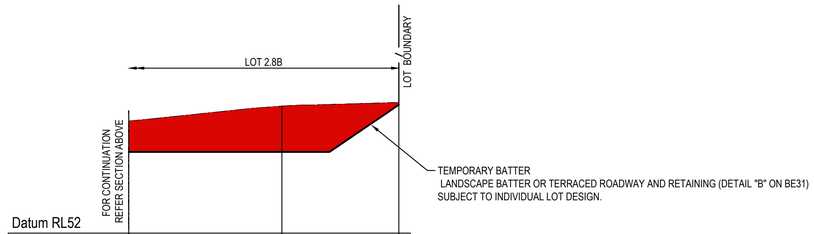
SECTION A BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1



Datum RL52

BE DESIGN LEVELS	67.850	67.850	67.850	67.850	66.382	65.950	65.950	62.545	64.650	64.650	64.950	64.950	64.950	65.250	65.250									
EXISTING LEVELS	68.805	67.646	66.396	68.454	67.719	66.797	66.287	65.295	63.917	63.655	65.350	65.318	66.384	68.531	70.296									
CUT / FILL DEPTH	-0.955	0.204	1.454	-0.604	-1.337	-0.847	-0.337	-2.750	0.733	0.995	-0.400	-0.368	-1.434	-3.281	-5.046									
CHAINAGE	700.000	750.000	800.000	850.000	900.000	950.000	1000.000	1050.000	1100.000	1150.000	1200.000	1250.000	1300.000	1350.000	1400.000									



Datum RL52

BE DESIGN LEVELS	65.250	65.250	72.945
EXISTING LEVELS	70.296	72.746	73.295
CUT / FILL DEPTH	-5.046	7.496	-0.350
CHAINAGE	1400.000	1450.000	1498.169

2x VERTICAL EXAGGERATION

SECTION A CONTINUATION BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1

2x VERTICAL EXAGGERATION

SECTION A CONTINUATION BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1

0 20 40 60 80 100m
20 15 10 5
SCALE 1:1000

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

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ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
03	ISSUED FOR CONCEPT	LC	NW	16.08.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
BULK EARTHWORKS SITE SECTION - A
SHEET 1 OF 5

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_BE20
Revision: 05

File Path: R:\PROJECTS\240518\CAD\DA\240518_DA_BE20_BULKWKS_SHEET_SITE SECTION - A_BE01.DWG, DATE PRINTED: 17/12/2025 3:45:57 PM

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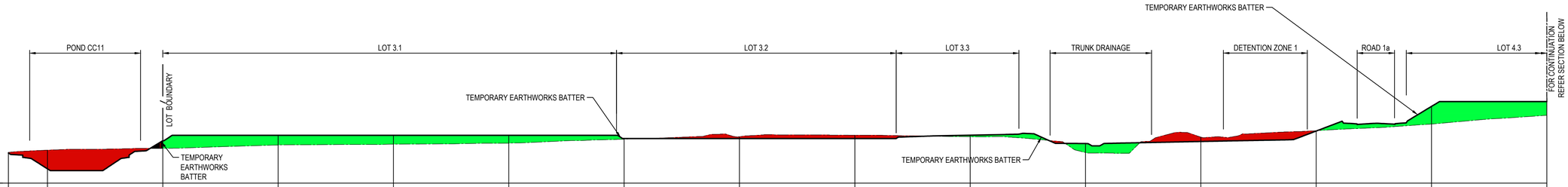


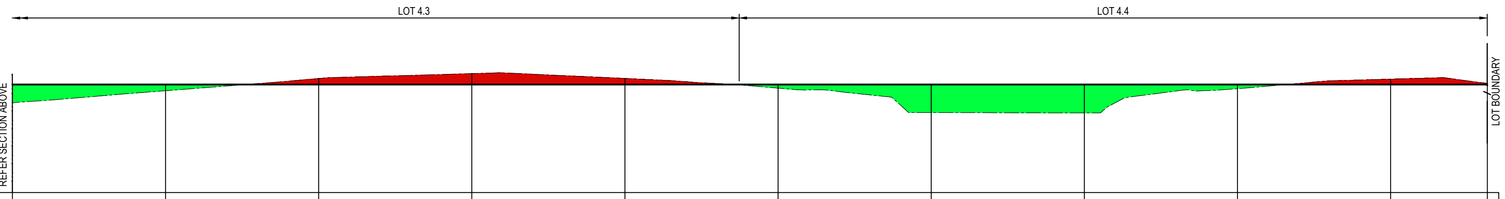
Datum RL47

BE DESIGN LEVELS	53.501	50.079	56.172	57.350	57.350	57.350	56.650	56.650	56.650	57.372	55.557	56.009	58.265	63.603	64.650
EXISTING LEVELS	53.651	54.127	54.523	55.249	55.442	55.657	56.503	57.049	57.369	57.043	53.624	56.950	58.347	59.782	61.675
CUT / FILL DEPTH	-0.150	-4.049	1.649	2.101	1.908	1.693	0.147	-0.399	-0.719	0.330	1.934	-0.941	-0.082	3.821	2.975
CHAINAGE	-66.922	-50.000	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000

2x VERTICAL EXAGGERATION

SECTION B BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1



Datum RL47

BE DESIGN LEVELS	64.650	64.650	64.650	64.650	64.650	64.650	64.650	64.650	64.650	64.650	64.508
EXISTING LEVELS	61.675	63.632	65.628	66.433	65.637	64.053	60.067	60.005	63.964	65.526	64.857
CUT / FILL DEPTH	2.975	1.018	-0.978	-1.783	-0.987	0.597	4.583	4.645	0.686	-0.876	-0.349
CHAINAGE	600.000	650.000	700.000	750.000	800.000	850.000	900.000	950.000	1000.000	1050.000	1081.550

2x VERTICAL EXAGGERATION

SECTION B CONTINUATION BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1

0 20 40 60 80 100m
20 15 10 5
SCALE 1:1000

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

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ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
03	ISSUED FOR CONCEPT	LC	NW	16.08.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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Suite 2.01
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Telephone +61 2 9417 8400
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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

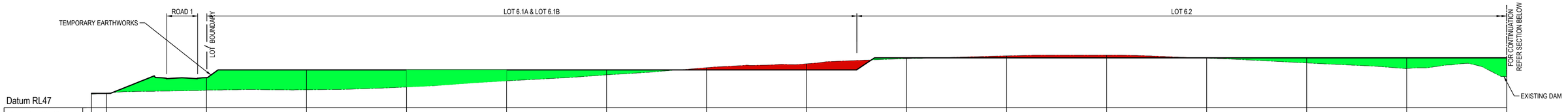
Title: BULK EARTHWORKS SITE SECTION - B
SHEET 2 OF 5

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

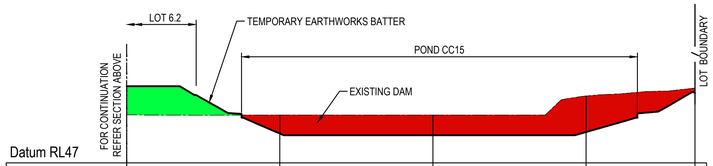
Drawing number: 240518_DA_BE21
Revision: 05

File Path: R:\JOBS\2024\240518\CAD\DA\240518_BE21.DWG, 240518_DA_BE21(B), 8/12/2025 2:45:03 PM, Plotted By: 8/12/2025 2:45:03 PM

A1



Datum RL47															
BE DESIGN LEVELS	50.606	50.607	54.556	56.490	56.490	56.490	56.490	56.490	56.490	56.490	59.500	59.500	59.500	59.500	59.500	59.500	59.500
EXISTING LEVELS	50.377	50.674	51.413	51.511	52.190	53.728	55.245	57.039	58.011	59.313	59.998	60.160	59.432	58.230	56.824	54.834	
CUT / FILL DEPTH	0.229	-0.067	3.143	4.979	4.300	2.762	1.245	-0.549	-1.521	0.187	-0.498	-0.660	0.068	1.270	2.676	4.666	
CHAINAGE	-57.514	-50.000	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	650.000	



Datum RL47					
BE DESIGN LEVELS	59.500	51.776	51.500	52.027	58.411
EXISTING LEVELS	54.834	54.794	54.780	57.906	59.191
CUT / FILL DEPTH	4.666	-3.018	-3.280	-5.879	-0.780
CHAINAGE	650.000	700.000	750.000	800.000	835.563

2x VERTICAL EXAGGERATION

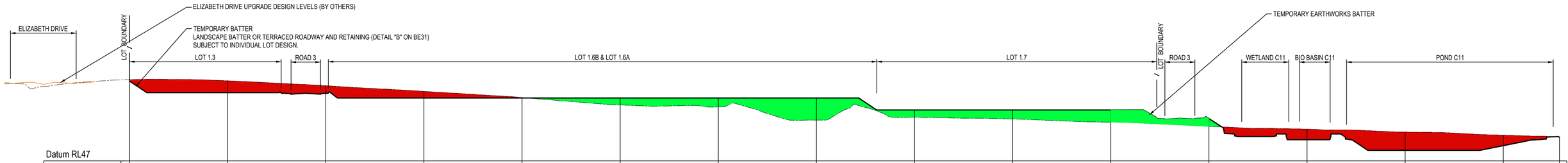
SECTION C / BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1

2x VERTICAL EXAGGERATION

SECTION C / BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1



Datum RL47																
BE DESIGN LEVELS	67.305	64.350	64.189	63.000	63.000	63.000	63.000	63.000	59.950	59.950	59.950	57.764	52.400	49.700	50.883	52.993
EXISTING LEVELS	67.655	67.381	66.125	64.690	63.123	61.235	60.720	57.370	58.098	57.657	56.843	55.773	55.070	54.323	53.548	53.143
CUT / FILL DEPTH	-0.350	-3.031	-1.936	-1.690	-0.123	1.765	2.280	5.630	1.852	2.293	3.107	1.990	-2.670	-4.623	-2.665	-0.150
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	650.000	700.000	728.616

2x VERTICAL EXAGGERATION

SECTION D / BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1

0 20 40 60 80 100m
20 15 10 5
SCALE 1:1000

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

BEFORE YOU DIG www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
03	ISSUED FOR CONCEPT	LC	NW	16.08.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

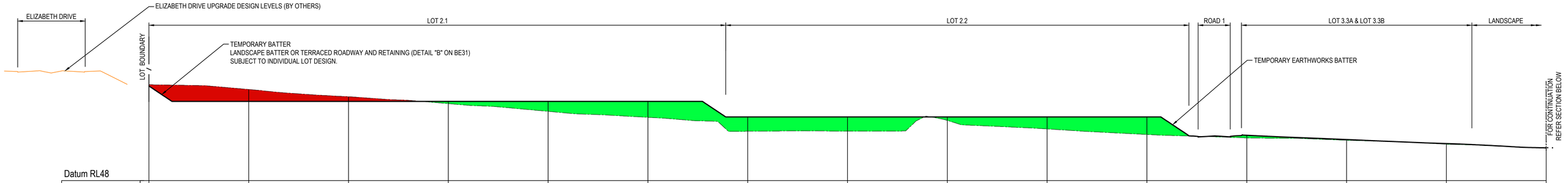
Title
BULK EARTHWORKS SITE SECTION - C & D
SHEET 3 OF 5

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_BE22
Revision: 05

Plot Date: 15/12/2025 2:54:04 PM | File Name: R:\JOBS\2024\240518\CAD\DA\240518 DA_BE22.DWG | DATE PRINTED: 12/12/2025 2:54:04 PM

A1



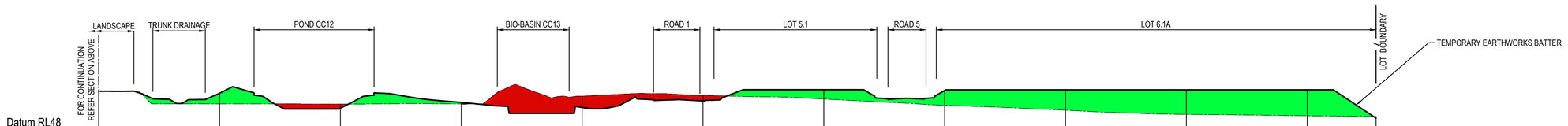
Datum RL48

BE DESIGN LEVELS	71.704	67.850	67.850	67.850	67.850	67.850	63.950	63.950	63.950	63.950	63.950	59.353	58.279	57.282	56.204
EXISTING LEVELS	72.054	70.846	69.014	67.287	65.344	63.854	60.367	60.414	63.076	60.936	59.554	58.689	58.106	57.114	56.216
CUT / FILL DEPTH	-0.350	-2.996	-1.164	0.563	2.506	3.996	3.583	3.536	0.874	3.014	4.396	0.664	0.173	0.168	-0.012
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	650.000	700.000

2x VERTICAL EXAGGERATION

SECTION E BE01

SCALE: H 1:1000 @ A1
V 1:500 @ A1



Datum RL48

BE DESIGN LEVELS	56.204	55.782	52.663	53.889	52.831	54.180	56.500	56.349	56.490	56.490	56.490	50.599
EXISTING LEVELS	56.216	53.573	53.547	53.555	55.179	55.337	54.581	53.265	52.255	51.388	51.104	50.949
CUT / FILL DEPTH	-0.012	2.209	-0.884	0.335	-2.348	-1.157	1.919	3.064	4.235	5.102	5.386	-0.350
CHAINAGE	700.000	750.000	800.000	850.000	900.000	950.000	1000.000	1050.000	1100.000	1150.000	1200.000	1228.492

2x VERTICAL EXAGGERATION

SECTION E BE01 CONTINUATION

SCALE: H 1:1000 @ A1
V 1:500 @ A1

0 20 40 60 80 100m
20 15 10 5
SCALE 1:1000

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

BEFORE YOU DIG www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY: LTSL
DATUM:AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
03	ISSUED FOR CONCEPT	LC	NW	16.08.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

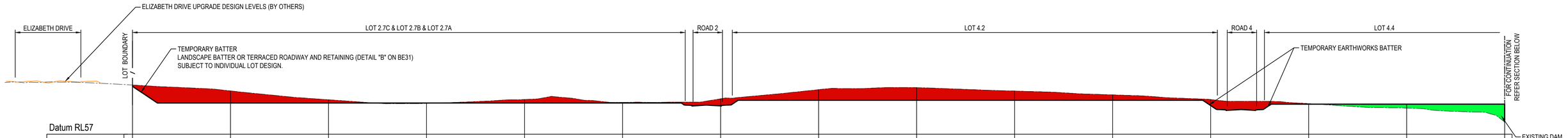
Title: BULK EARTHWORKS SITE SECTION - E
SHEET 4 OF 5

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_BE23
Revision: 05

File Path: R:\JOBS\2024\240518\CAD\DA\240518 DA_BE23.DWG, 240518 DA_BE23(BE), DATE PRINTED: 12/12/2025 9:49:47 PM

A1



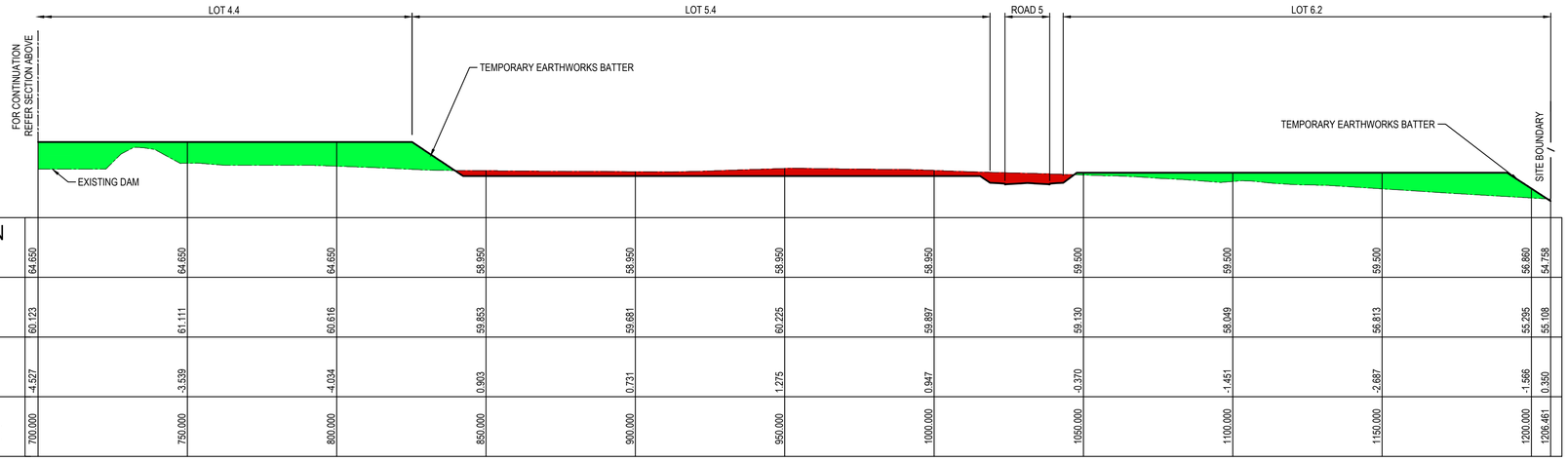
Datum RL57

BE DESIGN LEVELS	69.175	64.950	64.950	64.950	64.950	64.950	64.209	65.650	65.650	65.650	65.650	64.306	64.650	64.650	64.650
EXISTING LEVELS	69.525	68.028	65.771	64.840	65.839	65.119	66.015	68.342	68.855	67.993	67.012	65.830	64.781	63.658	60.123
CUT / FILL DEPTH	0.350	3.078	0.821	-0.110	0.889	0.169	1.806	2.692	3.205	2.343	1.362	1.524	0.131	-0.992	-4.527
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	650.000	700.000

2x VERTICAL EXAGGERATION

SECTION F (BE01)

SCALE: H 1:1000 @ A1
V 1:500 @ A1



Datum RL52

BE DESIGN LEVELS	64.650	64.650	64.650	58.950	58.950	58.950	58.950	59.500	59.500	59.500	56.860	54.758	
EXISTING LEVELS	60.123	61.111	60.616	59.853	59.681	60.225	59.897	59.130	58.049	56.813	55.295	55.108	
CUT / FILL DEPTH	-4.527	-3.539	-4.034	0.903	0.731	1.275	0.947	-0.370	-1.451	-2.687	-1.566	0.350	
CHAINAGE	700.000	750.000	800.000	850.000	900.000	950.000	1000.000	1050.000	1100.000	1150.000	1200.000	1206.461	

2x VERTICAL EXAGGERATION

SECTION F (BE01) CONTINUATION

SCALE: H 1:1000 @ A1
V 1:500 @ A1

0 20 40 60 80 100m
20 15 10 5
SCALE 1:1000

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

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ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
03	ISSUED FOR CONCEPT	LC	NW	16.08.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: BULK EARTHWORKS SITE SECTION - F
SHEET 5 OF 5

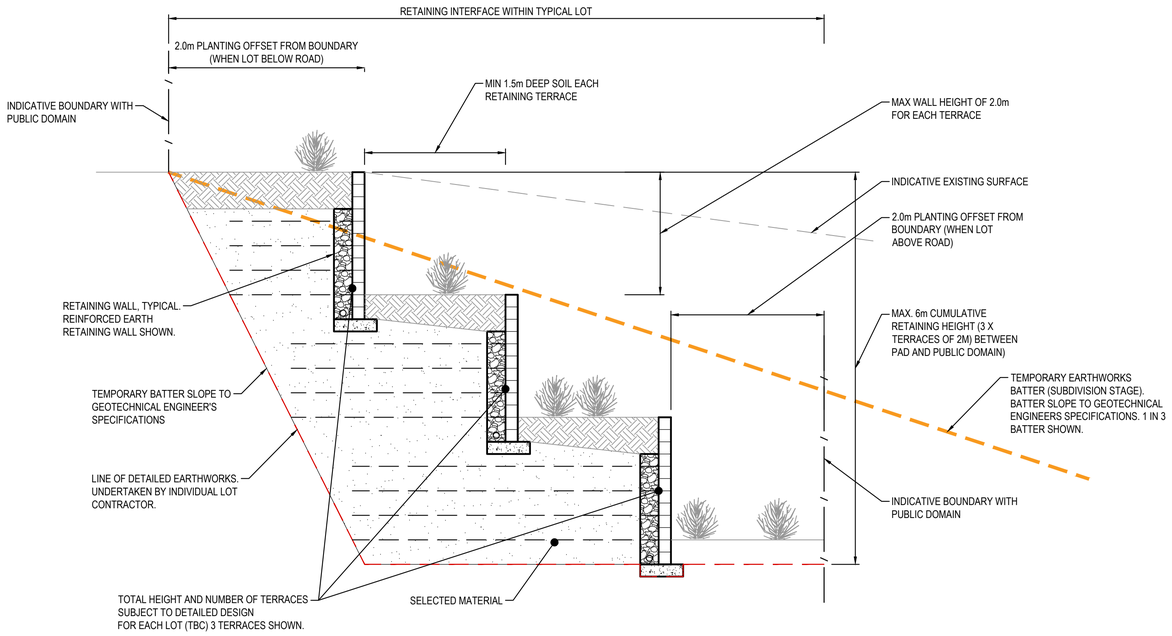
Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS SHOWN

Drawing number: 240518_DA_BE24

Revision: 05

File Path: R:\JOBS\2024\240518\CAD\DA\240513_DA_BE24[05]. DATE PRINTED: 12/12/2025 2:49:48 PM

A1



INTERFACE DETAIL "A" TERRACED RETAINING WALL - INDIVIDUAL LOT - SAMPLE DETAIL ONLY

SCALE 1:50

0 1000 2000 3000 4000 5000mm

1000 600 200

SCALE 1:50

ISSUED FOR SSDA

File Path: R:\JOBS 2024\240518\CAD\DA\240518_DA_BE30.BE1.DWG, 24/09/25 DA, BE30BE1, DATE PRINTED: 17/12/2025 3:55:01 PM

SURVEY INFORMATION

SURVEYED BY: LTSL

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
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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: BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

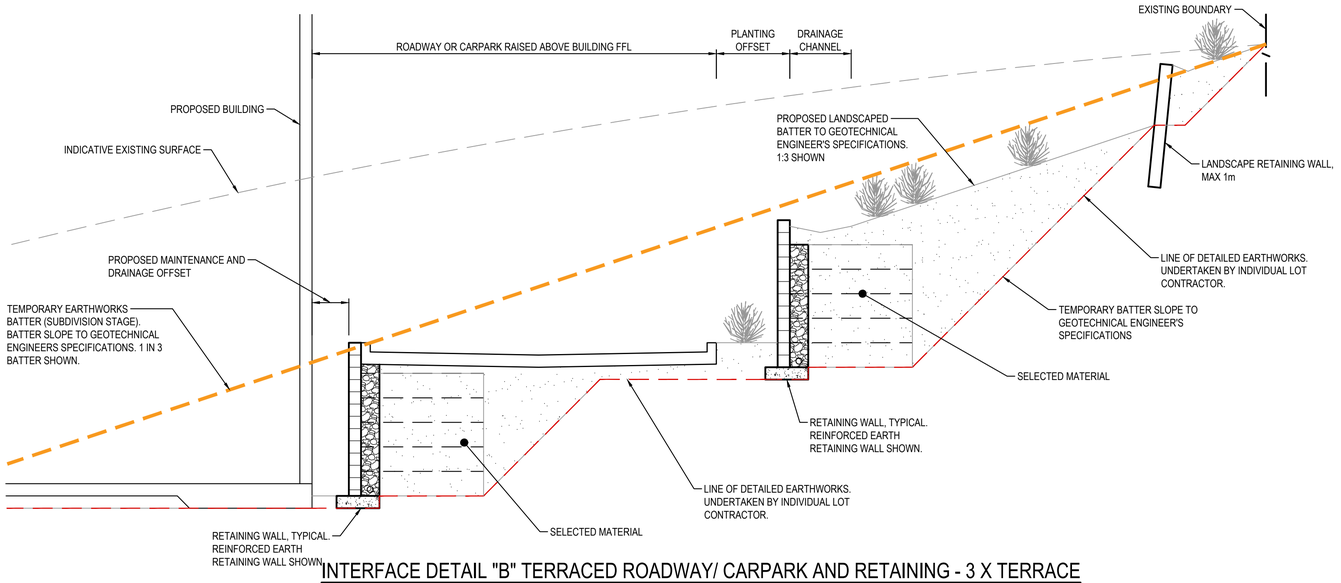
Title: TYPICAL EARTHWORKS SECTIONS SHEET 1 OF 2

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:50

Drawing number: 240518_DA_BE30

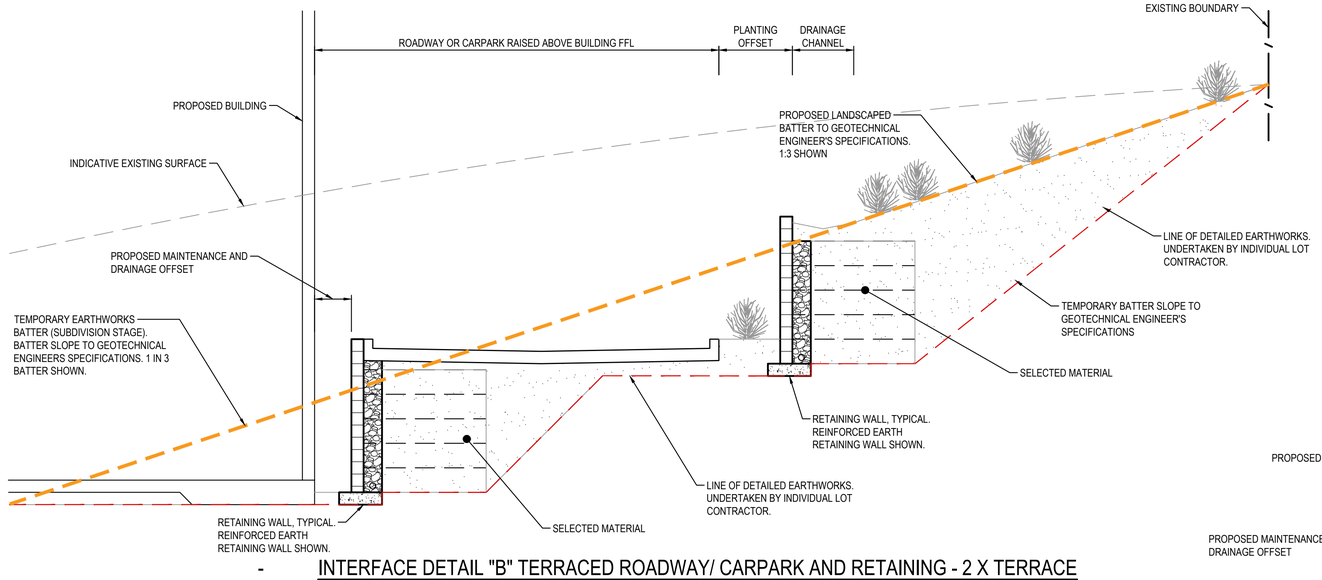
Revision: 04

A1



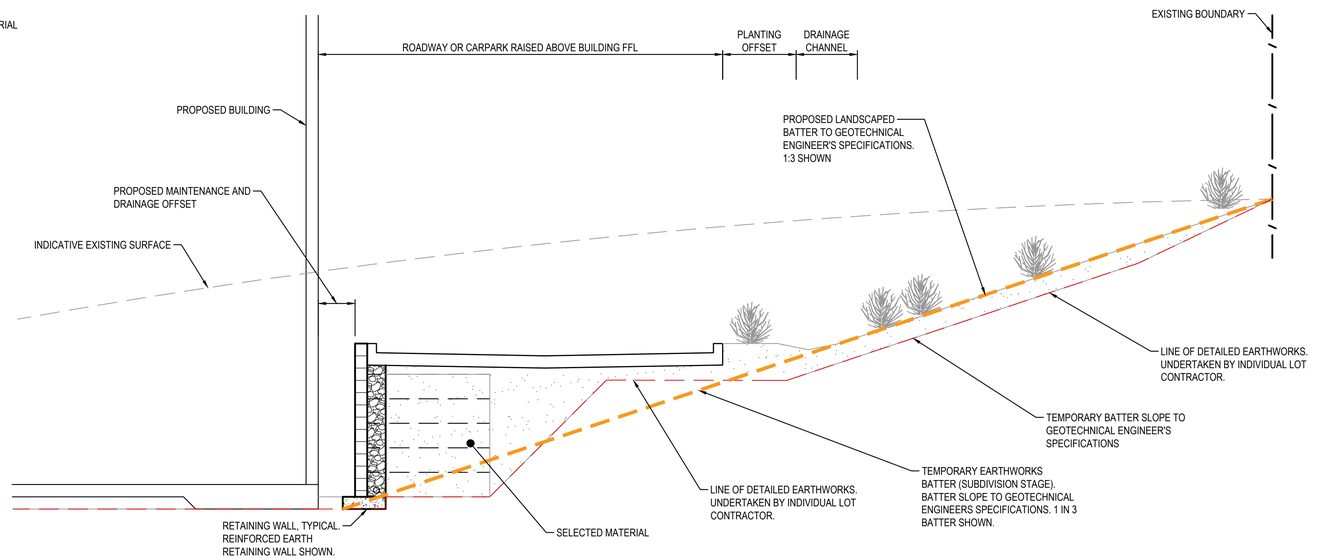
INTERFACE DETAIL "B" TERRACED ROADWAY/ CARPARK AND RETAINING - 3 X TERRACE

SCALE 1:50



INTERFACE DETAIL "B" TERRACED ROADWAY/ CARPARK AND RETAINING - 2 X TERRACE

SCALE 1:50



INTERFACE DETAIL "B" TERRACED ROADWAY/ CARPARK AND RETAINING - 1 X TERRACE

SCALE 1:50

0 1000 2000 3000 4000 5000mm

1000 600 200

SCALE 1:50

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:
LTSL

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	NW	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	MB	SY	15.10.2024
01	ISSUED FOR CONCEPT	LC	NW	25.07.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
TYPICAL EARTHWORKS SECTIONS SHEET 2 OF 2

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	45413
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:50

Drawing number: 240518_DA_BE31
Revision: 04

File Path: R:\DBE 2024\240518\ACAD\240518_DA_BE31.DWG JAMES (JA_BE31)[04], DATE PRINTED: 12/12/2025 3:43:09 PM

A1

BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW
CIVIL ENGINEERING WORKS

LOCALITY SKETCH

SCALE: N.T.S.

DRAWING SCHEDULE	
240518_D1_C000	COVER SHEET, DRAWING SCHEDULE AND LOCALITY SKETCH
240518_D1_C010	NOTES
240518_D1_C100	GENERAL ARRANGEMENT PLAN
240518_D1_C101	LOT 1.1A AND LOT 1.1B DETAIL PLAN, SHEET 1 OF 4
240518_D1_C102	LOT 1.1A AND LOT 1.1B DETAIL PLAN, SHEET 2 OF 4
240518_D1_C103	LOT 1.1A AND LOT 1.1B DETAIL PLAN, SHEET 3 OF 4
240518_D1_C104	LOT 1.1A AND LOT 1.1B DETAIL PLAN, SHEET 4 OF 4
240518_D1_C105	LOT 1.2A AND LOT 1.2B DETAIL PLAN, SHEET 1 OF 4
240518_D1_C106	LOT 1.2A AND LOT 1.2B DETAIL PLAN, SHEET 2 OF 4
240518_D1_C107	LOT 1.2A AND LOT 1.2B DETAIL PLAN, SHEET 3 OF 4
240518_D1_C108	LOT 1.2A AND LOT 1.2B DETAIL PLAN, SHEET 4 OF 4
240518_D1_C109	LOT 3.1 DETAIL PLAN, SHEET 1 OF 4
240518_D1_C110	LOT 3.1 DETAIL PLAN, SHEET 2 OF 4
240518_D1_C111	LOT 3.1 DETAIL PLAN, SHEET 3 OF 4
240518_D1_C112	LOT 3.1 DETAIL PLAN, SHEET 4 OF 4
240518_D1_C200	STORMWATER MISCELLANEOUS DETAILS, SHEET 1 OF 2
240518_D1_C201	STORMWATER MISCELLANEOUS DETAILS, SHEET 2 OF 2
240518_D1_C202	OSD TYPICAL DETAILS AND SECTIONS
240518_D1_C210	STORMWATER LONGITUDINAL SECTIONS - SHEET 1 OF 12
240518_D1_C211	STORMWATER LONGITUDINAL SECTIONS - SHEET 2 OF 12
240518_D1_C212	STORMWATER LONGITUDINAL SECTIONS - SHEET 3 OF 12
240518_D1_C213	STORMWATER LONGITUDINAL SECTIONS - SHEET 4 OF 12
240518_D1_C214	STORMWATER LONGITUDINAL SECTIONS - SHEET 5 OF 12
240518_D1_C215	STORMWATER LONGITUDINAL SECTIONS - SHEET 6 OF 12
240518_D1_C216	STORMWATER LONGITUDINAL SECTIONS - SHEET 7 OF 12
240518_D1_C217	STORMWATER LONGITUDINAL SECTIONS - SHEET 8 OF 12
240518_D1_C218	STORMWATER LONGITUDINAL SECTIONS - SHEET 9 OF 12
240518_D1_C219	STORMWATER LONGITUDINAL SECTIONS - SHEET 10 OF 12
240518_D1_C220	STORMWATER LONGITUDINAL SECTIONS - SHEET 11 OF 12
240518_D1_C220	STORMWATER LONGITUDINAL SECTIONS - SHEET 12 OF 12
240518_D1_C251	LOT 1.1A AND LOT 1.1B CATCHMENT PLAN
240518_D1_C252	LOT 1.2A AND LOT 1.2B CATCHMENT PLAN
240518_D1_C253	LOT 3.1 CATCHMENT PLAN
240518_D1_C650	LOT 1.1 TURNING PATH PLAN
240518_D1_C651	LOT 1.2 TURNING PATH PLAN
240518_D1_C652	LOT 3.1 TURNING PATH PLAN
240518_D1_SE01	SEDIMENT AND EROSION CONTROL PLAN
240518_D1_SE02	SEDIMENT AND EROSION CONTROL DETAILS
240518_D1_SE03	SEDIMENT BASIN TYPICAL DETAILS AND SECTIONS
240518_D1_SE04	TEMPORARY CULVERT CROSSING DETAILS AND FLOW DIVERSIONS BANKS
240518_D1_BE01	LOT 1.1 BULK EARTHWORKS CUT AND FILL PLAN
240518_D1_BE02	LOT 1.2 BULK EARTHWORKS CUT AND FILL PLAN
240518_D1_BE03	LOT 3.1 BULK EARTHWORKS CUT AND FILL PLAN

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
COVER SHEET, DRAWING SCHEDULE AND LOCALITY SKETCH

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_D1_C000
Revision: 05

File Path: R:\JOBS\2024\240518\ACAD\Y24518_D1_C000.DWG, 240518_D1_C000(5), DATE PRINTED: 12/12/2025 3:54:17 PM

A1

GENERAL NOTES:

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH PENRITH CITY COUNCIL 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 PENRITH CITY COUNCIL 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.

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.

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.

BULK EARTHWORKS/ SUBGRADE PREPARATION - SITEWORKS.

1. REFER TO GEOTECHNICAL INVESTIGATION REPORT OR INFORMATION RELATING TO EXISTING GROUND CONDITIONS, SITE TREATMENT AND SUPERVISION. REPORT BY DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1 AND ALL RELEVANT PRECEDING REPORTS.
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 USING NOT FEWER THAN 8 PASSES OF A MINIMUM 12 TONNE DEAD WEIGHT SMOOTH DRUM ROLLER 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 SPECIFICATIONS FROM GEOTECH REPORT BY DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1 .
11. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH GEOTECH REPORT BY RELEVANT DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1.
12. IN-SITU DENSITY TESTING AND SUPERVISION MUST BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINTED WITHIN GEOTECH REPORT BY RELEVANT DEVELOPMENT RISK MANAGEMENT REPORT REFERENCE DRMP24.1002.V023.B-R01D1.

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 - SITEWORKS".
2. SUB-GRADE SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.1., TOP 300MM TO 100% SDD.
3. FOR A SAND SUBGRADE, COMPACTION SHALL BE TO MIN.90% DENSITY INDEX AS PER AS1289 E6.1
4. LOWER BASE COURSE SHALL BE CONSTRUCTED FROM CRUSHED ROCK COMPACTED TO 98% MODIFIED MAXIMUM DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.1. OF THICKNESS NOTED ON DRAWINGS.
5. BASE COURSE SHALL BE CONSTRUCTED FROM FINE CRUSHED ROCK COMPACTED TO 98% MODIFIED MAXIMUM DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.1 OF THICKNESS NOTED ON DRAWINGS.
6. WEARING SURFACE SHALL BE ASPHALTIC CONCRETE TO STANDARD SPECIFICATION
7. TESTING OF THE SUBGRADE AND PAVEMENT LAYERS SHALL BE CARRIED OUT BY APPROVED N.A.T.A. REGISTERED LABORATORY

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.

SUBSOIL DRAINAGE NOTES

1. GENERALY PROVIDE SUBSOIL DRAINS TO INTERCEPT GROUNDWATER SEEPAGE AND PREVENT WATER BUILD-UP BEHIND WALLS AND UNDER FLOORS AND PAVEMENTS. 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 OR JOIN THE SOCK AT EACH JOINT.

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.

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
NOTES

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_D1_C010
Revision: 05

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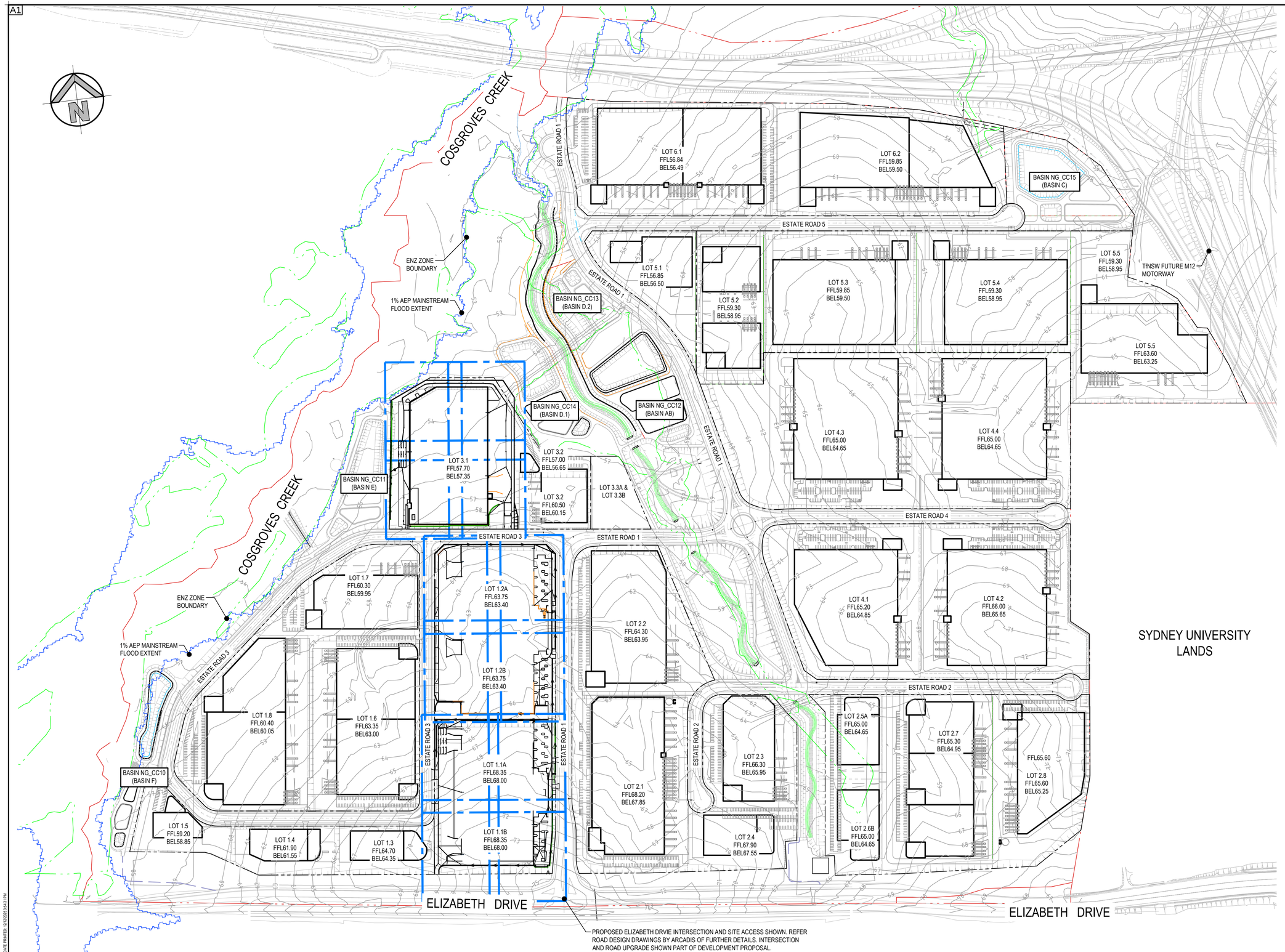

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- 67.0 PROPOSED CONTOURS
- 61 EXISTING CONTOURS
- FLOOD EXTENT 1% AEP
- COSGROVES CREEK
- PROPOSED SURFACE INLET PITS
- PROPOSED LINTEL ONGRADE & SAG PITS
- A-1 LINE LETTER / PIT NUMBER — PROPOSED PIT TAG
- PROPOSED STROMWATER PIPE
- IL21.17 / Ø100 uPVC / 15m / 1% / IL21.02 — STORMWATER UPSTREAM INVERT RL. / STORMWATER PIPE DIAMETER & CLASS / STORMWATER PIPE LENGTH / STORMWATER PIPE GRADE / STORMWATER DOWNSTREAM INVERT RL.
- PROPOSED BATTER LINE
- RW PROPOSED RETAINING WALL
- KO PROPOSED KERB ONLY
- K&G PROPOSED KERB & GUTTER
- PROPOSED SWALE

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: GENERAL ARRANGEMENT PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:3000

Drawing number: 240518_D1_C100

Revision: 05

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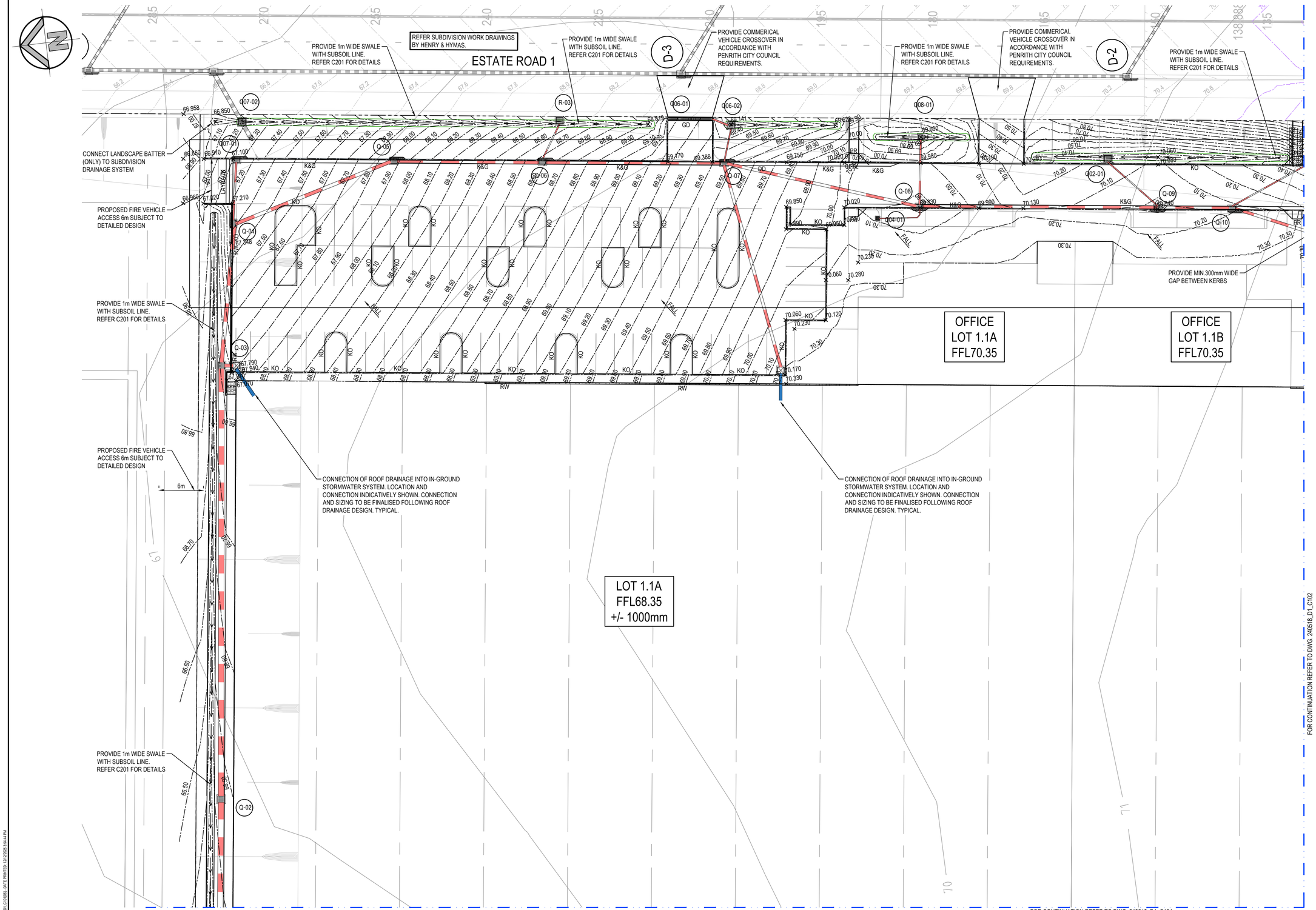

LOT 1.1A AND LOT 1.1B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS: PM25501, RL59.659

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04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 1.1A AND LOT 1.1B DETAIL PLAN SHEET 1 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

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RefDwg: N:\PROJ\240518\ACAD\DWG\240518_D1_C101-C104.DWG, 240518_D1_C101(06), DATE PRINTED: 12/12/2025 5:44:44 PM

A1

PROVIDE 1m WIDE SWALE WITH SUBSOIL LINE. REFER C201 FOR DETAILS

REFER SUBDIVISION WORK DRAWINGS BY HENRY & HYMAS.

ESTATE ROAD 1

PROVIDE 1m WIDE SWALE WITH SUBSOIL LINE. REFER C201 FOR DETAILS

PROPOSED ELIZABETH DRVIE INTERSECTION AND SITE ACCESS SHOWN. REFER ROAD RESIGN DRAWINGS BY ARCADIS OF FURTHER DETAILS. INTERSECTION PART OF DEVELOPMENT PROPOSAL.

PROVIDE MIN 2m OFFSET BETWEEN FUTURE BOUNDARY AND RETAINING WALL MAX 2m HIGH WALL

PROVIDE MIN.300mm WIDE GAP BETWEEN KERBS

OFFICE
LOT 1.1B
FFL70.35

PROVIDE 800mm CAVITY BETWEEN BUILDING WALL AND RETAINING WALL FOR MAINTENANCE AND DRAINAGE. PROVIDE REGULAR MAINTENANCE ACCESS. PROVIDE DRAINAGE TO PIT P-10

CONNECTION OF ROOF DRAINAGE INTO IN-GROUND STORMWATER SYSTEM. LOCATION AND CONNECTION INDICATIVELY SHOWN. CONNECTION AND SIZING TO BE FINALISED FOLLOWING ROOF DRAINAGE DESIGN. TYPICAL.

LOT 1.1B
FFL68.35
+/- 1000mm

PROVIDE 800mm CAVITY BETWEEN BUILDING WALL AND RETAINING WALL FOR MAINTENANCE AND DRAINAGE. PROVIDE REGULAR MAINTENANCE ACCESS. PROVIDE DRAINAGE TO PIT P-13

PROPOSED FIRE VEHICLE ACCESS 6m SUBJECT TO DETAILED DESIGN

PROVIDE 1m WIDE SWALE WITH SUBSOIL LINE. REFER C201 FOR DETAILS

EXISTING BOUNDARY

ELIZABETH DRIVE
(FUTURE UPGRADE SHOWN)

LAYBACK

FOR CONTINUATION REFER TO DWG. 240518_D1_C102

FOR CONTINUATION REFER TO DWG. 240518_D1_C103

LOT 1.1A AND LOT 1.1B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

File Path: R:\JOBS\2024\240518\ACAD\D1\240518_D1_C101-C104.DWG, 240518_D1_C101[B1], DATE PRINTED: 12/12/2025 3:54:48 PM

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.1A AND LOT 1.1B DETAIL PLAN SHEET 2 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C102
Revision: 06

A1

FOR CONTINUATION REFER TO DWG. 240518_D1_C102

FOR CONTINUATION REFER TO DWG. 240518_D1_C104

PROVIDE 800mm CAVITY BETWEEN BUILDING WALL AND RETAINING WALL FOR MAINTENANCE AND DRAINAGE. PROVIDE REGULAR MAINTENANCE ACCESS. PROVIDE DRAINAGE TO PIT P-13

PROPOSED FIRE VEHICLE ACCESS 6m SUBJECT TO DETAILED DESIGN

PROVIDE 1m WIDE SWALE WITH SUBSOIL LINE. REFER C201 FOR DETAILS

LOT 1.1B
FFL68.35
+/- 1000mm

BOUNDARY LEVEL MAX 1:3

EXISTING BOUNDARY

ELIZABETH DRIVE
(FUTURE UPGRADE SHOWN)

OOF DRAINAGE INTO IN-GROUND
TEM. LOCATION AND
ATIVELY SHOWN. CONNECTION
FINALISED FOLLOWING ROOF
TYPICAL.

CONNECTION OF ROOF DRAINAGE INTO IN-GROUND STORMWATER SYSTEM. LOCATION AND CONNECTION INDICATIVELY SHOWN. CONNECTION AND SIZING TO BE FINALISED FOLLOWING ROOF DRAINAGE DESIGN. TYPICAL.

PROVIDE 1m WIDE SWALE WITH SUBSOIL LINE. REFER C201 FOR DETAILS

1 in 2 BATTER

PROVIDE INDUSTRIAL VEHICLE CROSSOVER IN ACCORDANCE WITH PENRITH CITY COUNCIL REQUIREMENTS.

REFER SUBDIVISION WORK DRAWINGS BY HENRY & HYMAS.

ESTATE ROAD 3

BOTTOM OF WALL TO MATCH ADJACENT LOT LEVEL.

INDICATIVE FIRE ACCESS ROUTE

LOT 1.3
FFL64.70

LOT 1.1A AND LOT 1.1B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Suite 2.01
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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.1A AND LOT 1.1B DETAIL PLAN SHEET 3 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C103
Revision: 06

File:Path - RL-DRS-365439874-ACAD-0108518.dt - C101-C104.DWG - 240518_D1_C103DG - DATE PRINTED: 12/12/2025 3:54:49 PM

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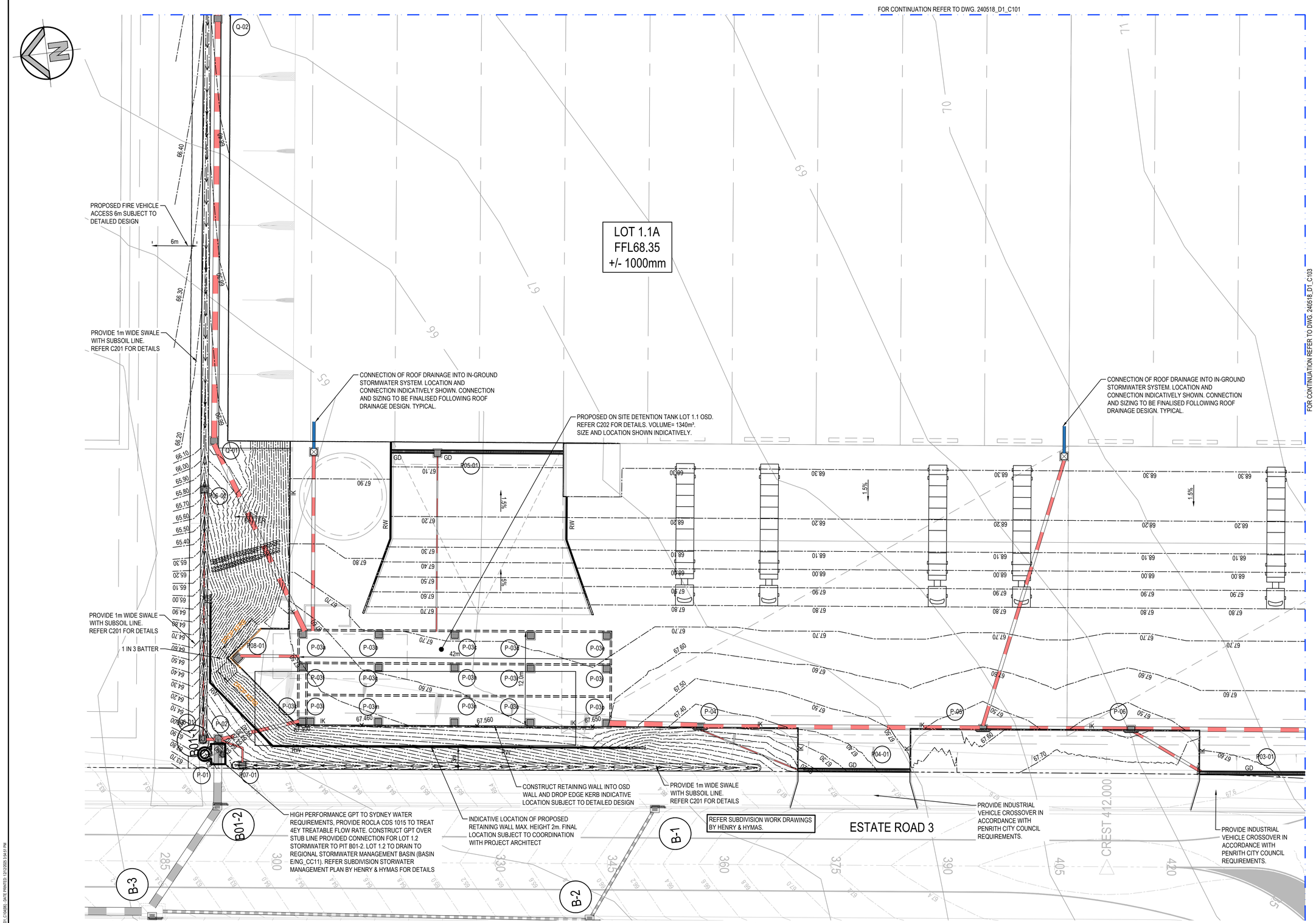

LOT 1.1A AND LOT 1.1B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

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Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.1A AND LOT 1.1B DETAIL PLAN SHEET 4 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C104
Revision: 06

File Path: R:\JOBS\2024\240518\ACAD\D1\240518_D1_C101-C104.DWG, 240518_D1_C104(06), DATE PRINTED 12/12/2025 3:54:41 PM

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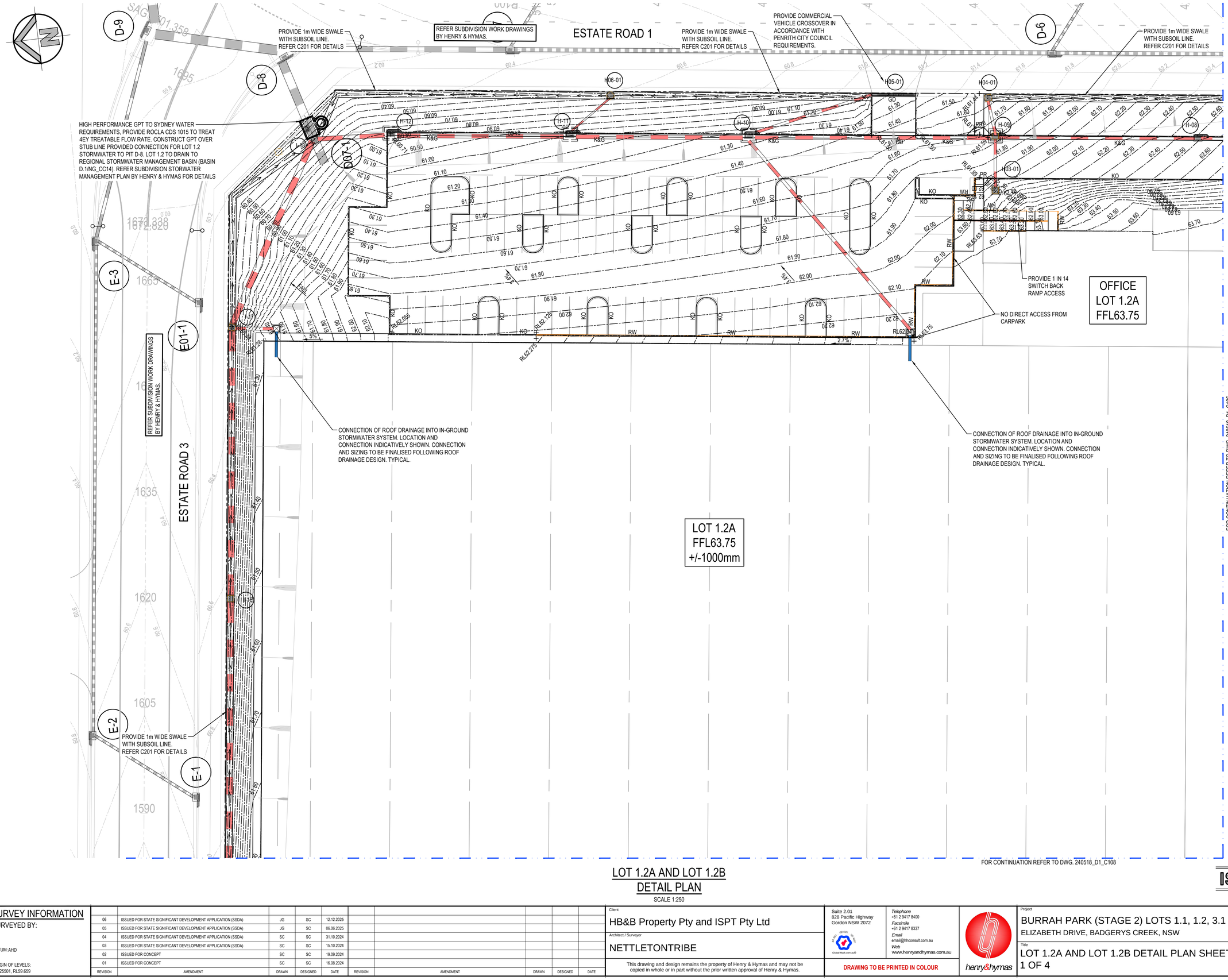

LOT 1.2A AND LOT 1.2B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

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Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.2A AND LOT 1.2B DETAIL PLAN SHEET 1 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C105
Revision: 06

File Path: R:\JOBS\2024\240518\ACAD\D1\240518_D1_C105-C108.DWG, 240518_D1_C105(06), DATE PRINTED: 12/12/2025 3:45:05 PM

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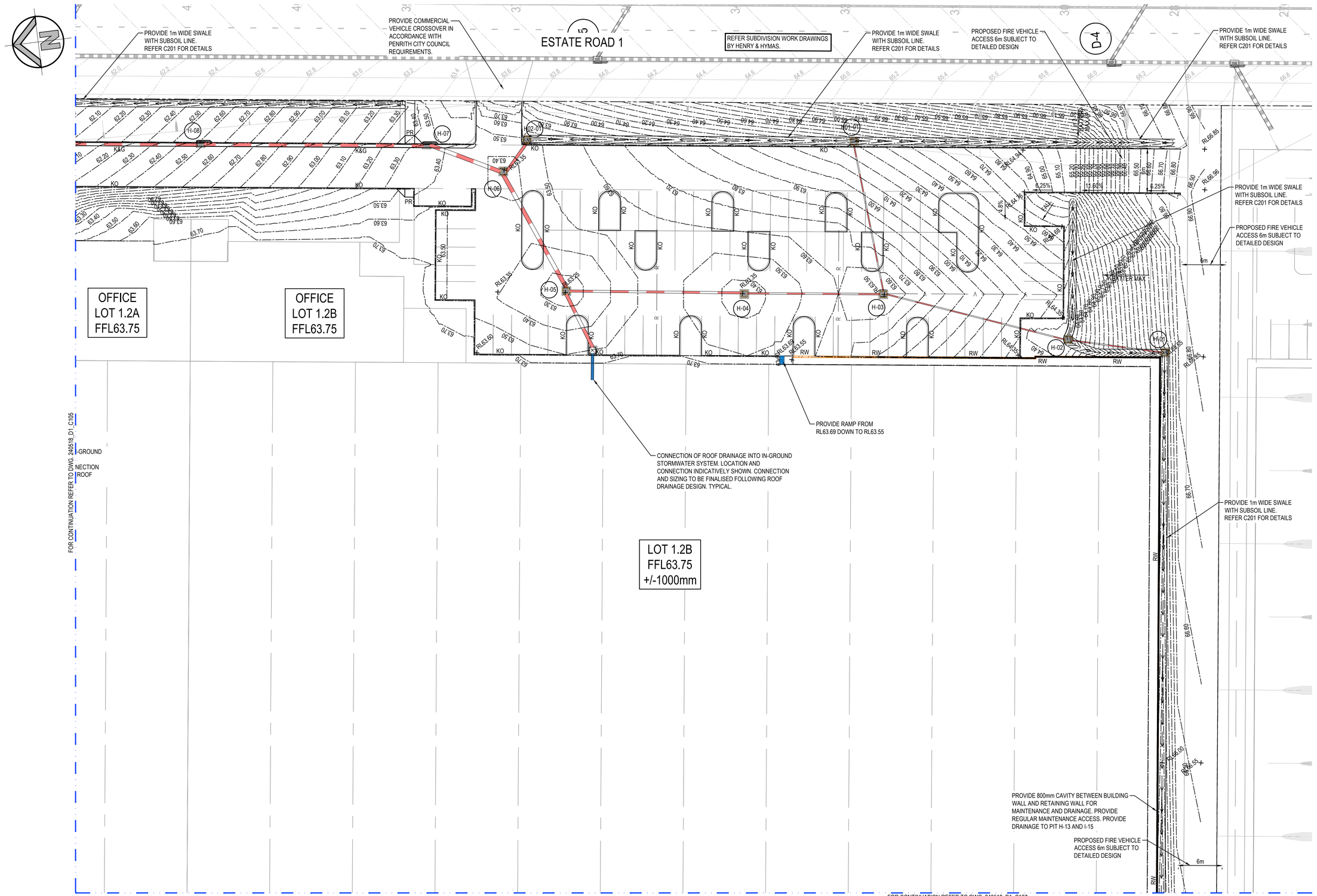

LOT 1.2A AND LOT 1.2B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

SURVEY INFORMATION
SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 1.2A AND LOT 1.2B DETAIL PLAN SHEET 2 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C106

Revision: 06

File Path: R:\JOBS\2024\240518\ACAD\01\SSDA\D1_C105-C108.DWG, 240518_D1_C106[06].DWG, DATE PRINTED: 12/12/2025 3:55:09 PM

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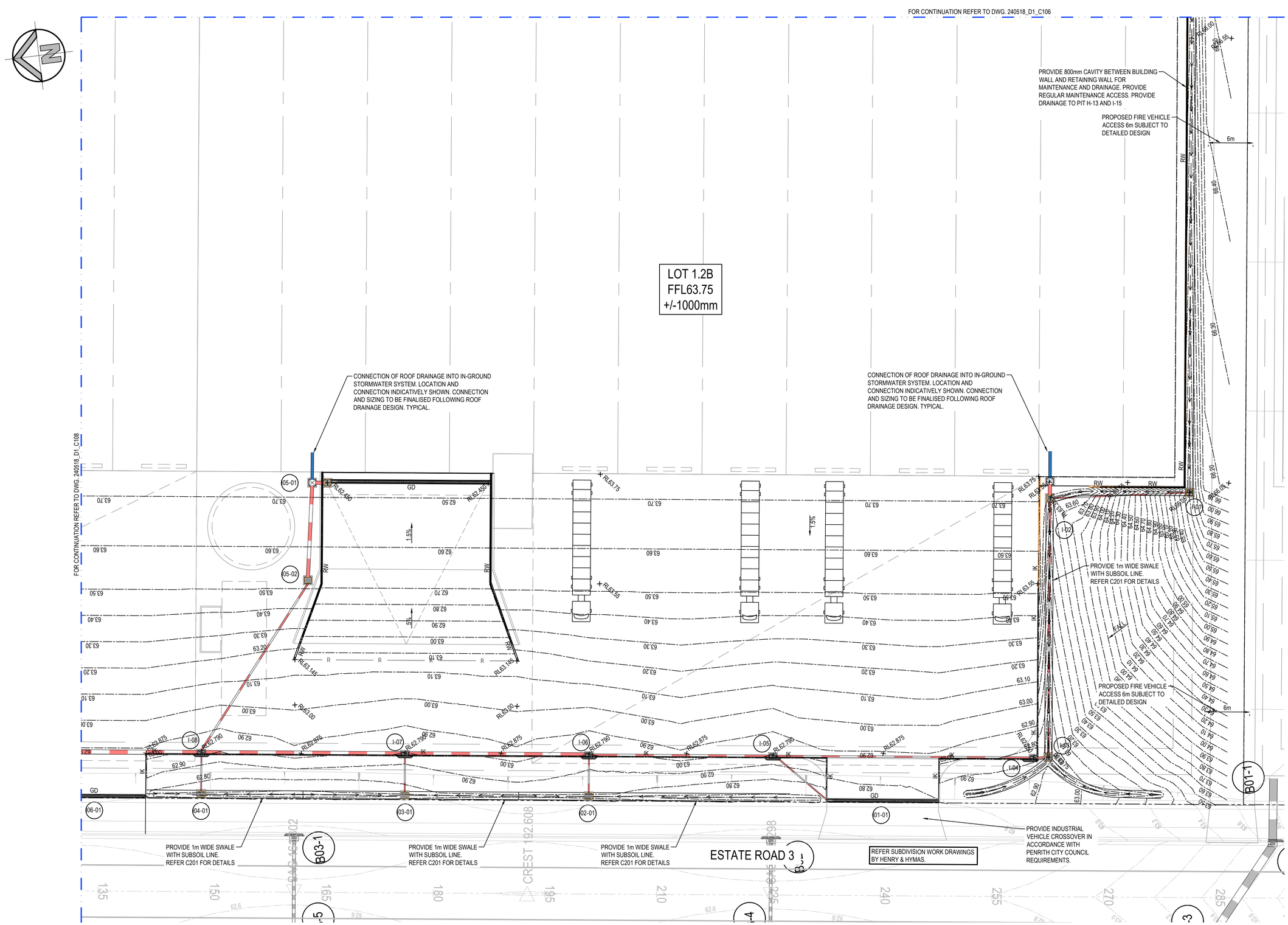

LOT 1.2A AND LOT 1.2B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

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Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE
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
henry&hymas

Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 1.2A AND LOT 1.2B DETAIL PLAN SHEET 3 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C107
Revision: 06

File Path: R:\JOBS\2024\240518\ACAD\D1\240518_D1_C107(06).DWG, 240518_D1_C107(06), DATE PRINTED: 12/12/2025 3:55:10 PM

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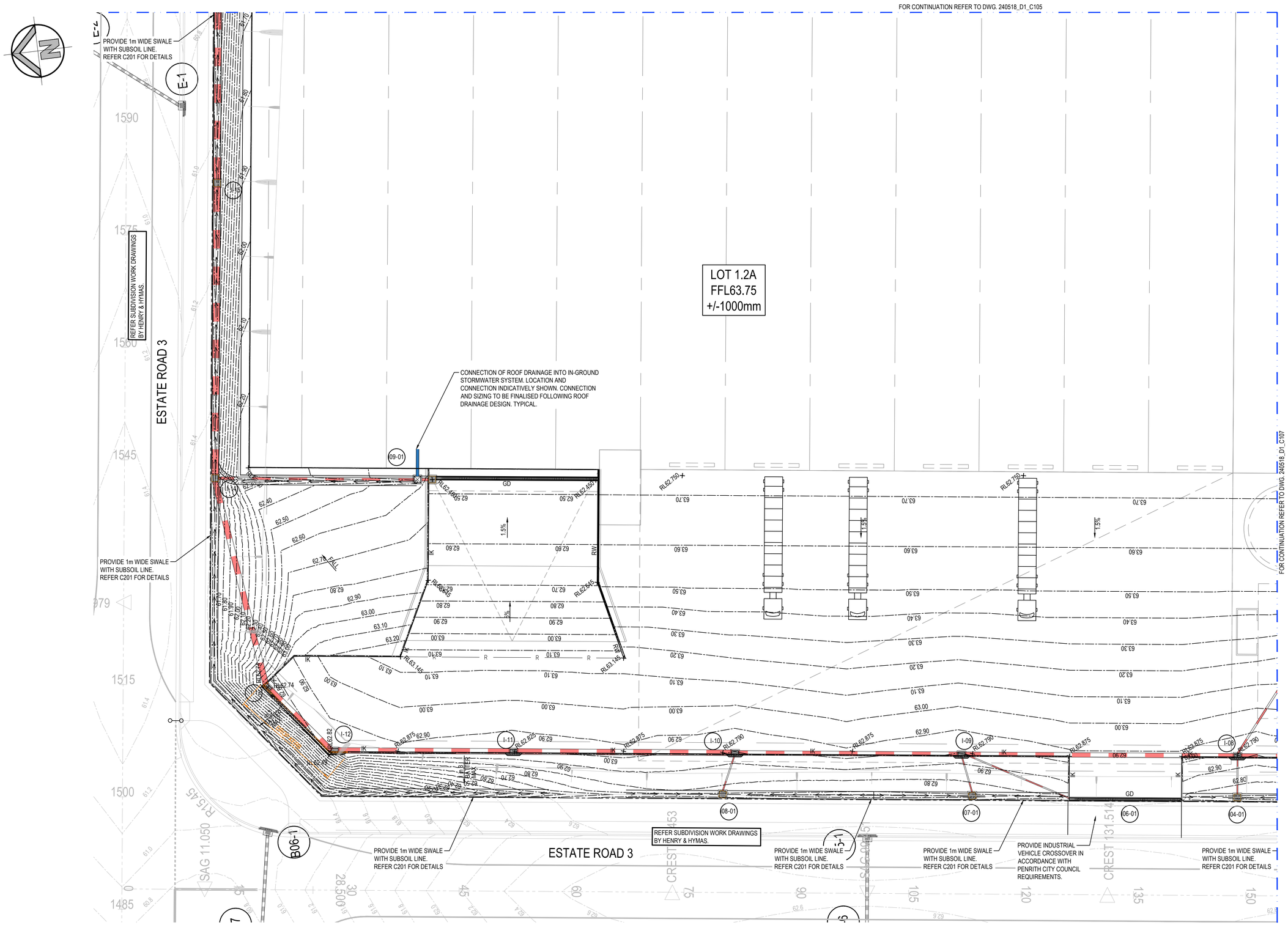

LOT 1.2A AND LOT 1.2B DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 1.2A AND LOT 1.2B DETAIL PLAN SHEET 4 OF 4

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C108
Revision: 06

File Path: RL:\PROJ\2024\240518\ACAD\C\240518_D1_C104-C108.DWG - JOINT 24, C108(06) - DATE PRINTED: 12/12/2025 3:55:13 PM

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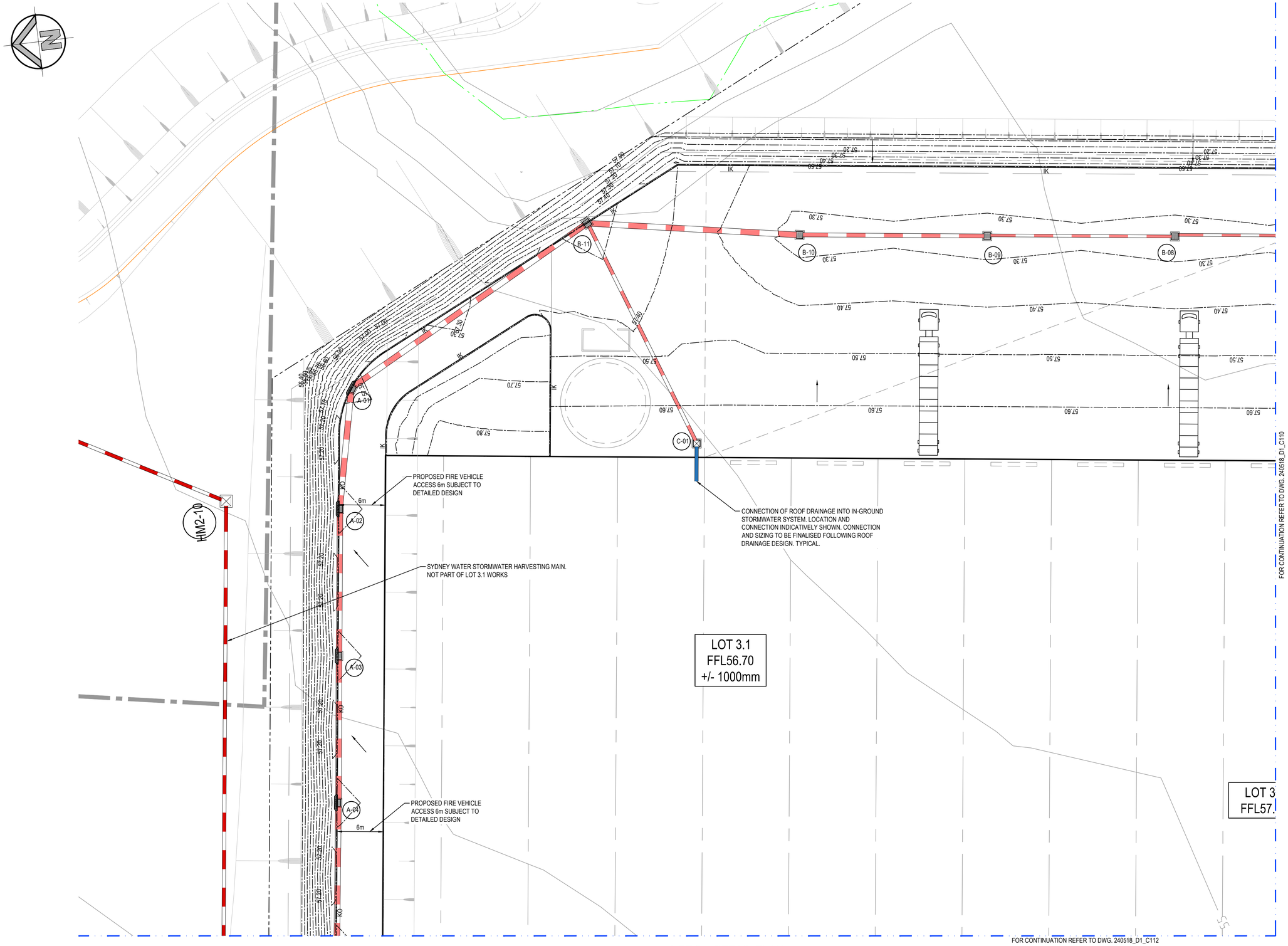

LOT 3.1 DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 3.1 DETAIL PLAN SHEET 1 OF 4

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C109
Revision: 06

File Path: R:\JOBS\2024\240518\ACAD\D1\240518_D1_C109.DWG, 240518_D1_C109(B), DATE PRINTED: 12/12/2025 3:05:43 PM

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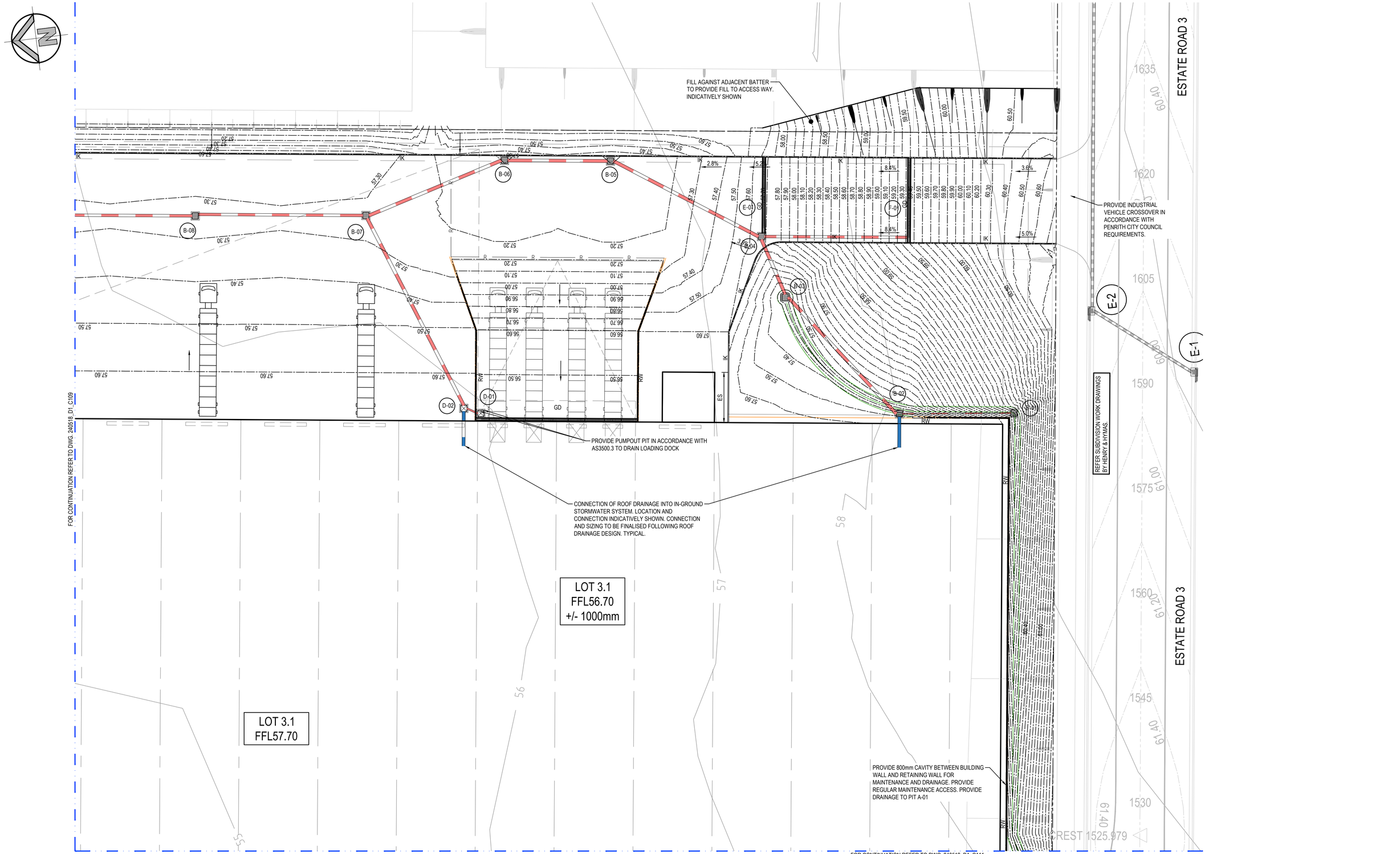

LOT 3.1 DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 3.1 DETAIL PLAN SHEET 2 OF 4

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C110

Revision: 06

File Path: R:\JOBS 2024\240518-NA\CAD\D1\240518_D1_C109(1).DWG, XREFs: 0, CTB(1):DWG, XREFs: 0, DATE PRINTED: 12/12/2025 5:05:01 PM

A1

FOR CONTINUATION REFER TO DWG. 240518_D1_C110

LOT 3.1
FFL57.70

LOT 3.1
FFL56.70
+/- 1000mm

PROVIDE 800mm CAVITY BETWEEN BUILDING WALL AND RETAINING WALL FOR MAINTENANCE AND DRAINAGE. PROVIDE REGULAR MAINTENANCE ACCESS. PROVIDE DRAINAGE TO PIT A-01

CONNECTION OF ROOF DRAINAGE INTO IN-GROUND STORMWATER SYSTEM. LOCATION AND CONNECTION INDICATIVELY SHOWN. CONNECTION AND SIZING TO BE FINALISED FOLLOWING ROOF DRAINAGE DESIGN. TYPICAL.

CONNECTION OF ROOF DRAINAGE INTO IN-GROUND STORMWATER SYSTEM. LOCATION AND CONNECTION INDICATIVELY SHOWN. CONNECTION AND SIZING TO BE FINALISED FOLLOWING ROOF DRAINAGE DESIGN. TYPICAL.

PROPOSED ON SITE DETENTION TANK LOT 3.1A OSD. REFER C202 FOR DETAILS. VOLUME= 1410 m³

OFFICE
RL 60.00

CREST 1525.979

REFER SUBDIVISION WORK DRAWINGS BY HENRY & HYMAS.

PROVIDE COMMERCIAL VEHICLE CROSSOVER IN ACCORDANCE WITH PENRITH CITY COUNCIL REQUIREMENTS.

HIGH PERFORMANCE GPT TO SYDNEY WATER REQUIREMENTS, PROVIDE ROCLA CDS 1015 TO TREAT 4EY TREATABLE FLOW RATE.

FOR CONTINUATION REFER TO DWG. 240518_D1_C112

LOT 3.1 DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
06	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
926 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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 3.1 DETAIL PLAN SHEET 3 OF 4

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C111

Revision: 06

File Path: N:\240\240518\ACAD\DWG\240518_D1_C000-C112.DWG, 240518_D1_C111(B)1, DATE PRINTED: 12/12/2025 5:48:10 PM

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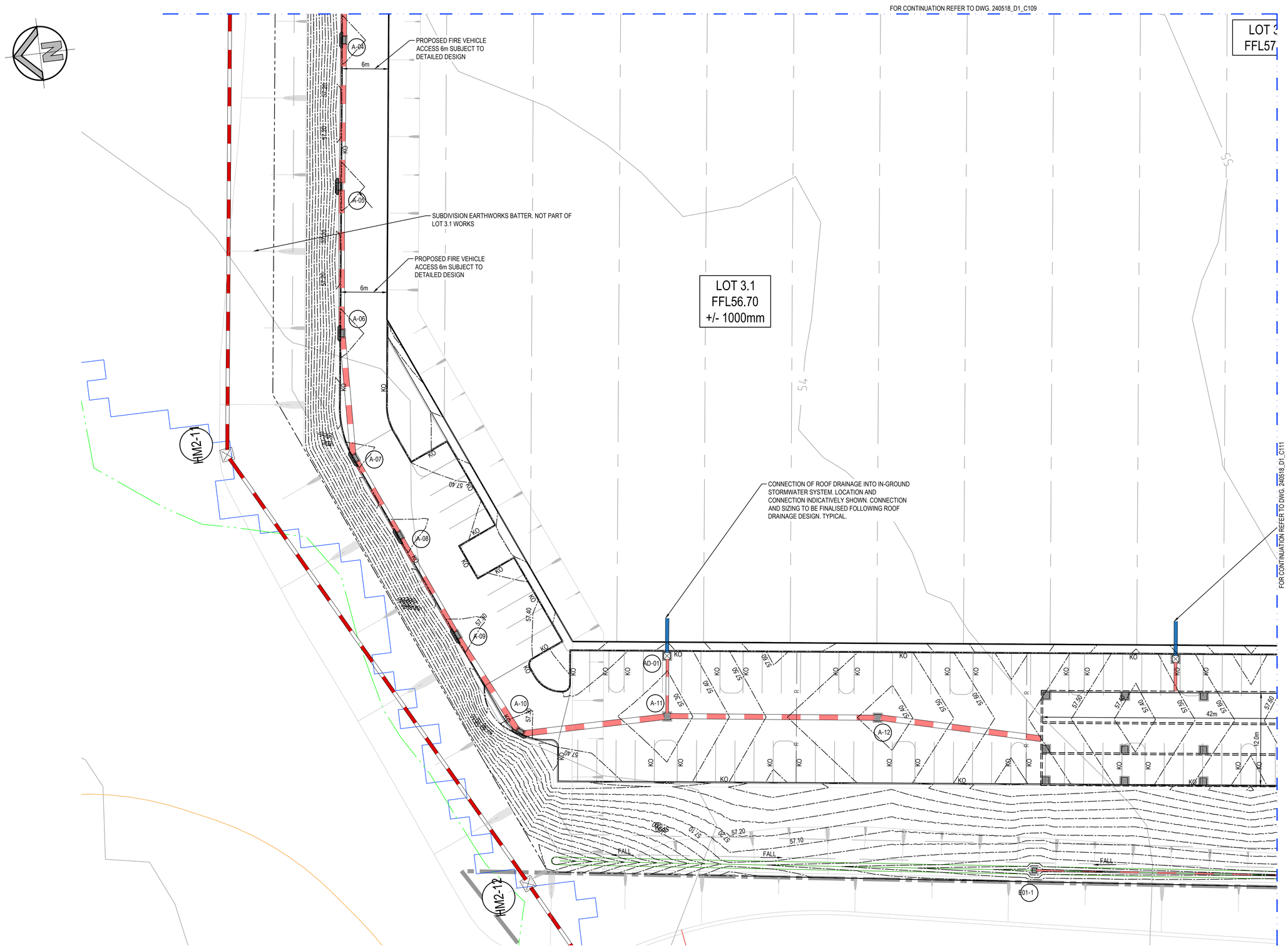

LOT 3.1 DETAIL PLAN

SCALE 1:250

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
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02	ISSUED FOR CONCEPT	SC	SC	19.09.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

henry&hymas

Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 3.1 DETAIL PLAN SHEET 4 OF 4

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:250

Drawing number: 240518_D1_C112

Revision: 06

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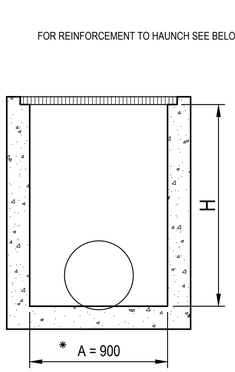
A1

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.

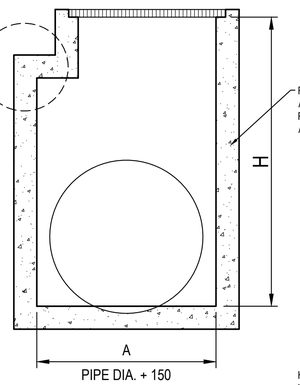
1. SELECT PIT CHAMBER USING THE STEPS BELOW:
2. SELECT PIT CHAMBER SIZE DEPENDING ON THE PIPE DIAMETERS.
3. CHECK PIT CHAMBER SIZE TO SATISFY DEPTH TO INVERT REQUIREMENTS.
   CHECK PIT CHAMBER DIMENSIONS TO SATISFY THE SKEW ANGLE IN THE TABLE.



SECTION
NTS

*A = 600 FOR PIPES UP TO 375 DIA.

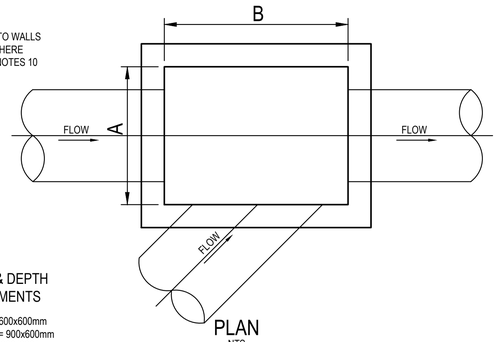
(1) PIT CHAMBER DIMENSIONS FOR PIPES UP TO 600 DIA.



SECTION
NTS

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

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

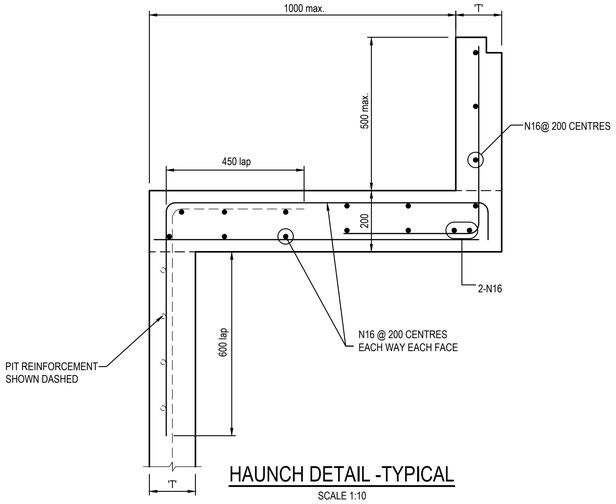


PLAN
NTS

(3) PIT CHAMBER FOR SIDE ENTRY ON SKEW

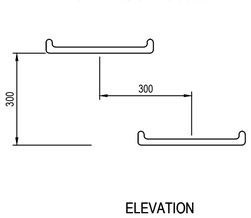
(2) PIT SIZE & DEPTH REQUIREMENTS

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



HAUNCH DETAIL -TYPICAL
SCALE 1:10

PIT NAME	PIT DESCRIPTION
H-07, H-08, H-09, H-10, H-11, I-12, I-19, P-09, P-01, Q-11, Q-10, Q-09, Q-07, Q-06, Q-05, Q-04	PROPOSED ON-GRADE KERB WITH 1.8m LINTEL AND HEAVY-DUTY FRAME AND GRATE, CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS.
A-01, A-02, A-03, A-04, A-05, A-06, A-07, A-08 A-09, A-10, B-11, H-12, I-04, I-05, I-06, I-07, I-08, I-09, I-10, I-11, I-13, P-06, P-05, P-04, Q-08	PROPOSED SAG KERB WITH 2.4m LINTEL AND HEAVY-DUTY FRAME AND GRATE, CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS.
E-01, F-01, H05-01, I01-01, I06-01, P03-01, P04-01	PROPOSED 900x900 SURFACE INLET PIT WITH 300mm WIDE X 300mm DEEP GRATED DRAIN, CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS.
P02-01, P05-01	PROPOSED 300mm WIDE X 300mm DEEP GRATED DRAIN, CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS.
B-01, H-01, H-02, H-03, H-04, H01-01, H02-01, I-01, I-02, I-03, I02-01, I03-01, I04-01, I07-01, I08-01, P-13, P06-02, P06-01, P07-01, P08-01, Q-15, Q-14, Q-13, Q01-01, Q02-01, Q05-01, Q06-02, Q06-01, Q07-01, Q07-02, Q08-01	PROPOSED 600x600 SURFACE INLET PIT WITH HEAVY DUTY CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS
A-11, A-12, A1-01, A1-02, A1-03, A1-04, A1-05, A1-06, B-02, B-03, B-04, B-05, B-06, B-07, B-08, B-09, B-10, H-05, H-06, H04-01, H06-01, I-14, I-15, I-16, I-17, I05-01, I05-02, P-12, P-11, P-10, P-08, P01-01, Q-12, Q-03, Q-02, Q-01, Q04-01, E-1, E-2, E-3, E01-1	PROPOSED 900x900 SURFACE INLET PIT WITH HEAVY DUTY CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS
AB-01, AC-01, AD-01, C-01, D-02, I09-01	PROPOSED 900x900 JUNCTION PIT WITH SEALED CONCRETE LID HEAVY DUTY CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS
A-22, I-18, P-02	PROPOSED STUB CONNECTION IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS. REFER NOTES ON PLANS FOR ADDITIONAL REQUIREMENTS.
D-01	PROPOSED PUMP OUT PIT WITH SEALED CONCRETE LID HEAVY DUTY CLASS "D" IN ACCORDANCE WITH PENRITH CITY COUNCIL COUNCIL'S REQUIREMENTS
E-0, I-18, P-01	HIGH PERFORMANCE GPT TO SYDNYE WATER REQUIREMENTS, PROVIDE ROCLA CDS 1015 TO TREAT 4EY TREATABLE FLOW RATE.



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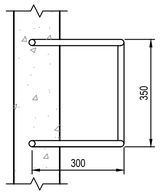
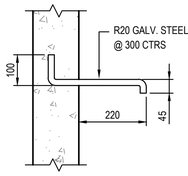
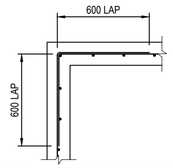


PLAN

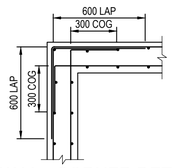


SECTION

TYPICAL STEP IRON DETAIL
SCALE 1:10



150 WALL - CORNER DETAIL
SCALE 1:20



200 WALL - CORNER 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.

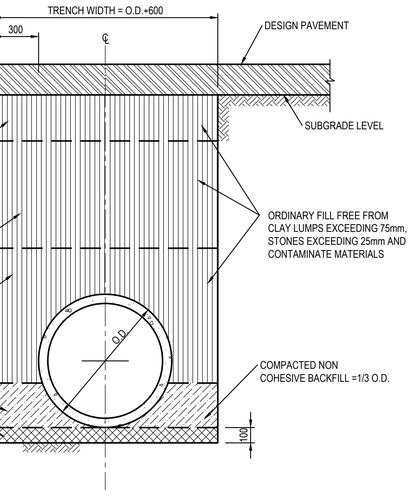
18. ALL ROOF DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH AS3500, PART 3. TESTING TO BE UNDERTAKEN AND REPORTS PROVIDED TO THE SUPERINTENDENT.

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.

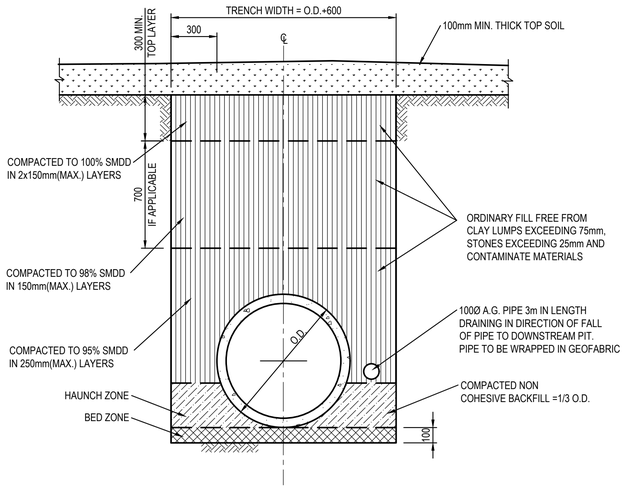
20. PITS IN EXCESS OF 1.5 m DEEP TO HAVE WALL AND FLOOR THICKNESS INCREASED TO 200mm. REINFORCED WITH N12@200 CTS CENTRALLY PLACED BOTH WAYS, BOTH FACES THROUGHOUT U.N.O.ON SEPARATE DESIGN DRAWINGS IN THIS SET. IF DEPTH EXCEEDS 5m CONTACT ENGINEER.

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

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

0 200 400 600 800 1000 1200mm
SCALE 1:10

0 400 800 1200 1600 2000mm
SCALE 1:20

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
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01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: STORMWATER MISCELLANEOUS DETAILS SHEET 1 OF 2

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C200
Revision: 04

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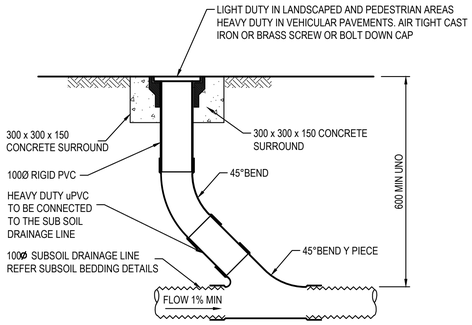
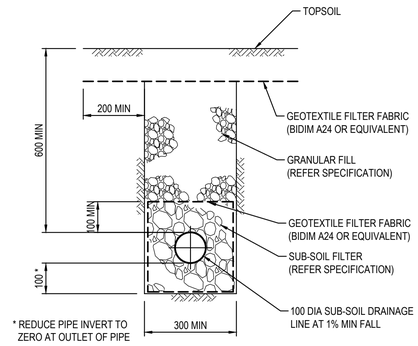


INTERMEDIATE RISER (IR)

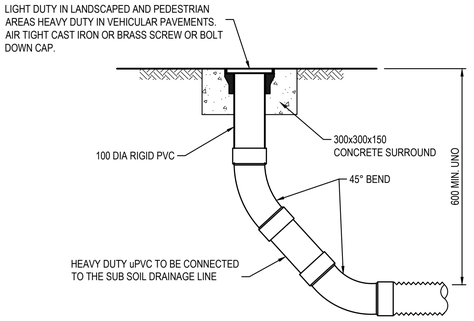
SCALE 1:10

NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



SUB-SOIL IN LANDSCAPED AREAS

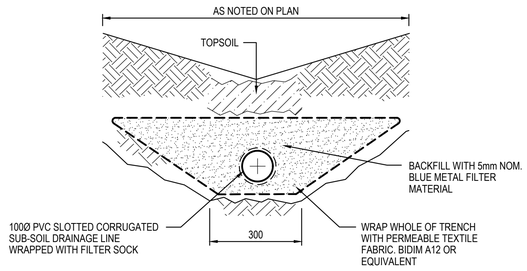
SCALE 1:10



FLUSHING POINT (FP)

SCALE 1:10

NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



SUBSOIL DRAIN DETAIL IN SWALES

SCALE 1:10

SWALE SUBSOIL NOT SHOWN ON PLAN FOR CLARITY.

SUBSOIL DRAINAGE NOTES

1. GENERALY PROVIDE SUBSOIL DRAINS TO INTERCEPT GROUNDWATER SEEPAGE AND PREVENT WATER BUILD-UP BEHIND WALLS AND UNDER FLOORS AND PAVEMENTS. 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.

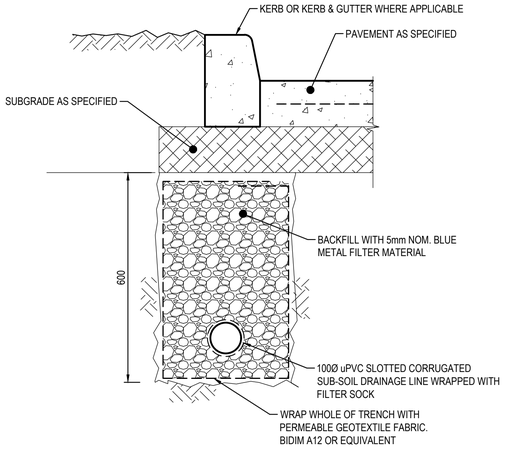
4. TRENCH WIDTH MINIMUM 300mm.

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 OR JOIN THE SOCK AT EACH JOINT.



SUB-SOIL DRAIN DETAIL BELOW KERB

SCALE 1:10

PROVIDE ALL LOCATIONS FALLING TO KERB

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

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

SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: STORMWATER MISCELLANEOUS DETAILS SHEET 2 OF 2

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C201

Revision: 04

ISSUED FOR SSDA

Rip Path: R:\240518\Drawings\Architectural\240518_D1_C200-C201.dwg, 240518_D1_C201(04), DATE PRINTED: 12/12/2025 1:58:01 PM

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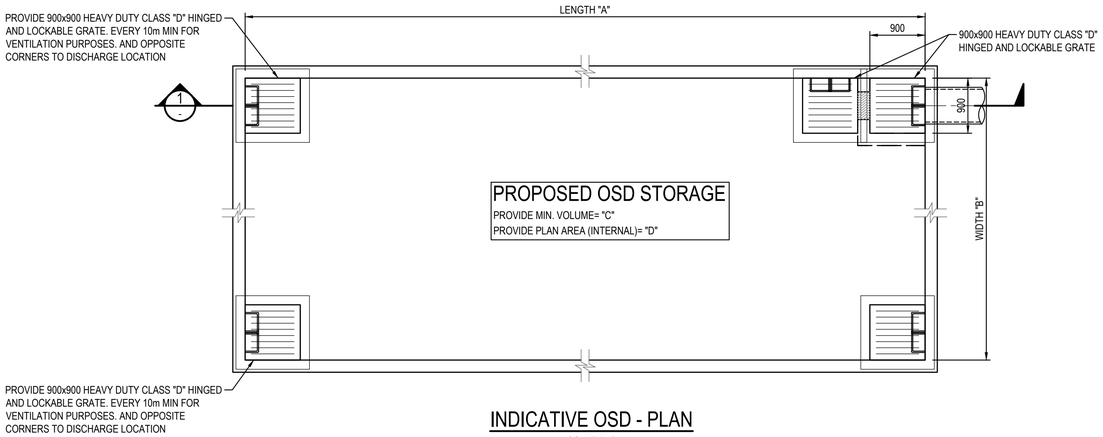


INDICATIVE OSD - PLAN

SCALE 1:50

NOTES:
1. REFER TO TABLE FOR OSD PARAMETERS;
2. REFER C101-C104, C105-C108 AND C109-C112;
3. REFER PLAN FOR ACCESS LOCATIONS.

CONFINED SPACE DANGER SIGN

COLOURS:	DANGER AND BACKGROUND	WHITE
	ELLIPTICAL AREA	RED
	RECTANGLE CONTAINING ELLIPSE	BLACK
	OTHER LETTERING AND BOARDER	BLACK

A) A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANKS/ CONFINED SPACE AT ALL ACCESS POINTS OF THE TANK/ CONFINED SPACE.

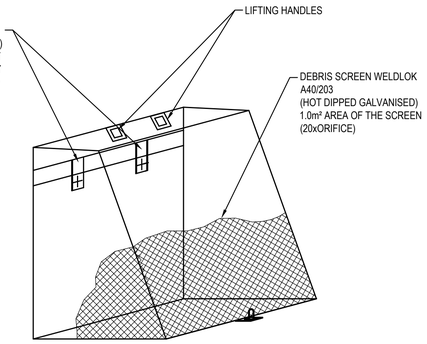
B) SIGN TO BE MINIMUM DIMENSIONS:- 300mm x 450mm (LARGE ENTRIES SUCH AS DOORS)
250mm x 180mm (SMALL ENTRIES I.E., GRATES, MANHOLES)

C) SIGN SHALL BE MANUFACTURED FROM COLOUR BONDED METAL OR POLYPROPYLENE

D) SIGN SHALL BE AFFIXED TO A SURFACE WITH SCREWS AT EACH CORNER.

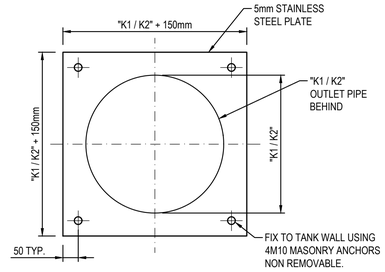
100 x 16 MOUNTING BAR WITH BRACKETS, SCREEN TO BE ATTACHED (GENERALLY ON A SLIDING MECHANISM) TO THE WALL, BUT SHOULD BE REMOVABLE (WITHOUT THE USE OF TOOLS) TO PERMIT CLEANSING AND EASY INSPECTION OF THE OUTLET CONTROL. ALL STEEL TO BE HOT DIPPED GALVANISED.

SCREEN TYPE WELDLOK A40/203 IS RECOMENDED FOR ORIFICES LARGER THAN 150mm AND SCREEN AREA 20 x THE ORIFICE AREA FOR THAT TYPE OF SCREEN.



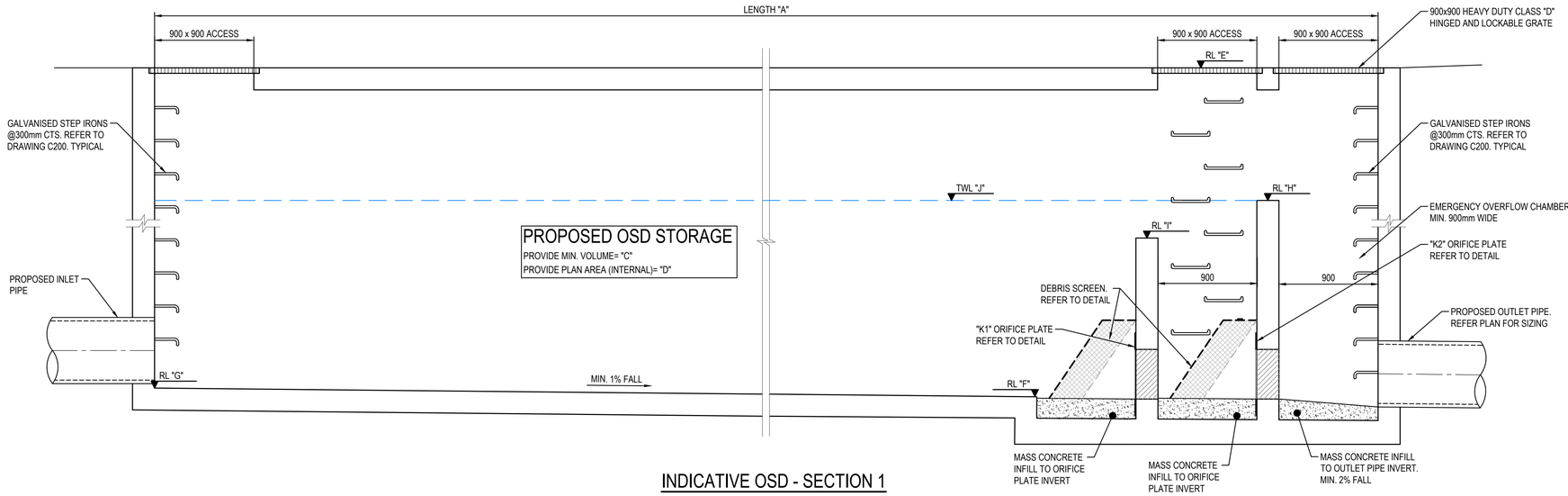
DEBRIS SCREEN DETAIL

NOT TO SCALE
ALL STEEL TO BE HOT DIPPED GALVANISED



INDICATIVE ORIFICE PLATE DETAIL

SCALE 1:10



INDICATIVE OSD - SECTION 1

SCALE 1:25

NOTES:
1. REFER TO TABLE FOR OSD PARAMETERS;
2. REFER C101-C104, C105-C108 AND C109-C112;
3. REFER PLAN FOR ACCESS LOCATIONS.

	OSD LOT 1.1	OSD LOT 3.1
A	42 m	42 m
B	12.4 m	12 m
C	1340 m³	1410 m³
D	525 m²	504 m²
E	67.40	57.35
F	66.80	54.25
G	64.43	54.65
H	66.80	57.05
I	66.05	55.85
J	66.80	57.05
K1	285 mm	240 mm
K2	395 mm	330 mm

PRELIMINARY OSD SIZING TABLE

NOTES:
1. FINAL OSD SIZING AND PARAMETERS SUBJECT TO LOT DETAILED DESIGN.

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
OSD TYPICAL DETAILS AND SECTIONS

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C202
Revision: 05

File Path: R:\240518\04\ACAD\D1\240518_D1_C202.DWG JAN18 BY: CDEDIO DATE PRINTED: 12/12/2025 5:43:39 PM

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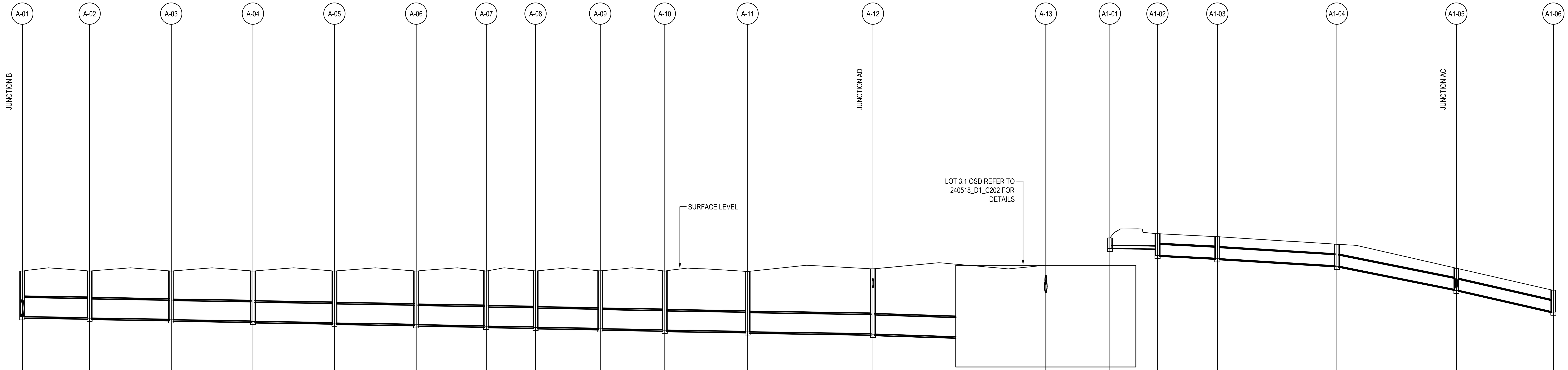

LINE A

Pipe Size & Class	Grade (%)
Ø 900Concrete, under roads (A-01 to A-02)	0.3%
Ø 900Concrete, under roads (A-02 to A-03)	0.3%
Ø 900Concrete, under roads (A-03 to A-04)	0.3%
Ø 900Concrete, under roads (A-04 to A-05)	0.3%
Ø 900Concrete, under roads (A-05 to A-06)	0.3%
Ø 900Concrete, under roads (A-06 to A-07)	0.3%
Ø 900Concrete, under roads (A-07 to A-08)	0.3%
Ø 900Concrete, under roads (A-08 to A-09)	0.3%
Ø 900Concrete, under roads (A-09 to A-10)	0.3%
Ø 900Concrete, under roads (A-10 to A-11)	0.3%
Ø 900Concrete, under roads (A-11 to A-12)	0.3%
Ø 900Concrete, under roads (A-12 to A-13)	0.3%

Datum R.L 38.00

Pit	DEPTH TO INVERT	INVERT R.L.	SURFACE R.L.	PIPE CHAINAGE
A-01	2.139	55.111	57.250	0.000
A-02	2.186 / 2.206	55.064 / 55.044	57.250	15.764
A-03	2.264 / 2.284	54.987 / 54.967	57.250	34.876
A-04	2.341 / 2.361	54.909 / 54.889	57.250	54.030
A-05	2.418 / 2.438	54.832 / 54.812	57.250	73.117
A-06	2.496 / 2.516	54.754 / 54.734	57.250	92.260
A-07	2.565 / 2.585	54.685 / 54.665	57.250	108.697
A-08	2.624 / 2.644	54.631 / 54.611	57.255	120.240
A-09	2.691 / 2.711	54.565 / 54.545	57.256	135.392
A-10	2.750 / 2.770	54.500 / 54.480	57.250	150.493
A-11	2.808 / 2.828	54.422 / 54.402	57.230	169.899
A-12	3.037 / 3.057	54.313 / 54.293	57.350	199.257
A-13	3.348 / 4.761	54.172 / 52.758	57.520	239.765

LINE A1

Pipe Size & Class	Grade (%)
Ø 150uPVC, not under roads (A1-01 to A1-02)	0.3%
Ø 525Concrete, under roads (A1-02 to A1-03)	0.95%
Ø 525Concrete, under roads (A1-03 to A1-04)	1.19%
Ø 525Concrete, under roads (A1-04 to A1-05)	3.88%
Ø 525Concrete, under roads (A1-05 to A1-06)	4.39%

Datum R.L 39.00

Pit	DEPTH TO INVERT	INVERT R.L.	SURFACE R.L.	PIPE CHAINAGE
A1-01	0.492	59.308	59.800	0.000
A1-02	0.724 / 1.021	59.275 / 58.978	59.999	11.159
A1-03	1.011 / 1.031	58.845 / 58.825	59.856	25.179
A1-04	1.015 / 1.035	58.493 / 58.473	59.507	53.179
A1-05	0.995 / 1.037	57.386 / 57.345	58.381	81.179
A1-06	1.005	56.348	57.354	103.897

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 SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
828 Pacific Highway
Gordon NSW 2072
Global-Mark.com.au®
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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 1 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C210
Revision: 04

File Path.: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C210-C221.DWG - 240518_D1_C210[04] - DATE PRINTED: 12/12/2025 3:56:40 PM

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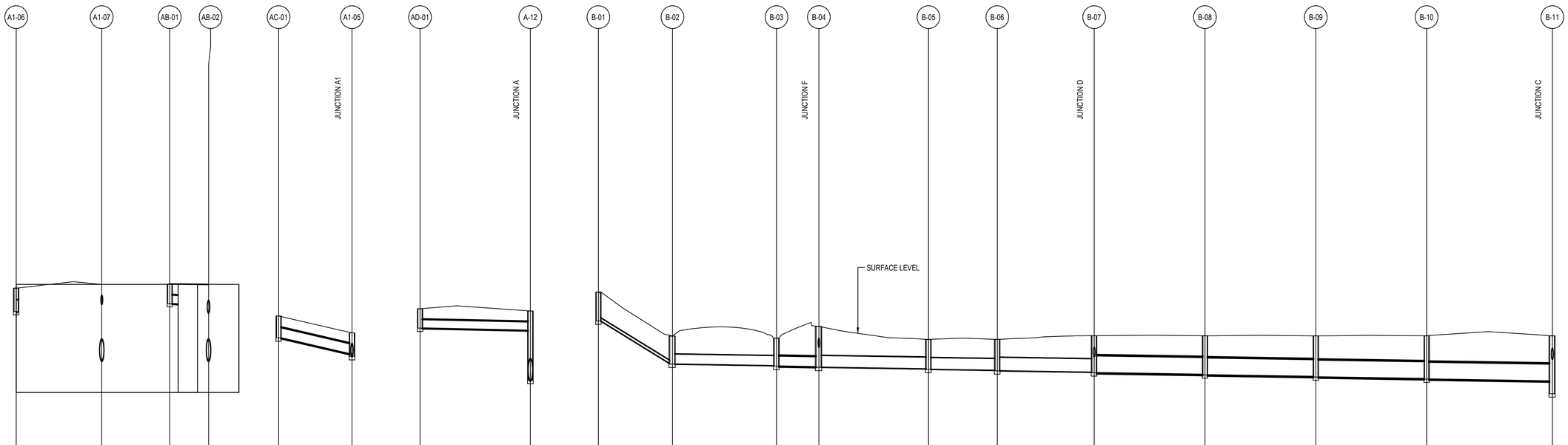

	LINE A1			LINE AB			LINE AC			LINE AD		
Pipe Size & Class	Ø 525Concrete, under roads			Ø 375Concrete, under roads			Ø 450Concrete, under roads			Ø 375Concrete, under roads		
Grade (%)	0.3%			0.3%			4.37%			0.41%		
Datum R.L	38.00			38.00			41.00			39.00		
DEPTH TO INVERT	1.005	1.025	1.248	0.861	0.867	4.761	0.964	0.922	1.037	0.853	0.854	3.057
INVERT R.L.	56.348	56.328	56.272	56.679	56.653	52.758	58.166	57.459	57.345	56.596	56.496	54.293
SURFACE R.L.	57.354		57.520	57.540	57.520		59.130	58.381		57.448	57.350	
PIPE CHAINAGE	103.897		122.771	0.000	8.542		0.000	16.170		0.000	24.335	

	LINE B											
Pipe Size & Class	Ø 150uPVC, under roads	Ø 450uPVC, not under roads	Ø 450Concrete, under roads	Ø 525uPVC, under roads	Ø 525uPVC, under roads	Ø 600uPVC, not under roads	Ø 750Concrete, under roads	Ø 750Concrete, under roads	Ø 750Concrete, under roads	Ø 750Concrete, under roads		
Grade (%)	11.54%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%		
Datum R.L	40.00											
DEPTH TO INVERT	1.277	1.217	1.237	1.213	1.233	1.784	1.804	1.301	1.321	1.366	1.386	1.613	1.633	1.701	1.721	1.790	1.810	1.888	1.908	1.986	2.550
INVERT R.L.	57.911	56.026	56.006	55.937	55.917	55.889	55.869	55.796	55.776	55.731	55.711	55.647	55.627	55.553	55.533	55.460	55.440	55.367	55.347	55.264	54.700
SURFACE R.L.	59.188	57.243	57.150	57.673	57.097	57.096	57.260	57.254	57.250	57.255	57.250										
PIPE CHAINAGE	0.000	16.343	39.269	48.619	72.787	87.966	109.311	133.747	158.181	182.616	210.336										

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 SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
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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

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Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 2 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C211
Revision: 04

File Path: R:\JOBS\2024\240518\ACAD\D1\240518_D1_C211.DWG, 240518_D1_C211(P01), DATE PRINTED: 12/12/2025 3:56:41 PM

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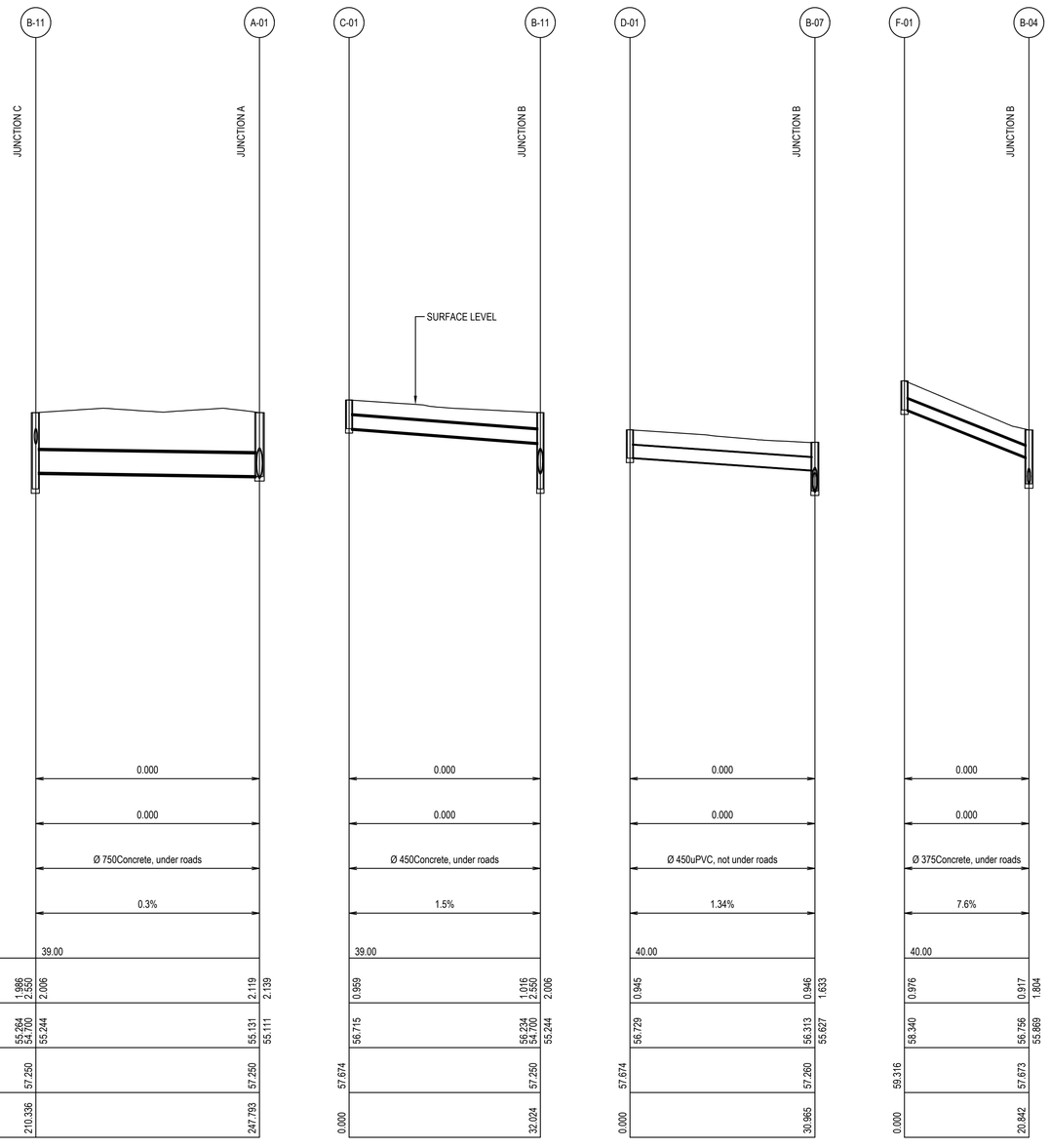

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2 1
SCALE 1:100

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

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
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Email email@hhconsult.com.au
Web www.henryandhymas.com.au

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Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 3 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C212

Revision: 04

File Path: R:\JOBS\2024\240518\ACAD\DWG\240518_D1_C212.DWG, 240518_D1_C212(04), DATE PRINTED: 12/12/2025 3:48:43 PM

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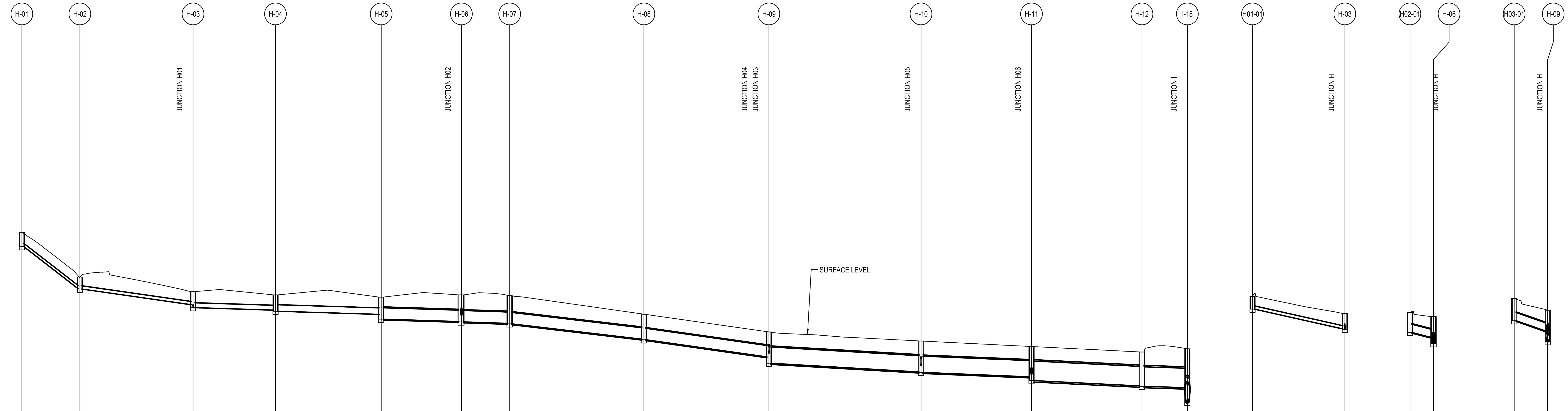

LINE H

Datum R.L 45.00

	H-01		H-02		H-03		H-04		H-05		H-06		H-07		H-08		H-09		H-10		H-11		H-12		I-18
Pipe Size & Class		Ø 150uPVC, not under roads		Ø 150uPVC, under roads		Ø 225uPVC, under roads		Ø 300uPVC, under roads		Ø 525Concrete, under roads		Ø 525Concrete, under roads		Ø 525Concrete, under roads		Ø 525Concrete, under roads		Ø 750Concrete, under roads		Ø 750Concrete, under roads		Ø 900Concrete, under roads		Ø 900Concrete, under roads	
Grade (%)		14.48%		2.77%		0.6%		0.6%		0.6%		0.6%		2.29%		2.75%		1.14%		0.8%		0.96%		0.6%	
DEPTH TO INVERT	0.662		0.537 / 0.557		0.601 / 0.739		0.703 / 0.752		0.798 / 1.016		1.227 / 1.247		1.274 / 1.294		1.153 / 1.179		1.153 / 1.445		1.427 / 1.447		1.397 / 1.571		1.561 / 1.581		1.793 / 2.465
INVERT R.L.	65.575		63.640 / 63.620		62.899 / 62.761		62.647 / 62.598		62.452 / 62.234		62.123 / 62.103		62.037 / 62.017		61.309 / 61.282		60.490 / 60.199		59.798 / 59.778		59.574 / 59.400		59.156 / 59.136		59.073 / 58.400
SURFACE R.L.	66.238		64.177		63.500		63.350		63.250		63.350		63.311		62.462		61.644		61.225		60.971		60.717		60.866
PIPE CHAINAGE	0.000		13.365		39.417		58.417		82.748		101.232		112.331		143.240		172.031		207.050		232.495		257.939		268.395

LINE H01

Datum R.L 46.00

	H01-01		H-03
Pipe Size & Class		Ø 150uPVC, under roads	
Grade (%)		4.29%	
DEPTH TO INVERT	0.591		0.719 / 0.739
INVERT R.L.	63.694		62.781 / 62.761
SURFACE R.L.	64.285		63.500
PIPE CHAINAGE	0.000		21.258

LINE H02

Datum R.L 46.00

	H02-01		H-06
Pipe Size & Class		Ø 375Concrete, under roads	
Grade (%)		4.31%	
DEPTH TO INVERT	0.916		0.965 / 1.247
INVERT R.L.	62.619		62.385 / 62.103
SURFACE R.L.	63.535		63.350
PIPE CHAINAGE	0.000		5.410

LINE H03

Datum R.L 44.00

	H03-01		H-09
Pipe Size & Class		Ø 375Concrete, under roads	
Grade (%)		6.17%	
DEPTH TO INVERT	1.024		0.959 / 1.445
INVERT R.L.	61.161		60.685 / 60.199
SURFACE R.L.	62.184		61.644
PIPE CHAINAGE	0.000		7.707

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

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

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS
SHEET 4 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C213 Revision: 04

File Path.: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C210-C221.DWG - 240518_D1_C213[04] - DATE PRINTED: 12/12/2025 3:56:43 PM

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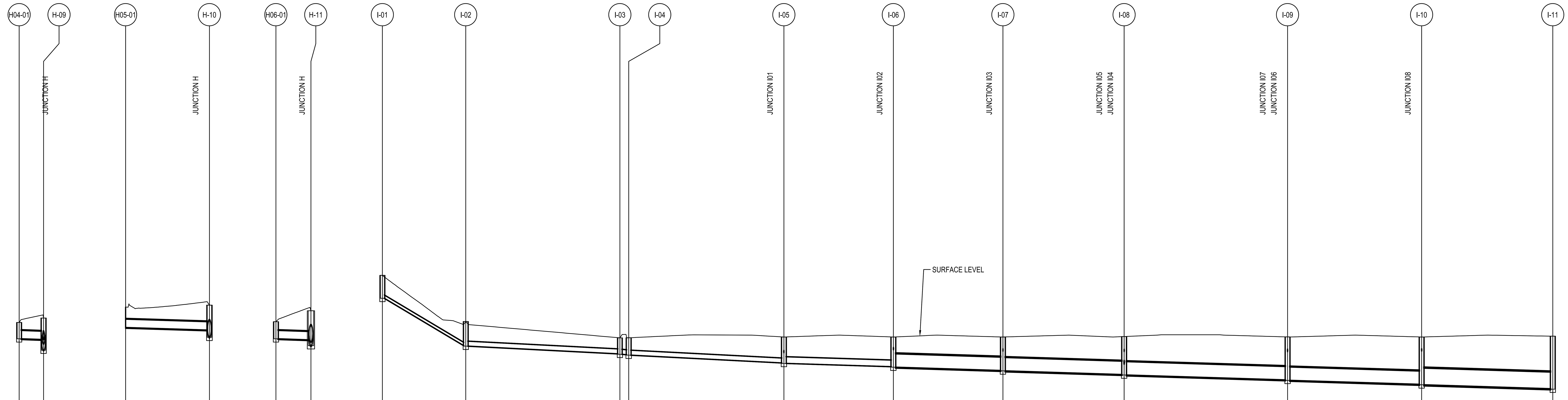

LINE H04

	H04-01	H-09	
Pipe Size & Class	Ø 375Concrete, under roads		
Grade (%)	0.6%		
Datum R.L	44.00		
DEPTH TO INVERT	0.735	0.966	1.445
INVERT R.L.	60.711	60.677	60.199
SURFACE R.L.	61.446	61.644	
PIPE CHAINAGE	0.000	5.502	

LINE H05

	H05-01	H-10	
Pipe Size & Class	Ø 375Concrete, not under roads		
Grade (%)	0.6%		
Datum R.L	43.00		
DEPTH TO INVERT	0.919	1.121	1.447
INVERT R.L.	60.218	60.104	59.778
SURFACE R.L.	61.137	61.225	
PIPE CHAINAGE	0.000	18.892	

LINE H06

	H06-01	H-11	
Pipe Size & Class	Ø 375Concrete, not under roads		
Grade (%)	0.6%		
Datum R.L	43.00		
DEPTH TO INVERT	0.770	1.308	1.571
INVERT R.L.	59.710	59.663	59.400
SURFACE R.L.	60.480	60.971	
PIPE CHAINAGE	0.000	7.887	

LINE I

Datum R.L 46.00

Segment	Pipe Size & Class	Grade (%)	Depth to Invert (start)	Depth to Invert (end)	Invert R.L. (start)	Invert R.L. (end)	Surface R.L. (end)	Pipe Chainage (end)
I-01 (Surface R.L. 65.567, Chainage 0.000)								
I-01 – I-02	Ø 150uPVC, not under roads	11.35%	1.035	1.090	64.532	62.398	63.488	18.801
I-02 – I-03	Ø 225uPVC, not under roads	1%	1.110	0.721	62.378	62.031	62.752	53.548
I-03 – I-04	Ø 225uPVC, not under roads	1%	0.741	0.764	62.011	61.991	62.754	55.528
I-04 – I-05	Ø 225uPVC, under roads	1%	0.784	1.170	61.971	61.621	62.790	90.513
I-05 – I-06	Ø 300uPVC, under roads	0.6%	1.190	1.339	61.601	61.453	62.791	115.208
I-06 – I-07	Ø 600Concrete, under roads	0.6%	1.359	1.506	61.433	61.285	62.790	139.903
I-07 – I-08	Ø 600Concrete, under roads	0.6%	1.526	1.711	61.265	61.101	62.811	167.230
I-08 – I-09	Ø 600Concrete, under roads	0.6%	1.731	1.933	61.081	60.860	62.793	204.073
I-09 – I-10	Ø 600Concrete, under roads	0.6%	1.953	2.132	60.840	60.658	62.790	234.304
I-10 – I-11	Ø 750Concrete, under roads	0.6%	2.152	2.365	60.638	60.461	62.826	263.868

SCALE 1:100

SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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Suite 2.01
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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

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Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS SHEET 5 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C214 Revision: 04

File Path:: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C210-C221.DWG - 240518_D1_C214[04] - DATE PRINTED: 12/12/2025 3:56:44 PM

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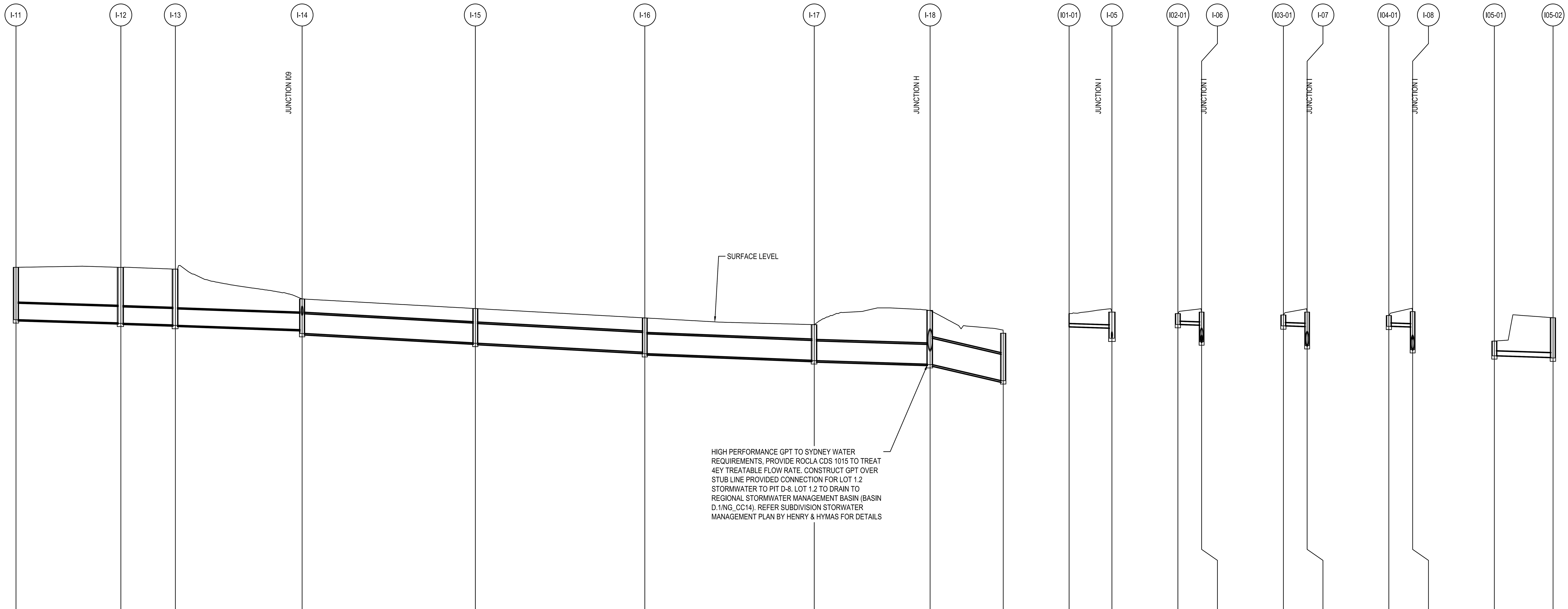

LINE I

Datum R.L 43.00

Pipe Size & Class	Grade (%)
Ø 750Concrete, under roads	0.6%
Ø 750Concrete, under roads	0.6%
Ø 750Concrete, under roads	0.68%
Ø 900Concrete, under roads	1.08%
Ø 900Concrete, under roads	1.05%
Ø 900Concrete, under roads	0.78%
Ø 900Concrete, under roads	0.6%
Ø 1200Concrete, not under roads	4.41%

	I-11	I-12	I-13	I-14	I-15	I-16	I-17	I-18	
DEPTH TO INVERT	2.365 / 2.385	2.525 / 2.545	2.539 / 2.559	1.399 / 1.571	1.561 / 1.581	1.561 / 1.627	1.620 / 1.640	2.445 / 2.465	2.159 / 2.159
INVERT R.L.	60.461 / 60.441	60.298 / 60.278	60.203 / 60.183	59.988 / 59.815	59.389 / 59.369	58.964 / 58.897	58.598 / 58.578	58.420 / 58.400	57.668 / 57.668
SURFACE R.L.	62.826	62.823	62.742	61.386	60.950	60.525	60.218	60.866	59.827
PIPE CHAINAGE	263.868	287.729	300.127	328.966	368.363	406.911	445.461	471.805	488.432

LINE I01

Ø 150uPVC, not under roads — 0.6% — Datum 45.00

	I01-01	I-05	
DEPTH TO INVERT	0.601	0.732	1.190
INVERT R.L.	62.117	62.059	61.601
SURFACE R.L.	62.718	62.790	
PIPE CHAINAGE	0.000	9.731	

LINE I02

Ø 150uPVC, not under roads — 0.6% — Datum 45.00

	I02-01	I-06	
DEPTH TO INVERT	0.498	0.599	1.359
INVERT R.L.	62.225	62.192	61.433
SURFACE R.L.	62.723	62.791	
PIPE CHAINAGE	0.000	5.402	

LINE I03

Ø 150uPVC, not under roads — 0.6% — Datum 45.00

	I03-01	I-07	
DEPTH TO INVERT	0.494	0.661	1.526
INVERT R.L.	62.162	62.130	61.265
SURFACE R.L.	62.656	62.790	
PIPE CHAINAGE	0.000	5.403	

LINE I04

Ø 150uPVC, not under roads — 0.6% — Datum 45.00

	I04-01	I-08	
DEPTH TO INVERT	0.491	0.700	1.731
INVERT R.L.	62.144	62.111	61.081
SURFACE R.L.	62.634	62.811	
PIPE CHAINAGE	0.000	5.402	

LINE I05

Ø 225uPVC, under roads — 0.6% — Datum 46.00

	I05-01	I05-02
DEPTH TO INVERT	0.670	1.812
INVERT R.L.	61.801	61.721
SURFACE R.L.	62.471	63.533
PIPE CHAINAGE	0.000	13.340

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

SCALE 1:500 (0 10 20 30 40 50m)

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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Suite 2.01
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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS
SHEET 6 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C215 — Revision: 04

File Path.: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C210-C221.DWG - 240518_D1_C215[04] - DATE PRINTED: 12/12/2025 3:56:45 PM

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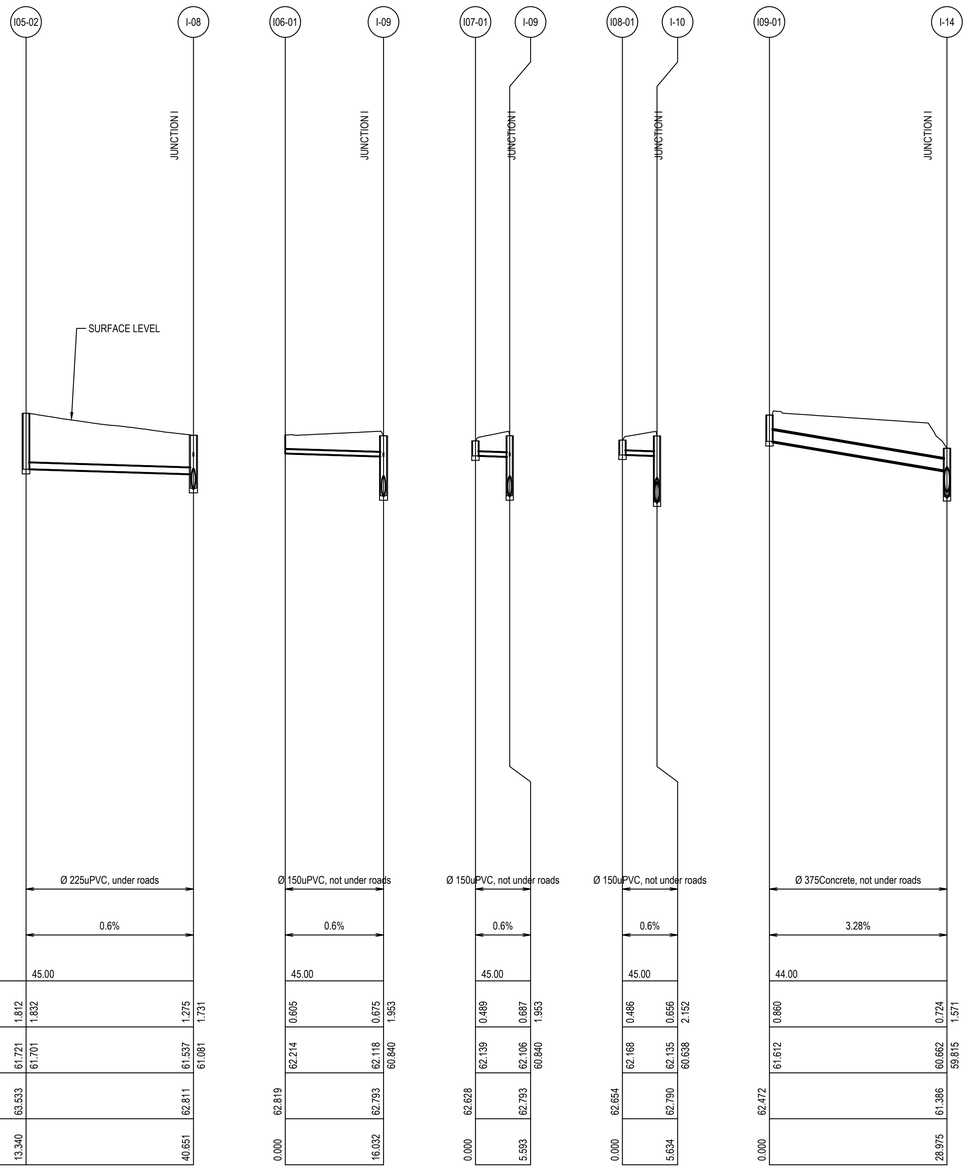

Pipe Size & Class		Ø 225uPVC, under roads				Ø 150uPVC, not under roads			Ø 150uPVC, not under roads			Ø 150uPVC, not under roads			Ø 375Concrete, not under roads		
Grade (%)		0.6%				0.6%			0.6%			0.6%			3.28%		
Datum R.L		45.00				45.00			45.00			45.00			44.00		
DEPTH TO INVERT	1.812	1.832			1.275	0.805		0.675	0.489		0.687	0.486		0.656	0.860		0.724	1.571
INVERT R.L.	61.721	61.701			61.537	62.214		62.118	62.139		62.106	62.168		62.135	61.612		60.662	59.815
SURFACE R.L.	63.533				62.811	62.819		62.793	62.628		62.793	62.654		62.790	62.472		61.386	
PIPE CHAINAGE	13.340				40.651	0.000		16.032	0.000		5.593	0.000		5.634	0.000		28.975	
	LINE I05					LINE I06			LINE I07			LINE I08			LINE I09			

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 SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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

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Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 7 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C216
Revision: 04

File Path: R:\JOBS\2024\240518\ACAD\DWGS\240518_D1_C216.DWG, 240518_D1_C216(5), DATE PRINTED: 12/12/2025 3:48:46 PM

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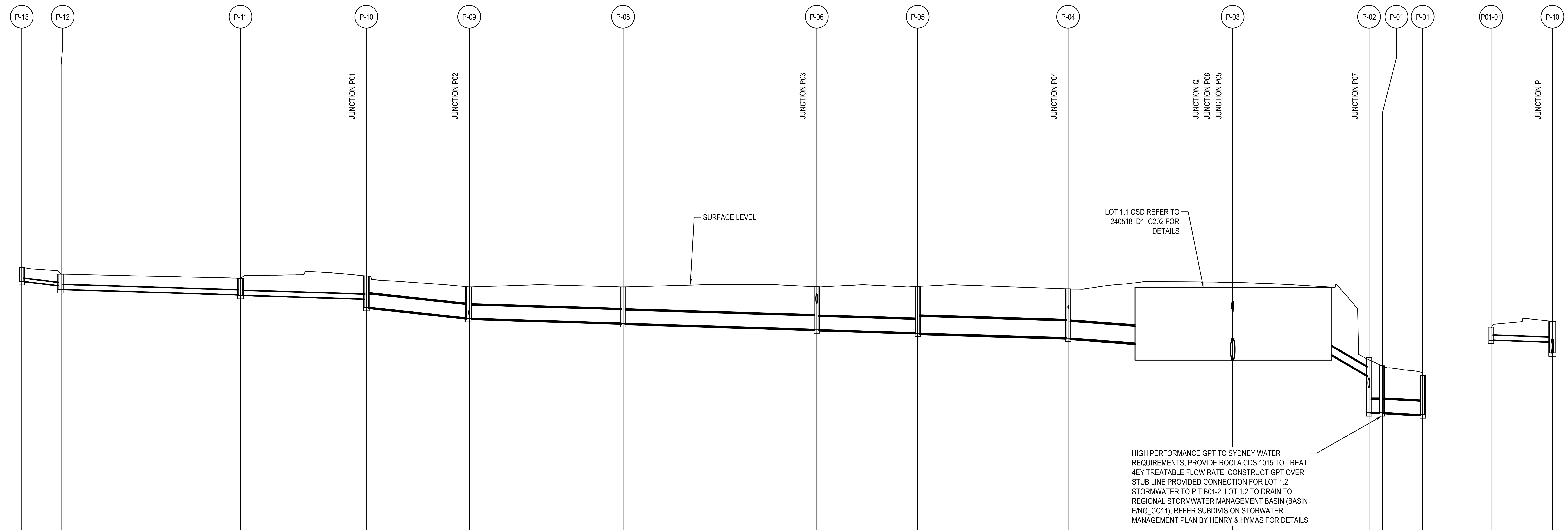

LINE P

Datum R.L 48.00

Pit	Pipe Size & Class (to next pit)	Grade (%)	DEPTH TO INVERT	INVERT R.L.	SURFACE R.L.	PIPE CHAINAGE
P-13	Ø 150uPVC, not under roads	2.12%	0.626	67.656	68.282	0.000
P-12	Ø 225uPVC, not under roads	0.6%	0.513 / 0.679	67.473 / 67.308	67.986	8.628
P-11	Ø 225uPVC, not under roads	0.6%	0.734 / 0.754	67.071 / 67.051	67.805	48.057
P-10	Ø 600Concrete, under roads	2.07%	1.021 / 1.383	66.885 / 66.523	67.907	75.697
P-09	Ø 600Concrete, under roads	0.6%	1.366 / 1.386	66.055 / 66.035	67.421	98.288
P-08	Ø 600Concrete, under roads	0.6%	1.588 / 1.608	65.832 / 65.812	67.420	132.080
P-06	Ø 600Concrete, under roads	0.6%	1.868 / 1.888	65.557 / 65.537	67.425	174.632
P-05	Ø 750Concrete, under roads	0.6%	2.039 / 2.059	65.404 / 65.384	67.443	196.807
P-04	Ø 750Concrete, under roads	0.6%	2.147 / 2.167	65.186 / 65.166	67.333	229.845
P-03	Ø 375Concrete, under roads	3.76%	2.451 3.196 / 2.970	64.949 64.204 / 64.430	67.627	265.988
P-02	Ø 600Concrete, under roads		0.756 / 2.065	63.200 / 61.891	63.956	298.730
P-01		1%				
P-01			1.717 / 1.717	61.801 / 61.801	63.518	307.714

LINE P01

Datum R.L 50.00

Pit	Pipe Size & Class (to next pit)	Grade (%)	DEPTH TO INVERT	INVERT R.L.	SURFACE R.L.	PIPE CHAINAGE
P01-01	Ø 225uPVC, under roads	0.6%	0.573	67.079	67.652	0.000
P-10			0.909 / 1.383	66.998 / 66.523	67.907	13.491

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

SCALE 1:500 (0 10 20 30 40 50m)

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

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Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title: STORMWATER LONGITUDINAL SECTIONS
SHEET 8 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C217 Revision: 04

File Path.: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C210-C221.DWG - 240518_D1_C217[04] - DATE PRINTED: 12/12/2025 3:56:47 PM

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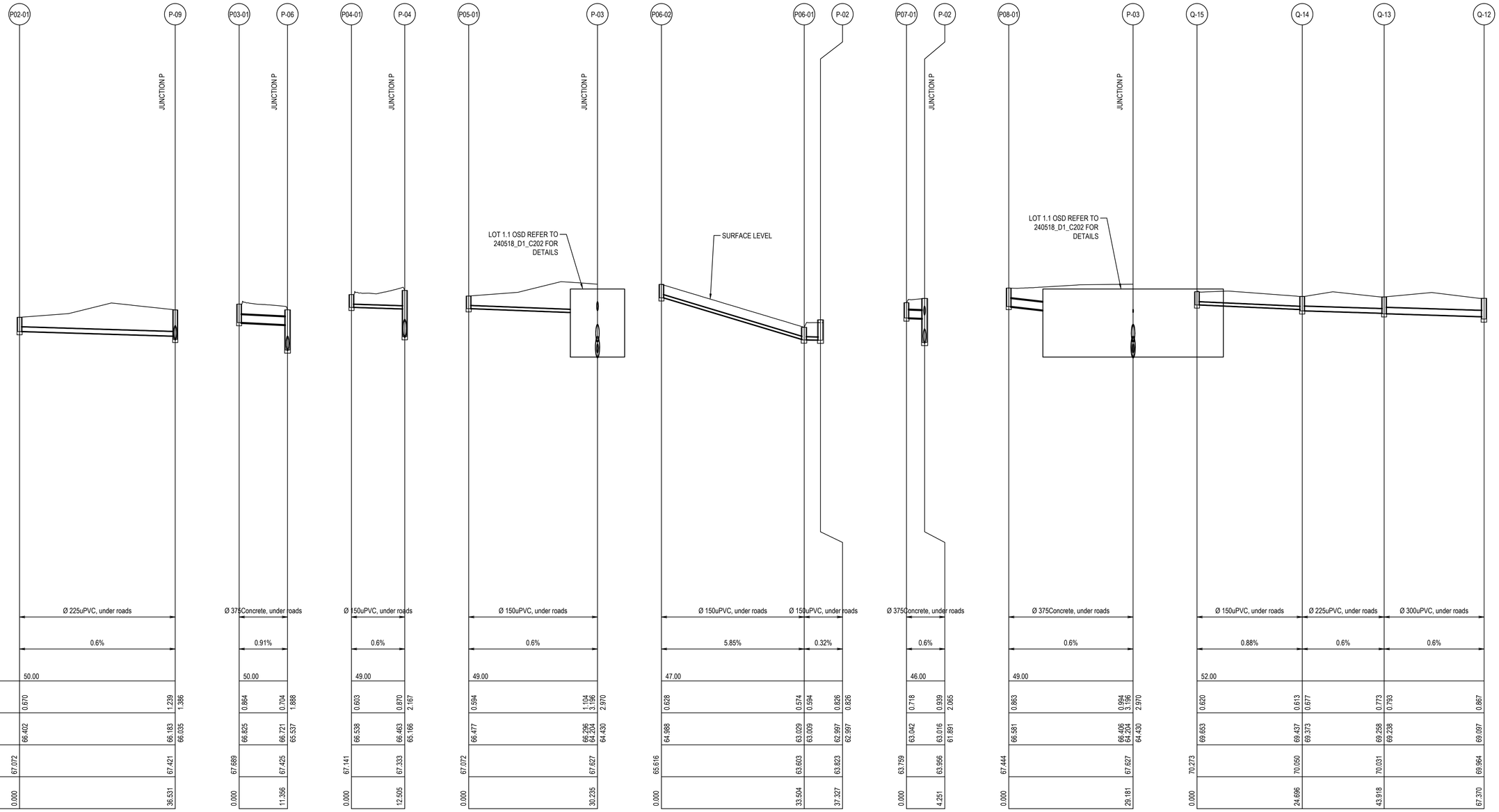

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SCALE 1:100

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10 8 6 4 2
SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 9 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C218
Revision: 04

Plot Date: 16 DEC 2025 08:24:29 | PLOTTED BY: Caha, Lucas | C:\Users\LucasCaha\Henry & Hymas\Projects - Documents\240518 - Burrah Park (Stage 2) Lots 1.1, 1.2, 3.1\Working\240518_D1_C218.DWG | 240518_D1_C218(SH9) | DATE PRINTED: 12/12/2025 3:56:48 PM

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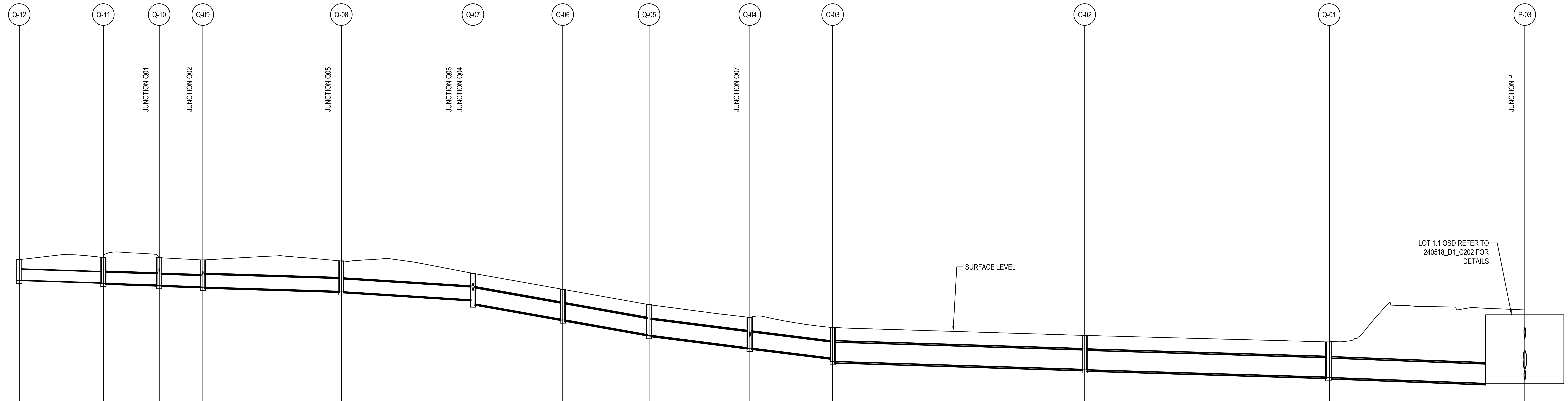

From	To	Pipe Size & Class	Grade (%)
Q-12	Q-11	Ø 525uPVC, under roads	0.6%
Q-11	Q-10	Ø 525Concrete, under roads	0.6%
Q-10	Q-09	Ø 525Concrete, under roads	0.6%
Q-09	Q-08	Ø 600Concrete, under roads	0.6%
Q-08	Q-07	Ø 600Concrete, under roads	1.22%
Q-07	Q-06	Ø 750Concrete, under roads	3.4%
Q-06	Q-05	Ø 750Concrete, under roads	3.39%
Q-05	Q-04	Ø 750Concrete, under roads	2.44%
Q-04	Q-03	Ø 750Concrete, under roads	2.38%
Q-03	Q-02	Ø 900Concrete, under roads	0.62%
Q-02	Q-01	Ø 900Concrete, not under roads	0.6%
Q-01	P-03	Ø 900Concrete, not under roads	0.6%

Datum R.L 50.00

	DEPTH TO INVERT	INVERT R.L.	SURFACE R.L.	PIPE CHAINAGE
Q-12	0.867 / 0.971	69.097 / 68.993	69.964	67.370
Q-11	1.171 / 1.191	68.876 / 68.856	70.047	86.847
Q-10	1.267 / 1.287	68.779 / 68.759	70.046	99.763
Q-09	1.244 / 1.264	68.698 / 68.678	69.942	109.867
Q-08	1.416 / 1.436	68.485 / 68.465	69.901	141.951
Q-07	1.227 / 1.418	68.094 / 67.903	69.321	172.432
Q-06	1.386 / 1.418	67.196 / 67.164	68.582	193.220
Q-05	1.386 / 1.427	66.485 / 66.444	67.871	213.220
Q-04	1.404 / 1.424	65.875 / 65.855	67.279	236.542
Q-03	1.415 / 1.577	65.399 / 65.237	66.814	255.722
Q-02	1.572 / 1.592	64.876 / 64.856	66.447	314.096
Q-01	1.630 / 1.650	64.516 / 64.496	66.146	370.726
P-03	3.176 / 3.196 / 2.970	64.224 / 64.204 / 64.430	67.627	416.006

LINE Q

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 SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE

Client
HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

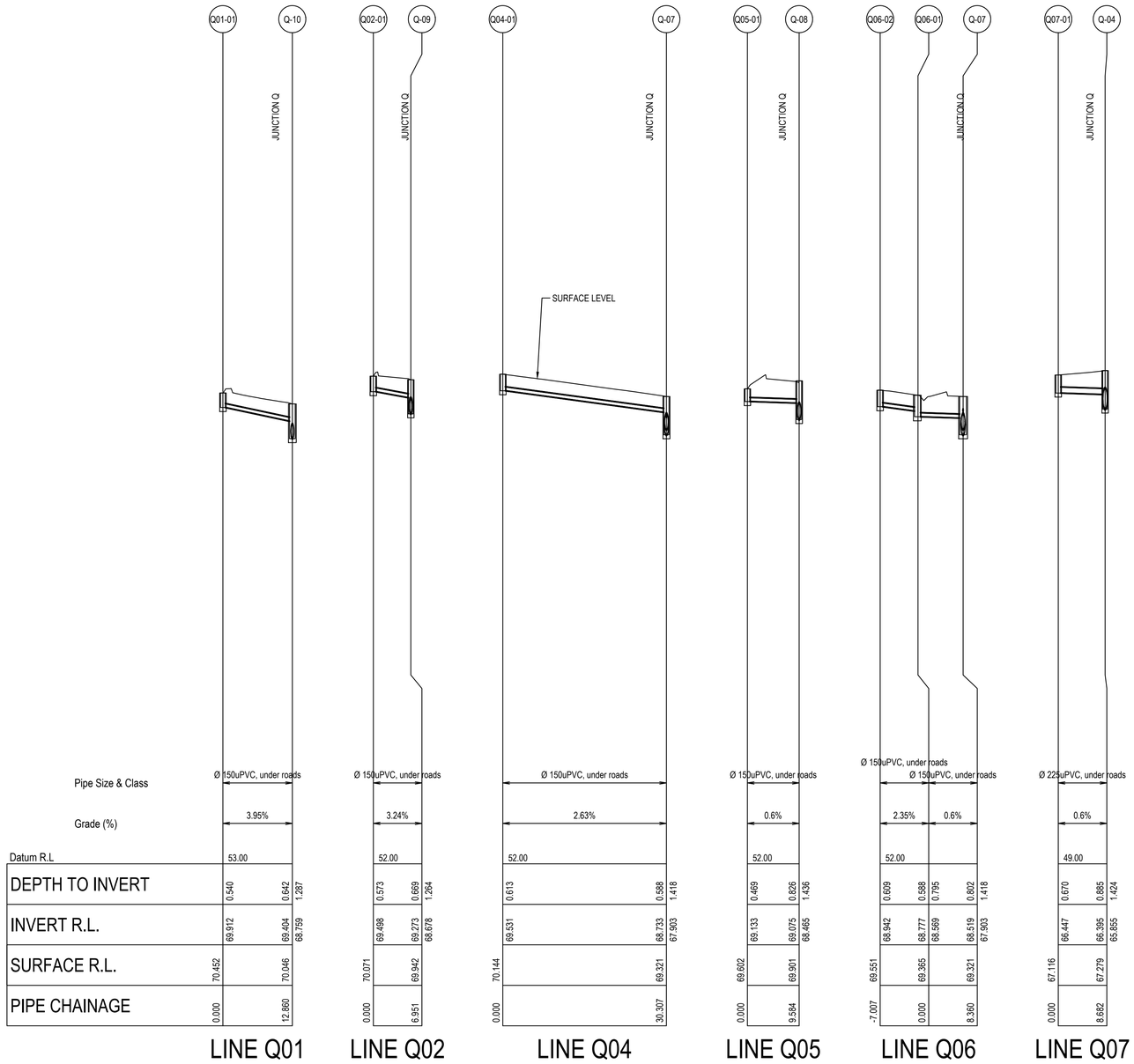
Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 10 OF 11

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C219
Revision: 04

File Path.: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C210-C221.DWG - 240518_D1_C219[04] - DATE PRINTED: 12/12/2025 3:56:49 PM

A1



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 SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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Email email@hhconsult.com.au
Web www.henryandhymas.com.au

DRAWING TO BE PRINTED IN COLOUR

henry&hymas

Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW

Title
STORMWATER LONGITUDINAL SECTIONS
SHEET 11 OF 11

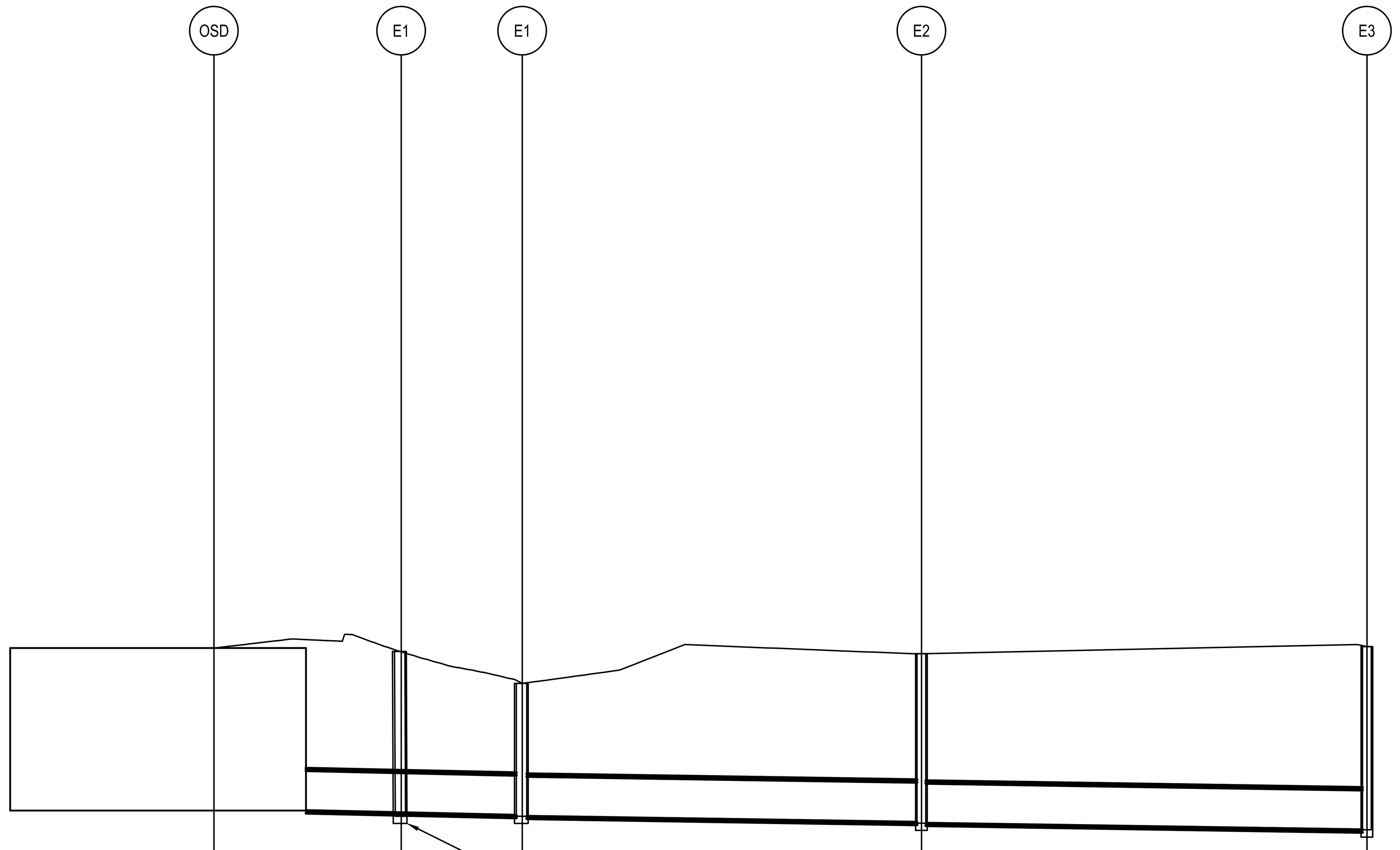
Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C220

Revision: 04

File Path: R:\JOBS\2024\240518\ACAD\DWG\240518_D1_C210-C220.DWG, 240518_D1_C220(04), DATE PRINTED: 12/12/2025 3:48:50 PM

A1



HIGH PERFORMANCE GPT TO SYDNEY WATER REQUIREMENTS, PROVIDE ROCLA CDS 1015 TO TREAT 4EY TREATABLE FLOW RATE. CONSTRUCT GPT OVER STUB LINE PROVIDED CONNECTION FOR LOT 3.1 STORMWATER TO PIT S-1. LOT 3.1 TO DRAIN TO REGIONAL STORMWATER MANAGEMENT BASIN (BASIN E/NG_CC11). REFER SUBDIVISION STORWATER MANAGEMENT PLAN BY HENRY & HYMAS FOR DETAILS

	OSD – E1	E1 – E1	E1 – E2	E2 – E3
	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000
Pipe Size & Class	Ø 825Concrete, under roads	Ø 825Concrete, under roads	Ø 825Concrete, under roads	Ø 825Concrete, under roads
Grade (%)	0.3% 0.3%	0.3%	0.3%	0.3%

Datum R.L

	OSD	E1	E1	E2	E3
DEPTH TO INVERT	3.348 / 3.368		2.729 / 2.749	3.488 / 3.508	3.796 / 3.796
INVERT R.L.	54.172 / 54.152		54.056 / 54.036	53.912 / 53.892	53.754 / 53.754
SURFACE R.L.	57.520		56.785	57.400	57.550
PIPE CHAINAGE	239.765		271.692	313.017	359.134

LINE E - OSD TANK

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

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

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025

Client: HB&B Property Pty and ISPT Pty Ltd
Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERY'S CREEK, NSW
Title: STORMWATER LONGITUDINAL SECTIONS SHEET 12 OF 12

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	**Approved**	**Scale @A1**
N.Wetzlar	A.Francis	AS NOTED

Drawing number: 240518_D1_C221 Revision: 01

File Path.: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C210-C221.DWG - 240518_D1_C221[01] - DATE PRINTED: 12/12/2025 3:56:51 PM

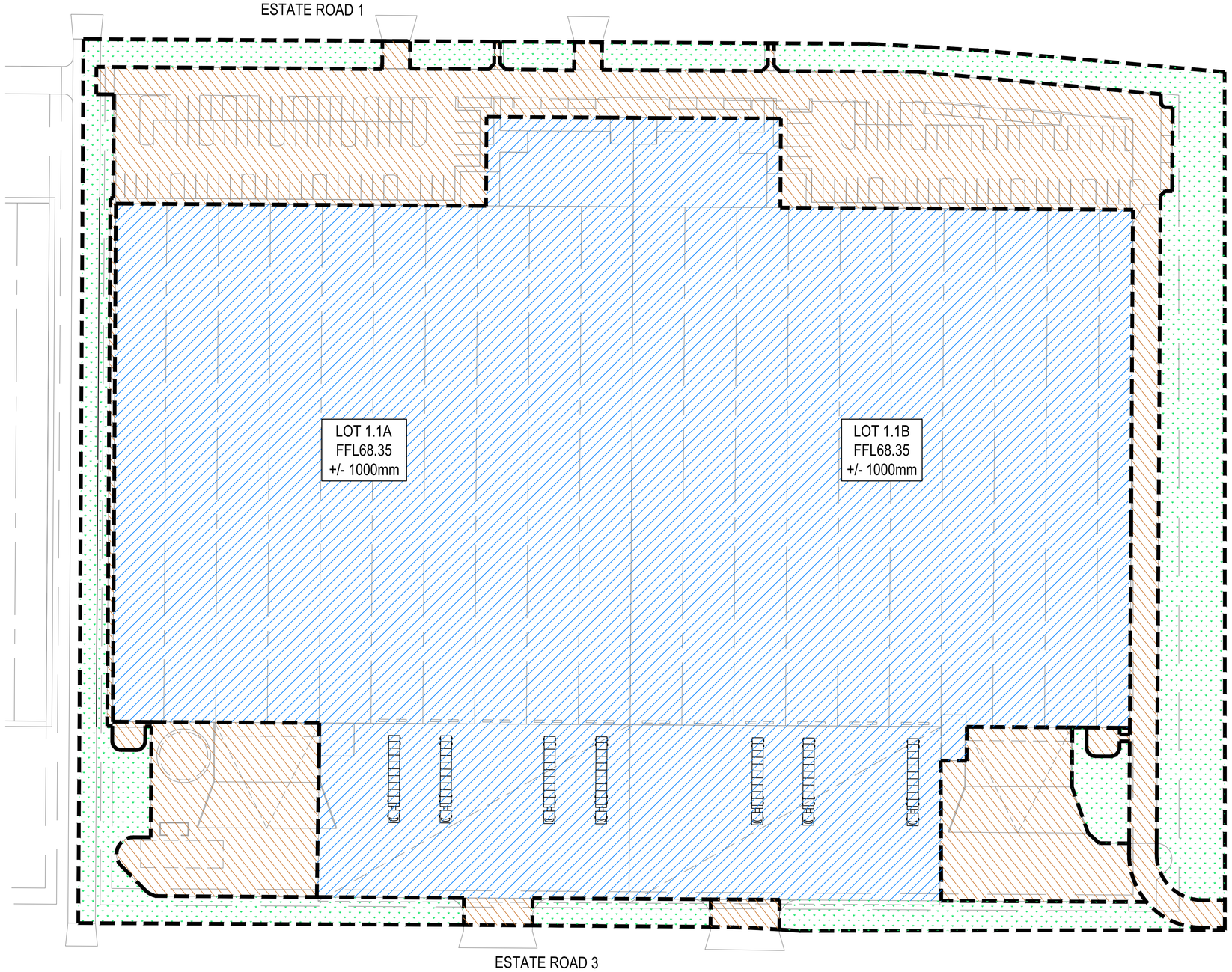
A1

TOTAL SITE AREA: 47484m²

ROOF AREA
AREA: 31640 m²

HARDSTAND
AREA: 9603m²

LANDSCAPE AREA
AREA: 6814m²



LOT 1.1A AND LOT 1.1B CATCHMENT PLAN

SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	12.12.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.1A AND LOT 1.1B CATCHMENT PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_D1_C251
Revision: 01

File Path: R:\240518\04\ACAD\DWGS\240518_D1_C251.DWG - JAN18.01.C251[01] DATE PRINTED: 12/12/2024 5:44:54 PM

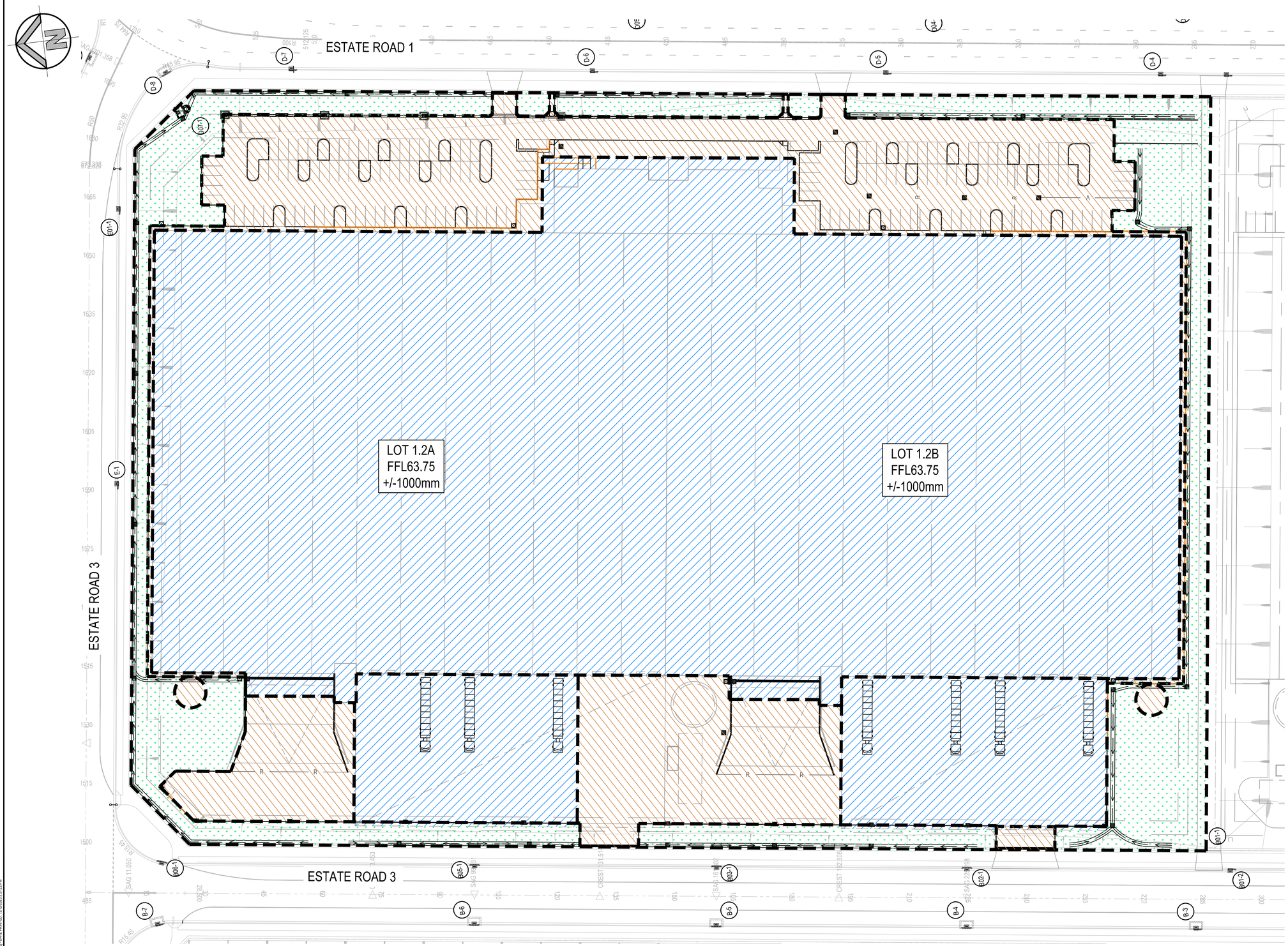
A1

TOTAL SITE AREA: 53189m²

ROOF AREA
AREA: 35910 m²

HARDSTAND
AREA: 10450 m²

LANDSCAPE AREA
AREA: 6829 m²



LOT 1.2A AND LOT 1.2B
CATCHMENT PLAN
SCALE 1:500

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www.byda.com.au

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM26501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.2A AND LOT 1.2B CATCHMENT PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number
240518_D1_C252

Revision
03

RevPen: RL=DEL,20240901#ACAD2025#DELTA: C252.DWG - JW018 BY: C252DG - DATE PRINTED: 03/12/2025 5:57:21 PM

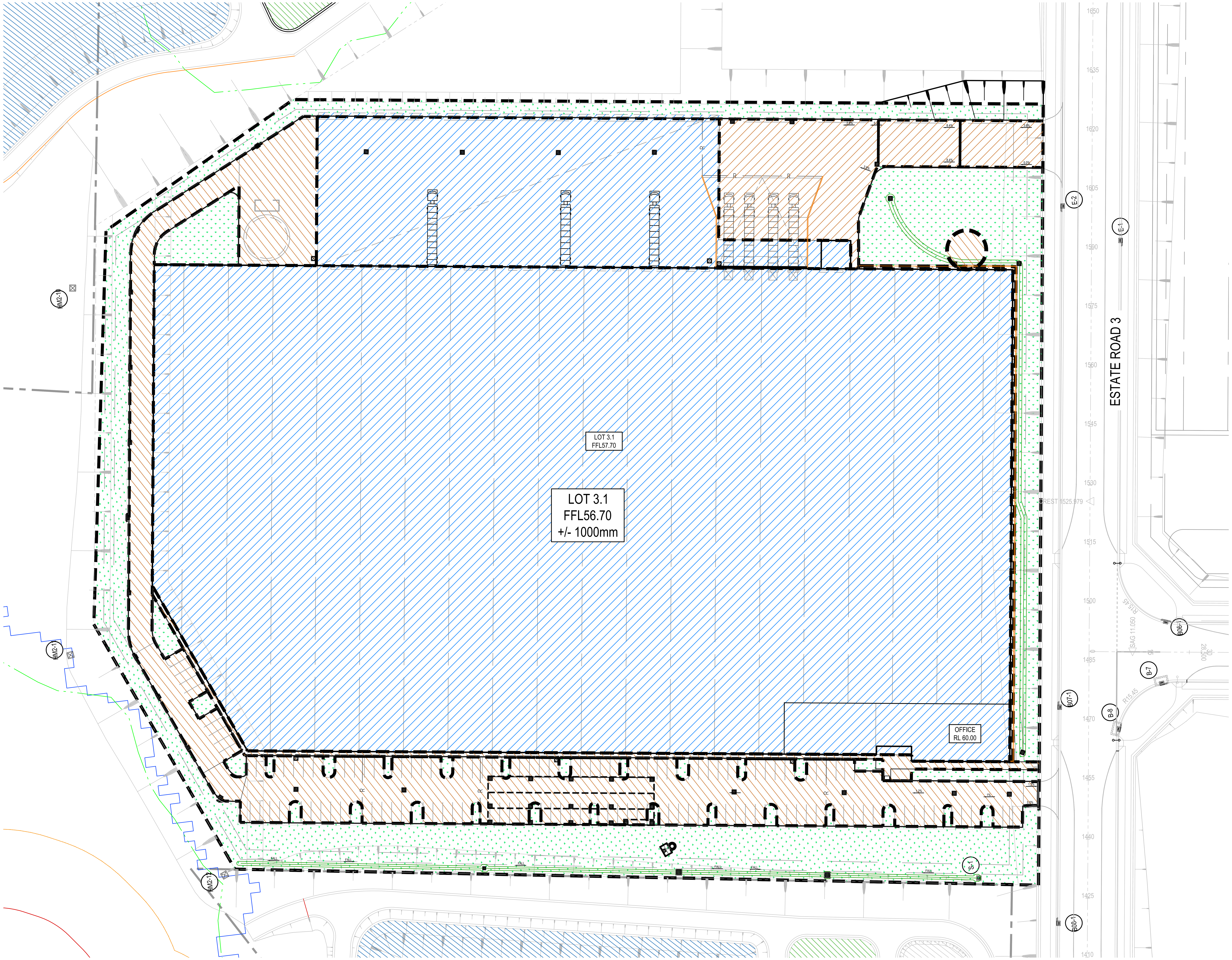
A1

TOTAL SITE AREA: 45492m²

ROOF AREA
AREA: 30722 m²

HARDSTAND
AREA: 6960 m²

LANDSCAPE AREA
AREA: 7810 m²



LOT 3.1 CATCHMENT PLAN

SCALE 1:500

ISSUED FOR SSDA

BEFORE YOU DIG
www.byda.com.au

SURVEY INFORMATION
SURVEYED BY:
DATUM: AHD
ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
01	'ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 3.1 CATCHMENT PLAN

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_D1_C253 — Revision: 02

File Path:: R:\JOBS 2024\240518\ACAD\D1\240518_D1_C253.DWG - 240518_D1_C253[02] - DATE PRINTED: 12/12/2025 3:57:48 PM

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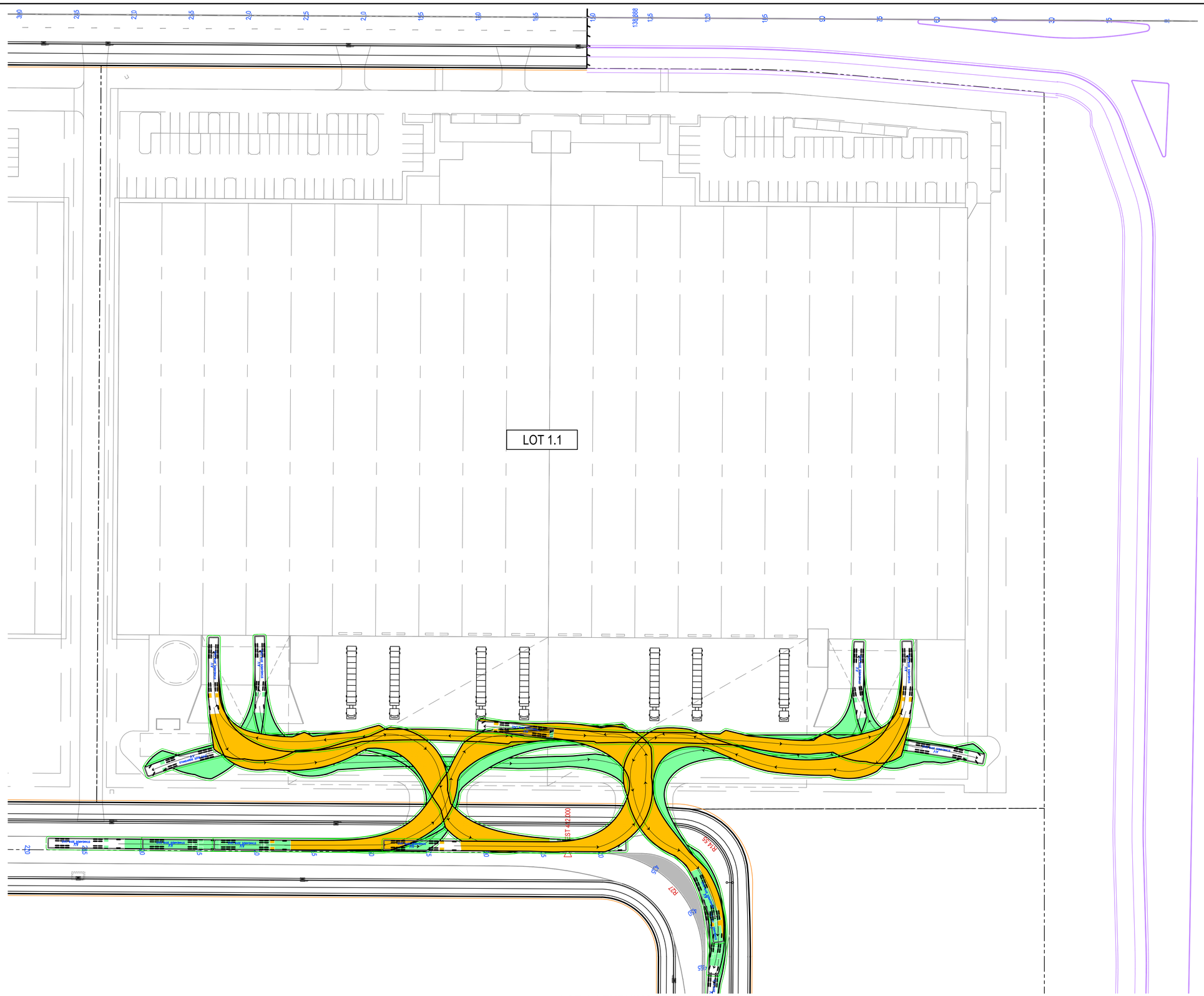

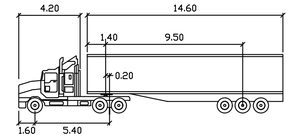

AV

	meters		
Tractor Width	2.50	Lock to Lock Time	6.0
Trailer Width	2.50	Steering Angle	28.3
Tractor Track	2.50	Articulating Angle	72.0
Trailer Track	2.50		

19m AV TRUCK

SCALE N.T.S.

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SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 1.1 TURNING PATH PLAN

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_D1_C650

Revision: 02

File Path: R:\240518\PROJECT\CIVIL\240518_D1_C650.DWG, 26/01/26 09:57:48 AM, DATE PRINTED: 12/12/2025 3:57:48 PM

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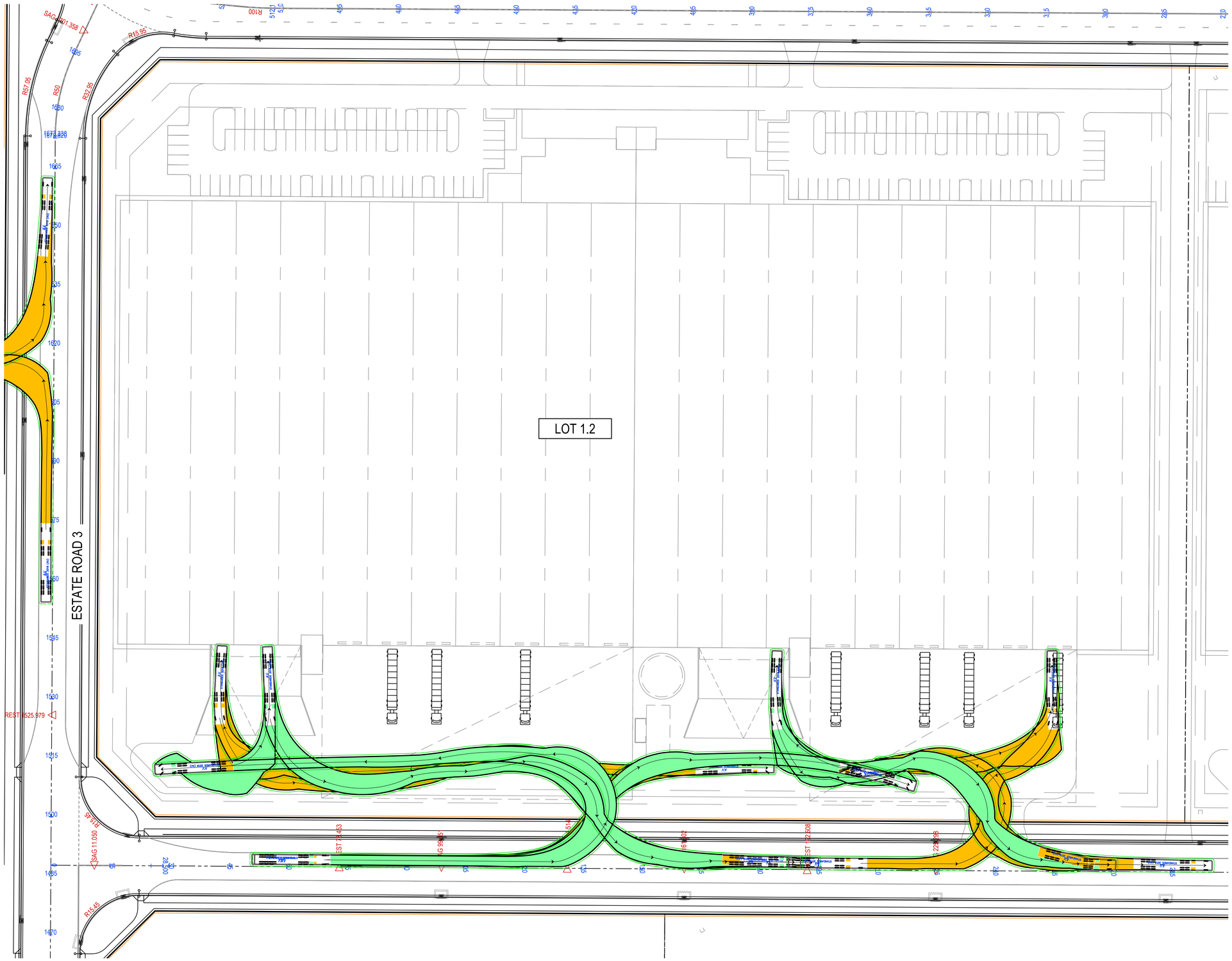
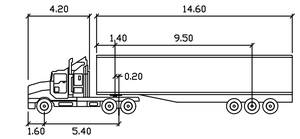


LOT 1.2 TURNING PATH PLAN

SCALE 1:500



AV

meters			
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

19m AV TRUCK

SCALE N.T.S.

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ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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Suite 2.01
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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: LOT 1.2 TURNING PATH PLAN

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_D1_C651

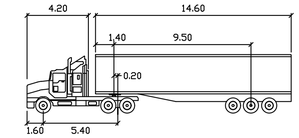
Revision: 02

File Path: P:\240518\240518-ACAD\01\240518_D1_C651[02].DWG 20/01/26, BY: CSH[02] DATE PRINTED: 1/12/2026 3:58:06 PM

A1

LOT 3.1 TURNING PATH PLAN

SCALE 1:500



AV

	meters		
Tractor Width	2.50	Lock to Lock Time	6.0
Trailer Width	2.50	Steering Angle	28.3
Tractor Track	2.50	Articulating Angle	72.0
Trailer Track	2.50		

19m AV TRUCK

SCALE N.T.S.

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ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 3.1 TURNING PATH PLAN

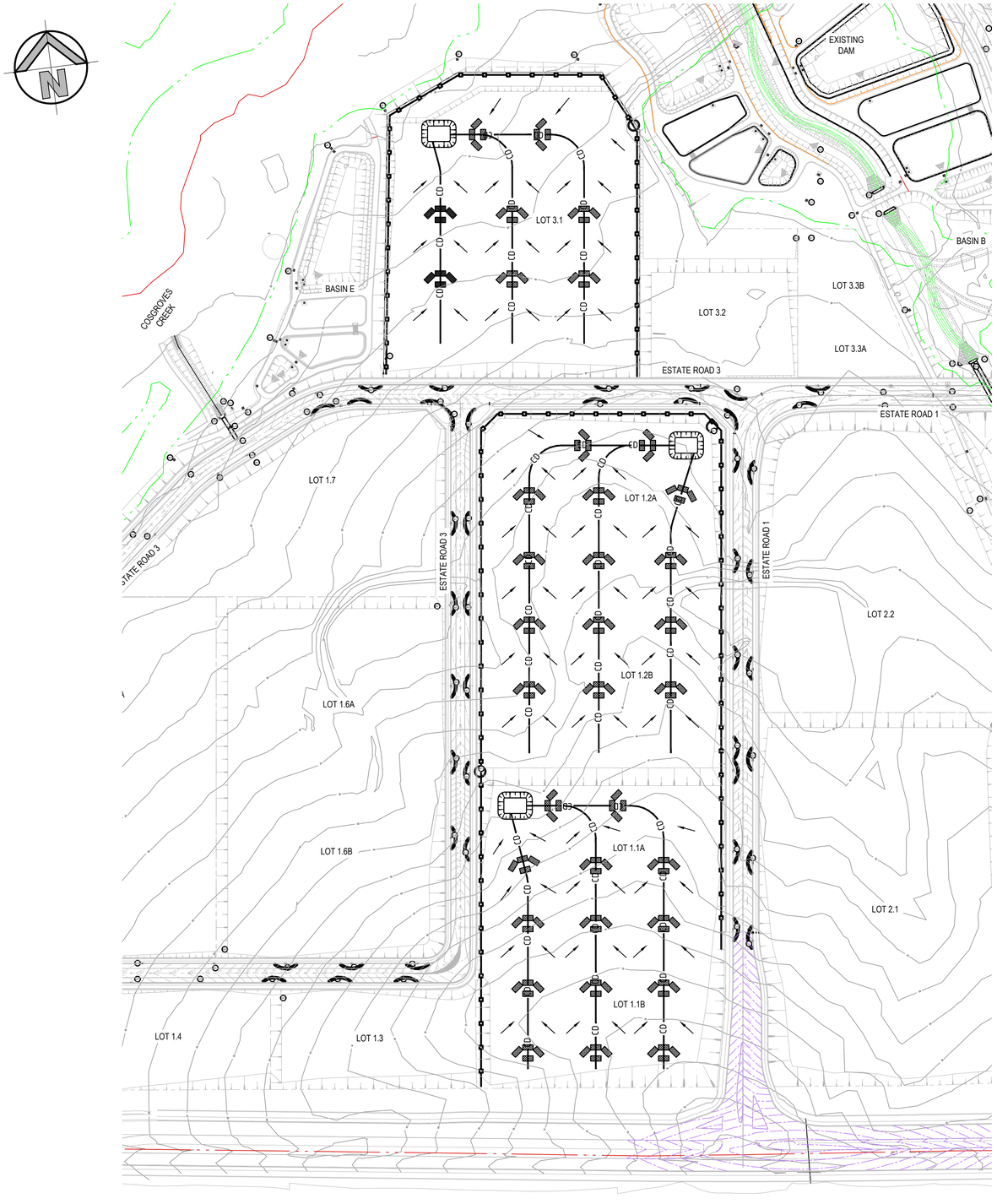
Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_D1_C652

Revision: 02

File Path: R:\PROJ\240518\CAD\01\240518_D1_C652_C652.DWG - 240518_D1_C652(02) - DATE PRINTED: 12/12/2025 3:49:01 PM

A1



SEDIMENT AND EROSION CONTOL PLAN

SCALE: 1:2000

LEGEND

- PROPOSED BOUNDARY
- EXISTING SITE BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED LOT BOUNDARY
- ENZ BOUNDARY (INDICATIVE)
- PROPOSED SEDIMENTATION FENCE
- PROPOSED CATCH DIVERSION DRAIN (CD)
- PROPOSED HAYBALE FILTER
- PROPOSED MESH & GRAVEL INLET FILTER
- GEOTEXTILE INLET FILTER
- PROPOSED SEDIMENT BASIN, REFER SE03 FOR DETAILS.

SEDIMENT & EROSION CONTROL NOTES

- ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH PENRITH CITY 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.

HIGHLY DISPERSIVE SOILS

THE FOLLOWING ALLOWANCES HAVE BEEN MADE TO ACCOUNT FOR HIGHLY DISPERSIVE SOILS TYPICAL OF THE REGION. UNDERTAKE TESTING FOR HIGHLY DISPERSIVE SOILS AND UPDATE THE SEDIMENT AND EROSION CONTROL PLAN FOR THE FOLLOWING IF PRESENT:

- FLOW DIVERSION BANKS ARE TO BE SPECIFIED IN LEU OF CATCH DRAINS TO DIVERT FLOWS TO SEDIMENT BASINS. 'BACK-PUSH' BANKS ARE FORMED BY PUSHING MATERIAL UP-SLOPE TO FORMA FLOW DIVERSION BANK. IN SUCH CASES THE DIVERTED WATER FLOWS UP-SLOPE OF THE EMBANKMENT INSTEAD OF WITHIN A EXCAVATED TRENCH REDUCING THE LIKELIHOOD OF ENCOUNTERING HIGHLY DISPERSIVE SUBSOILS.
- ALL FLOW DIVERSION BANKS SHOULD HAVE A STABLE OUTLET AND SEEDED AND MULCHED IF THERE WORKING LIFE IS EXPECTED TO EXCEED 30 DAYS, OR AS REQUIRED BY THE SEDIMENT AND CONTROL STANDARD.
- DISPERSIVE SOILS ARE HIGHLY SUSCEPTIBLE TO DEEP, NARROW RILLING ON EXPOSED SLOPES. THESE SOILS MUST BE APPROPRIATELY TREATED OR BURIED UNDER AN APPROPRIATE LAYER OF NON-DISPERSIVE SOIL (USUALLY 100MM MIN) BEFORE PLACING ANY EROSION CONTROL MEASURES.
- A PRACTICE BECOMING INCREASINGLY COMMON IS TO USE THE STRIPPED TOPSOIL TO FORM FLOW DIVERSION BANKS UPSLOPE OF THE SOIL DISTURBANCE, INSTEAD OF PLACING THE TOPSOIL ON STOCKPILES.
- ADJUST SOIL ERODIBILITY (K-FACTOR) FOR AN ADDITION 20% FOR HIGHLY DISPERSIVE SOILS.
- TOPSOIL AND VEGETATION: CONSIDER TREATMENT (E.G. GYPSUM) PRIOR TO VEGETATION OR SEEDING SUBJECT TO SITE REQUIREMENTS.
- AVOID EXPOSING DISPERSIVE SOILS. IF EXPOSED THESE SOILS SHOULD BE TREATED TO STABILIZE THEIR DISPERSIVE NATURE OR BURIED BENEATH A LAYER OF NON DISPERSIVE SOILS.
- BENCHES CUT INTO DISPERSIVE OR SILTY SOILS HAVE A HIGH RISK OF TUNNEL EROSION AND SLOPE FAILURE. DISPERSIVE NATURE OF SOIL IS TO BE INVESTIGATED IF ENCOUNTERED ONSITE AND BENCHING DESIGN APPROPRIATELY UPDATED IF ENCOUNTERED.

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024
01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: SEDIMENT AND EROSION CONTROL PLAN

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:2000

Drawing number: 240518_D1_SE01

Revision: 05

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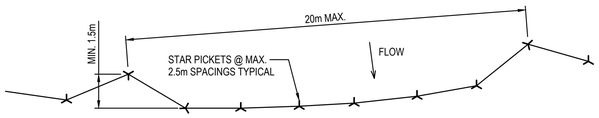
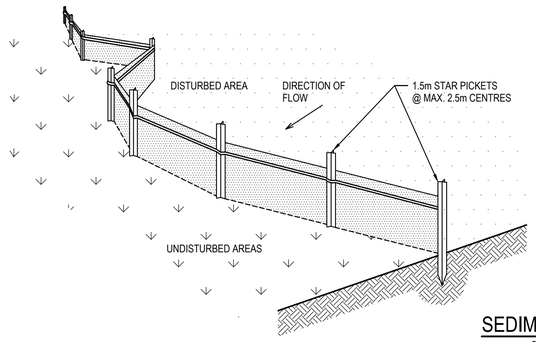
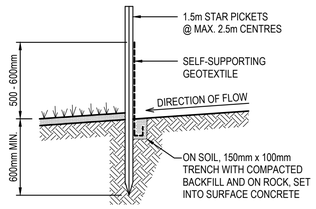


PLAN





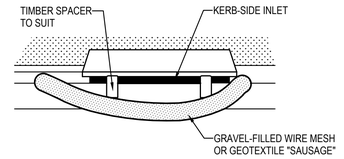
SECTION DETAIL

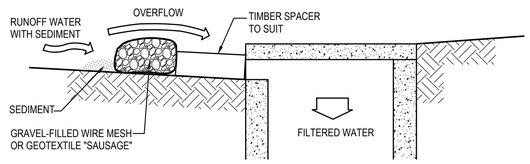
SEDIMENT FENCE

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.



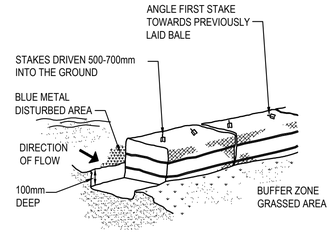


MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

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.

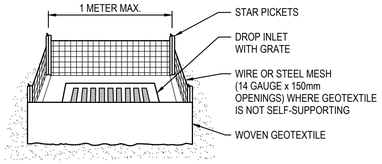
MESH & GRAVEL INLET FILTER

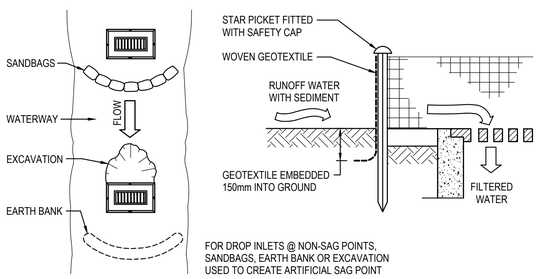
SCALE N.T.S.



HAYBALE BARRIERS

N.T.S.





FOR DROP INLETS @ NON-SAG POINTS, SANDBAGS, EARTH BANK OR EXCAVATION USED TO CREATE ARTIFICIAL SAG POINT

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.

REFERENCE PARAMETERS - FOR CALCULATION OF SOIL LOSS (NOT USED IN ABOVE CALCULATIONS)

SEDIMENT BASIN SIZING TYPE D SOILS	
VOLUMETRIC RUNOFF COEFFICIENT, CV	6.4
80TH PERCENTILE 5 DAY TOTAL RAINFALL DEPTH, R	35mm
CATCHMENT AREA, A	VARIES
SETTLING ZONE VOLUME (PER HECTARE) 10 CV A R	124 x A
DISTURBED CATCHMENT AREA	VARIES
R K LS P C	143 x Ls
SEDIMENT ZONE VOLUME (0.17 A (R K LS P C))/1.3	18.7 x Ls
TOTAL SEDIMENT BASIN VOLUME REQUIRED :	REFER ADJACENT TABLE

* (LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)

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

CONSTRAINT	VALUE	(SOURCE)*
RAINFALL EROSIVITY (R-FACTOR)	2200	APPENDIX B - MAP 10
LENGTH/SLOPE GRADIENT FACTOR, LS	VARIOUS	APPENDIX A - TABLE A1
SOIL ERODIBILITY (K-FACTOR)	0.05	(TABLE C19)
EROSION CONTROL PRACTICE FACTOR (P-FACTOR)	1.3	APPENDIX A - TABLE A2
COVER FACTOR (C-FACTOR)	1.0 (DURING EARTHWORKS)	APPENDIX A - FIGURE A5
CALCULATED SOIL LOSS, A (RUSLE EQUATION)	VARIES	A = R K LS P C
SOIL HYDROLOGIC GROUP	GROUP D	APPENDIX C TABLE 19
85TH PERCENTILE 5-DAY RAINFALL EVENT	35mm	TABLE 6.3A

* (LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)

PRELIMINARY BASIN SIZING - TYPE B SEDIMENT BASIN SIZING

THE SEDIMENT BASIN SHALL BE CONSTRUCTED ON A RATE PER HECTARE BASIS AND HAS BEEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018). THE DISTURBED AREA WITHIN THIS CATCHMENT AT ANY ONE TIME SHOULD BE LIMITED TO AN AREA FOR WHICH EACH SEDIMENT BASIN HAS BEEN DESIGNED FOR. EACH BASIN SHALL BE SIZED IN ACCORDANCE WITH THE TABLE BELOW AND ADJACENT.

VALUES PRESENTED IN THE TABLE ADJACENT ARE BASED ON FULL SITE AREA. SUBJECT TO FUTURE DETAIL DESIGN. DISTRUBTED SITE AREAS (AND THUS BASIN AREAS) MAY CHANGE OR BE DISTRIBUTED TO MULTIPLE BASINS AS SITE CONDITIONS DICTATE. A REVIEW OF SIZING (AND UPSIZING) TO BE UNDERTAKEN DURING DETAILED DESIGN PHASE USING THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018). DETAILED DESIGN OF BASIN TO BE UNDERTAKEN WHEN SITE CONDITIONS, SOIL CONDITIONS AND FINAL CONTRIBUTING CATCHMENTS ARE KNOW. FURTHERMORE, SITE CONDITIONS MAY VARY FROM THOSE DETAILED ABOVE IN THE TABLE BELOW.

JAR TESTING, IN ACCORDANCE WITH SECTION B3 OF THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018) IS REQUIRED IN ORDER TO DETERMINE THE CHEMCIAL DOSING RATES OF SEDIMENT BASINS. IT IS RECOMMENDED THAT THIS ANALYSIS IS UNDERTAKEN PRIOR TO BASIN CONSTRUCTION AS THE FINDINGS MAY POTENTIALLY IMPACT THE SEDIMENT AND EROSION CONTROL (BASIN SIZING ALSO) ADOPTED. IT SHOULD BE NOTED THAT THE MOST SUITABLE FLOCCULANT AND/OR COAGULANT IS LIKELY TO VARY WITH SOIL TYPE. CONSEQUENTLY, THERE IS A NEED TO REVIEW THE EFFICACY OF CERTAIN PRODUCTS OVER TIME AS SOIL CHARACTERISTICS CHANGE DURING THE VARIOUS STAGES OF CONSTRUCTION.

BASIN MANAGEMENT

IN ACCORDANCE WITH THE BLUE BOOK, THE SEDIMENT BASINS WILL BE MANAGED AND MAINTAINED UNTIL THE CONTRIBUTING CATCHMENT UPSTREAM IS COMPLETED AND FULLY STABILISED ON MORE THAN 90% OF THE TOTAL AREA. A GENERIC BASIN MAINTENANCE STRATEGY IS DETAILED BELOW - NOTE THIS STRATEGY WILL NEED TO BE TAILORED TO SITE CONDITIONS AND PARAMETERS:

- AN AUTOMATED SYSTEM OF FLOCCULANT DOSING IS REQUIRED AND A SUITABLE SUPPLY OF FLOCCULANT/COAGULANT. DOSER AND SUPPLY OF FLOCCULANT TO BE PROVIDED ON LEVEL PAD 4MX4M WITHIN 10M OF DOSING POINT. SELECTION OF AUTOMATIC DOSING SYSTEM IS BASED ON-SITE CHARACTERISTIC AND JAR TESTING OF PRODUCTS ONSITE SPECIFIC TURBID WATER. AUTOMATIC DOSING SYSTEM MUST ACHIEVE PERFORMANCE TARGETS DETAILED BELOW.
- FURTHER DETAILS FOR BASIN MANAGEMENT ARE PROVIDED IN CHAPTER 6 AND APPENDIX E4 OF LANDON'S 'BLUE BOOK'.
- FURTHER DETAILED BASIN MANAGEMENT ARE PROVIDED IN IECA (INTERNATIONAL EROSION CONTROL ASSOCIATION) (2008) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018), INTERNATIONAL EROSION CONTROL ASSOCIATION AUSTRALASIA.
- BASIN PERFORMANCE REQUIRMENTS AS FOLLOWS: AT LEAST 80% OF THE AVERAGE ANNUAL RUNOFF VOLUME (I.E. 80% HYDROLOGICAL EFFECTIVENESS) TO 50 MG/L TSS OR LESS, AND PH IN THE RANGE 6.5-8.5.
- JAR TESTING IS TO BE UNDERTAKEN TO SELECT THE APPROPRIATE COAGULANTS AND/OR FLOCCULATNS ALONG WITH DETERMINING THEIR OPTIMUM DOSE RATES. JAR TESTING IS TO BE UNDERTAKING IN ACCORDANCE WITH THE RECOMMENDATIONS AND TESTING PROCEDURE SPECIFIED IN THE CHAPTER 5 OF THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) CHEMICAL COAGULANTS AND FLOCCULANTS FACT SHEET (IECA 2018).
- TYPE A AND B BASINS REQUIRE A FAST ACTING COAGULANT AND FLOCCULANT TO PERFORM BASED ON THE JAR TESTING. A FACTOR OF SAFTEY (IN ACCORDANCE WITH ABOVE GUIDELINES) SHOULD BE APPLIED TO ALLOW FOR THE DIFFERENT SETTLING TIMES EXPERIENCED BY BASINS DUES TO DOSING, MIXING, FLOW VELOCITY AND WIND ACTION.
- REFER CIVIL ENGINEERING REPORT BY HENRY AND HYMAS, REFERENCE REV 1.2 FOR GENERIC BASIN MANAGEMENT AND OPERATION DETAILS.
- MAINTENANCE AND OPERATING PROCEDURES REPORT TO BE PREPARED AT DETAIL DESIGN PHASE. REPORT TO INCLUDE THE FOLLOWING:
- DECANT WATER QUALITY OBJECTIVES
- DESCRIPTION OF PROPOSED CHEMICAL TREATMENT OF THE BASIN, INCLUDING MINIMUM JAR TESTING PEFORMANCE REQUIREMENTS
- PERFORMANCE ASSESSMENT PROCEDURES
- GUIDANCE ON CORRECTIVE MEASURES BASED ON WATER QUALITY MONITORING OUTCOMES
- DESCRIPTION OF DE-WATERING TRIGGERS, INCLUDING TRIGGERS FOR TEMPORARY SHUT-OFF OF THE DECANT SYSTEM IN THE EVENT OF POOR WATER QUALITY
- DESCRIPTION OF DE-SILTING TRIGGERS
- DESCRIPTION OF THOSE CIRCUMSTANCES AND/OR WEATHER CONDITIONS THAT WOULD TRIGGER DE-WATERING OF THE BASIN PRIOR TO AN IMMINENT STORM.
- MAINTENANCE PROCEDURES AND PROTOCOLS INCLUDING DE-SILTING METHOD AND FREQUENCIES.

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.

BASIN NAME	ADOPTED BASIN TYPE	LARGE BASIN WIDTH - Ws (m)	LARGE BASIN LENGTH - Ls (m)	SETTLING ZONE SURFACE AREA - As (m2)	DEPTH OF SETTLING ZONE - Ds (m)	SETTLING ZONE VOLUME - Vs (m3)	BASIN STORAGE (SOIL) VOLUME (m3)	TOTAL BASIN VOLUME TO SPILLWAY LEVEL (m3)
1.2	OPTION 1B - L	12.7	38.09	483.5	1.5	725.3	159	884.3
3.1	OPTION 1B - L	13.01	39.02	507.5	1.5	761.3	129	890.3
1.1	OPTION 1B - L	13.61	40.82	555.4	1.5	833.2	139	972.2

IMPORTANT NOTES

1. REFER TYPE A BASIN TYPICAL PLAN, SECTION AND DETAILS FOR REFERENCE VALUES.
2. REVIEW OF SIZING (AND POTENTIAL UPSIZING) IS TO BE UNDERTAKEN DURING DETAILED DESIGN PHASE USING THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) APPENDIX B SEDIMENT DESIGN AND OPERATION (REVISION - JUNE 2018).
3. CACULATIONS BASED ON ESTIMATED DESIGN SETTLMENT COEFFICIENT, K_s BASED OF 12000 (s/m). BASED ON 15 DEGREES SUGGESTED WATER TEMPERATURE.

ISSUED FOR SSDA

SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

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01	ISSUED FOR CONCEPT	SC	SC	16.08.2024

Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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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

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Project: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: SEDIMENT AND EROSION CONTROL DETAILS

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_D1_SE02

Revision: 05

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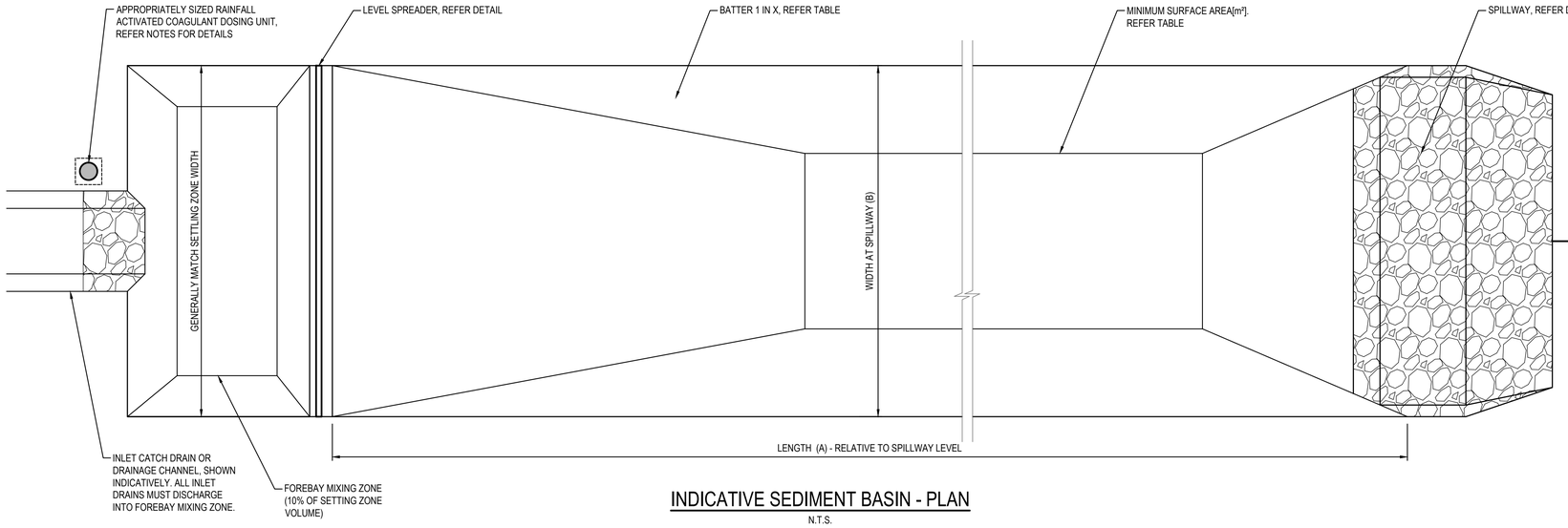
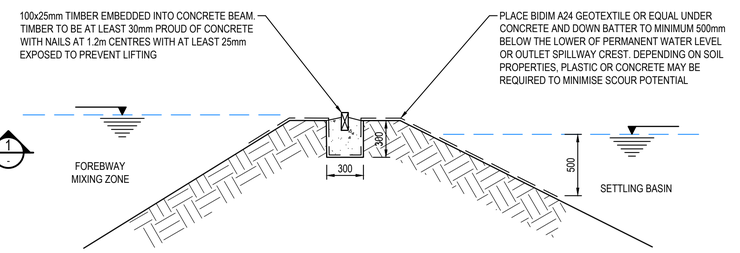


INDICATIVE SEDIMENT BASIN - PLAN

N.T.S.

NOTES:
1. REFER TO TABLE FOR SEDIMENT BASIN PARAMETERS (REFER SE02 FOR DETAILS);
2. REFER C101-C104, C105-C108 AND C109-C112;



LEVEL SPREADER DETAILS - TYPICAL CROSS SECTION

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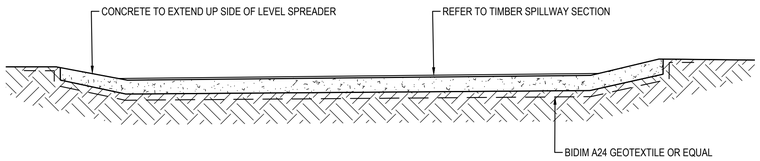

LEVEL SPREADER DETAILS - TYPICAL LONG SECTION

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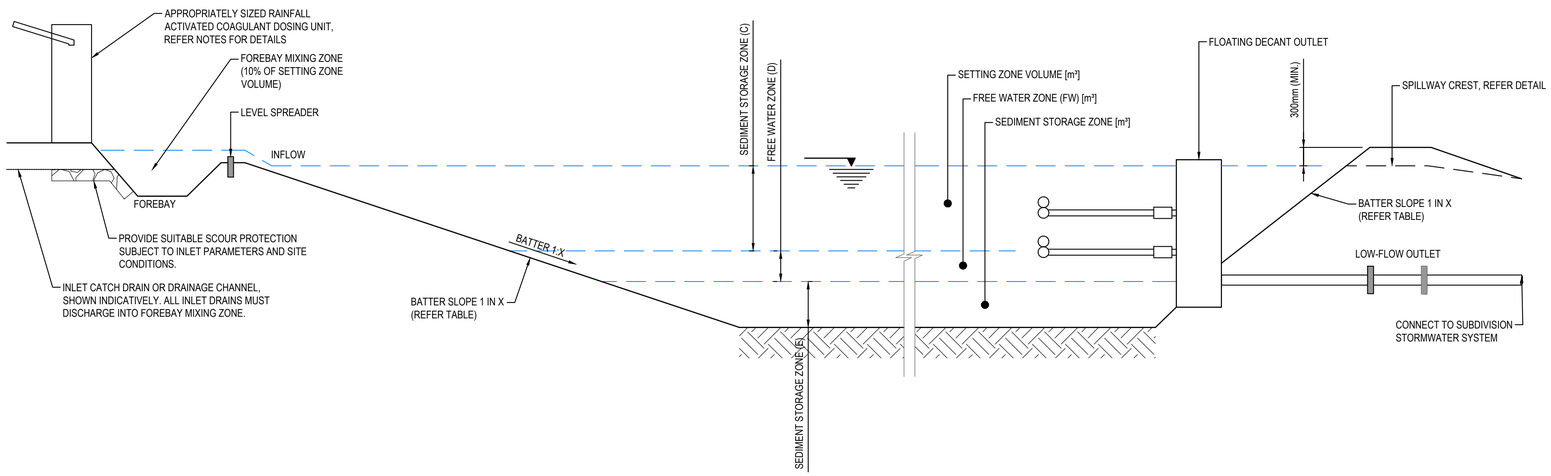

INDICATIVE SEDIMENT BASIN - SECTION 1

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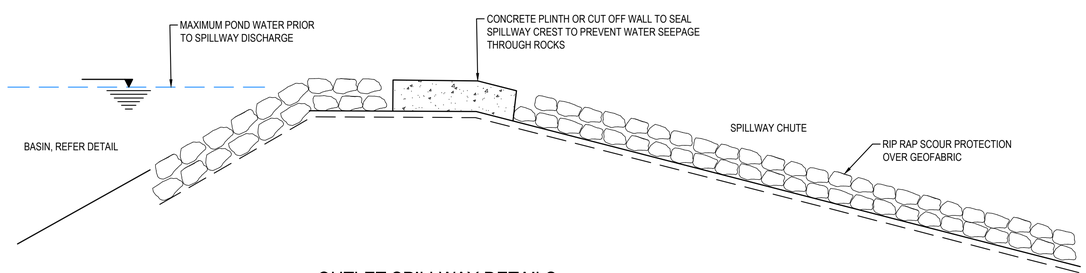

OUTLET SPILLWAY DETAILS - TYPICAL CROSS SECTION

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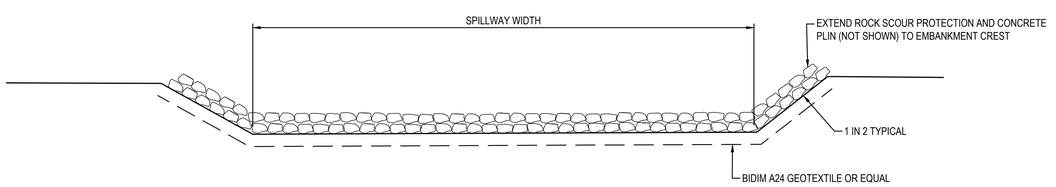

OUTLET SPILLWAY DETAILS - TYPICAL LONG SECTION

N.T.S.

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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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

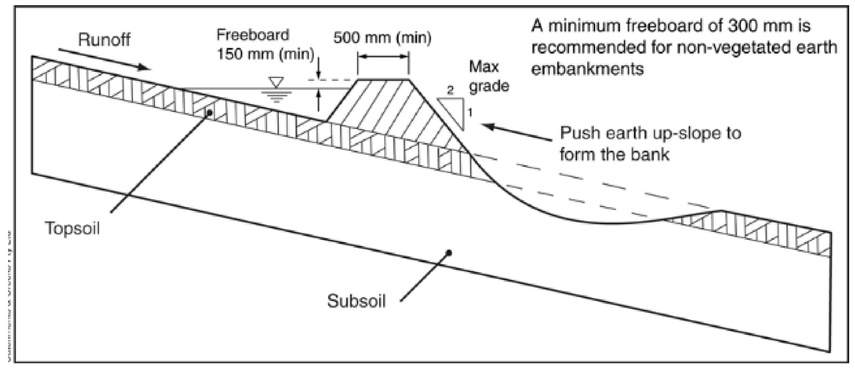
Title: SEDIMENT BASIN TYPICAL DETAILS AND SECTIONS

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

Drawing number: 240518_D1_SE03
Revision: 02

DisPrint: RL\DWG\2024\240518\ACAD\210518_D1_SE03.DWG, 240518_D1_SE03(2), DATE PRINTED: 12/12/2025 1:05:21 PM

A1



SEDIMENT AND EROSION CONTROL - PUSH BANK FLOW DIVERSION BANK DETAIL

SCALE: NTS

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. CLEAR THE LOCATION FOR THE BANK, CLEARING ONLY THE AREA THAT IS NEEDED TO PROVIDE ACCESS FOR PERSONNEL AND EQUIPMENT.

3. REMOVE ROOTS, STUMPS, AND OTHER DEBRIS AND DISPOSE OF THEM PROPERLY. DO NOT USE DEBRIS TO BUILD THE BANK.

4. FORM THE BANK FROM THE MATERIAL, AND TO THE DIMENSION SPECIFIED IN THE APPROVED PLANS.

5. IF EARTH IS USED, THEN ENSURE THE SIDES OF THE BANK ARE NO STEEPER THAN A 2:1 (H:V) SLOPE, AND THE COMPLETED BANK MUST BE AT LEAST 500mm HIGH.

6. IF FORMED FROM SANDBAGS, THEN ENSURE THE BAGS ARE TIGHTLY PACKED SUCH THAT WATER LEAKAGE THROUGH THE BAGS IS MINIMISED.

7. CHECK THE BANK ALIGNMENT TO ENSURE POSITIVE DRAINAGE IN THE DESIRED DIRECTION.

8. THE BANK SHOULD BE VEGETATED (TURFED, SEEDED AND MULCHED), OR OTHERWISE STABILISED IMMEDIATELY, UNLESS IT WILL OPERATE FOR LESS THAN 30 DAYS OR IF SIGNIFICANT RAINFALL IS NOT EXPECTED DURING THE LIFE OF THE BANK.

9. ENSURE THE EMBANKMENT DRAINS TO A STABLE OUTLET, AND DOES NOT DISCHARGE TO AN UNSTABLE FILL SLOPE.

MAINTENANCE

1. INSPECT FLOW DIVERSION BANKS AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.

2. INSPECT THE BANK FOR ANY SLUMPS, WHEEL TRACK DAMAGE OR LOSS OF FREEBOARD. MAKE REPAIRS AS NECESSARY.

3. CHECK THAT FILL MATERIAL OR SEDIMENT HAS NOT PARTIALLY BLOCKED THE DRAINAGE PATH UP-SLOPE OF THE EMBANKMENT. WHERE NECESSARY, REMOVE ANY DEPOSITED MATERIAL TO ALLOW FREE DRAINAGE.

4. DISPOSE OF ANY COLLECTED SEDIMENT OR FILL IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

5. REPAIR ANY PLACES IN THE BANK THAT ARE WEAKENED OR IN RISK OF FAILURE.

REMOVAL

1. WHEN THE SOIL DISTURBANCE ABOVE THE BANK IS FINISHED AND THE AREA IS STABILISED, THE FLOW DIVERSION BANK SHOULD BE REMOVED, UNLESS IT IS TO REMAIN AS A PERMANENT DRAINAGE FEATURE.

2. DISPOSE OF ANY SEDIMENT OR EARTH IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

3. GRADE THE AREA AND SMOOTH IT OUT IN PREPARATION FOR STABILISATION.

4. STABILISE THE AREA BY GRASSING OR AS SPECIFIED IN THE APPROVED PLAN.

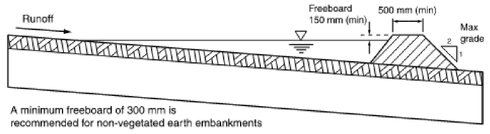


Figure 1 - Typical profile of flow diversion bank formed from earth

Table 1 - Recommended dimensions of flow diversion banks

Parameter	Earth banks	Vegetated banks	Compost berms	Sandbag berms
Height (min)	500 mm	500 mm	300 mm	N/A
Top width (min)	500 mm	500 mm	100 mm	N/A
Base width (min)	2500 mm	2500 mm	600 mm	N/A
Side slope (max)	2:1 (H:V)	2:1 (H:V)	1:1 (H:V)	N/A
Freeboard	300 mm	150 mm	100 mm	50 mm

Drawn:	Date:		
GMW	Dec-09	Flow Diversion Banks	DB-01

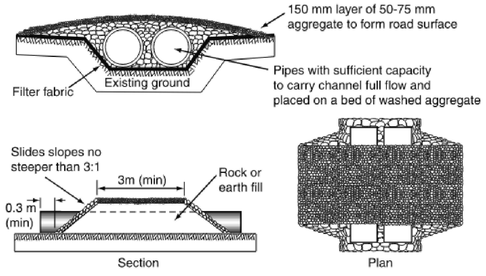
SEDIMENT AND EROSION CONTROL - PUSH BANK FLOW DIVERSION BANK NOTES

SCALE: NTS

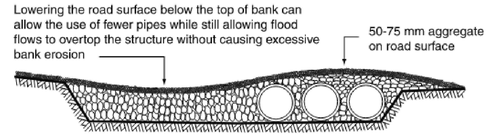
HIGHLY DISPERSIVE SOILS

THE FOLLOWING ALLOWANCES HAVE BEEN MADE TO ACCOUNT FOR HIGHLY DISPERSIVE SOILS TYPICAL OF THE REGION. UNDERTAKE TESTING FOR HIGHLY DISPERSIVE SOILS AND UPDATE THE SEDIMENT AND EROSION CONTROL PLAN FOR THE FOLLOWING IF PRESENT:

- FLOW DIVERSION BANKS ARE TO BE SPECIFIED IN LEU OF CATCH DRAINS TO DIVERT FLOWS TO SEDIMENT BASINS. 'BACK-PUSH' BANKS ARE FORMED BY PUSHING MATERIAL UP-SLOPE TO FORMA FLOW DIVERSION BANK. IN SUCH CASES THE DIVERTED WATER FLOWS UP-SLOPE OF THE EMBANKMENT INSTEAD OF WITHIN A EXCAVATED TRENCH REDUCING THE LIKELIHOOD OF ENCOUNTERING HIGHLY DISPERSIVE SUBSOILS.
- ALL FLOW DIVERSION BANKS SHOULD HAVE A STABLE OUTLET AND SEEDED AND MULCHED IF THERE WORKING LIFE IS EXPECTED TO EXCEED 30 DAYS, OR AS REQUIRED BY THE SEDIMENT AND CONTROL STANDARD.
- DISPERSIVE SOILS ARE HIGHLY SUSCEPTIBLE TO DEEP, NARROW RILLING ON EXPOSED SLOPES. THESE SOILS MUST BE APPROPRIATELY TREATED OR BURIED UNDER AN APPROPRIATE LAYER OF NON-DISPERSIVE SOIL (USUALLY 100MM MIN) BEFORE PLACING ANY EROSION CONTROL MEASURES.
- A PRACTICE BECOMING INCREASINGLY COMMON IS TO USE THE STRIPPED TOPSOIL TO FORM FLOW DIVERSION BANKS UPSLOPE OF THE SOIL DISTURBANCE, INSTEAD OF PLACING THE TOPSOIL ON STOCKPILES.
- ADJUST SOIL ERODIBILITY (K-FACTOR) FOR AN ADDITION 20% FOR HIGHLY DISPERSIVE SOILS.
- TOPSOIL AND VEGETATION: CONSIDER TREATMENT (E.G. GYPSUM) PRIOR TO VEGETATION OR SEEDING SUBJECT TO SITE REQUIREMENTS.
- AVOID EXPOSING DISPERSIVE SOILS. IF EXPOSED THESE SOILS SHOULD BE TREATED TO STABILIZE THEIR DISPERSIVE NATURE OR BURIED BENEATH A LAYER OF NON DISPERSIVE SOILS.
- BENCHES CUT INTO DISPERSIVE OR SILTY SOILS HAVE A HIGH RISK OF TUNNEL EROSION AND SLOPE FAILURE. DISPERSIVE NATURE OF SOIL IS TO BE INVESTIGATED IF ENCOUNTERED ONSITE AND BENCHING DESIGN APPROPRIATELY UPDATED IF ENCOUNTERED.

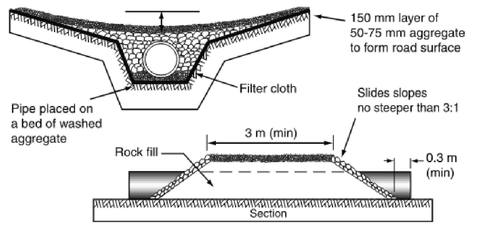


(a) Preferred arrangement for temporary culvert crossings

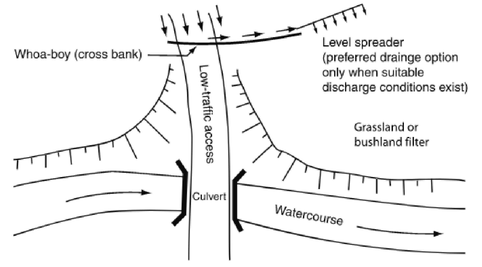


(b) Typical profile of temporary culvert crossings of wide channels

In situations where it is not practicable to allow overflows to initially passing around the culvert on a stable (well vegetated) stream bank, then the center must be set low to allow flow to pass over the culvert along the centreline of the channel



(c) Alternative layout for the crossing of confined channels



(d) Typical arrangement of surface runoff controls associated with approach ramps

SEDIMENT AND EROSION CONTROL - TEMPORARY CULVERT CROSSING DETAIL

SCALE: NTS

MATERIALS

CULVERTS: ANY COMMERCIAL CONDUIT THAT IS SUITABLE FOR THE REQUIRED TRAFFIC LOADING.

ROCK: MINIMUM 150mm NOMINAL ROCK SIZE.

AGGREGATE: 50–75mm CLEAN AGGREGATE.

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH (MINIMUM BIDIM A34 OR EQUIVALENT).

INSTALLATION

1. PRIOR TO COMMENCING ANY WORKS, OBTAIN ALL NECESSARY APPROVALS AND PERMITS REQUIRED TO CONSTRUCT THE TEMPORARY WATERCOURSE CROSSING, INCLUDING PERMITS FOR THE DISTURBANCE OF BANK VEGETATION, AQUATIC VEGETATION (e.g. MANGROVES) AND ANY TEMPORARY INSTREAM FLOW DIVERSION BARRIERS OR SEDIMENT CONTROL MEASURES.

2. REFER TO APPROVED PLANS FOR LOCATION AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

3. ENSURE THAT THE LOCATION OF THE CROSSING WILL NOT INTERFERE WITH FUTURE CONSTRUCTION WORKS.

4. PRIOR TO SIGNIFICANT LAND CLEARING OR CONSTRUCTION OF THE APPROACH RAMPS, ESTABLISH ALL NECESSARY SEDIMENT CONTROL MEASURES AND FLOW DIVERSION WORKS (INSTREAM AND OFF-STREAM AS REQUIRED), CLEARING ONLY THOSE AREAS NECESSARY FOR INSTALLATION OF THESE MEASURES.

5. TO THE MAXIMUM DEGREE PRACTICABLE, CONSTRUCTION ACTIVITIES AND EQUIPMENT MUST NOT OPERATE WITHIN OPEN FLOWING WATERS.

6. MAINTAIN CLEARING AND EXCAVATION OF THE WATERCOURSE BED AND BANKS TO A MINIMUM. INITIALLY CLEAR ONLY THE AREA NECESSARY TO ALLOW ACCESS FOR CONSTRUCTION. CLEAR THE REMAINDER OF THE APPROACH RAMPS ONLY WHEN ADEQUATE DRAINAGE AND SEDIMENT CONTROLS ARE IN PLACE.

7. IF FLOW DIVERSION SYSTEMS CANNOT BE INSTALLED, THEN CONDUCT BANK EXCAVATIONS BY PULLING THE SOIL AWAY FROM THE CHANNEL.

8. WHERE PRACTICABLE, CONSTRUCT THE WATERCOURSE CROSSING PERPENDICULAR TO THE CHANNEL.

9. WHERE PRACTICABLE, THE APPROACH RAMPS SHOULD BE STRAIGHT FOR AT LEAST 10m AND SHOULD BE ALIGNED WITH THE CROSSING.

10. WHERE PRACTICABLE, DIRECT STORMWATER RUNOFF FROM THE APPROACH RAMPS INTO STABLE DRAINS, ADJACENT VEGETATION, OR APPROPRIATE SEDIMENT TRAPS TO MINIMISE THE RELEASE OF SEDIMENT INTO THE WATERCOURSE.

11. SHAPE THE CHANNEL, IF NECESSARY, TO RECEIVE THE PIPE/S.

12. IF HIGHLY EROSIVE SOILS ARE DETECTED, THEN APPROPRIATELY STABILISE SUCH SOILS AS SOON AS PRACTICABLE.

13. COVER THE CROSSING FOOTING WITH HEAVY-DUTY FILTER CLOTH.

14. COVER THE FILTER CLOTH WITH A MINIMUM 150mm OF CLEAN, 50 TO 75mm AGGREGATE.

15. PLACE THE SPECIFIED SIZE AND NUMBER OF CULVERT CELLS AND ALIGN THEM WITH THE DIRECTION OF THE DOWNSTREAM CHANNEL.

16. ENSURE THE PIPES EXTEND AT LEAST 300mm BEYOND THE PROPOSED EXTEND OF ROCK FILL.

17. FILL BETWEEN THE PIPE/S WITH 75 TO 100mm AGGREGATE.

18. COVER PIPE/S WITH SUFFICIENT ROCK (MINIMUM 300mm LAYER) TO SATISFY MANUFACTURER'S LOADING REQUIREMENTS TO AVOID DAMAGE TO THE PIPE/S RESULTING FROM THE EXPECTED TRAFFIC LOAD. SLOPE OF ROCK FACE UPSTREAM AND DOWNSTREAM OF THE CULVERT NO STEEPER THAN 3:1 (H:V).

19. FORM THE SHAPE OF THE ROAD SURFACE IN ACCORDANCE WITH THE PLANS AND/OR STANDARD DRAWINGS.

20. APPLY A SUITABLE COVER OF AGGREGATE OVER THE ROCK FILL TO FORM THE TRAFFICABLE ROAD SURFACE.

21. FINISH CONSTRUCTION AND STABILISATION OF THE APPROACH ROADS INCLUDING THE APPROACH RAMPS EACH SIDE OF THE BRIDGE CROSSING.

22. TAKE ALL REASONABLE MEASURES TO PREVENT EXCESS ROCK, DEBRIS AND CONSTRUCTION MATERIAL FROM ENTERING THE WATERCOURSE, ESPECIALLY ANY STILL OR FLOWING WATER.

23. IF IT IS NOT PRACTICABLE TO STABILISE THE ACCESS RAMPS AGAINST EROSION, THEN INSTALL FLOW DIVERSION BANKS ACROSS THE WIDTH OF EACH ACCESS RAMP ADJACENT THE TOP OF THE CHANNEL BANK, AND AT REGULAR INTERVALS DOWN THE RAMPS (AS REQUIRED) TO PREVENT OR MINIMISE SEDIMENT-LADEN RUNOFF FLOWING DIRECTLY INTO THE WATERCOURSE.

24. APPROPRIATELY STABILISE ANY DISTURBED WATERCOURSE BANKS.

25. STABILISE ALL DISTURBED AREAS THAT ARE LIKELY TO BE SUBJECTED TO FLOWING WATER, INCLUDING BYPASS AND OVERFLOW AREAS, WITH ROCK OR OTHER SUITABLE MATERIALS.

MAINTENANCE

1. TEMPORARY WATERCOURSE CROSSINGS SHOULD BE INSPECTED WEEKLY AND AFTER ANY SIGNIFICANT CHANGE IN STREAM FLOW.

2. DEBRIS TRAPPED ON OR UPSTREAM OF THE CROSSING SHOULD BE REMOVED.

3. REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION TRAFFIC. IF TRAFFIC HAS EXPOSED BARE SOIL, STABILISED AS APPROPRIATE. MAINTAIN A MINIMUM 200mm COVER OVER THE CULVERTS.

4. CHECK FOR EROSION OF THE FORMED EMBANKMENT, CHANNEL SCOUR, OR ROCK DISPLACEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY.

5. CHECK THE BYPASS FLOODWAY MAKING SURE THE BANKS ARE STABLE.

6. CHECK FOR EXCESSIVE EROSION ON THE APPROACH ROADS.

7. CHECK THE CONDITIONS OF ANY FLOW DIVERSION CHANNELS/BANKS AND THE OPERATING CONDITIONS OF ASSOCIATED SEDIMENT TRAPS.

REMOVAL

1. TEMPORARY WATERCOURSE CROSSINGS SHOULD BE REMOVED AS SOON AS POSSIBLE AFTER ALTERNATIVE ACCESS IS ACHIEVED OR THE CULVERT IS NO LONGER NEEDED.

2. REMOVE ALL SPECIFIED MATERIALS AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. RESTORE THE WATERCOURSE CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILISE AND REVEGETATE ALL DISTURBED AREAS.

SEDIMENT AND EROSION CONTROL - TEMPORARY CULVERT CROSSING NOTES

SCALE: NTS

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SURVEY INFORMATION

SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS: PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025

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Client: HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor: NETTLETONTRIBE

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: BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title: TEMPORARY CULVERT CROSSING DETAILS AND FLOW DIVERSIONS BANKS

Drawn	Designed	Original issue date
L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	NTS

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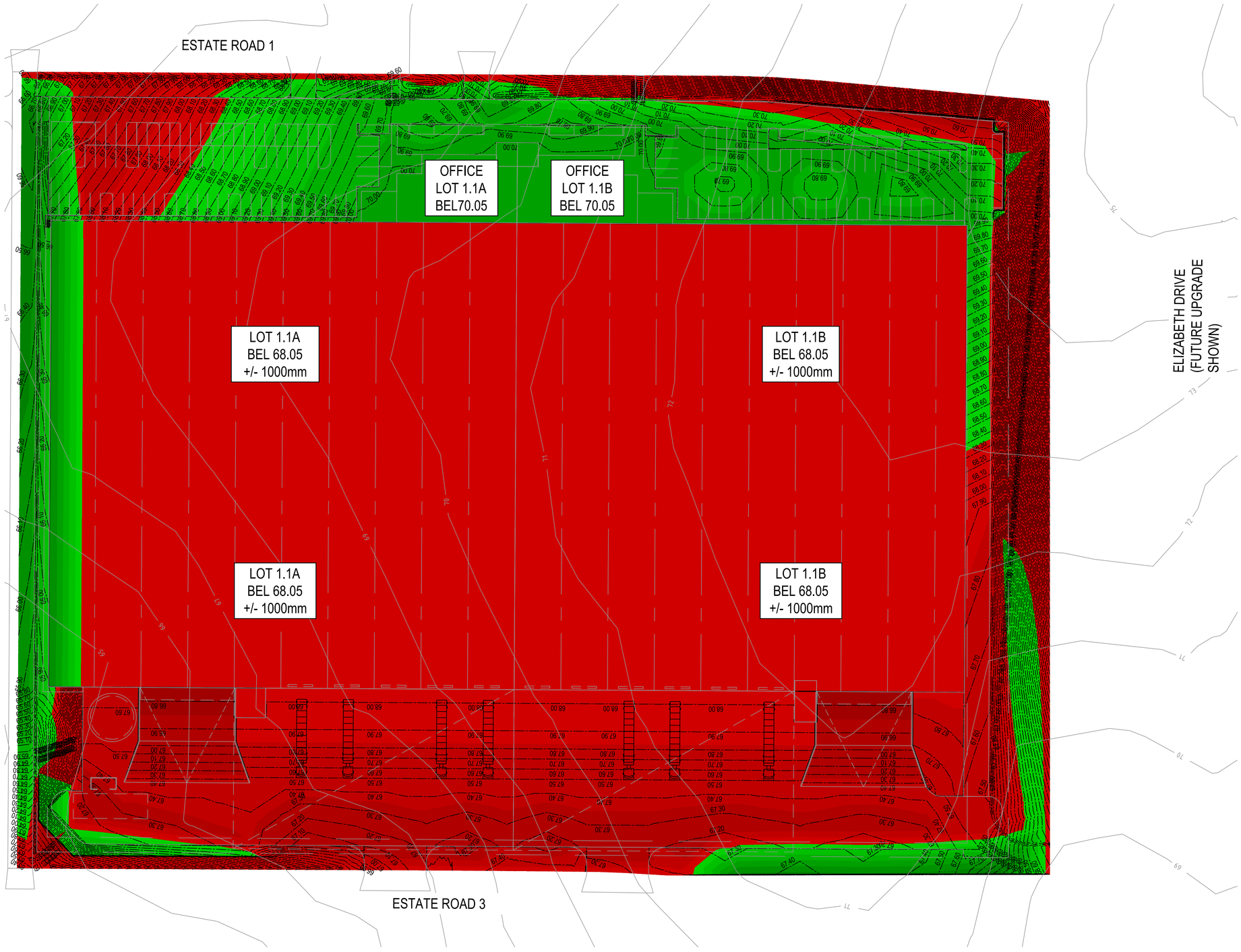
Revision: 02

A1



LEGEND

EXISTING BOUNDARY

61.20 BE CONTOURS

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6	to	10	Meters
10	to	20	Meters

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 (4.79 Ha)	
CUT	16,819 m³
FILL	11,947 m³
EXCESS OF CUT OF OVER FILL	4,872m³
EXCAVATION FOR SERVICE TRENCHES NOT INCLUDED IN CALCULATION	
EXCAVATION FOR RETAINING WALLS NOT INCLUDED IN CALCULATION	
NO TOPSOIL STRIPPING. BULK EARTHWORKS VOLUME CALCULATED AGAINST THE DESIGN SURFACE FOR THE SUBDIVISION WORKS DA DESIGN.	

PAVEMENT THICKNESS "INCLUDING BEDDING THICKNESS"		
ALL AREAS	300	mm

LOT 1.1 BULK EARTHWORKS CUT AND FILL PLAN

SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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Suite 2.01
828 Pacific Highway
Gordon NSW 2072

Telephone +61 2 9417 8400
Facsimile +61 2 9417 8337
Email email@hhconsult.com.au
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henry&hymas

Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.1 BULK EARTHWORKS CUT AND FILL PLAN

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L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

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Revision: 04

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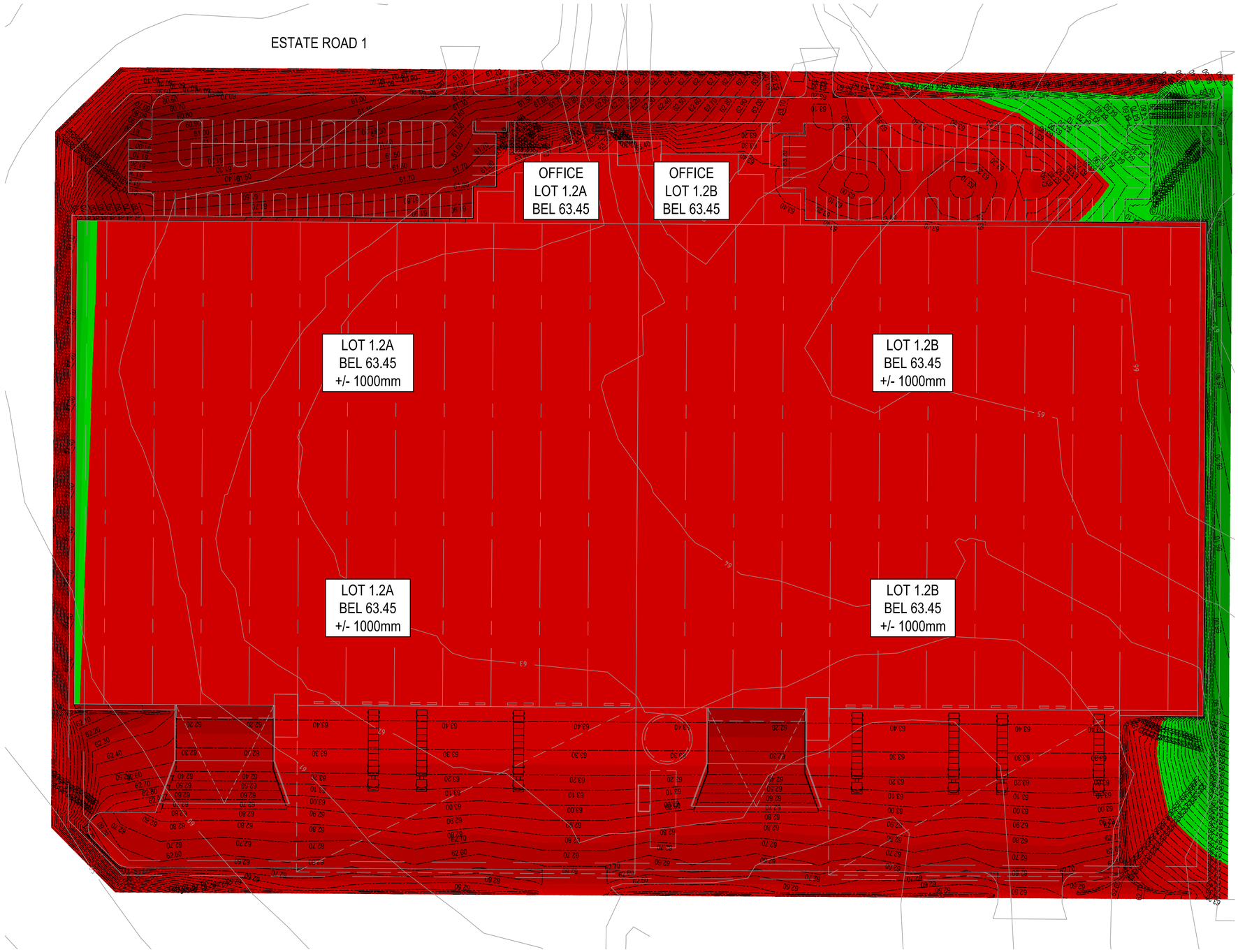

LEGEND

EXISTING BOUNDARY

61.20 BE CONTOURS

DEPTH RANGE Lower_value		Upper_value	Colour
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1	to	2	Meters
2	to	4	Meters
4	to	6	Meters
6	to	10	Meters
10	to	20	Meters

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 (5.28 Ha)	
CUT	28,511 m³
FILL	3,310 m³
EXCESS OF CUT OF OVER FILL	25,201m³
EXCAVATION FOR SERVICE TRENCHES OR OSD TANKS NOT INCLUDED IN CALCULATION	
EXCAVATION FOR RETAINING WALLS NOT INCLUDED IN CALCULATION	
NO TOPSOIL STRIPPING. BULK EARTHWORKS VOLUME CALCULATED AGAINST THE DESIGN SURFACE FOR THE SUBDIVISION WORKS DA DESIGN.	

PAVEMENT THICKNESS "INCLUDING BEDDING THICKNESS"		
ALL AREAS	300	mm

LOT 1.2 BULK EARTHWORKS CUT AND FILL PLAN

SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM: AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
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02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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DRAWING TO BE PRINTED IN COLOUR

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Project
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 1.2 BULK EARTHWORKS CUT AND FILL PLAN

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L.Caha	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

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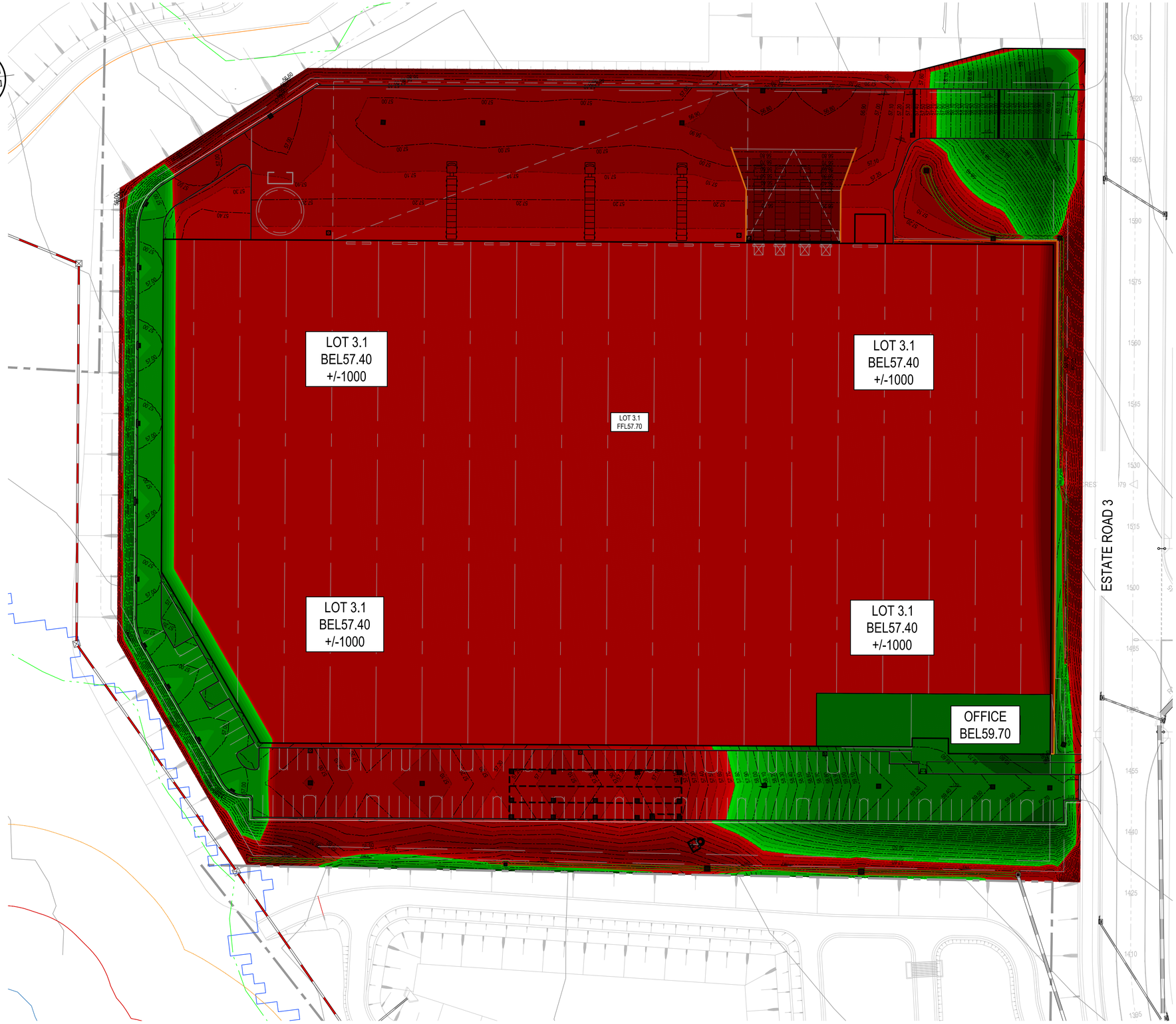

LEGEND

EXISTING BOUNDARY

61.20 BE CONTOURS

DEPTH RANGE Lower_value		Upper_value	Colour
-20	to	-10	Meters
-10	to	-8	Meters
-8	to	-7	Meters
-7	to	-6	Meters
-6	to	-5	Meters
-5	to	-4	Meters
-4	to	-3	Meters
-3	to	-2	Meters
-2	to	-1	Meters
-1	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
6	to	10	Meters
10	to	20	Meters

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 (4.56 Ha)	
CUT	16,788 m³
FILL	7,013 m³
EXCESS OF CUT OF OVER FILL	9,775m³
EXCAVATION FOR SERVICE TRENCHES OR OSD TANKS NOT INCLUDED IN CALCULATION	
EXCAVATION FOR RETAINING WALLS NOT INCLUDED IN CALCULATION	
NO TOPSOIL STRIPPING. BULK EARTHWORKS VOLUME CALCULATED AGAINST THE DESIGN SURFACE FOR THE SUBDIVISION WORKS DA DESIGN.	

PAVEMENT THICKNESS "INCLUDING BEDDING THICKNESS"		
ALL AREAS	300	mm

LOT 3.1 BULK EARTHWORKS CUT AND FILL PLAN

SCALE 1:500

ISSUED FOR SSDA

SURVEY INFORMATION
SURVEYED BY:

DATUM:AHD

ORIGIN OF LEVELS:
PM25501, RL59.659

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	12.12.2025
03	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	JG	SC	06.06.2025
02	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	31.10.2024
01	ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)	SC	SC	15.10.2024

Client
HB&B Property Pty and ISPT Pty Ltd

Architect / Surveyor
NETTLETONTRIBE

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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
BURRAH PARK (STAGE 2) LOTS 1.1, 1.2, 3.1
ELIZABETH DRIVE, BADGERYS CREEK, NSW

Title
LOT 3.1 BULK EARTHWORKS CUT AND FILL PLAN

Drawn	Designed	Original issue date
M.Pereira	N.Wetzlar	MAY 2024
Checked	Approved	Scale @A1
N.Wetzlar	A.Francis	1:500

Drawing number: 240518_D1_BE03
Revision: 04

File Path: R:\JOBS\2024\240518\ACAD\DWGS\240518_D1_BE03.DWG, 240518_D1_BE03(BE), DATE PRINTED: 2/12/2025 4:49:44 PM

Appendix B: Site Survey

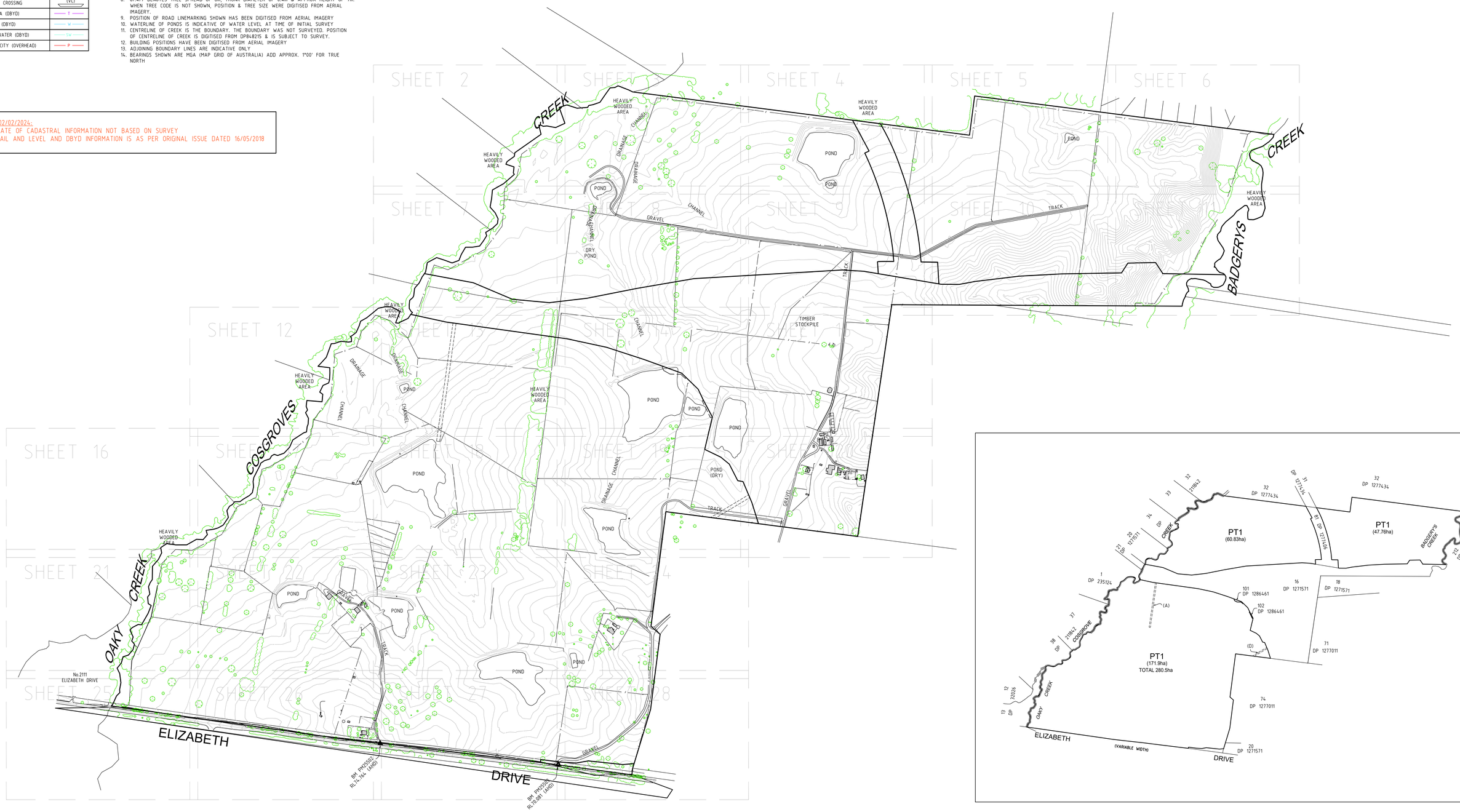
LEGEND

BENCH MARK	▲
COMMS PIT	COM
TELSTRA PIT	TEL
POWER POLE	PP
PIT WITH CONCRETE LID	CLID
STREET SIGN	SS
WATER METER	WM
VEHICLE CROSSING	(VC)
TELSTRA (DBYD)	T
WATER (DBYD)	W
STORMWATER (DBYD)	SW
ELECTRICITY (OVERHEAD)	P

NOTES

1. THE BOUNDARIES HAVE NOT BEEN MARKED
2. ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY NSW LAND REGISTRY SERVICES AND ARE SUBJECT TO FINAL SURVEY
3. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM **PM25501** R.L. **59.659** (A.H.D.) IN ELIZABETH DRIVE
4. CONTOUR INTERVAL **1.0 m**
5. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
6. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
7. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
8. 8/.4/7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m. WHEN TREE CODE IS NOT SHOWN, POSITION & TREE SIZE WERE DIGITISED FROM AERIAL IMAGERY.
9. POSITION OF ROAD LINEMARKING SHOWN HAS BEEN DIGITISED FROM AERIAL IMAGERY
10. WATERLINE OF PONDS IS INDICATIVE OF WATER LEVEL AT TIME OF INITIAL SURVEY
11. CENTRELINE OF CREEK IS THE BOUNDARY. THE BOUNDARY WAS NOT SURVEYED. POSITION OF CENTRELINE OF CREEK IS DIGITISED FROM DP848215 & IS SUBJECT TO SURVEY.
12. BUILDING POSITIONS HAVE BEEN DIGITISED FROM AERIAL IMAGERY
13. ADJOINING BOUNDARY LINES ARE INDICATIVE ONLY
14. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH

NOTE 02/02/2024:
- UPDATE OF CADASTRAL INFORMATION NOT BASED ON SURVEY
- DETAIL AND LEVEL AND DBYD INFORMATION IS AS PER ORIGINAL ISSUE DATED 16/05/2018



NOTE 02/02/2024:
- SEE DP1287712 AND DP1286461 FOR BOUNDARY DIMENSIONS
- LOTS 101 AND 102 IN DP1286461 ARE PROPOSED TO BE ACQUIRED

(A) EASEMENT FOR ELECTRICITY PURPOSES (AS820127, DP1286461)
(D) EASEMENT FOR ELECTRICITY PURPOSES (AS820127, DP1286461)

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GDA2020

REFER TO NOTES AND LEGEND

0 40 80 120 160 240 320 400
SCALE 1:4000 @ A1

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01	24/05/18	INITIAL ISSUE	50294 002

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....
Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.lts.com.au
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:4000 @A1
date of survey	16/05/18
SHEET OF	1 28

NOTE 11
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MGA

TN

APPROX 7.00°

HEAVILY WOODED AREA

CREEK

HEAVILY WOODED AREA

HEAVILY WOODED AREA

COSGROVES

FENCE

CYCLONE

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50

SCALE 1:500 @ A1

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date of survey	16/05/18
SHEET OF	2 28

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MGA

TN

TODAY APPROX

CREEK

COSGROVES

HEAVILY WOODED AREA

CYCLONE FENCE

FENCE

TREE CLUSTER

TREE CLUSTER

CHANNEL

DRAINAGE

DRAINAGE

CHANNEL

GRAVEL

GRAVEL

TRAIL

METAL

TRAIL

FENCE

POND

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REFER TO NOTES AND LEGEND

0 5 10 15 20 30 40 50
SCALE 1:500 @ A1

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site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	3 OF 28

MGA

TN

1:500 AHD

CYCLONE

FENCE

HEAVILY WOODED AREA

POND

POND

(2h)

(1h)

FENCE

WIRE

MARKED

DIAL BEFORE YOU DIG www.1100.com.au

REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50

SCALE 1:500 @ A1

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Registered Surveyors NSW
www.lts.com.au
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18

SHEET 4 OF 28

MGA

TN

GRADIENT

FENCE

CYCLONE

METAL

WIRE

BARBED

POND

(2h)

(1h)

REFER TO NOTES AND LEGEND

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0 10 15 20 30 40 50

SCALE 1:500 @ A1

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Registered Surveyors NSW
www.lts.com.au
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Gordon NSW 2072
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datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	5 OF 28

NOTE 11
CENTRELINE OF CREEK IS THE BOUNDARY
- BOUNDARY WAS NOT SURVEYED
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MGA

TN

100 0 100 200 300 400 500 600 700 800 900 1000 METRES APPROX

CYCLONE

FENCE

CHANNEL

DRAINAGE

METAL FENCE

FENCE

CREEK

HEAVILY WOODED AREA

HEAVILY WOODED AREA

TREE CLUSTER

HEAVILY WOODED AREA

BADGERYS

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0 5 10 15 20 30 40 50
SCALE 1:500 @ A1

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Registered Surveyors NSW
www.lts.com.au
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY

Drawing title
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KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	6 OF 28

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MGA

TN

APPROX 1°00'

CREEK

COSGROVES

WOODED AREA

HEAVILY WOODED AREA

HEAVILY WOODED AREA

HEAVILY WOODED AREA

FENCE

BARBED WIRE FENCE

CYCLONE FENCE

METAL FENCE

METAL GATE

(2h)

(1h)

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REFER TO NOTES AND LEGEND

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SCALE 1:500 @ A1

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Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.lts.com.au
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datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18
SHEET 7 OF 28

POND
METAL
FENCE
(2h)
DRAINAGE
CHANNEL
BARBED WIRE
GRAVEL
TRACK
TREE CLUSTER
DRY POND
GATE
CROSSING
MGA
TN
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reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET OF	28 | 8

MGA

TN

1.00° GRADIENT

BARBED

GRAVEL

BARBED

WIRE

WIRE

FENCE

FENCE

METAL

TRACK

GATE

GATE

GATE

FENCE

TRACK

GRAVEL

METAL

FENCE

METAL

CYCLONE

FENCE

TIMBER

DIAL BEFORE YOU DIG www.1100.com.au

REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50

SCALE 1:500 @ A1

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LTS LOCKLEY
Registered Surveyors NSW
www.lts.com.au

Suite 1, Level 1
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site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
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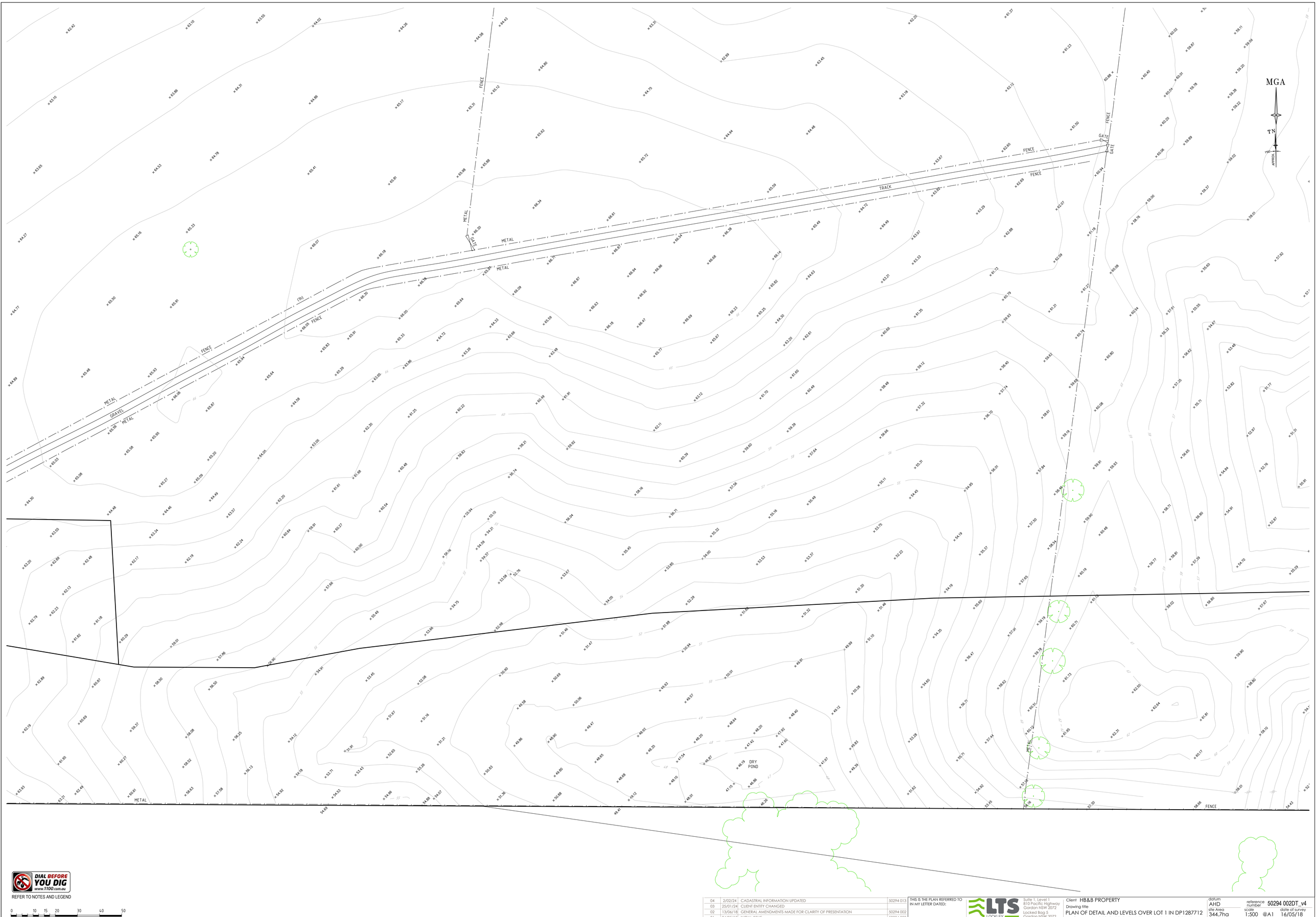
date of survey 16/05/18

SHEET 28 OF 9



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site Area 344.7ha
LGA PENRITH

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date of survey 16/05/18

SHEET 10 OF 28

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MGA

TN

1000 GRADIAN

HEAVILY WOODED AREA

DRY POND

DRY POND

CREEK

BADGERYS

FENCE

CYCLONE

FENCE

CYCLONE

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50

SCALE 1: 500 @ A1

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datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18

SHEET 11 OF 28

NOTE 11
CENTRELINE OF CREEK IS THE BOUNDARY
- BOUNDARY WAS NOT SURVEYED
- POSITION OF CENTRELINE OF CREEK IS DIGITISED FROM DP848215 & IS SUBJECT TO SURVEY

MGA

TN

MAGNETIC

CREEK

HEAVILY WOODED AREA

HEAVILY WOODED AREA

HEAVILY WOODED AREA

COSGROVES CREEK

NOTE: POSITION OF CREEK OUTLET IS APPROXIMATE ONLY

(TH)

(TH)

GATE

GATE

BARBED WIRE FENCE

FENCE

FENCE

DRAINAGE

CHANNEL

CYCLONE

METAL

FENCE

DIAL BEFORE YOU DIG
www.1100.com.au

REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50
SCALE 1:500 @ A1

CAD FILE REFERENCE:-S:\BADGERYS CREEK Elizabeth Drive No 1953-2109 - Northern Gateway - 50294\CAD Drawings\Detail & Levels\50294 002DT\GDA 2020\Issue 004\50294 002DT_v4.dwg

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02	13/06/18	GENERAL AMENDMENTS MADE FOR CLARITY OF PRESENTATION	50294 002
01	24/05/18	INITIAL ISSUE	50294 002

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....
Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.lts.com.au

Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18

SHEET 28 OF 12

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50

SCALE 1:500 @ A1

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Registered Surveyors NSW
www.ltsl.com.au
Suite 1, Level 1
810 Pacific Highway
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P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY

Drawing title

PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET OF	13 28

GATE
FENCE
METAL
FENCE
CHANNEL
DRAINAGE
FENCE
METAL
CHANNEL
METAL
FENCE
BARBED
METAL
FENCE
METAL
FENCE
METAL
FENCE
BARBED
WIRE
FENCE
(fh)
POND
POND
POND
BARBED
WIRE
BARBED
BARBED
WIRE
FENCE
(fh)

MGA
TN
10DEC
APPROX

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50
SCALE 1:500 @ A1

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Client HB&B PROPERTY
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	14
OF	28

TIMBER STOCKPILE

TIMBER STOCKPILE

2xTANKS

STOCKPILE

METAL ANIMAL ENCLOSURE

BK. BLDG

METAL SHED

FENCE

METAL

GATE

TRACK

GRANITE

CYCLONE

MGA

TN

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REFER TO NOTES AND LEGEND

SCALE 1:500 @ A1

0 10 15 20 30 40 50

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Drawing title

PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	15
OF	28

NOTE 11
CENTRELINE OF CREEK IS THE BOUNDARY
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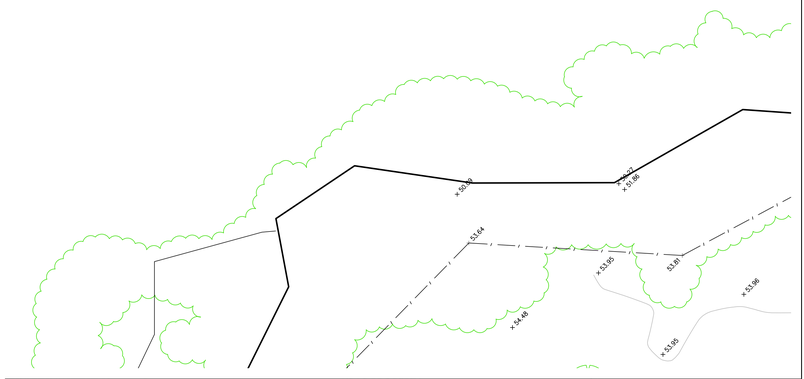
MGA

TN

GRAPHIC SCALE



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REFER TO NOTES AND LEGEND

0 5 10 15 20 30 40 50
SCALE 1:500 @ A1

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PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET OF	28 | 16

NOTE 11
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MGA
TN
7DEC
VARIANT

CREEK
COSGROVES
HEAVILY WOODED AREA
HEAVILY WOODED AREA
HEAVILY WOODED AREA
TREE CLUSTER
TREE CLUSTER
TREE CLUSTER
TREE CLUSTER
LINE OF TREES
FENCE
METAL
GATE
SHED
ELECTRIFIED
BARBED WIRE
WIRE
CYCLONE
DRAINAGE CHANNEL
PADDOCKS
(TH)

DIAL BEFORE YOU DIG www.1100.com.au
REFER TO NOTES AND LEGEND

0 5 10 15 20 30 40 50
SCALE 1:500 @ A1

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Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
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P 1300 587 000
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Client HB&B PROPERTY
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712
KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum AHD
site Area 344.7ha
LGA PENRITH
reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18
SHEET 17 OF 28

POND

HEAVILY WOODED AREA

HEAVILY WOODED AREA

TREE CLUSTER

TREE CLUSTER

TREE CLUSTER

TREE CLUSTER

TREE CLUSTER

PADDOCKS

WATER TANK

CULVERT

CHANNEL

DRAINAGE

DRAINAGE

FENCE

METAL

GATE

(A)

MGA

TN

APPROX TRUE

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REFER TO NOTES AND LEGEND

SCALE 1:500 @ A1

0 10 15 20 30 40 50

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LTS LOCKLEY
Registered Surveyors NSW
www.ltsl.com.au
Suite 1, Level 1
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Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712
KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	18 OF 28

MGA

TN

APPROX

METAL

FENCE

CHANNEL

DRAINAGE

GATE

POND
(DRY)

METAL
SHED

POND

TREE
CLUSTER

CYCLONE

TRACK

GRAVEL

COLLAPSED FENCE

(2h)

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50
SCALE 1:500 @ A1

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Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	28
OF	19

METAL ANIMAL ENCLOSURE
GATE
BK. BLDG
METAL SHED
METAL SILO
METAL SHED
METAL SHED
METAL SHED
METAL SHED
TRACK
METAL TANK
METAL
SINGLE STOREY W/B BLDG. METAL ROOF
METAL SHED
SINGLE STOREY BK. BLDG. METAL ROOF
METAL SHEDS
METAL SHEDS
SINGLE STOREY W/B BLDG. METAL ROOF
TRACK
FENCE
FENCE
FENCE
TREE CLUSTER
METAL SHED
GRAVEL
METAL
FENCE
GRAVEL
TRACK
GATE
GATE
CYCLONE
CYCLONE
FENCE
MGA
TN
(GDA)
GRID NORTH

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REFER TO NOTES AND LEGEND

SCALE 1:500 @ A1

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Registered Surveyors NSW
www.lts.com.au
Suite 1, Level 1
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Gordon NSW 2072
Locked Bag 5
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P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18
SHEET 28 OF 20

NOTE 11
CENTRELINE OF CREEK IS THE BOUNDARY
- BOUNDARY WAS NOT SURVEYED
- POSITION OF CENTRELINE OF CREEK IS DIGITISED FROM DP848215 & IS SUBJECT TO SURVEY

MGA

TN

100m

CREEK

CREEK

COSGROVES

OAKY

TREE CLUSTER

TREE CLUSTER

FENCE

METAL FENCE

CYCLONE FENCE

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50

SCALE 1: 500 @ A1

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datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET OF	21 / 28

POND

EQUESTRIAN PADDOCK

METAL SHED

METAL SHED

METAL SHED

BK

WC

SHADE SAIL

GRAVEL

TREE CLUSTER

CULVERT

CHANNEL

DRAINAGE

FENCE

METAL

GATE

TRACK

MGA

TN

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REFER TO NOTES AND LEGEND

SCALE 1:500 @ A1

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PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18

SHEET 22 OF 28

METAL FENCE
METAL
FENCE
GATE
METAL SHED
EQUESTRIAN PADDOCK
POND
TREE CLUSTER
TREE CLUSTER
TREE CLUSTER
TREE CLUSTER
DRAINAGE
CHANNEL
FENCE POSTS ONLY
FENCE POSTS ONLY
POND
TRACK
BANKED
WIRE
MGA
TN
DIAL BEFORE YOU DIG www.1100.com.au
REFER TO NOTES AND LEGEND
SCALE 1:500 @ A1
CAD FILE REFERENCE:-S:\BADGERYS CREEK Elizabeth Drive No 1953-2109 - Northern Gateway - 50294\CAD Drawings\Detail & Levels\50294 002DT\GDA 2020\issue 004\50294 002DT_v4.dwg

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Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712 KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	23
OF	28

MGA

TN

GRID NORTH

METAL FENCE

COLLAPSED FENCE

BARBED WIRE FENCE

FENCE

WIRE FENCE

TRACK

GRAVEL

WB & METAL OUT BUILDING

WB & METAL COTTAGE

POND

NOT IN USE

MH FOR INGROUND TANK

STAY

GATE

METAL POST

GRAVE POST

CYCLONE FENCE

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50

SCALE 1: 500 @ A1

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Client HB&B PROPERTY

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712
KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18

SHEET 24 OF 28

NOTE 11
CENTRELINE OF CREEK IS THE BOUNDARY
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MGA

TN

1500 APPROX

No.2111
ELIZABETH DRIVE

BRICK & METAL POST WALL

POST & WIRE FENCE (1h)

GATE

POST

TOP OF BANK

EDGE

(VC)

BASE

WIRE

FENCE

BANK

METAL GUARD RAIL

OF

CYCLONE

(1,2h)

METAL

ELIZABETH DRIVE

TREE CLUSTER

BITUMEN

CREEK

OAKY

CREEK

OAKY

270 THICK HEAD WALL

0.230

0.900

CREEK BANK

ELEVATION A-A STORMWATER CULVERT
1:100

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REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50
SCALE 1:500 @ A1

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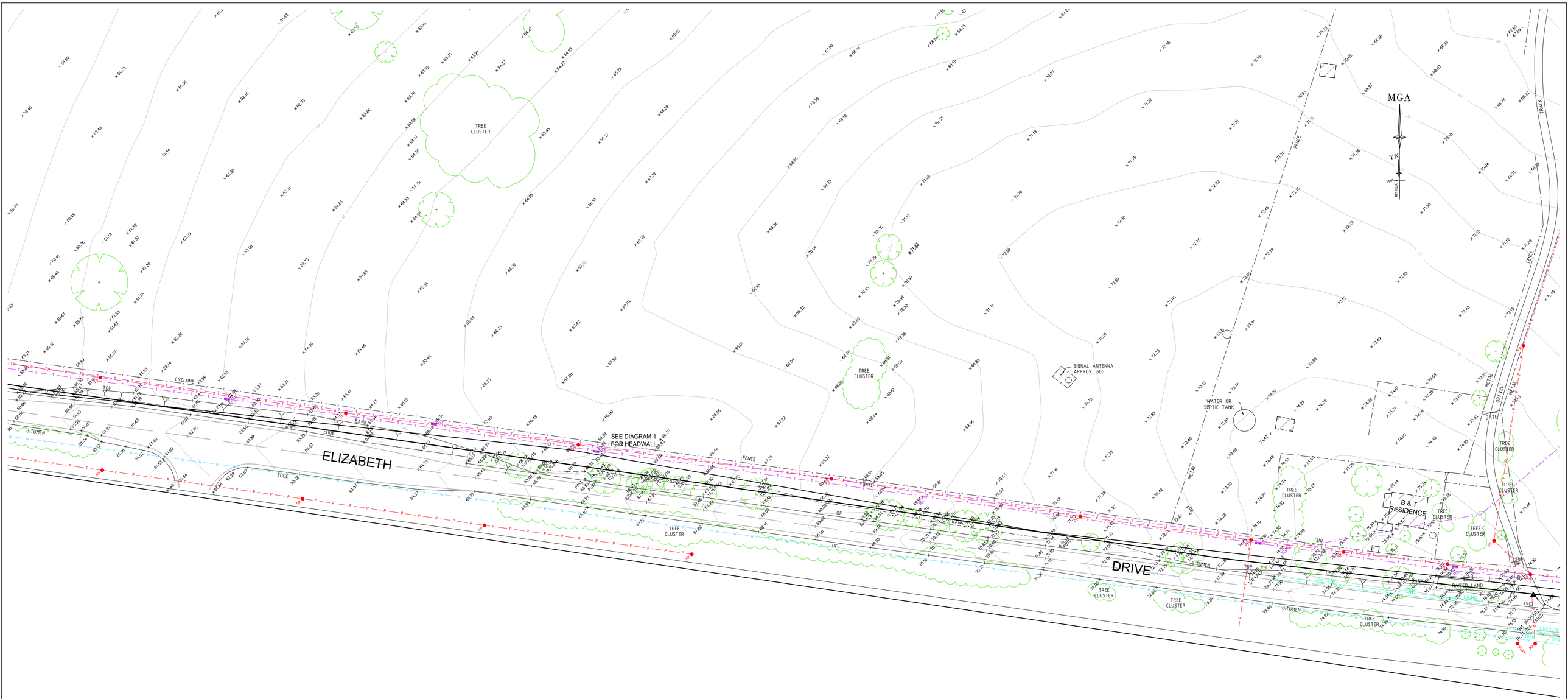
datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18
SHEET 25 OF 28



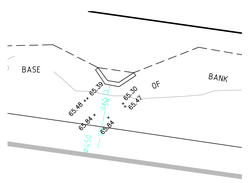


DIAGRAM 1
1:100

DIAL BEFORE YOU DIG
www.1100.com.au

REFER TO NOTES AND LEGEND

0 10 15 20 30 40 50
SCALE 1:500 @ A1

CAD FILE REFERENCE:-S:\BADGERYS CREEK Elizabeth Drive No 1953-2109 - Northern Gateway - 50294\CAD Drawings\Detail & Levels\50294 002DT\GDA 2020\issue 004\50294 002DT_v4.dwg

Revision	Date	Description	Reference
04	2/02/24	CADASTRAL INFORMATION UPDATED	50294 013
03	25/01/24	CLIENT ENTITY CHANGED	
02	13/06/18	GENERAL AMENDMENTS MADE FOR CLARITY OF PRESENTATION	50294 002
01	24/05/18	INITIAL ISSUE	50294 002

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....

Registered Surveyor NSW

LOCKLEY
Registered Surveyors NSW
www.lts.com.au
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712
KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18

SHEET 26 OF 28

MGA

TN

TRUE APPROX

POND

SEE DIAGRAM 2
FOR HEADWALL

SEE DIAGRAM 3
FOR HEADWALL

ELIZABETH DRIVE

DIAGRAM 2
1:100

DIAGRAM 3
1:100

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REFER TO NOTES AND LEGEND

SCALE 1:500 @ A1

CAD FILE REFERENCE:-S:\BADGERYS CREEK Elizabeth Drive No 1953-2109 - Northern Gateway - 50294\CAD Drawings\Detail & Levels\50294 002DT\GDA 2020\Issue 004\50294 002DT_v4.dwg

Revision	Date	Description	Reference
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01	24/05/18	INITIAL ISSUE	50294 002

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....

Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.ltsl.com.au

Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client HB&B PROPERTY

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 IN DP1287712
KNOWN AS 1953-2109 ELIZABETH DRIVE, BADGERYS CREEK

datum	AHD
site Area	344.7ha
LGA	PENRITH
reference number	50294 002DT_v4
scale	1:500 @A1
date of survey	16/05/18
SHEET	27 of 28

MGA

TN

1.00° APPROX

ELIZABETH DRIVE

DRIVE

METAL

FENCE

GATE

TRACK

CYCLONE

GRASS

WIRE

BARBED

GRAVEL

CYCLONE 1.8m

TREE CLUSTER

EDGE

BANK

TOP

BITUMEN

DIAL BEFORE YOU DIG www.1100.com.au

REFER TO NOTES AND LEGEND

SCALE 1:500 @ A1

CAD FILE REFERENCE:-S:\BADGERYS CREEK Elizabeth Drive No 1953-2109 - Northern Gateway - 50294\CAD Drawings\Detail & Levels\50294 002DT\GDA 2020\issue 004\50294 002DT_v4.dwg

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datum AHD
site Area 344.7ha
LGA PENRITH

reference number 50294 002DT_v4
scale 1:500 @A1
date of survey 16/05/18

SHEET 28 OF 28

Appendix C: Relevant Architectural Concept Drawings

TfNSW M12
59.18 ha

LUDDENHAM ROAD

Cosgroves Creek

Oaky Creek

100 year flood zone

RIPARIAN & OPEN SPACE ZONE

SYDNEY WATER DETENTION ZONE

SUPERLOT 01a
4.84ha

SUPERLOT 01b
5.23ha

SUPERLOT 01c
13.51ha

SUPERLOT 01d
3.64ha

SUPERLOT 02a
13.65ha

SUPERLOT 02b
11.39ha

SUPERLOT 03a
4.55ha

SUPERLOT 03b
2.42ha

SUPERLOT 04a
11.59ha

SUPERLOT 04b
13.36ha

SUPERLOT 05a
2.03ha

SUPERLOT 05b
17.08ha

SUPERLOT 06
12.02ha

Sydney University Lands

Outline of Public Safety Zone shown dashed

ELIZABETH DRIVE

BURRAH PARK - Northern Gateway

Elizabeth Drive, Badgery's Creek - NSW

Title	Concept Masterplan
Scale	1:3000 @ A1
Date	December 2025
Number	14020_DA003[14]

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nettletontribe

0 60 150 300m

Dec 10, 2025 - 5:06pm P:\14020 Burra Park\3 CAD\14020_DA003 - Concept Masterplan.dwg

Appendix D: Flow Target Spreadsheet – Ultimate

ENTER DEVELOPMENT AREA (in cell F2)		
Development Area	**219.413**	ha (i.e. the total catchment areas used in MUSIC)

Stormwater Quantity (flow) Targets Option 2- flow percentiles			
Indices	**Result**	**Comply**	**Target**
95%ile	12,880	Yes	3000 to 15000 L/ha/day
90%ile	1,381	Yes	1000 to 5000 L/ha/day
75%ile	403	Yes	100 to 1000 L/ha/day
50%ile	48	Yes	5 to 100 L/ha/day
Cease to Flow	6%	No	10-30%

Stormwater Quantity (flow) Targets Option 1 - MARV			
Indices	**Result**	**Comply**	**Target**
MARV (ML/ha/yr)	1.75	Yes	≤ 2
90%ile	1,381	Yes	1000 to 5000 L/ha/day
50%ile	48	Yes	5 to 100 L/ha/day
10%ile	0	No	0 L/ha/day

Paste daily flow time series from MUSIC

Date	m3/s	L/ha/day
1/01/1999	0.0288275	11351.6337
2/01/1999	0.0650453	25613.4045
3/01/1999	0.0020709	815.474744
4/01/1999	0.00001395	5.49320232
5/01/1999	0.00000576	2.26816096
6/01/1999	0.00000568	2.23665872
7/01/1999	0.0000056	2.20515649
8/01/1999	0.00000552	2.17365425
9/01/1999	0.00000544	2.14215201
10/01/1999	0.00000536	2.11064978
11/01/1999	0.00000529	2.08308532
12/01/1999	0.00000522	2.05552087
13/01/1999	0.00000514	2.02401863
14/01/1999	0.00000507	1.99645418
15/01/1999	0.000005	1.96888972
16/01/1999	0.00000493	1.94132526
17/01/1999	0.00000486	1.91376081
18/01/1999	0.00000479	1.88619635
19/01/1999	0.00037185	146.426328
20/01/1999	0.00204853	806.665931
21/01/1999	0.33344301	131302.503
22/01/1999	1.03736599	408491.847
23/01/1999	0.04082989	16077.9101
24/01/1999	0.00193215	760.838054
25/01/1999	0.11091953	43677.6645
26/01/1999	0.00319628	1258.62457
27/01/1999	0.00018935	74.5618537

Percentile	Flow (L/ha/day)
0.0%	799,147
0.1%	389,097
0.2%	285,975
0.3%	260,430
0.4%	225,709
0.5%	204,558
0.6%	178,223
0.7%	160,453
0.8%	156,075
0.9%	149,917
1.0%	135,209
1.1%	130,845
1.2%	119,773
1.3%	115,603
1.4%	111,283
1.5%	100,580
1.6%	94,325
1.7%	81,457
1.8%	78,128
1.9%	72,839
2.0%	66,487
2.1%	63,456
2.2%	61,837
2.3%	59,446
2.4%	57,198
2.5%	55,012
2.6%	50,594