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CIVIL INTEGRATED WATER MANAGEMENT PLAN
OPAL HEALTHCARE
NARWEE PARKLANDS CARE COMMUNITY

For SSDA
May 2023
Revision 6

HENRY & HYMAS
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This Addendum /Integrated Water Management Plan has been prepared to support the Response to Submission Report for the Narwee Parklands Care Community State Significant Development Application (SSD-45024776) located at 59-67 Karne Street North, Narwee. The NSW Department of Planning and Environment (DPE) placed the Environmental Impact Statement and the accompanying technical documentation on public exhibition from 14 February 2023 until 13 March 2023. During the exhibition, a total of 22 submissions were received in response to the public exhibition of the EIS. These included submissions made by the State and Local Government agencies, authorities, as well as the general public.

This report provides a response to matters relating to the civil engineering design and it should be read in conjunction with the EIS and all supporting documentation originally submitted with the SSDA. The table below identifies the specific matters raised by the relevant agencies and where these matters have been responded to.

Agency / Organisation	Agency Reference	Comment from Agency / Organisation	Section reference / Response
CBC Council	Stormwater	Ocean guard pit baskets and pollution control pits are not supported. It is requested a single gross pollutant trap is installed in lieu	Section 6
CBC Council	Stormwater	If nutrients are being targeted, the preference is for Filterra tree pits to be installed instead of ocean guard pit baskets	Section 6
CBC Council	Stormwater	If assets are remaining on a private lot and not on Council land, they must be covered by a Section 88b positive covenant in accordance with the Conveyancing Act 1919.	Section 6
CBC Council	Stormwater	• The Stormwater Management Plan contained in Appendix T makes reference to Blacktown Council. This should be amended to refer to Canterbury Bankstown Council. It is noted however, that Blacktown's Water Sensitive Urban Design developer handbook can be used as a technical guide	Section 6
CBC Council	Operation Waste Management Plan	The Operational Waste Management Plan does not include details regarding water quality devices. If these are to be maintained privately, they should be included in the supporting documentation. Further detail is required before any development consent is issued.	Section 6

1. INTRODUCTION

1.1 General

This Engineering Report has been prepared to supplement the proposed State Significant Development Application (SSDA) for the proposed Opal HealthCare Narwee Parklands Care Community development located at 59-67 Karne Street North, Narwee. The development will consist of a proposed retirement aged care facility (RACF), external courtyards and a basement.

Figure 1.1 Locality Sketch

The following Engineering matters have been addressed in this report:

- Water Sensitive Urban Design (WSUD)
- Stormwater Detention
- Flood Management

The purpose of this report is to provide an overview of the various Engineering issues that relate to the site and how these issues have been addressed.

A full set of DA Drawings is provided in Appendix A of this report.

1.2 Engineering Objectives/ Principles

One of the Engineering objectives for the development is to provide a safe and efficient road and pedestrian footpath network for the residents and visitors to the development. In addition, driveway and footpath grades must be sympathetic to the needs of the users of the network.

The site has been designed such that the grades are sympathetic to the end users whilst giving consideration for earthworks quantities. This was done to assist in minimising construction costs, minimising the impact on local landfill

resources whilst ensuring the site levels tie into existing levels at the site boundaries. As a result of the above, retaining walls will be required throughout the site (refer to engineering drawings in Appendix A). These walls have been designed taking into account both construction costs and with due consideration for the visual appearance from adjoining properties or roads.

The stormwater network must be designed to safely convey minor storm events via a pit and pipe stormwater system with provision for larger, more infrequent storm events overland via the road network. Another aspect of the stormwater system is to ensure that the design takes into account water sensitive urban design (WSUD) measures. The stormwater network has been designed in accordance with these principles.

1.3 Council Policies

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

- Bankstown City Council Development Engineering Standards 2006
- Canterbury Development Control Plan (DCP) 2012

1.4 The Site & Its Context

The existing site is approximately 0.6658 hectare, with the existing levels falling from the North-East corner to the Southern boundary.

Stormwater is to be managed via on-site detention and a pit and pipe combination, the stormwater system to discharge into an existing kerb inlet pit located on Karne Street North, refer to drawing c100 in Appendix A for more details. The proposed stormwater system will manage onsite flows as well as additional flows from an upstream catchment via the site's northern boundary. Dial Before You Dig investigations indicate a 150mm diameter sewer main running adjacent to the site's northern boundary. Refer to drawing C100 for further details.

Access to the site's porte cochere will be via a driveway located off Karne Street North. Similarly, access to the site's basement parking will be via a basement ramp located off Karne Street North. The grading of these driveways are compliant with AS2890.1 standards.

2. STORMWATER MANAGEMENT

2.1 Introduction

2.1.1 Background

Stormwater controls will be implemented that ensure that the proposed development does not adversely impact on stormwater flows and water quality of the stormwater system downstream of the site.

The principles and operation of the proposed stormwater system for the development including water quality measures and the components of the internal drainage system are detailed on the Development Application Drawings included in Appendix A.

2.1.2 Key Issues

The key issues and the proposed mitigation measures to be implemented as part of the proposed development are:

- **Stormwater Quantity** - The increased impervious surfaces (such as roads, roofs, driveways, etc) associated with the development will result in an increase in peak stormwater flows from the site during storm events. On-site Stormwater Detention (OSD) will be proposed for the development to ensure that runoff from the development is appropriately managed in accordance with Council's requirements. The site stormwater system has been designed to safely convey the flows through the site and within the capacity of the downstream system. The design and operation of the proposed stormwater system is described in Section 2.2 below.

- **Water Quality** - Urban developments have the potential to increase gross pollutants, sediments, hydrocarbons and nutrient concentrations in stormwater runoff. To limit impact on the downstream water quality, water quality measures at source and end of line treatments will be provided. Section 2.3 further describes the specific implementation of these measures for the proposed development.

2.2 Stormwater Quantity

As discussed with the engineering department within Bankstown City Council, on-site detention will be required for the site to ensure post-developed flows are reduced to pre-developed flows for the 5yr, 20yr and 100yr ARI storm events.

An on-site detention (OSD) tank has been proposed within the southern part of the site. The OSD tank provides a storage volume of approximately 116m^3. Refer to the table below for a summary of the pre and post developed flows for the relevant storm events. Refer to Appendix A for sections and details of the on-site detention tank, and the DRAINS model included in the DA submission for a full analysis of the hydraulics of the site.

Storm event	Pre-developed Flows (m3/s)	Post – Developed Flows (m3/s)
5year ARI storm	0.141	0.134
20year ARI storm	0.207	0.129
100year ARI storm	0.265	0.167

Table 2.2 Catchment 1 Flows

The proposed development meets Bankstown City Council's stormwater detention requirements as shown by the table above.

2.3 Water Quality

Council's requirements also dictate that the stormwater quality is addressed as part of the civil design. The following measures have been incorporated into civil design:

- Gross Pollutant Trap CDS Unit 0506

Canterbury Bankstown City Council does not require MUSIC modelling to be undertaken, nor for any particular Nitrogen/Phosphorus/Suspended Solid reductions targets to be met. It is understood that the above requirements are considered appropriate for the development from a water quality standpoint.

3. CONSULTATION WITH COUNCIL

Consultation with Bankstown City Council has been undertaken via a meeting on the 20th of September 2022 and subsequent email correspondence with Monir Korkis (Bankstown City Engineer). The proposed design is in accordance with the advice from Council.

4. FLOOD MANAGEMENT

A flood assessment has been carried out to determine the impact of the proposed development on the existing site's flooding, refer to the flood report conducted by TTW for further details regarding overland flooding throughout the site.

Currently an upstream catchment flows through the subject site's northern boundary, as such a compensatory stormwater system has been developed to intercept and discharge all upstream flows up to a PMF flood event. Consultation with TTW has indicated that a total flow of 1.8m^3/s discharges across the northern boundary during this PMF event, and that during the 100yr ARI event there are no formal overland flows directed across the northern boundary. In the 100yr event, the flows from the upstream catchment are able to be contained within Grove Street gutter and drainage system (therefore bypassing the site and the stormwater easement within the site).

DRAINS modelling has concluded that a 25m x 0.2m grated drain alongside the site's northern boundary, in addition to the overland flow path along the northern boundary has sufficient pit capacity to drain the upstream 1.8m^3/s flow during a PMF storm. Refer to the report by TTW for further details. The stormwater system is proposed to discharge directly towards an existing 675mm pipe running through Karne St North. The retaining wall height adjacent to the shoring wall has been specified such that in the event of a system blockage, flows will spill towards Karne St North. An easement of 2m is to be constructed over the 450mm pipe discharging the 25m x 0.2m grated drain. Refer to drawing c100 and the attached DRAINS modelling for more details.

5. SEARS REQUIREMENTS

Refer to the following SEARs requirements and how each item has been addressed:

14. **Provide an Integrated Water Management Plan for the development that:**
    - **is prepared in consultation with the local council and any other relevant drainage or water authority.**

    As discussed previously in this report, Council has been consulted with regards to the drainage design. This consultation was in the form of a meeting on the 20th of September 2022, and follow-up email correspondence with Monir Korkis (Council engineer).

    - **details the proposed drainage design for the site including any on-site treatment, reuse and detention facilities, water quality management measures, and the nominated discharge points.**

    This information has been provided within the civil engineering DA drawings included within Appendix A. An OSD tank has been provided. Water quality measures have been incorporated into the design in the form of a gross pollutant trap. No reuse has been provided for the development. The stormwater discharge point is show to be to the kerb inlet pit in Karne Street North to the south-west of the development site.

    - **demonstrates compliance with the local council or other drainage or water authority requirements and avoids adverse impacts on any downstream properties.**

    Refer to Part 2 of this report, as well as the civil engineering drawings in Appendix A which demonstrate that the local council drainage requirements have been satisfied. There are not expected to be any adverse impacts on downstream properties.

- **Where 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.

Refer to the DRAINS model which has been included as part of the SSDA submission. Also included as part of the SSDA submission is the civil engineering plans (refer to Appendix A). These two documents demonstrate the necessary hydraulic and engineering information necessary to ensure that all relevant standards and local council requirements have been adhered to.

6. RESPONSE TO SSDA RFIS

Ocean guard pit baskets and pollution control pits are not supported. It is requested a single gross pollutant trap is installed in lieu.

Refer to drawing C100 which now shows a gross pollutant trap to be installed in the southern part of the site. All reference to pit baskets and pollution control pits have been removed from the design.

If nutrients are being targeted, the preference is for Filterra tree pits to be installed instead of ocean guard pit baskets.

Filterra tree pits are not considered suitable for this site. Additionally the tree pits would not achieve the desired landscaping/stormwater outcome for the site. The water quality treatment for the site will be limited to the gross pollutant trap.

If assets are remaining on a private lot and not on Council land, they must be covered by a Section 88b positive covenant in accordance with the Conveyancing Act 1919.

Noted. It is expected that this can be resolved through a condition of consent.

The Stormwater Management Plan contained in Appendix T makes reference to Blacktown Council. This should be amended to refer to Canterbury Bankstown Council. It is noted however, that Blacktown's Water Sensitive Urban Design developer handbook can be used as a technical guide.

All references to Blacktown Council have been removed from this report.

The Operational Waste Management Plan does not include details regarding water quality devices. If these are to be maintained privately, they should be included in the supporting documentation. Further detail is required before any development consent is issued.

It is understood that this comment from Council is in reference to the stormwater water quality devices and not the waste management plan. Refer to Appendix D Maintenance Schedule for information in regards to the maintenance of the stormwater devices.

7. CONCLUSION

The design provides a safe and efficient road and pedestrian footpath network for the proposed development which will be sympathetic to the needs of the users of the network. The road and footpath network will be integrated with appropriate traffic facilities to assist in controlling parking, traffic guidance and pedestrian safety.

Appropriate stormwater management practices will be implemented that minimise the impact of development on the existing stormwater system in terms of water quality whilst ensuring safe and efficient conveyance of runoff and the provision of adequate freeboard to habitable dwellings.

The design is in accordance with both Bankstown City Council's requirements and best practice principles, hence it can be ensured that there will be minimal impact on the existing environment as a result of the proposed development.

It should be noted that the results shown in this report are limited to use for SSDA purposes only. During the detailed design stages, a further refinement of the modelling based on the detail design of the development will be necessary.

REFERENCES

- Landcom - "Soils and Construction Volume 1 – 4th Edition", March 2004
- Institution of Engineers, Australia - "Australian Rainfall and Runoff 3rd Edition", 1987
- Sixmaps, 2018 - <https://maps.six.nsw.gov.au/>
- Bankstown City Council Development Engineering Standards 2006
- Bankstown City Council Development Control Plan (DCP) 2015

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APPENDIX A – DEVELOPMENT APPLICATION DRAWINGS

NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW
CIVIL ENGINEERING WORKS

GENERAL NOTES:

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH CANTERBURY - BANKSTOWN 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 CANTERBURY - BANKSTOWN 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.

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.

LOCALITY SKETCH

SCALE: N.T.S.

DRAWING SCHEDULE	
22M21_DA_C000	COVER SHEET, DRAWING SCHEDULE, NOTES AND LOCALITY SKETCH
22M21_DA_C100	DETAIL PLAN - GROUND FLOOR
22M21_DA_C101	DETAIL PLAN - BASEMENT
04 22M21_DA_C110	TYPICAL SECTIONS
22M21_DA_C200	STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE
22M21_DA_C201	OSD TANK PLAN, DETAILS AND SECTION
22M21_DA_SE01	SEDIMENT AND EROSION CONTROL PLAN
22M21_DA_SE02	SEDIMENT AND EROSION CONTROL TYPICAL DETAILS
22M21_DA_BE01	BULK EARTHWORKS CUT AND FILL PLAN

SITEWORKS NOTES

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

EXISTING SERVICES & FEATURES

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

FOR DA ONLY

SURVEY INFORMATION
SURVEYED BY: VMARK
DATUM: AHD
ORIGIN OF LEVELS:
SSM 108411
RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR DA ONLY	SC	NH	30.05.2023
03	ISSUED FOR DA ONLY	MB	NH	27.04.2023
02	ISSUED FOR DA ONLY	MP	NH	05.12.2022
01	ISSUED FOR DA ONLY	MP	NH	25.11.2022

Client: OPAL HEALTHCARE
Architect: GROUP GSA

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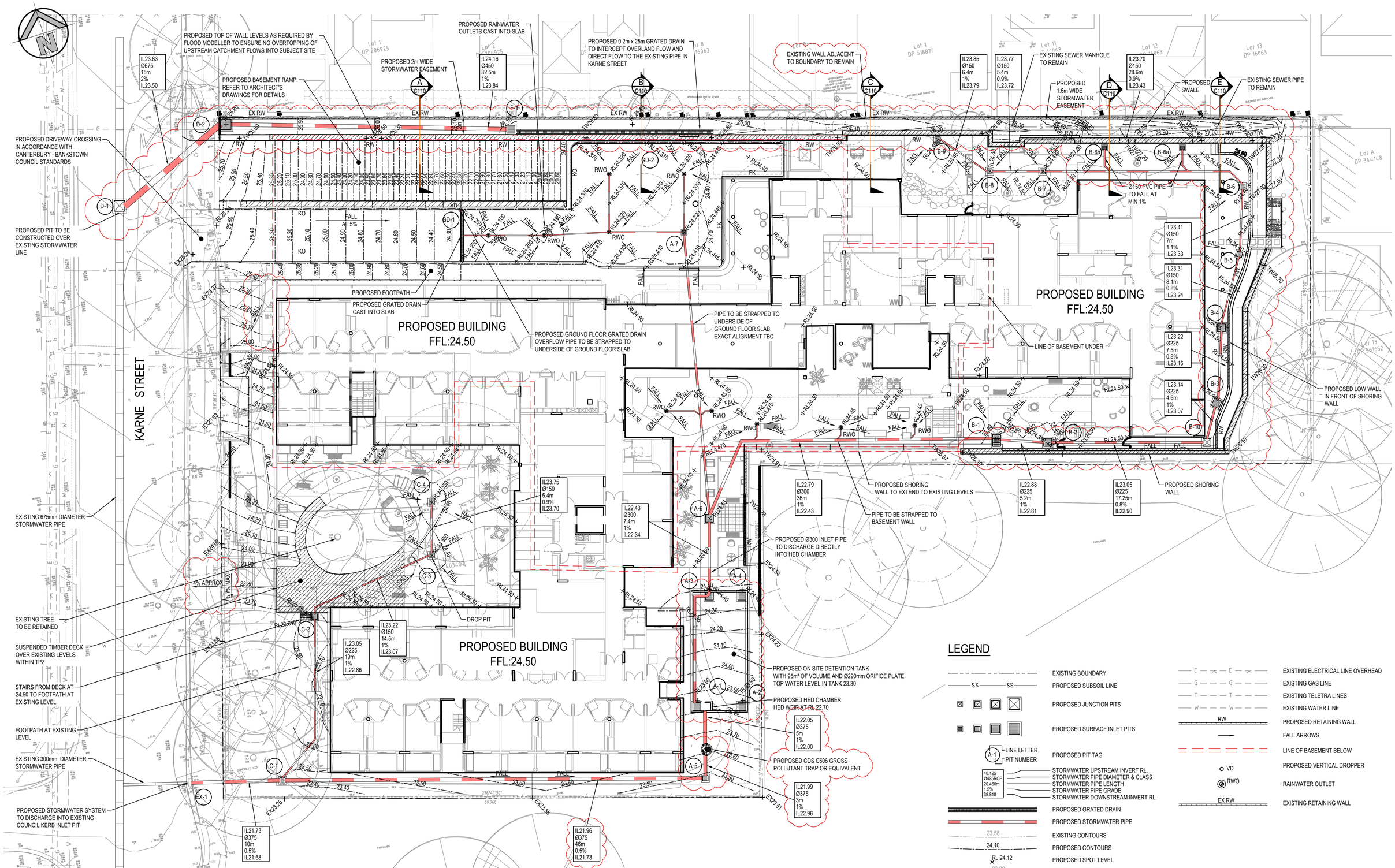
Project: NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

Title: COVER SHEET, DRAWING SCHEDULE, NOTES AND LOCALITY SKETCH

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	NTS

Drawing number: 22M21_DA_C000
Revision: 04



DETAIL PLAN - GROUND FLOOR

SCALE: 1:200

0 4 8 12 16 20m

4 3 2 1

SCALE 1:200

LEGEND

- EXISTING BOUNDARY
- PROPOSED SUBSOIL LINE
- PROPOSED JUNCTION PITS
- PROPOSED SURFACE INLET PITS
- PROPOSED PIT TAG (A-1: LINE LETTER, PIT NUMBER)
- STORMWATER UPSTREAM INVERT RL. (40.125)
- STORMWATER PIPE DIAMETER & CLASS (Ø425RCP)
- STORMWATER PIPE LENGTH (20.450m)
- STORMWATER PIPE GRADE (1.5%)
- STORMWATER DOWNSTREAM INVERT RL. (39.818)
- PROPOSED GRATED DRAIN
- PROPOSED STORMWATER PIPE
- EXISTING CONTOURS (23.58)
- PROPOSED CONTOURS (24.10)
- PROPOSED SPOT LEVEL (RL 24.12)
- EXISTING SPOT LEVEL (23.80)
- EXISTING STORMWATER PIPE
- EXISTING ELECTRICAL LINE OVERHEAD
- EXISTING GAS LINE
- EXISTING TELSTRA LINES
- EXISTING WATER LINE
- PROPOSED RETAINING WALL (RW)
- FALL ARROWS
- LINE OF BASEMENT BELOW
- PROPOSED VERTICAL DROPPER (VD)
- RAINWATER OUTLET (RWO)
- EXISTING RETAINING WALL (EX RW)

FOR DA ONLY

SURVEY INFORMATION

SURVEYED BY: VMARK

DATUM: AHD

ORIGIN OF LEVELS: SSM 108411 RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR DA ONLY	MB	NH	04.07.2023
06	ISSUED FOR DA ONLY	SC	NH	30.05.2023
05	ISSUED FOR DA ONLY	MB	NH	27.04.2023
04	ISSUED FOR DA ONLY	NH	NH	19.12.2022
03	ISSUED FOR DA ONLY	MP	AF	05.12.2022
02	ISSUED FOR DA ONLY	IK	AF	29.11.2022
01	ISSUED FOR DA ONLY	MP	NH	25.11.2022
08	ISSUED FOR DA ONLY	MB	NH	07.07.2023

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Architect: GROUP GSA

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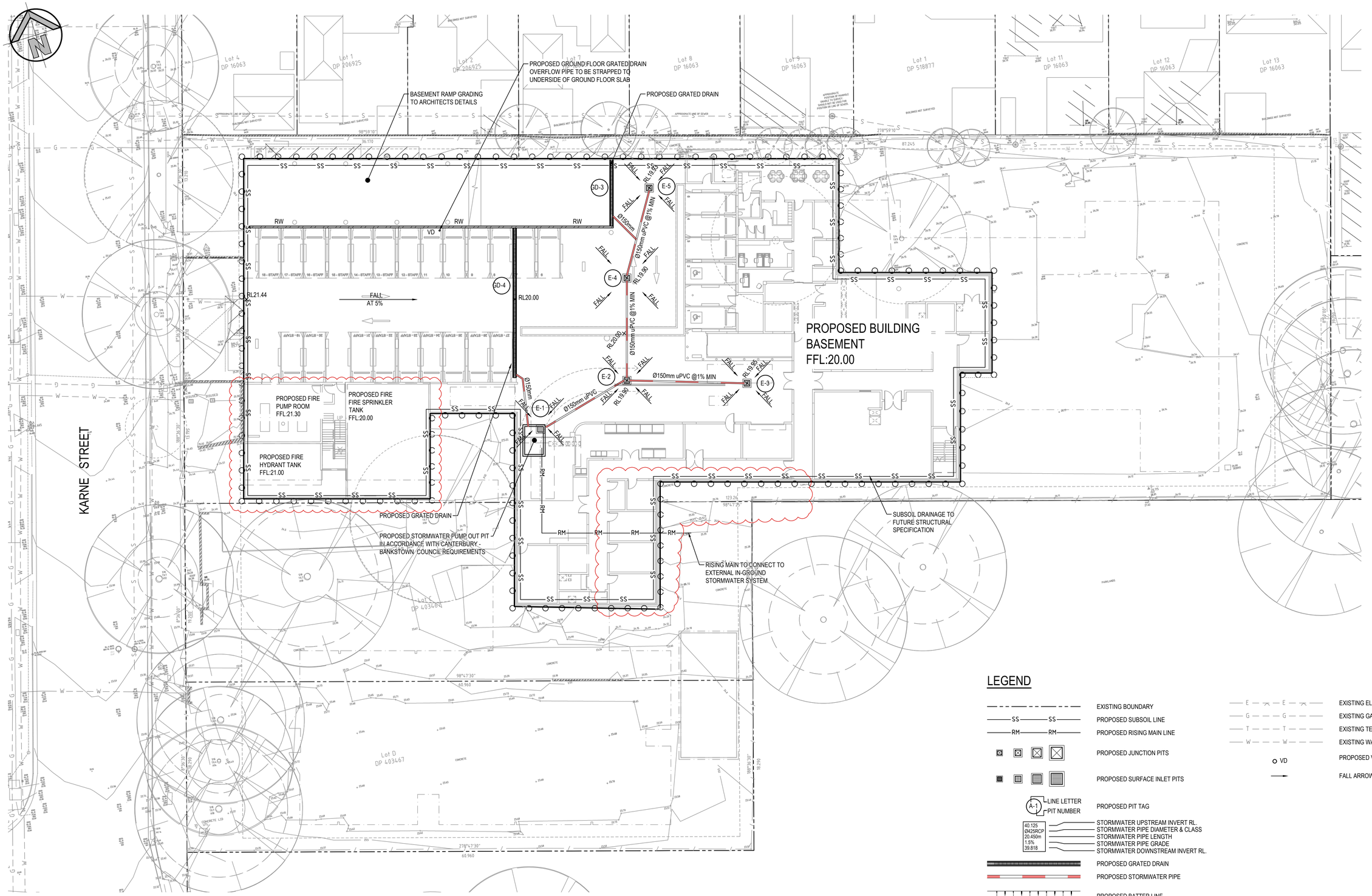
Project: NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

Title: DETAIL PLAN GROUND FLOOR

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	1:200

Drawing number: 22M21_DA_C100

Revision: 08



DETAIL PLAN - BASEMENT

SCALE: 1:200

0 4 8 12 16 20m

4 3 2 1

SCALE 1:200

LEGEND

- EXISTING BOUNDARY
- PROPOSED SUBSOIL LINE (SS)
- PROPOSED RISING MAIN LINE (RM)
- PROPOSED JUNCTION PITS
- PROPOSED SURFACE INLET PITS
- PROPOSED PIT TAG (LINE LETTER / PIT NUMBER, e.g. A-1)
- STORMWATER UPSTREAM INVERT RL. (e.g. 40.125)
- STORMWATER PIPE DIAMETER & CLASS (e.g. Ø425RCP)
- STORMWATER PIPE LENGTH (e.g. 20.450m)
- STORMWATER PIPE GRADE (e.g. 1.5%)
- STORMWATER DOWNSTREAM INVERT RL. (e.g. 39.818)
- PROPOSED GRATED DRAIN
- PROPOSED STORMWATER PIPE
- PROPOSED BATTER LINE
- EXISTING CONTOURS (23.58)
- PROPOSED CONTOURS (24.10)
- PROPOSED SPOT LEVEL (RL 24.12)
- EXISTING SPOT LEVEL (23.80)
- EXISTING ELECTRICAL LINE OVERHEAD (E)
- EXISTING GAS LINE (G)
- EXISTING TELSTRA LINES (T)
- EXISTING WATER LINE (W)
- PROPOSED VERTICAL DROPPER (VD)
- FALL ARROWS

FOR DA ONLY

SURVEY INFORMATION
SURVEYED BY: VMARK
DATUM: AHD
ORIGIN OF LEVELS:
SSM 108411
RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR DA ONLY	MB	NH	04.07.2023
04	ISSUED FOR DA ONLY	MB	NH	27.04.2023
03	ISSUED FOR DA ONLY	MP	AF	05.12.2022
02	ISSUED FOR DA ONLY	MS	AF	29.11.2022
01	ISSUED FOR DA ONLY	MP	NH	25.11.2022

Client: OPAL HEALTHCARE
Architect: GROUP GSA

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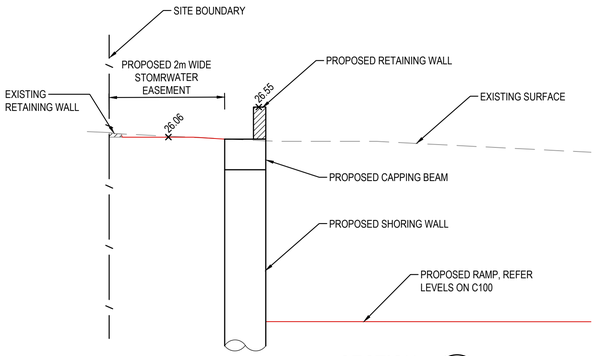
henry&hymas

Project: NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

Title: DETAIL PLAN
BASEMENT

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	1:200

Drawing number: 22M21_DA_C101
Revision: 05



SECTION A
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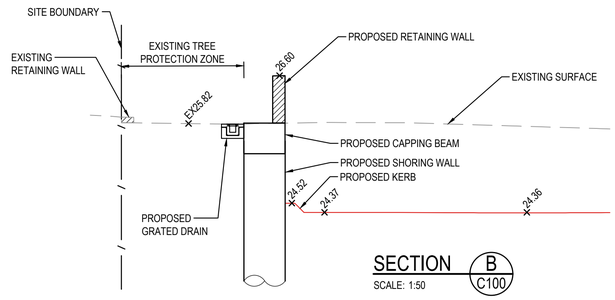
C100



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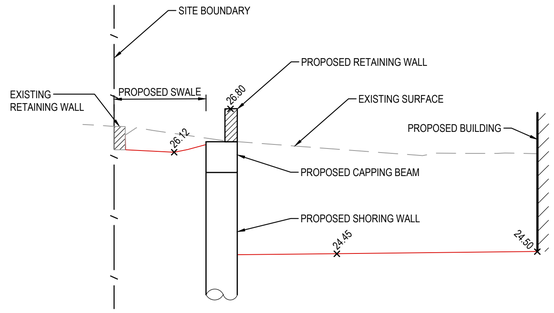

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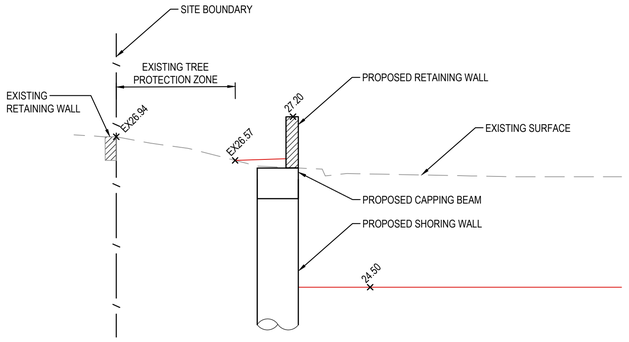

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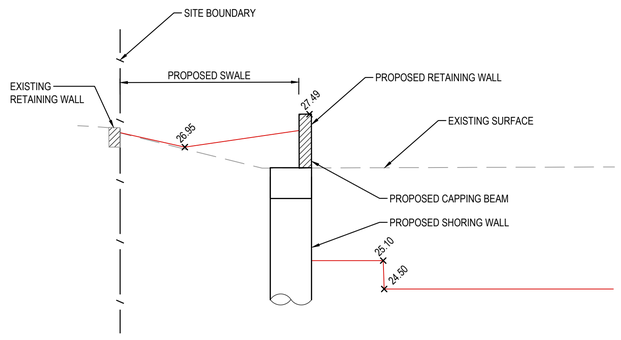

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02

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

FOR DA ONLY

SURVEY INFORMATION
SURVEYED BY: VMARK
DATUM: AHD
ORIGIN OF LEVELS:
SSM 108411
RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR DA ONLY	SC	NH	30.05.2023
01	ISSUED FOR DA ONLY	MB	NH	27.04.2023

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Project
NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

Title
TYPICAL SECTIONS

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	1:50

Drawing number
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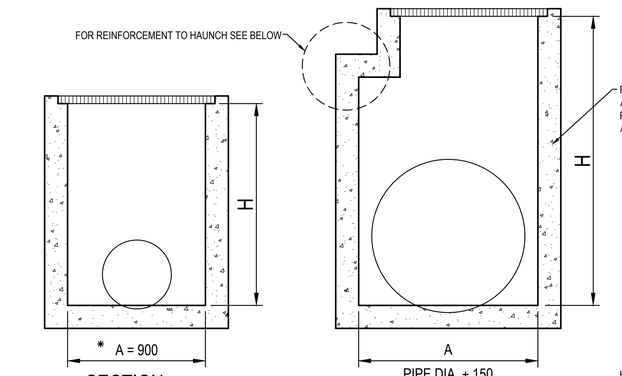
Revision
02

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

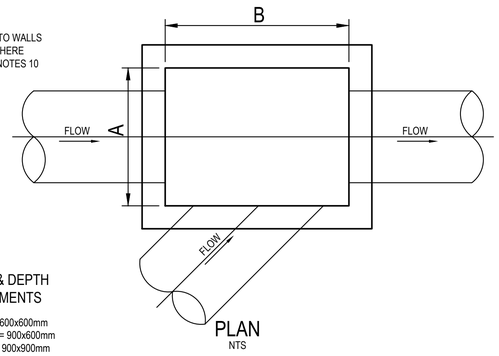
1 PIT CHAMBER FOR PIPES GREATER THAN 600 DIA.

FOR REINFORCEMENT TO WALLS AND FLOOR OF PITS (WHERE REQUIRED) REFER TO NOTES 10 AND 20.

2 PIT SIZE & DEPTH REQUIREMENTS

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

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



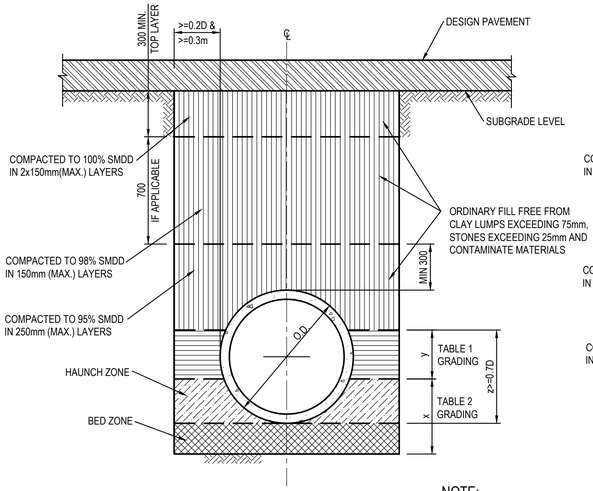
PLAN
NTS

3 PIT CHAMBER FOR SIDE ENTRY ON SKEW

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

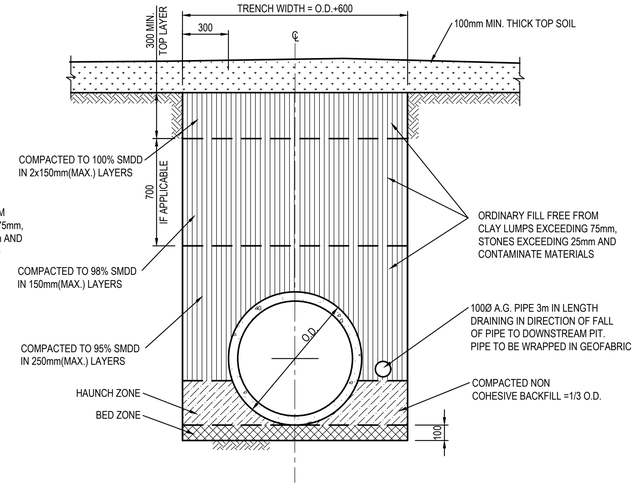
TABLE 3				
SUPPORT TYPE	BED ZONE X	HAUNCH ZONE Y	BED AND HAUNCH ZONES COMPACTION	MAX BEDDING FACTOR
HS1	100 IF D<=1500, OR 150 IF D>=1500	0.1D	50	2.0
HS2		0.3D	60	2.5
HS3		0.3D	70	4.0



PIPE TRENCH INSTALLATION BENEATH PAVEMENT

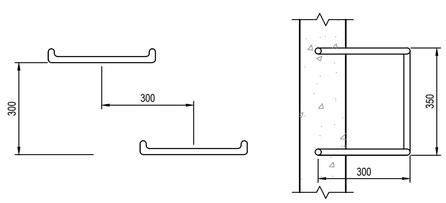
(HS SUPPORT TO BE USED UNDER ROADWAY)
SCALE 1:20

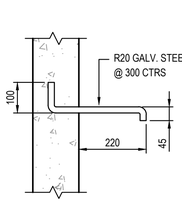
NOTE:
TYPE HS2 TO BE USED AS A TYPICAL SUPPORT FOR TRENCHES UNDER ROADWAY UNLESS SPECIFIED SEPERATELY



PIPE TRENCH INSTALLATION IN LANDSCAPE AREAS

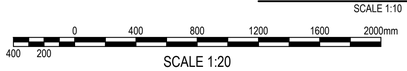
(H1 & H2 SUPPORT)
SCALE 1:20





TYPICAL STEP IRON DETAIL

SCALE 1:10



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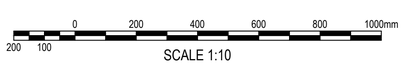

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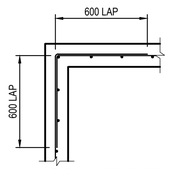
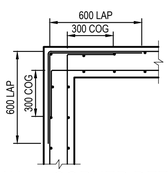


150 WALL - CORNER DETAIL

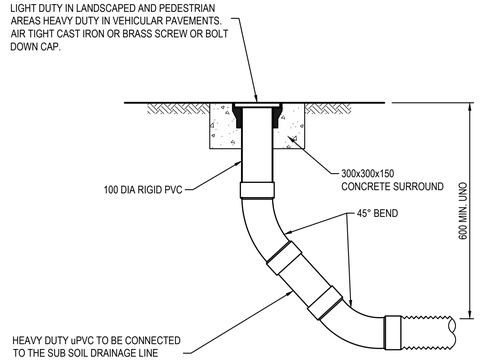
SCALE 1:20



200 WALL - CORNER DETAIL

SCALE 1:20

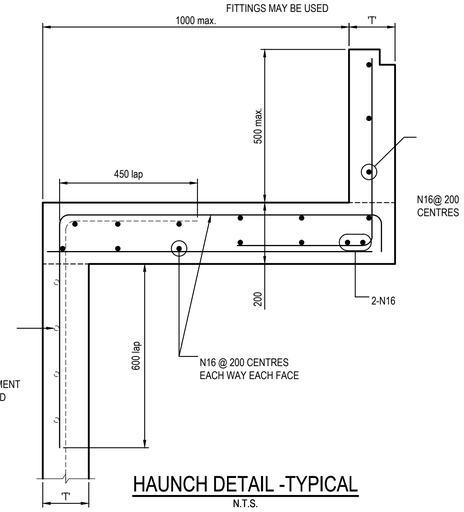
LIGHT DUTY IN LANDSCAPED AND PEDESTRIAN AREAS HEAVY DUTY IN VEHICULAR PAVEMENTS. AIR TIGHT CAST IRON OR BRASS SCREW OR BOLT DOWN CAP.



FLUSHING POINT (FP)

SCALE 1:10

NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



PIT REINFORCMENT SHOWN DOTTED

HAUNCH DETAIL -TYPICAL

N.T.S.

PIT LID SCHEDULE

PIT/STRUCTURE NUMBER	DESCRIPTION
A-1 A-2 A-3 A-4	PROPOSED INLET PIT WITH 900x900 HINGED LIGHT DUTY GRATED LID CLASS "B" WITHIN OSD TANK IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
A-6 B-1 B-2 B-3 B-4	PROPOSED INLET PIT WITH 900x900 HINGED LIGHT DUTY GRATED LID CLASS "B" IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
C-1 C-2 C-3 C-4 B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 A-5 A-6 A-7 E-1 E-2 E-3 E-4 E-5	PROPOSED INLET PIT WITH 600x600 HINGED LIGHT DUTY GRATED LID CLASS "B" IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
05 B-6a B-6b	PROPOSED INLET PIT WITH 450x450 HINGED LIGHT DUTY GRATED LID CLASS "B" IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
GD-1 GD-3 GD-4	PROPOSED 225mm WIDE LIGHT DUTY GRATED DRAIN CLASS "B" IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
B-10	PROPOSED JUNCTION PIT WITH 900x900 LIGHT DUTY SEALED LID CLASS "B", IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
D-2	PROPOSED INLET PIT WITH 900x900 HINGED LIGHT DUTY GRATED LID CLASS "C" IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
D-1	PROPOSED JUNCTION PIT WITH 900x900 HEAVY DUTY SEALED LID CLASS "D", IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
05 F-1	PROPOSED INLET PIT WITH 900x900 HINGED MEDIUM DUTY GRATED LID CLASS "C" IN ACCORDANCE WITH CANTERBURY BANKSTOWN COUNCIL REQUIREMENT.
GD-2	PROPOSED 200m WIDE GRATED DRAIN.
EX-1	EXISTING KERB INLET PIT.

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 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.

FOR DA ONLY

SURVEY INFORMATION
SURVEYED BY: VMARK
DATUM: AHD
ORIGIN OF LEVELS:
SSM 108411
RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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Project: NARWEE PARKLANDS CARE COMMUNITY
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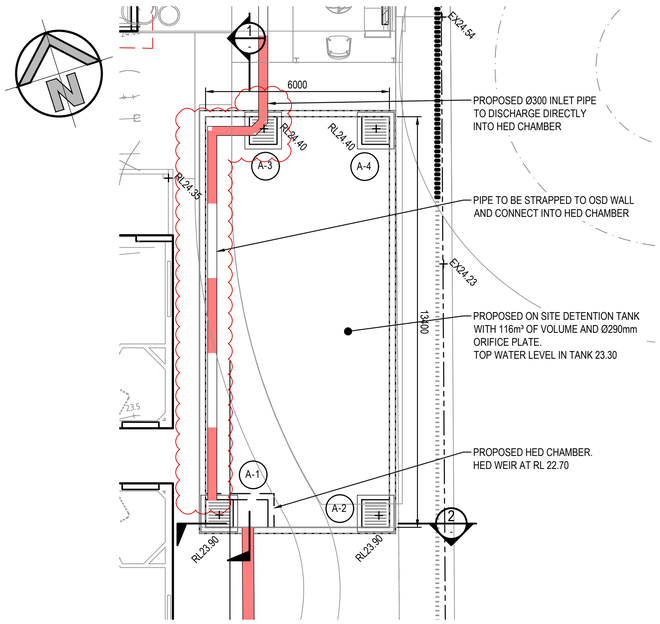
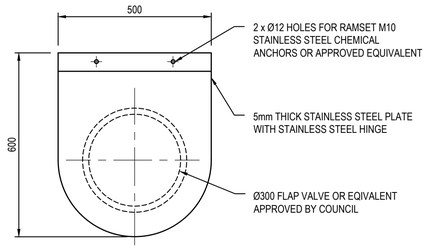
Drawn	Designed	Date
M.Pereira	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	NTS

Title: STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE
Drawing number: 22M21_DA_C200
Revision: 05



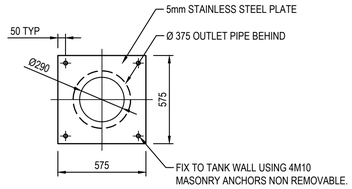
OSD TANK PLAN

SCALE: 1:100



FLAP VALVE DETAIL

SCALE 1:10



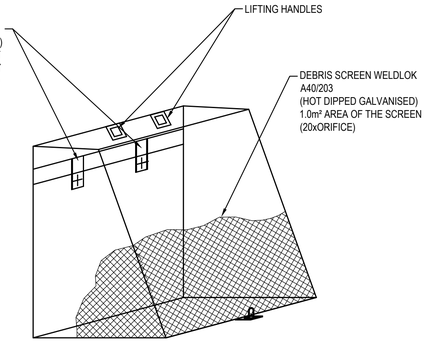
ORIFICE PLATE DETAIL

SCALE 1:20

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 - REFER UPRCT SECTION 4-13

MAXIMESH RH3030 IS RECOMMENDED FOR ORIFICES LESS THAN 150mm IN DIAMETER AND SCREEN AREA 50xTHE ORIFICE AREA.



DEBRIS SCREEN DETAIL

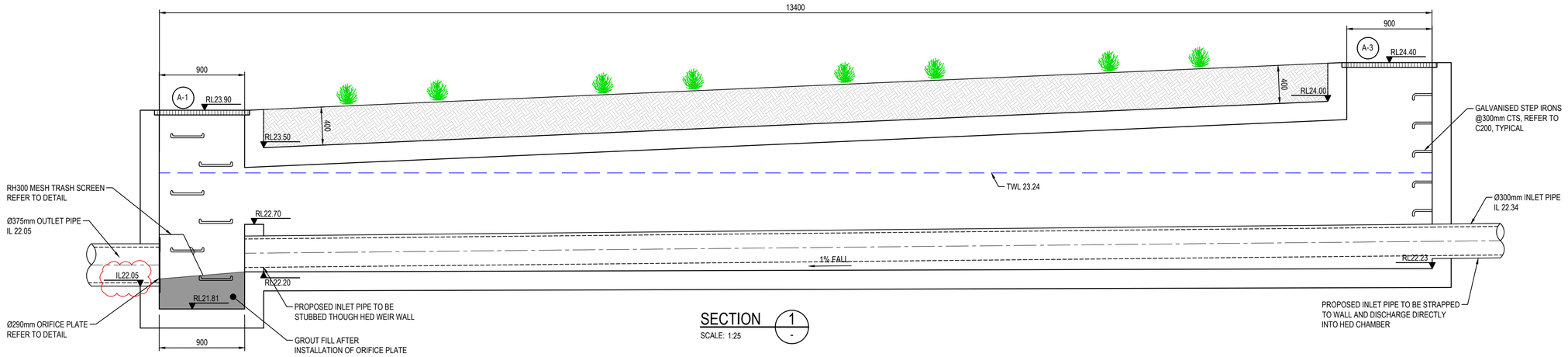
NOT TO SCALE
ALL STEEL TO BE HOT DIPPED GALVANISED

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: 250mm x 180mm ENTRIES I.E.. GRATES, MANHOLES

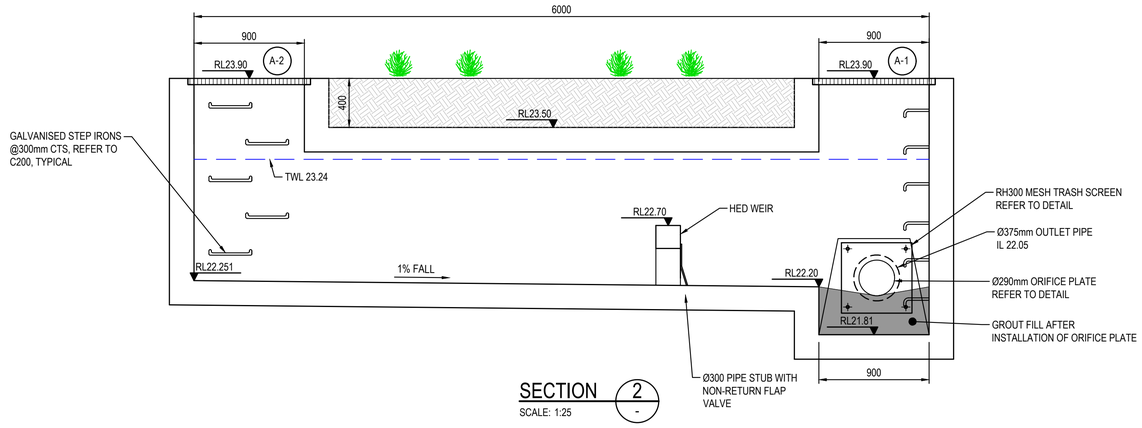
C) SIGN SHALL BE MANUFACTURED FROM COLOUR BONDED METAL OR POLYPROPYLENE

D) SIGN SHALL BE AFFIXED TO A SURFACE WITH SCREWS AT EACH CORNER.



SECTION 1

SCALE: 1:25



SECTION 2

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

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

FOR DA ONLY

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SSM 108411
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Project
NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

Title
OSD PLAN, DETAILS AND SECTIONS

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	AS NOTED

Drawing number
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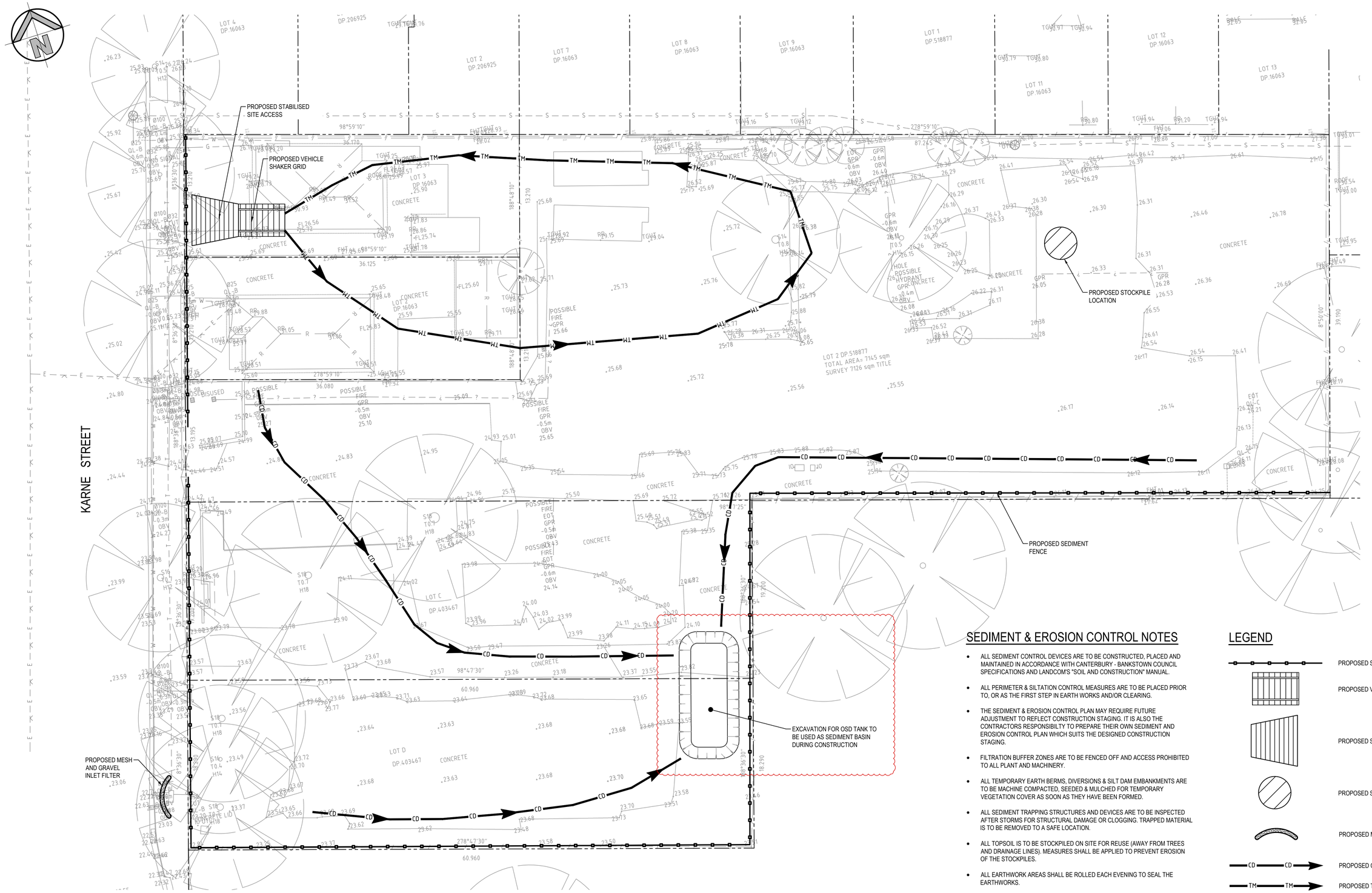
Revision
04



SEDIMENT AND EROSION CONTROL PLAN

SCALE: 1:200

0 4 8 12 16 20m

4 3 2 1

SCALE 1:200

SEDIMENT & EROSION CONTROL NOTES

- ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH CANTERBURY - BANKSTOWN 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.
- 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.

LEGEND

- PROPOSED SEDIMENTATION FENCE
- PROPOSED VEHICLE SHAKER GRID
- PROPOSED STABILISED SITE ACCESS
- PROPOSED STOCKPILE LOCATION
- PROPOSED MESH & GRAVEL INLET FILTER
- CD CD — PROPOSED CATCH DIVERSION DRAIN
- TM TM — PROPOSED TRAFFIC MANOEUVRING

FOR DA ONLY

SURVEY INFORMATION

SURVEYED BY: VMARK

DATUM: AHD

ORIGIN OF LEVELS:

SSM 108411

RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR DA ONLY	MB	NH	27.04.2023
02	ISSUED FOR DA ONLY	MP	NH	05.12.2022
01	ISSUED FOR DA ONLY	MP	NH	25.11.2022

Client: OPAL HEALTHCARE

Architect: GROUP GSA

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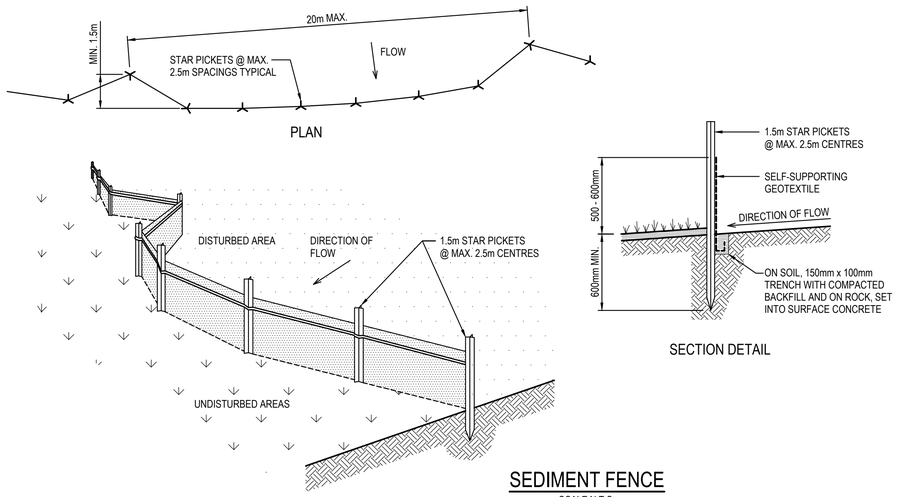
Project: NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

Title: SEDIMENT AND EROSION CONTROL PLAN

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	1:200

Drawing number: 22M21_DA_SE01

Revision: 03

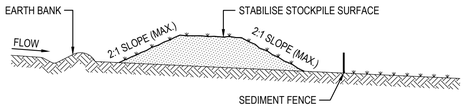


SEDIMENT FENCE

SCALE N.T.S.

SEDIMENT FENCE CONSTRUCTION NOTES:

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

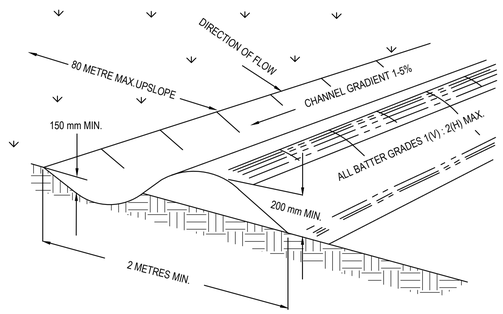


STOCKPILE CONSTRUCTION NOTES:

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.



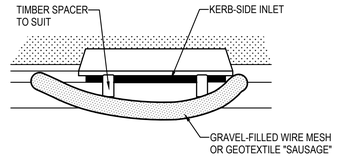
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAC.UPSLOPE LENGTH IS 80 METERS.

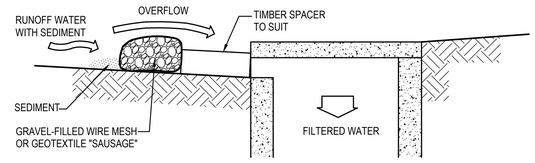
CATCH DRAIN CONSTRUCTION NOTES:

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 SD 5-8

SCALE N.T.S.



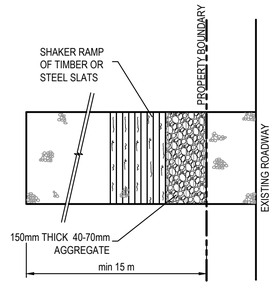


MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

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

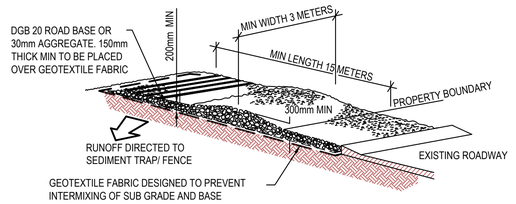
SCALE N.T.S.



PLAN
STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

CONSTRUCTION SITE



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

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

STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

NOTES:

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

FOR DA ONLY

SURVEY INFORMATION
SURVEYED BY: VMARK
DATUM: AHD
ORIGIN OF LEVELS:
SSM 108411
RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
03	ISSUED FOR DA ONLY	MB	NH	27.04.2023
02	ISSUED FOR DA ONLY	MP	NH	05.12.2022
01	ISSUED FOR DA ONLY	MP	NH	25.11.2022

Client: OPAL HEALTHCARE
Architect: GROUP GSA

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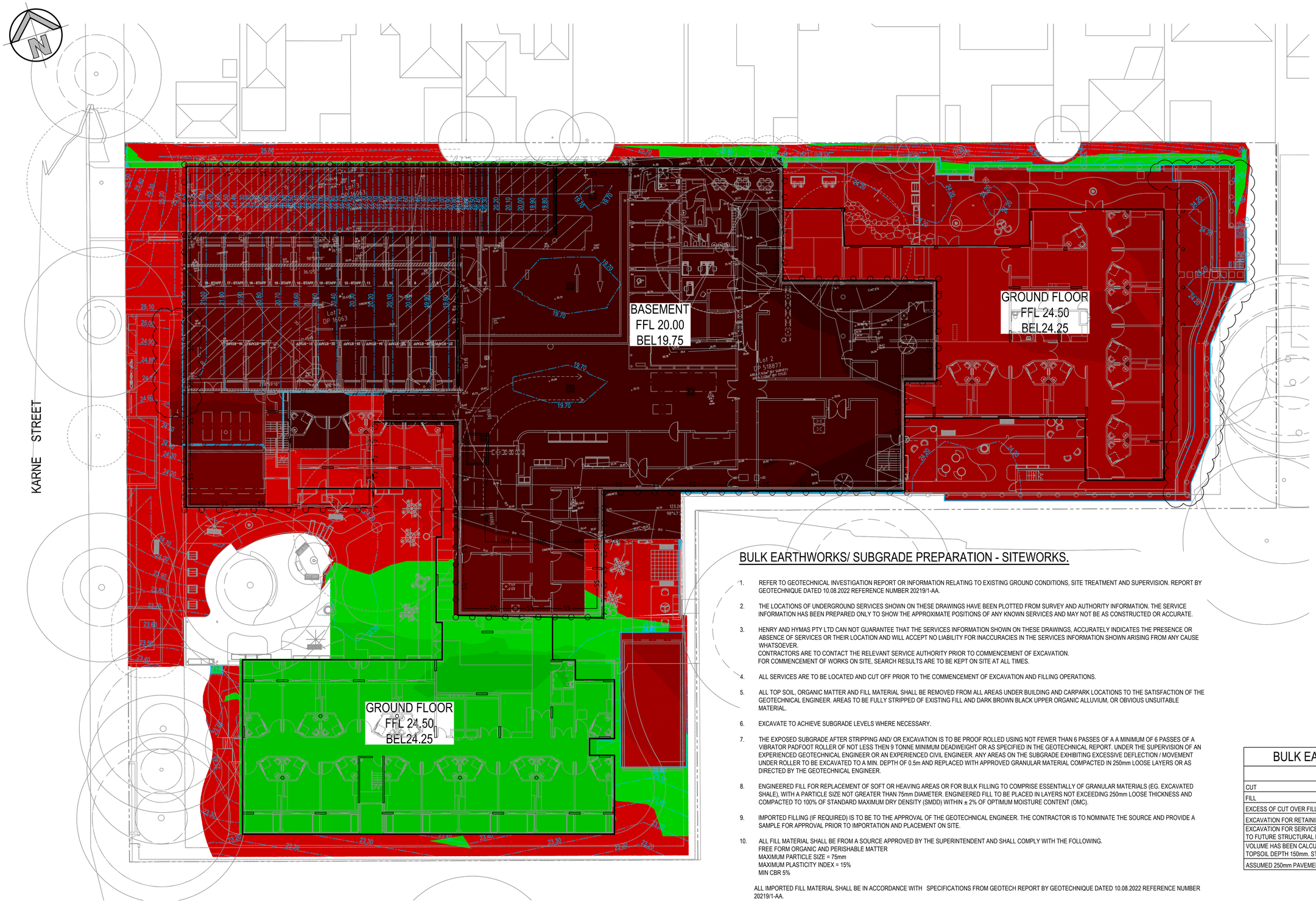
Project: NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

Title: SEDIMENT AND EROSION CONTROL TYPICAL DETAILS

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	N.T.S.

Drawing number: 22M21_DA_SE02
Revision: 03



BULK EARTHWORKS CUT AND FILL PLAN

SCALE: 1:200

0 4 8 12 16 20m

4 3 2 1

SCALE 1:200

LEGEND

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

LEGEND

21.00 CONTOURS BE

BULK EARTHWORKS/ SUBGRADE PREPARATION - SITEWORKS.

1. REFER TO GEOTECHNICAL INVESTIGATION REPORT OR INFORMATION RELATING TO EXISTING GROUND CONDITIONS, SITE TREATMENT AND SUPERVISION. REPORT BY GEOTECHNIQUE DATED 10.08.2022 REFERENCE NUMBER 20219/1-AA.
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 6 PASSES OF A A MINIMUM OF 6 PASSES OF A VIBRATOR PADFOOT ROLLER OF NOT LESS THEN 9 TONNE MINIMUM DEADWEIGHT OR AS SPECIFIED IN THE GEOTECHNICAL REPORT. 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 GEOTECHNIQUE DATED 10.08.2022 REFERENCE NUMBER 20219/1-AA.
11. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH GEOTECH REPORT BY GEOTECHNIQUE DATED 10.08.2022 REFERENCE NUMBER 20219/1-AA.
12. IN-SITU DENSITY TESTING AND SUPERVISION MUST BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED WITHIN GEOTECH REPORT BY GEOTECHNIQUE DATED 10.08.2022 REFERENCE NUMBER 20219/1-AA.

BULK EARTHWORKS QUANTITIES

TOTAL AREA (6409m²)

CUT	17363	m³
FILL	709	m³
EXCESS OF CUT OVER FILL	16654	m³

EXCAVATION FOR RETAINING WALLS HAS BEEN ESTIMATED IN CALCULATION

EXCAVATION FOR SERVICE TRENCHES NOT INCLUDED IN CALCULATION BUT SUBJECT TO FUTURE STRUCTURAL DESIGN

VOLUME HAS BEEN CALCULATED AFTER STRIPPING THE SITE OF TOPSOIL - ASSUMED TOPSOIL DEPTH 150mm. STRIPPED MATERIAL NOT INCLUDED IN ABOVE QUANTITIES

ASSUMED 250mm PAVEMENT SET DOWN

FOR DA ONLY

SURVEY INFORMATION
SURVEYED BY: VMARK
DATUM: AHD
ORIGIN OF LEVELS:
SSM 108411
RL 27.054

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
07	ISSUED FOR DA ONLY	MB	NH	07.07.2023
06	ISSUED FOR DA ONLY	MB	NH	04.07.2023
05	ISSUED FOR DA ONLY	SC	NH	26.05.2023
04	ISSUED FOR DA ONLY	IK	NH	27.04.2023
03	ISSUED FOR DA ONLY	IK	AF	05.12.2022
02	ISSUED FOR DA ONLY	IK	AF	29.11.2022
01	ISSUED FOR DA ONLY	IK	NH	25.11.2022

Client: OPAL HEALTHCARE

Architect: GROUP GSA

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Project: NARWEE PARKLANDS CARE COMMUNITY
59-67 KARNE STREET, NORTH NARWEE, NSW

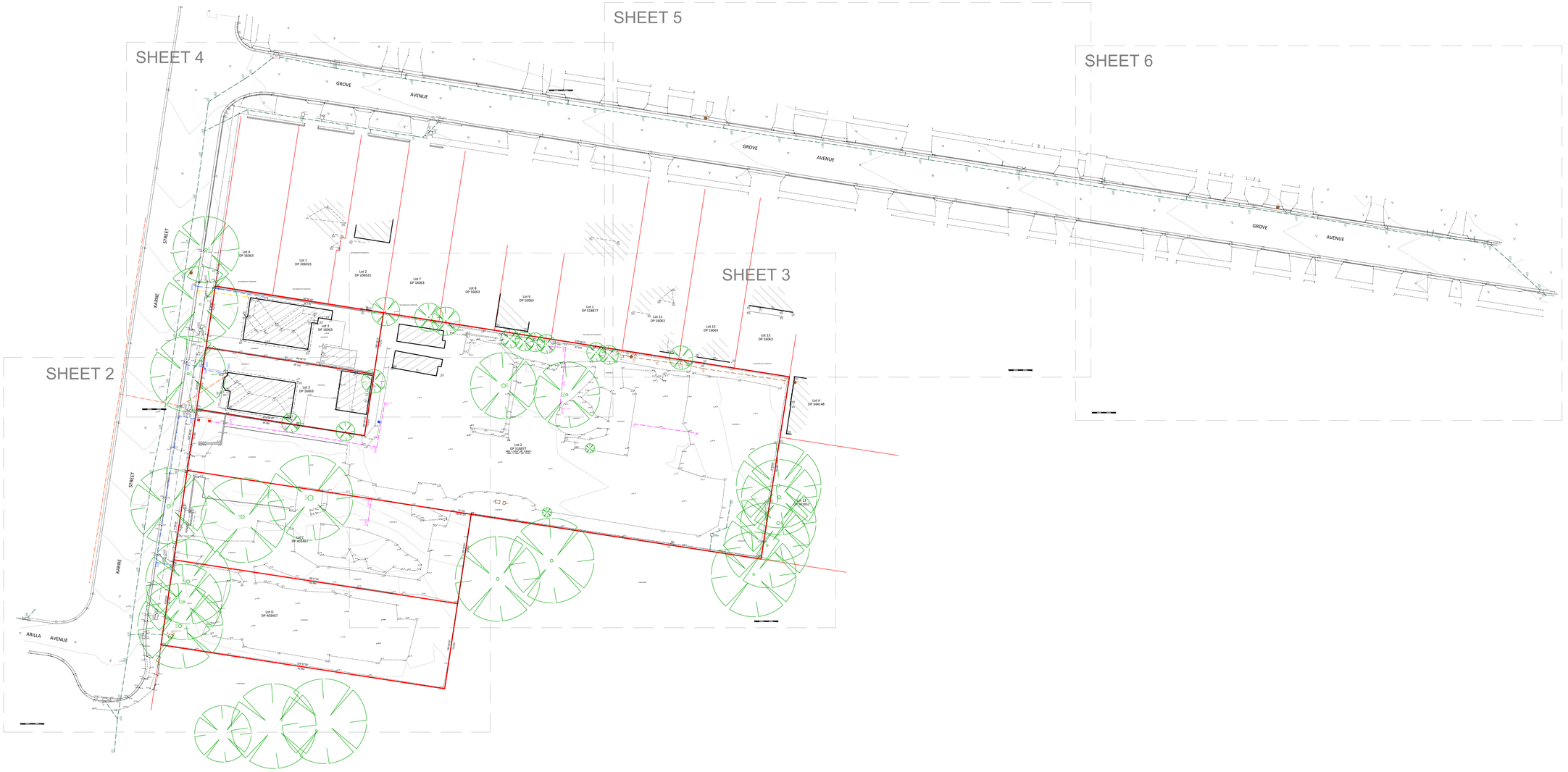
Title: BULK EARTHWORKS CUT AND FILL PLAN

Drawn	Designed	Date
S.Chen	N.Heazlewood	AUG 2022
Checked	Approved	Scale @A1
N.Heazlewood	A.Francis	1:200

Drawing number: 22M21_DA_BE01

Revision: 07

APPENDIX B – SURVEY



NOTES

- BOUNDARIES HAVE BEEN DEFINED BY SURVEY
- WALL TO BOUNDARY DIMENSIONS MUST NOT BE USED FOR CONSTRUCTION
- IF CONSTRUCTION ON OR NEAR BOUNDARIES IS REQUIRED IT IS RECOMMENDED THAT THE BOUNDARIES OF THE LAND BE MARKED.
- TREE SIZES ARE ESTIMATES ONLY.
- THIS PLAN HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF **CYRE PROJECTS**.
- RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES IS DIAGRAMMATIC ONLY. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY.
- EXCEPT WHERE SHOWN BY DIMENSION LOCATION OF DETAIL WITH RESPECT TO BOUNDARIES IS INDICATIVE ONLY.
- THIS SURVEY IS RELATED TO MGA2020 56 HORIZONTAL GRID AND AHD71 HEIGHT DATUM.
- CRITICAL SPOT LEVELS SHOULD BE CONFIRMED WITH SURVEYOR.
- THIS PLAN IS ONLY TO BE USED FOR THE PURPOSE OF PLANNING A DEVELOPMENT.
- CONTOURS SHOWN DEPICT THE TOPOGRAPHY. THEY DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- CONTOUR INTERVAL - 0.5 metre. - SPOT LEVELS SHOULD BE ADOPTED.
- POSITION OF RIDGE LINES ARE DIAGRAMMATIC ONLY (NOT TO SCALE).
- THE INFORMATION IS ONLY TO BE USED AT A SCALE ACCURACY OF 1:100.
- DO NOT SCALE OFF THIS PLAN / FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED READINGS.
-
- THIS DRAWING IS ONLY VALID FOR 28 DAYS AFTER THE DATE OF LOCATING
- UTILITIES HAVE BEEN LOCATED USING ELECTROMAGNETIC LOCATING AND GPR EQUIPMENT
- AS-5488-2022 QUALITY LEVELS HAVE BEEN ADOPTED
- ALL UTILITIES NEED TO BE POTHOLED TO VERIFY LOCATION AND DEPTH BEFORE CARRYING OUT ANY CONSTRUCTION WORKS
- LEVELS OF SURVEYED OBSERVATIONS ARE AT GROUND LEVEL UNLESS NOTED OTHERWISE
- NOTATION "-0.65m INV QL-B" REPRESENTS A QUALITY LEVEL B DEPTH TO THE INVERT OF A SERVICE AS PER AS-5488-2022 AND APPLIES TO THE POINT AND NOT THE LINE
- ALL DEPTHS & QUALITY LEVELS APPLY TO THE POINT AND NOT THE LINE. ACTUAL POSITION OF SERVICES MAY VARY SUBSTANTIALLY BETWEEN SURVEYED POINTS
- DIAMETERS AND MATERIALS HAVE BEEN OBTAINED FROM BYDA DRAWINGS UNLESS QL-A
- UTILITIES HAVE BEEN SURVEYED USING TOTAL STATIONS
- PLEASE REFER TO CCTV/SITE REPORT REPORT FOR FURTHER DETAILS ABOUT SERVICE LOCATION
- THIS SURVEY IS RELATED TO GDA2020 56 HORIZONTAL AND AHD71 HEIGHT DATUM
- THERE MAY BE SOME UNCERTAINTY AROUND SOME OF THE LOCATING AND WE RECOMMEND NON DESTRUCTIVE EXCAVATION
- THIS DRAWING IS DESIGNED TO REDUCE RISK NOT ELIMINATE RISK
- THIS DRAWING DOES NOT REPLACE BYDA INFORMATION AND EACH UTILITY OWNERS DUTY OF CARE NEEDS TO BE CONSULTED BEFORE EXCAVATION
- THESE NOTES MUST NOT BE REMOVED

LINETYPES

WATERMAIN
ELECTRICITY
OVERHEAD ELECTRICITY
TELECOMMUNICATIONS
GAS
GAS (HP/O)
SEWER
STORMWATER
NBN LINE
OPTUS LINE
OPTICAL FIBRE LINE
NEXT GEN LINE
FUEL LINE
UNKNOWN
TPG
FIRE
AAPT
COMMS
FENCE

SYMBOLS

- FIRE HOSE REEL
- FX FIRE EXTINGUISHER
- TAP
- WATER METER
- HYDRANT
- VALVE
- GAS METER
- GAS MARKER
- BENCH MARK
- TREE - S12 TO 5 H10 (SPREAD TRUNK HEIGHT)

ANNOTATION

DP	- DOWN PIPE	LP	- LIGHT POLE
FHT	- FENCE HEIGHT	MH	- MANHOLE
FL	- FLOOR LEVEL	OBV	- OBVERT
GL	- GROUND LEVEL	PP	- POWER POLE
GY	- GULLY PIT	RR	- ROOF RIDGE
INV	- INVERT	SMH	- SEWER MANHOLE
IO	- INSPECTION OPENING (SEWER)	UTL	- UNABLE TO LIFT
IOS	- INSPECTION OPENING (STORMWATER)	UTT	- UNABLE TO TRACE
KBI	- KERB INVERT	TGUT	- TOP OF GUTTER
LH	- SEWER LAMPHOLE	WHT	- WALL HEIGHT

QL-B
-0.65m INV
GL10.56

SERVICE LOCATED TO QUALITY LEVEL B
0.65m DEPTH TO INVERT
GROUND LEVEL 10.56

QUALITY LEVEL RISK MATRIX

CERTAINTY ⟶ / RISK ⟶

- QL-A — MEASURED DIRECTLY TO UTILITY
- QL-B — ELECTRONIC TRACING OF UTILITY
- QL-C — ALIGNED TO SURFACE FEATURES
- QL-D — ESTIMATED FROM EXISTING DRAWINGS

Rev	Drn	Revision/Issue	Ref. No	Date
D	DJB	STORMWATER EXTENDED	207288	17/11/22
C	CH	STORMWATER ADDED	207192	13/10/22
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V-MARK SURVEY PTY LTD
19/ 75 PACIFIC HIGHWAY
WAITARA NSW 2077
PH : 02 9016 4235
EMAIL : dave@vmarksurvey.com.au
ABN : 12 109 067 950

I, Gary Skow, a surveyor registered under the Surveying and Spatial Information Act 2002, certify that:

The boundaries shown in this plan was surveyed in accordance with the Surveying and Spatial Information Regulation 2017, is accurate for the purposes of a development application and the survey was completed on 05/05/22.

Signature:

Dated: 17/05/22
Surveyor Identification No:1985
Surveyor registered under
the Surveying and Spatial Information Act 2002

Client Details: CYRE PROJECTS

Project: 59-67 KARNE STREET NARWEE

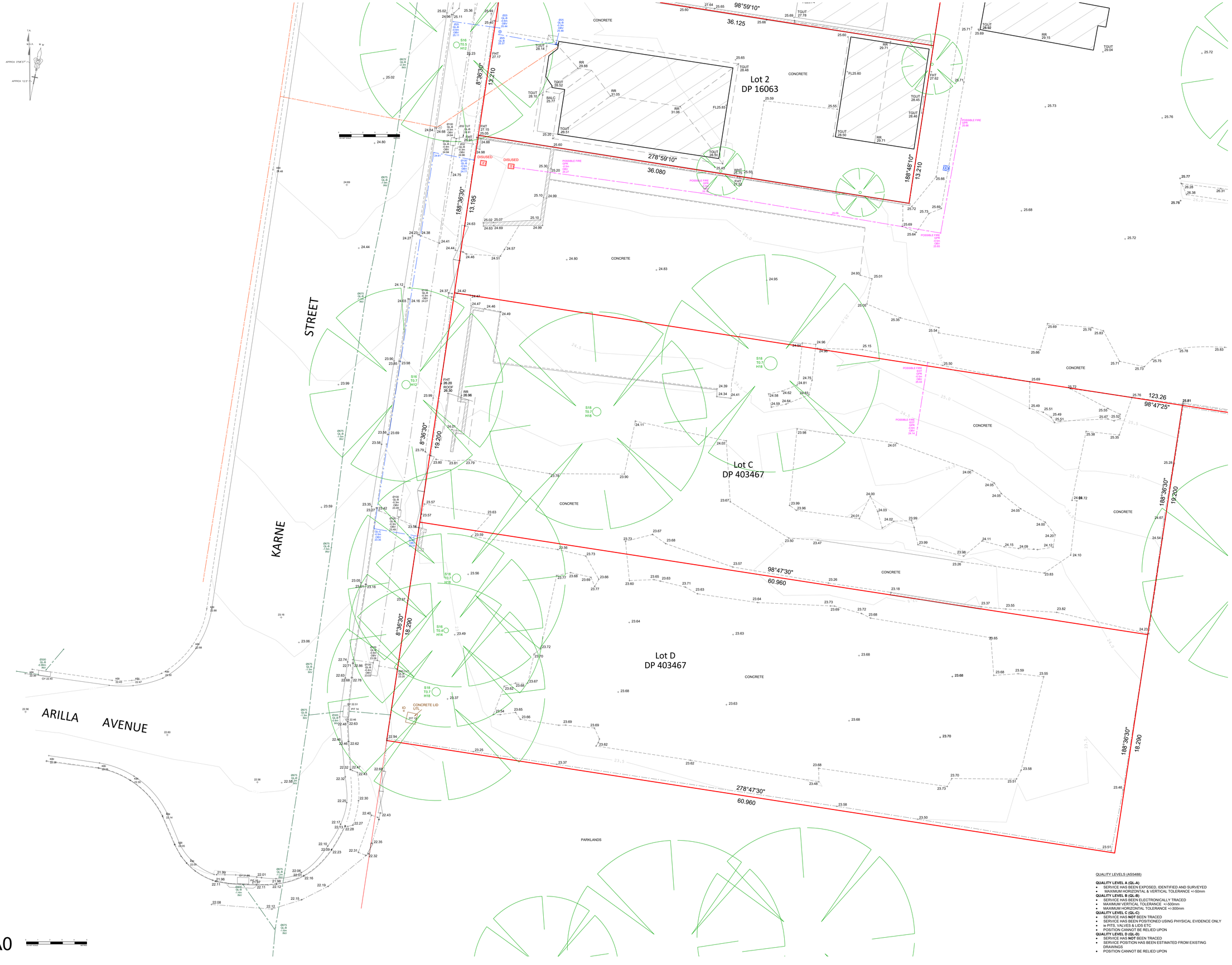
Drawing Title: DETAIL + LEVEL & UTILITIES SURVEY SHEET 1 OF 6

Vertical Datum: DATUM: AHD
BM ADOPTED:SSM 108411
RL: 27.054

Date	Drn	Chk	Proj
MAY 2022	CH	DJB	DJB

Scale	Drawing No.	Rev.
NOT TO SCALE	206455-DL	D

A0



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LINETYPES

WATERMAIN
ELECTRICITY
OVERHEAD ELECTRICITY
TELECOMMUNICATIONS
GAS
GAS (HPOP)
SEWER
STORMWATER
NBN LINE
OPTUS LINE
OPTICAL FIBRE LINE
NEXT GEN LINE
FUEL LINE
UNKNOWN
TPG
FIRE
AAPT
COMMS
FENCE

SYMBOLS

- FIRE HOSE REEL
- FX FIRE EXTINGUISHER
- TAP
- WATER METER
- HYDRANT
- VALVE
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- GAS MARKER
- BENCH MARK
- TREE - S12 T0.5 H10 (SPREAD TRUNK HEIGHT)

ANNOTATION

DP	- DOWN PIPE	LP	- LIGHT POLE
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LH	- SEWER LAMPHOLE	WHT	- WALL HEIGHT

QL-B
-0.65m INV
GL10.56
SERVICE LOCATED TO QUALITY LEVEL B
0.65m DEPTH TO INVERT
GROUND LEVEL 10.56

QUALITY LEVEL RISK MATRIX

CERTAINTY → / RISK ↓	
QL-A	MEASURED DIRECTLY TO UTILITY
QL-B	ELECTRONIC TRACING OF UTILITY
QL-C	ALIGNED TO SURFACE FEATURES
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- MAXIMUM VERTICAL TOLERANCE +/-500mm
- MAXIMUM HORIZONTAL TOLERANCE +/-300mm

QUALITY LEVEL C (QL-C)
- SERVICE HAS **NOT** BEEN TRACED
- SERVICE HAS BEEN POSITIONED USING PHYSICAL EVIDENCE ONLY
- ie PITS, VALVES & LIDS ETC
- POSITION CANNOT BE RELIED UPON

QUALITY LEVEL D (QL-D)
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Drawing Title: DETAIL + LEVEL & UTILITIES SURVEY SHEET 2 OF 6

Vertical Datum: DATUM: AHD
BM ADOPTED:SSM 108411
RL: 27.054

Date	Drn	Chk	Proj
MAY 2022	CH	DJB	DJB

Scale	Drawing No.	Rev.
1:100@A0	206455-DL	D

A0

Lot 2
DP 206925

Lot 7
DP 16063

Lot 8
DP 16063

Lot 9
DP 16063

Lot 1
DP 518877

Lot 11
DP 16063

Lot 12
DP 16063

Lot 13
DP 16063

Lot A
DP 344148

Lot 2
DP 518877
AREA 7,145m² (BY SURVEY)
AREA 7,126m² (BY TITLE)

Lot 13
DP 561652

PARKLANDS

BUILDINGS NOT SURVEYED

CONCRETE

ROOF

DEBRIS

188°48'10" 13.210

278°59'10" 87.245

188°48'10" 13.210

98°47'25" 123.26

188°36'30" 19.200

8°50'00" 39.190

POSSIBLE FIRE HYDRANT

S14 TO.8 H14

S14 TO.5 H14

IO

A0

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SERVICE LOCATED TO QUALITY LEVEL B
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Project
59-67 KARNE STREET NARWEE

Drawing Title
DETAIL + LEVEL & UTILITIES SURVEY
SHEET 3 OF 6

Vertical Datum
DATUM: AHD
BM ADOPTED:SSM 108411
RL: 27.054

Date	Drn	Chk	Pss
MAY 2022	CH	DJB	DJB

Scale	Drawing No.	Rev.
1:100@A0	206455-DL	D

GROVE AVENUE

STREET

KARNE

Lot 4 DP 16063

Lot 1 DP 206925

Lot 2 DP 206925

Lot 3 DP 16063

Lot 7 DP 16063

Lot 8 DP 16063

Lot 9 DP 16063

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BUILDINGS NOT SURVEYED

98°59'10" 36.170

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A0

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QL-B -0.65m INV GL10.56 — SERVICE LOCATED TO QUALITY LEVEL B; 0.65m DEPTH TO INVERT; GROUND LEVEL 10.56

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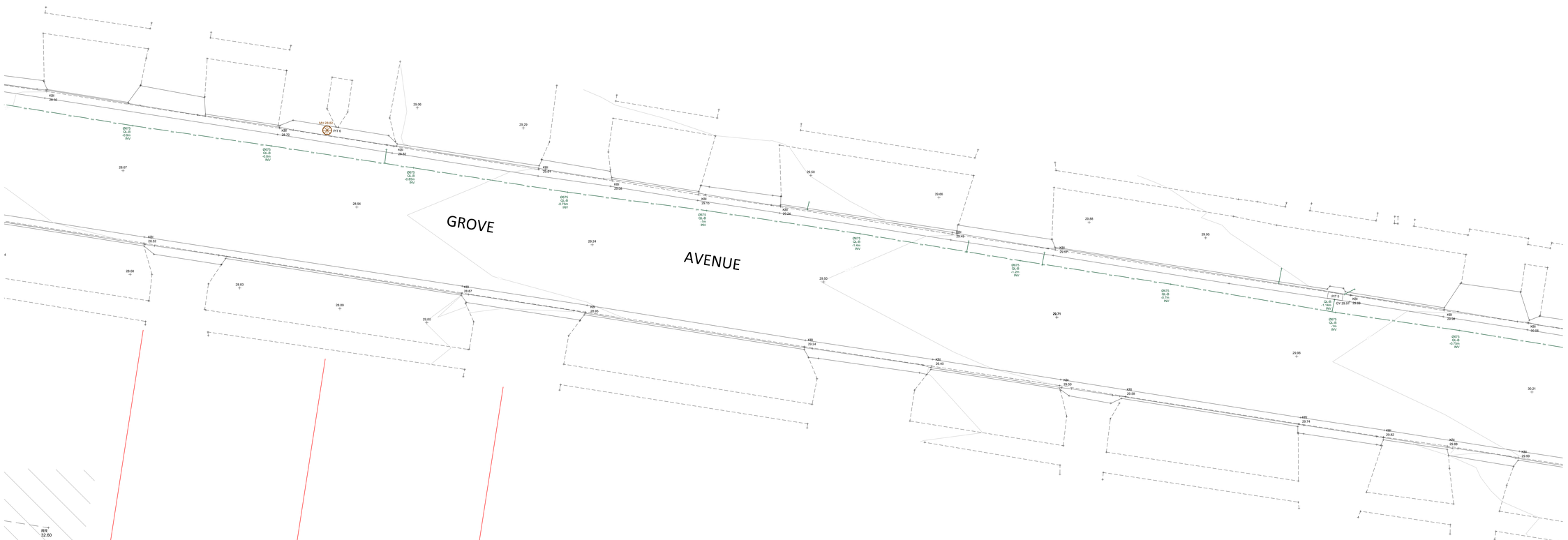

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- DO NOT SCALE OFF THIS PLAN / FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED READINGS.
-
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- AS-5488-2022 QUALITY LEVELS HAVE BEEN ADOPTED
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- THESE NOTES MUST NOT BE REMOVED

LINETYPES

WATERMAIN — W
ELECTRICITY — E
OVERHEAD ELECTRICITY — OHE
TELECOMMUNICATIONS — T
GAS — G
GAS (HPG) — HPG
SEWER — S
STORMWATER — SW
NBN LINE — NBN
OPTUS LINE — OP
OPTICAL FIBRE LINE — OF
NEXT GEN LINE — NEXTG
FUEL LINE — FL
UNKNOWN — UNK
TPG — TPG
FIRE — F
AAPT — AAPT
COMMS — C
FENCE

SYMBOLS

- FIRE HOSE REEL
- FX FIRE EXTINGUISHER
- TAP
- WATER METER
- HYDRANT
- VALVE
- GAS METER
- GAS MARKER
- BENCH MARK
- TREE - S12 T0.5 H10 (SPREAD TRUNK HEIGHT)

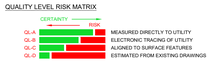
ANNOTATION

DP	- DOWN PIPE	LP	- LIGHT POLE
FHT	- FENCE HEIGHT	MH	- MANHOLE
FL	- FLOOR LEVEL	OBV	- OBVERT
GL	- GROUND LEVEL	PP	- POWER POLE
GY	- GULLY PIT	RR	- ROOF RIDGE
INV	- INVERT	SMH	- SEWER MANHOLE
IO	- INSPECTION OPENING (SEWER)	UTL	- UNABLE TO LIFT
IOS	- INSPECTION OPENING (STORMWATER)	UTT	- UNABLE TO TRACE
KBI	- KERB INVERT	TGUT	- TOP OF GUTTER
LH	- SEWER LAMPHOLE	WHT	- WALL HEIGHT

QL-B
-0.65m INV
GL10.56

SERVICE LOCATED TO QUALITY LEVEL B
0.65m DEPTH TO INVERT
GROUND LEVEL 10.56

QUALITY LEVEL RISK MATRIX



QUALITY LEVELS (AS5488)

QUALITY LEVEL A (QL-A)
- SERVICE HAS BEEN EXPOSED, IDENTIFIED AND SURVEYED
- MAXIMUM HORIZONTAL & VERTICAL TOLERANCE +/-50mm

QUALITY LEVEL B (QL-B)
- SERVICE HAS BEEN ELECTRONICALLY TRACED
- MAXIMUM VERTICAL TOLERANCE +/-500mm.
- MAXIMUM HORIZONTAL TOLERANCE +/-300mm

QUALITY LEVEL C (QL-C)
- SERVICE HAS **NOT** BEEN TRACED
- SERVICE HAS BEEN POSITIONED USING PHYSICAL EVIDENCE ONLY
- ie PITS, VALVES & LIDS ETC
- POSITION CANNOT BE RELIED UPON

QUALITY LEVEL D (QL-D)
- SERVICE HAS **NOT** BEEN TRACED
- SERVICE POSITION HAS BEEN ESTIMATED FROM EXISTING DRAWINGS
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Rev	Drn	Revison/Issue	Ref. No	Date
D	DJB	STORMWATER EXTENDED	207288	17/11/22
C	CH	STORMWATER ADDED	207192	13/10/22
B	CH	CONTOURS ADDED	206455	06/07/22
A	CH	GENERAL ISSUE	206455	17/05/22
–	CH	PRELIMINARY ISSUE	206455	12/05/22

V-MARK SURVEY PTY LTD
19/75 PACIFIC HIGHWAY
WAITARA NSW 2077
PH : 02 9014 4235
EMAIL : dave@vmarksurvey.com.au
ABN : 12 109 067 950

Client Details
CYRE PROJECTS

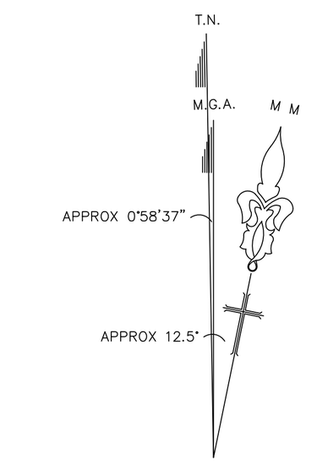
Project
59-67 KARNE STREET NARWEE

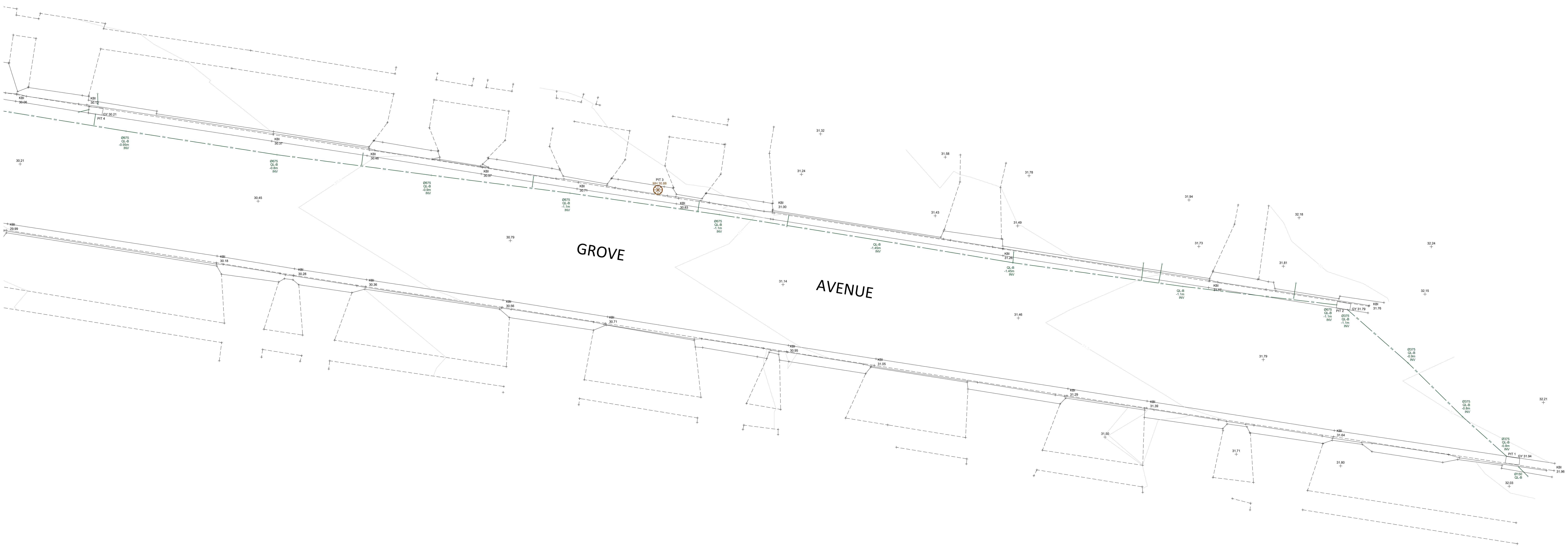
Drawing Title
DETAIL + LEVEL & UTILITIES SURVEY
SHEET 5 OF 6

Vertical Datum
DATUM: AHD
BM ADOPTED:SSM 108411
RL: 27.054

Date	Drn	Chk	Pss
MAY 2022	CH	DJB	DJB

Scale	Drawing No.	Rev.
1:100@A0	206455-DL	D





A0

0 1 2 3 4 5
DO NOT SCALE METRES

NOTES

- BOUNDARIES HAVE BEEN DEFINED BY SURVEY
- WALL TO BOUNDARY DIMENSIONS MUST NOT BE USED FOR CONSTRUCTION
- IF CONSTRUCTION ON OR NEAR BOUNDARIES IS REQUIRED IT IS RECOMMENDED THAT THE BOUNDARIES OF THE LAND BE MARKED.
- TREE SIZES ARE ESTIMATES ONLY.
- THIS PLAN HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF **CYRE PROJECTS**.
- RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES IS DIAGRAMMATIC ONLY. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY.
- EXCEPT WHERE SHOWN BY DIMENSION LOCATION OF DETAIL WITH RESPECT TO BOUNDARIES IS INDICATIVE ONLY.
- THIS SURVEY IS RELATED TO MGA2020 56 HORIZONTAL GRID AND AHD71 HEIGHT DATUM.
- CRITICAL SPOT LEVELS SHOULD BE CONFIRMED WITH SURVEYOR.
- THIS PLAN IS ONLY TO BE USED FOR THE PURPOSE OF PLANNING A DEVELOPMENT.
- CONTOURS SHOWN DEPICT THE TOPOGRAPHY. THEY DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- CONTOUR INTERVAL - 0.5 metre. - SPOT LEVELS SHOULD BE ADOPTED.
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WATERMAIN	W
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OVERHEAD ELECTRICITY	O/H E
TELECOMMUNICATIONS	T
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GAS (HPG)	HPG
SEWER	S
STORMWATER	SW
NBN LINE	NBN
OPTUS LINE	OP
OPTICAL FIBRE LINE	OF
NEXT GEN LINE	NEXTG
FUEL LINE	FL
UNKNOWN	UNK
TPG	TPG
FIRE	F
AAPT	AAPT
COMMS	C
FENCE	/

SYMBOLS

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- FX FIRE EXTINGUISHER
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- GAS MARKER
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QL-B
-0.65m
INV
GL10.56

SERVICE LOCATED TO QUALITY LEVEL B
0.65m DEPTH TO INVERT
GROUND LEVEL 10.56

QUALITY LEVEL RISK MATRIX

CERTAINTY → ← RISK

QL-A	MEASURED DIRECTLY TO UTILITY
QL-B	ELECTRONIC TRACING OF UTILITY
QL-C	ALIGNED TO SURFACE FEATURES
QL-D	ESTIMATED FROM EXISTING DRAWINGS

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CYRE PROJECTS

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59-67 KARNE STREET NARWEE

Drawing Title
DETAIL + LEVEL & UTILITIES SURVEY
SHEET 1 OF 6

Vertical Datum
DATUM: AHD
BM ADOPTED: SSM 108411
RL: 27.054

Date	Drn	Chk	Pas
MAY 2022	CH	DJB	DJB

Scale	Drawing No.	Rev.
1:100@A0	206455-DL	D

henry&hymas

APPENDIX C - STORMWATER SYSTEM REPORT

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

CITY OF CANTERBURY BANKSTOWN

To: Ttw NSW Pty
6/73 Miller St
NORTH SYDNEY NSW 2060

STORMWATER SYSTEM REPORT
59 - 67 Karne Street North, NARWEE NSW 2209

Date: 18-Oct-2022
Ref: WP-SIA-2488/2022
Development type: **Aged Care Centre**

NO — FLOOD/OVERLAND FLOW STUDY REQUIRED

The site is not affected by Council stormwater systems.

The site will be subject to stormwater inundation from this overland flowpath during large storm events. Refer to the attached **"100 Year ARI Flood & PMF Extent Map from Salt Pan Creek Overland Study"** showing the flood contours to m AHD**. Provision should be made on site, and at boundary fences, for this stormwater runoff to pass unobstructed over the site. Stormwater flowing naturally onto the site must not be impeded or diverted.

For this development, a flood /overland flow study to determine the 100 year ARI* water surface level is not necessary provided that the **proposed development including floor levels, shall comply with the development controls specified in Part B, Section B5 of former Canterbury Council's Development Control Plan 2012- Catchments Affected by Stormwater Flooding.**

The Development Application submission shall be based on an AHD datum for levels where sites are affected by overland flow / flooding. Refer Part B, Section B5 of former Canterbury Council's Development Control Plan 2012.

Habitable floor levels are to be at least 500mm above the 100 year ARI* flood level at the site adjacent to the proposed buildings.

Runoff from the on the site, and naturally draining to it is to be collected and disposed of to Council's requirements detailed in **Part B, Section B5 of former Canterbury Council's Development Control Plan 2012.**

This report is given without the benefit of development plans or a site survey. Council may choose to vary some report requirements following evaluation of detailed plans when they are submitted.

This report relates to the exposure of the subject site to Council's stormwater system, both underground and overland. **It does not assess the suitability or otherwise of this site for the proposed development.**

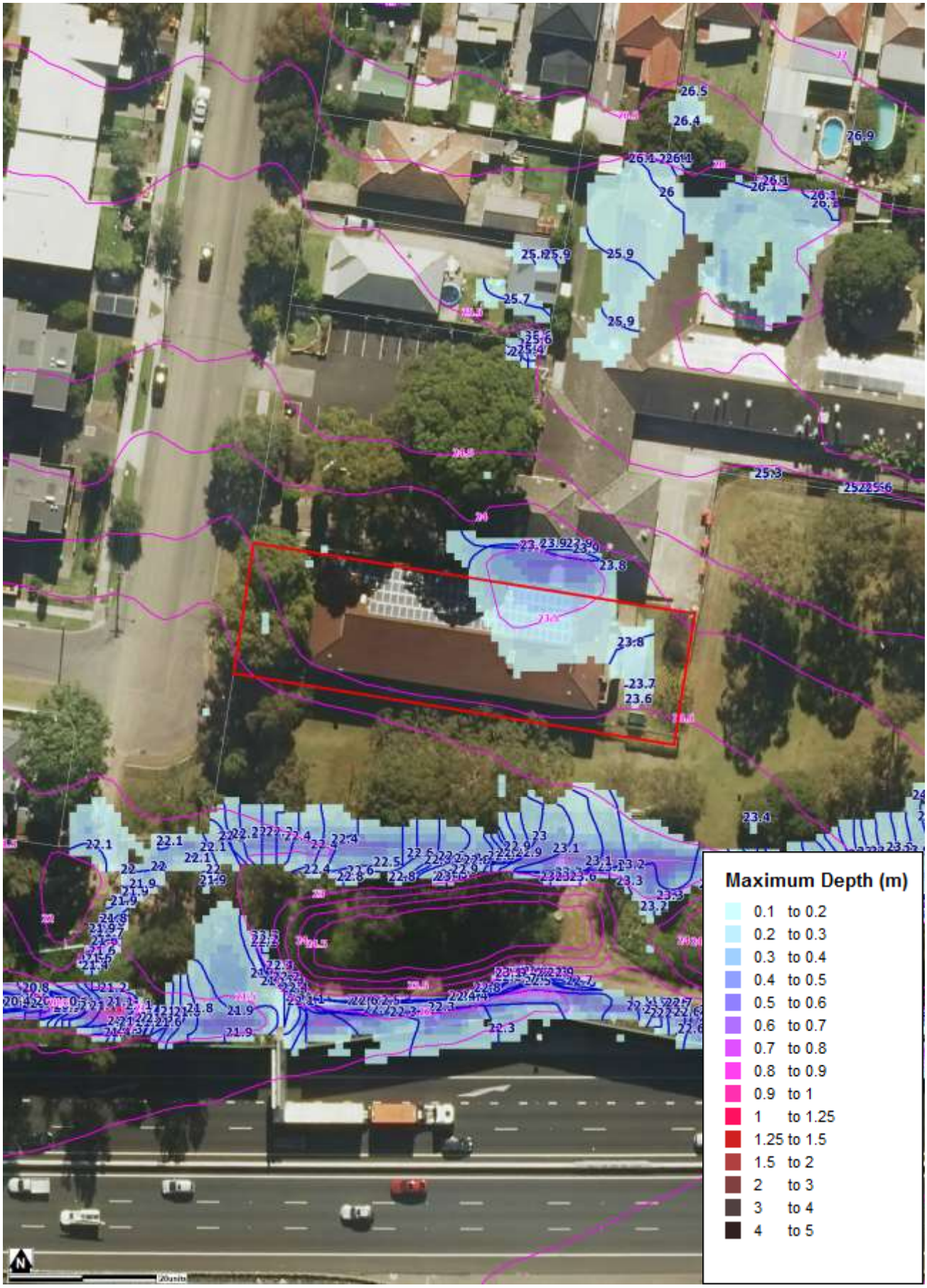
* Average Recurrence Interval

** Australian Height Datum

PMF Probable Maximum Flood

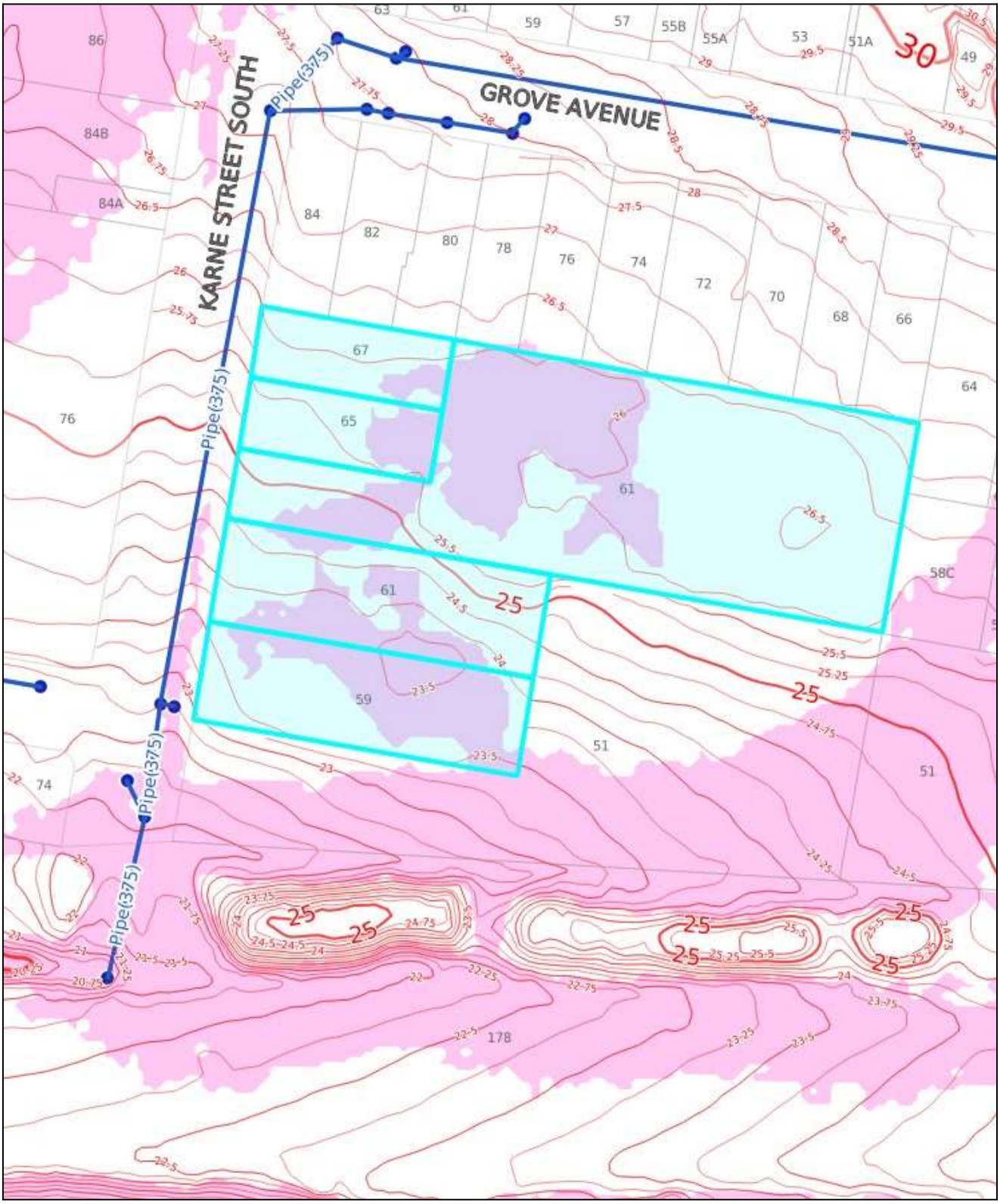
Pushpa Goonetilleke
ENGINEER

100yr ARI Flood Depth with flood contours to mAHD**



100yr ARI Flood Depth with flood contours to m AHD**

PMF Map for 59-67 Karne Street North, Narwee



DATE: Oct 18, 2022, 11:50 AM

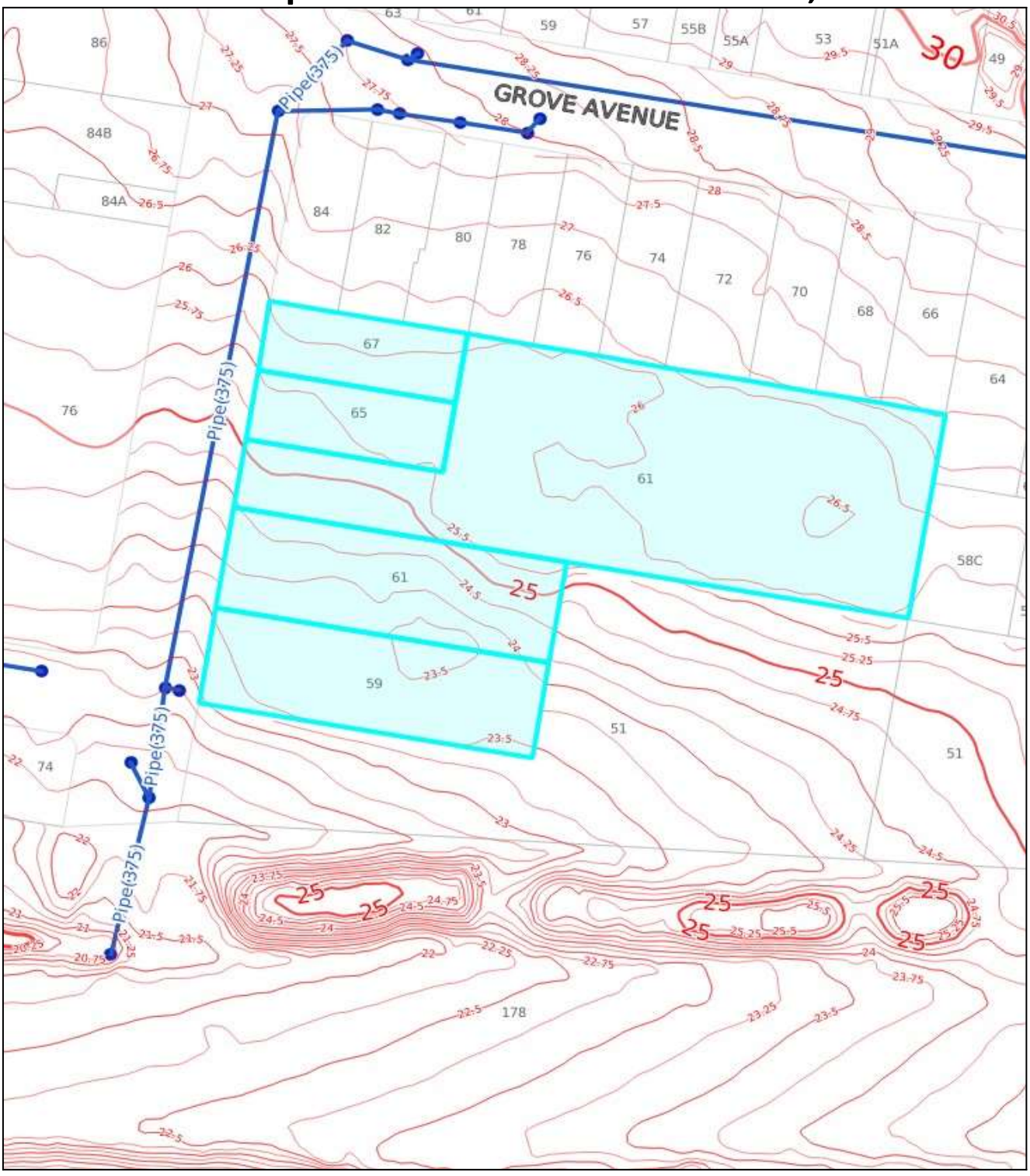
1:1,128

Metres 20 40 60

PREPARED BY: Pushpa G

Whilst all care has been taken in the preparation of this base map Council accepts no responsibility for the accuracy of any information shown. Users should rely on their own enquiries in order to validate information shown on this map. This information is for graphical presentation only.

GIS Map for 59-67 Karne Street North, Narwee



DATE: Oct 18, 2022, 11:51 AM

1:1,128

Metres 20 40 60

PREPARED BY: Pushpa G

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Aerial Map for 59-67 Karne Street North, Narwee

DATE: Oct 18, 2022, 11:52 AM

1:1,128

Metres 20 40 60

PREPARED BY: Pushpa G

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LEGEND

Jetty

Jetty

Parcel Frontage

Parcel Frontage

Parcel Boundary

Parcel Boundary

Parcel Easements (Line)

Parcel Easements (Line)

Parcel Easements (Polygon)

Parcel Easements (Polygon)

Contours (Major 10m)

Contours (Major 10m)

Contours (Intermediate 5m)

Contours (Intermediate 5m)

Contours (Minor <5m)

Contours (Minor <5m)

Drains

Drains

Pits

Pits

Sydney Water Stormwater Channels

Sydney Water Stormwater C

PMF (River and Stormwater)

PMF (River and Stormwater)

henry&hymas

APPENDIX D – MAINTENANCE SCHEDULE

OSD AND GPT MAINTENANCE SCHEDULE

MAINTENANCE ACTION	FREQUENCY	RESPONSIBILITY	PROCEDURE
Discharge Control Pit (DCP) - OSD			
Inspect DCP walls (internal and external, if appropriate) for cracks or spalling	Annually	Maintenance Contractor	Remove grate to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect DCP sump & remove any sediment/ sludge	Six monthly	Owner	Remove grate and screen. Remove sediment/ sludge buildup and check orifice and flap valve clear.
Inspect grate for damage or blockage	Six monthly	Owner	Check both sides of grate for corrosion, (especially corners and welds) damage or blockage.
Inspect return pipe from storage & remove any blockage	Six monthly	Owner	Remove grate and screen. Ventilate underground storage if present .Open flap valve and remove any blockages in return line. Check for sludge/ debris on upstream side of return line.
Inspect outlet pipe & remove any blockage	Six monthly	Maintenance Contractor	Remove grate and screen. Ventilate underground storage if present. Check orifices and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/ debris on upstream side of return line.
Check step irons for corrosion	Annually	Maintenance Contractor	Remove grate. Examine step irons and repair any corrosion or damage.
Check fixing of step irons is secure	Six monthly	Maintenance Contractor	Remove grate and ensure fixings secure prior to placing weight on step iron.
Storage			
Inspect return pit & remove any sediment/ sludge in pit	Six monthly	Owner	Remove grate and screen. Remove sediment/ sludge buildup.
Inspect internal walls of return pit (and external, if appropriate) for cracks or spalling	Annually	Maintenance Contractor	Remove grate to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect & remove any debris/ litter/ mulch etc blocking grates of return pit	Six monthly	Owner	Remove blockages from grate and check if pit blocked.

MAINTENANCE ACTION	FREQUENCY	RESPONSIBILITY	PROCEDURE
Inspect storage areas & remove debris/ mulch/ litter etc likely to block screens/ grates	Six monthly	Owner	Remove debris and floatable material likely to be carried to grates.
Compare storage volume to volume approved. (Rectify if loss > 5%)	Annually	Maintenance Contractor	Compare actual storage available with Workas Executed plans. If volume loss is greater than 5%, arrange for reconstruction to replace the volume lost. Council to be notified of the proposal.
Inspect storages for subsidence near pits	Annually	Maintenance Contractor	Check along drainage lines and at pits for subsidence likely to indicate leakages.
GPT – CDS0506 unit			
Refer to manufacturer or tank suppliers recommendations	As per suppliers recommendations	Maintenance Contractor	As per suppliers recommendations

Yours sincerely,

Nick Heazlewood
For, and on behalf of,
H & H Consulting Engineers Pty Ltd

Our Ref: 22M21/nh
Date: 02.05.2023