REPORT TO

LIGN PTY LTD

ON

DEWATERING MANAGEMENT PLAN

FOR

PROPOSED MIXED USE DEVELOPMENT

AT

810 PACIFIC HIGHWAY, GORDON, NSW

Date: 17 October 2025
Ref: 37403Yrpt6 DMP

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Figure 1: Site Location Plan

Appendix A1: JK Geotechnics Site Hydrology Report (Ref: 37403YQrpt5, dated 30 June 2025)

Appendix B1: JK Environments Groundwater Quality Screening (Ref: E37465PHrpt, dated 16 April 2025)

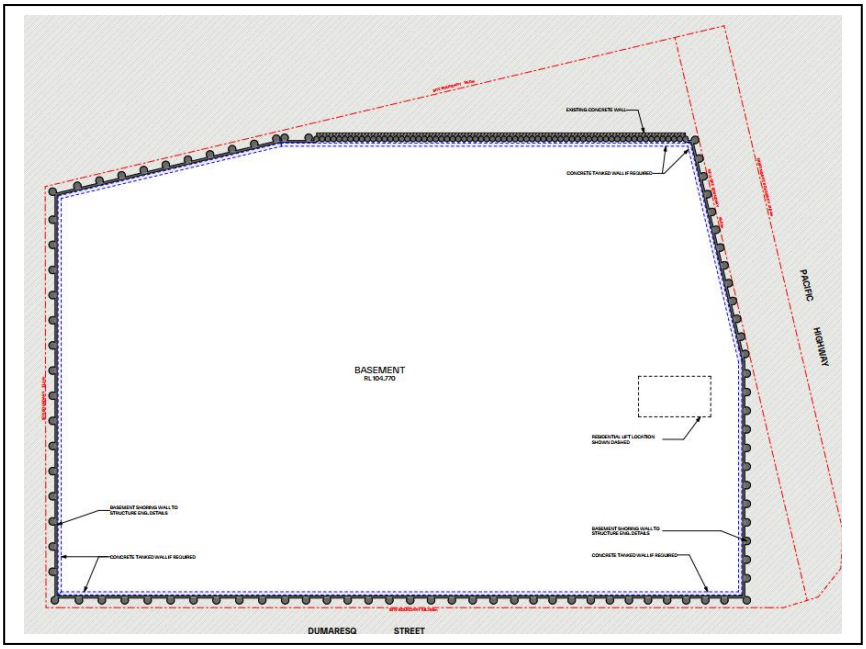
1 INTRODUCTION

This report presents a Dewatering Management Plan (DMP) for the proposed mixed-use development at 810 Pacific Highway, Gordon, NSW. The site is identified as Lot12 of DP631351. The location of the site is shown in Figure 1.

2 PROPOSED DEVELOPMENT AND ANTICIPATED CONSTRUCTION PERIOD

We have been supplied with Architectural drawings prepared by pbd Architects (Project No 2432, Drawings DA1000[A], DA01[G], DA02[A], DA03[G], DA04[H], DA05[G], DA16[F], DA17[F], DA1[F], all dated 8 April 2025, and DA106[P5], DA107[P4], dated 19 March 2025), which is attached as Appendix A. Based on this we understand that following demolition of the existing building the development comprises the following:

- Construction of a multi-storey building (loading dock level, ground floor retail level, plus seven residential levels) over six basement levels, with the lowest level having a finished floor level of RL102.37. This is anticipated to result in excavation to depths ranging from between about 15.6m and 25.3m. Localised deeper excavation may be required for lift pits etc.
- The footprint of the proposed basements and Loading Dock (which is the lower ground level and has finished floor levels ranging from RL119.2 to RL121.48m) extends to the southern and western boundaries and partially along the northern and proposed new eastern boundary.
- Along the northern boundary the existing retaining wall will remain over its eastern length, with the new basement extending along the northern boundary until it meets the existing retaining wall. This existing wall does not run parallel to the boundary but runs into the site and forms an acute angle to the boundary. The new retaining wall will be installed in front of the existing wall. Along the eastern side, the site boundary is to be amended such that it runs approximately 8m in from the existing boundary. The basement will extend to the northern portion of this boundary but is set back from the southern portion. The proposed extent of the basements and the Loading Dock is shown in the adjoining extract, which is taken from the architectural drawings. Figure 1 not only shows the basement outline but also the location of the boreholes drilled as part of the investigation.



- A soldier pile wall will be installed to support the upper soils and poorer quality bedrock. A drained basement is proposed to be adopted in both the short and long term.

3 SITE GEOLOGY, HYDROGEOLOGY, SEEPAGE ANALYSIS, PASS AND AASS

JK Geotechnics (JKG) have completed a comprehensive investigation of the site the results of which are presented in our report (Ref: 37403Yrpt, dated 22 August 2025). This included the following:

- Eleven boreholes,
- The installation of five monitoring wells,
- Eight packer tests, and
- At least three months of groundwater monitoring in three of the monitoring wells.

The results of this investigation indicated that the site is underlain by a thin layer of soil that overlies siltstone bedrock that in turn overlies sandstone bedrock. Average groundwater levels across the site varied from about RL107.4m to RL107.9m.

Based on the results of the investigation, the proposed development will include a soldier pile wall that will support the upper soils and poorer quality bedrock and potentially extend to below bulk excavation level. Once excavation is completed a drained basement is proposed. Conventional dewatering techniques will be adopted.

Using the subsurface information obtained from the investigation, a geological and hydrogeological model for the site was developed. This was then used as the basis for the numerical analysis completed that predicts the required pump out rates and likely extent of groundwater drawdown behind the wall. For further information on the results of this analysis, reference should be made to our Site Hydrology Report, which is attached as Appendix A1

In conjunction with the geotechnical investigation, JK Environments (JKE) undertook a groundwater quality screening, which is presented in their report (Ref: E37465PHrpt, dated 16 April 2025). A review of the information obtained for the screening indicates that the site is located in an area mapped under the Ku-ring-gai Local Environmental Plan (LEP) as having a Class 5 Acid Sulfate Soil (ASS) risk. Based on the elevation information (RL of approximately 118m) and the subsurface conditions (relatively shallow bedrock) encountered during the geotechnical investigation, JKE are of the opinion that the potential to encounter ASS is relatively low at the site.

4 IMPACT ASSESSMENT IN ACCORDANCE WITH NSW AQUIFER INTERFERENCE POLICY

This DMP includes a review of the aquifer interference activities outlined in the Water Management Act 2000 and the NSW Aquifer Interference Policy (NSW Office of Water, 2012) with regard to the proposed development outlined in Section 2 of this report. The development works fall under the category ‘construction dewatering’, which is identified under Section 1.3 of the policy as an ‘aquifer interference activity’. The policy indicates that the aquifer interference activity should be licensed in accordance with the

Water Management Act 2000. It is possible that the total extracted groundwater will be greater than 3ML/annum over the life of the building. Where this is the case a Water Access License (WAL) will be required. The DMP should be submitted to WaterNSW to obtain both the WAL and Water Supply Works (WSW) approval, which is required to allowed the extraction or pumping of groundwater.

Preparation of the DMP also included a review of the following:

- Receiving water bodies in the immediate vicinity of the site,
- Groundwater availability to other users in the immediate vicinity of the site, and
- Potential effect on groundwater dependent ecosystems (GDE), inflow dependent ecosystems (IDE) and other ecologically sensitive areas in the immediate vicinity of the site.

The information was obtained as part of the JKE April 2025 screening. A summary of the relevant information is presented in the sections below.

4.1 Receiving Water Bodies

Receiving water bodies were not identified at the site. Surface water is anticipated to run into the local municipal stormwater system located in the immediate vicinity of the site. The closest receiving water body in the vicinity of the site is Amaroo Gully located approximately 600m to the south-west of the site, which eventually discharges into the upper reaches of the Lane Cove River.

The DMP did not identify any tanks or tank points located within approximately 1km of the site.

4.2 Impact on Existing Groundwater Users

A review of the hydrogeological information indicated that the regional aquifer below the site and in the areas immediately surrounding the site is classes as porous, extensive aquifers of low to moderate productivity. There was a total of 18 registered bores within the buffer of 2km. The nearest registered bore was located approximately 640m from the site. This was utilised as a water supply bore, however, given the shallow depth (4.8m) was unlikely to have been used to supply drinking water. Existing groundwater bores registered for beneficial use of groundwater for domestic and/or irrigation purposes were not identified within 500m of the site. Based on this information, adverse impact on existing groundwater users as a result of dewatering, is not expected.

4.3 Impact on Groundwater Dependant Ecosystems

A review of the ecological information undertaken for this DMP indicates the following:

- The site and immediate surrounds are not located within an area mapped as Ramsar Wetland;
- Groundwater dependent ecosystems (GDE) were not identified at the site or immediate surrounds; and

- Inflow dependent ecosystems (IDE) were not identified at the site or immediate surrounds.

Based on this information, adverse impact on GDE or IDE as a result of dewatering, is not expected.

4.4 Ecologically Sensitive Areas

Ecologically sensitive areas were not identified at the site. An area mapped as Wet Sclerophyll Forests associated with Blue Gum High Forest is located approximately 20m to the north-west of the site. The area was not mapped as GDE or IDE sensitive area. Based on this information, adverse impact on ecologically sensitive areas as a result of dewatering, is not expected.

5 BUILDING DESIGN

The basement excavation has a plan dimension of approximately 36m by 55m and a finished floor level of RL104.37m. Excavation for lift overruns or other deeper excavation may be required.

Based on the results of the investigation, the proposed development will include a soldier pile wall that will support the upper soils and poorer quality bedrock and will potentially extend to below bulk excavation level. The basement will be constructed as a drained basement with conventional dewatering techniques such as sump and pump techniques adopted. Pump out rates will be varied to maintain the basement excavation in a dry condition.

Sections have been drawn through the site in north to south (Section 1 (DA17)) and east to west (Section 2 (DA16)) directions to show how the proposed development will impact existing subsurface conditions. These are presented in Appendix A1 (refer to the architectural drawings presented in Appendix A).

6 PREDICTED WATER TAKE

The results of the analysis predict that the weekly water take is anticipated to be about 71,050 litres/week to 107,800 litres/week. As this is greater than 3ML/annum, a WAL will be required. However, until 30 June 2029 an exemption may be sought. Even where an exemption is given, the actual water take must be recorded and reported to the Natural Resource Access Regulator by 28 July for each water year, which is the same as a financial year.

7 MONITORING AND REPORTING

7.1 General

Temporary groundwater pumping for dewatering the subject site is predicted to have limited effect on groundwater levels in the area. As drawdown of the groundwater table will be within the bedrock, induced settlements below adjoining structures will be imperceptible and consequently we consider that dewatering does not pose a risk to adjoining structures. To ensure that groundwater levels outside the excavation are being maintained at levels consistent with expectations, three groundwater monitoring wells have been

installed outside of the basement footprint. These must then be monitored using data loggers for the life of the building.

A groundwater quality screening was undertaken by JK Environments to obtain baseline data (via one sampling round). The results are presented in their report (Ref: E37465PHrpt, dated 16 April 2025) which is attached as Appendix B1.

Based on the results of the screening, the groundwater samples identified concentrations of copper, nickel, zinc and aluminium above the screening criteria adopted for potential disposal to stormwater. pH was also outside of the acceptable range. We note that faecal coliforms and E. coli were encountered in all three samples, which indicated a potential sewer leak impacting the groundwater in the area (this was supported by observations of odours during the well development/pump-out process).

Relatively high concentrations of iron were encountered in the samples and, although no SAC exists for iron, it is worth noting these elevations as iron can precipitate from water and stain pavements/gutters. Therefore, the iron concentrations should be considered when exploring water treatment options.

Treatment of the groundwater prior to discharge will be required depending on the disposal method adopted. Council approval should be obtained prior to discharge to stormwater and conditions imposed by Council on the discharge should be complied with.

Note: A treatment trial must occur prior to the commencement of full-scale dewatering to demonstrate that the treatment is achievable and that the discharge water can be made compliant with the trigger levels.

On completion of dewatering a Dewatering Completion Report will be produced in accordance with the intent of the guidelines set out in the NSW Department of Planning, Industry and Environment's document *Minimum Requirements for Building Site Groundwater Investigations and Reporting*.

7.2 Groundwater Monitoring

The following groundwater level, water quality and dewatering rate monitoring program is proposed:

- Daily calibrated meter readings to confirm cumulative discharge values and variations in pump out rates. This will not be possible on days of significant rainfall.
- Daily groundwater levels for the period of and a month following dewatering.
- Weekly insitu water quality measurements of both groundwater and discharge water. Table 1 below presents a list of the test required.
- Monthly sampling and laboratory testing of both groundwater and discharged water. Table 2 below presents a list of the tests required.
- More frequent grab samples where there are analytes, especially contaminants of concern or where trigger levels are exceeded. These may also be necessary to demonstrate compliance with discharge limits. Insitu water quality measurements should also be completed with each grab sample.

Table 1 - Minimum Insitu Water Quality Measurement Requirements for both Groundwater and Discharge
pH
Electrical Conductivity (specific conductance at 25^{o}C)
Redox Potential
Temperature

Table 2 – Laboratory Testing for both Groundwater and Discharge	
Physical parameters	Alkalinity (bicarbonate, carbonate, hydroxide and total), electrical conductivity (EC), pH, redox potential (Eh), total dissolved solids (TDS), total hardness, temperature, dissolved oxygen (DO)
Other physical parameters	Turbidity (NTU), total suspended solids (TSS), total organic carbon (TOC), sodium absorption ratio (SAR)
Major anions	Sulfate (SO_4), chloride (Cl), carbonates (CO_3), bromide (Br), fluoride (F)
Major cations	Calcium (Ca), magnesium (Mg), sodium (Na), potassium (K)
Ionic balance	Cation/anion balance (as a percentage)
Dissolved inorganics and dissolved heavy metals	Aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), boron (B), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), lithium (Li), manganese (Mn), mercury (Hg), molybdenum (Mo), nickel (Ni), selenium (Se), silica (dissolved SiO_2), silver (Ag), strontium (Sr), uranium (U), vanadium (V), zinc (Zn)
Nutrients	Ammonia (NH_3), nitrate (NO_3), total nitrogen (N), oxidised nitrogen (N), total phosphorus (P), reactive phosphorus (P)
Microbiological organisms	Faecal coliforms, faecal streptococci, *Escherichia coli*
Organics	Benzene toluene ethylbenzene xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRHs)

Additional contaminants of potential concern (i.e. in addition to those specified in Table 2) were identified during the screening which include Volatile Organic Compounds (VOCs) which should be taken into consideration during testing. We note that a section of the site was historically occupied by a service station/motor garage and the occurrence of VOCs/BTEX compounds in the groundwater may be associated with the historical land use.

Council should be contacted to obtain the required testing frequency for long-term disposal over the life of the building. Long-term disposal of groundwater into the stormwater system must be approved by Council prior to implementation.

7.3 Trigger Levels

The following trigger levels are provided below for the volume of groundwater pumped out, the magnitude of groundwater drawdown and groundwater quality.

7.3.1 Groundwater Volume

For pump out volumes the trigger level is about 15,400 litres/day.

7.3.2 Groundwater Level

For the groundwater level the trigger level is monitoring external to the shoring system indicate a water level drop more than 0.5m below predicted groundwater drawdown levels at the location of the monitoring wells.

7.3.3 Groundwater and Discharge Water Quality

The trigger levels for groundwater and discharge water quality are to reflect those for 'fresh waters' presented in Table G1 of the groundwater quality screening report attached in Appendix B1. In addition to those presented in Table G1, the following trigger values are proposed:

- Turbidity for discharge water 50 NTU or less.
- VOCs, BTEX and TRHs less than the laboratory practical quantitation limits (PQLs).

Where there are no published fresh water trigger values in Table G1, the 'recreational' trigger values in Table G1 are to be adopted.

7.4 RESPONSE ACTIONS

The following response actions are provided below for the volume of groundwater pumped out, the magnitude of groundwater drawdown and groundwater quality.

7.4.1 Groundwater Volume

The geotechnical engineers must be informed to allow an assessment of the cause of the excess pumping to be made. The geotechnical engineers would then assess if any change to the dewatering procedure or basement design is required, or whether further investigation of the cause of the excessive volume needs to be made.

7.4.2 Groundwater Level

The geotechnical engineer must be immediately informed. The geotechnical engineer would then assess the impact of groundwater level drawdown exceeding the trigger level on adjoining properties. Where the geotechnical engineer deems that the groundwater level drawdown is excessive, the cause should be established, noting that the drawdown levels may be erratic due to the fracture patterns in the siltstone bedrock.

7.4.3 Groundwater and Discharge Water Quality

It is acknowledged that the groundwater already exceeds the trigger values as outlined in Section 7.1 (as per the initial baseline data). These conditions may remain unchanged throughout the dewatering/monitoring period and exceedances of the trigger values for pH and metals in groundwater can be expected. However, in the event that these parameters/analytes or any other parameters or analytes in groundwater vary by more than ±10% from the baseline data during a monitoring event, the environmental consultant is to be contacted to make an assessment of the conditions and the potential risks to the receptors. Contingency actions must be developed and implemented where necessary so that risks to the environment remain low and acceptable.

Where monitoring of the discharge water identifies an exceedance of a trigger level, the contractor responsible for the treatment system must be notified immediately and any necessary adjustments must be made to the treatment procedure. Following the adjustments to the treatment procedure, a re-sample is to be collected as soon as practicable and analysed for the parameter(s)/analyte(s) that exceeded the trigger level, to confirm that the adjustments were appropriate. This procedure is to be repeated where necessary until the trigger levels are not exceeded.

In the unexpected event that the trigger levels are repeatedly exceeded for discharge water (this is not expected given that the treatment trial should initially occur to demonstrate that the groundwater can be suitably treated prior to discharge), contingency actions must be developed and implemented where necessary so that risks to the environment remain low and acceptable.

7.5 Notification

Should groundwater trigger levels be exceeded or unforeseen impacts be observed, WaterNSW will be notified at *waterregsouth@waternsw.com.au*. This notification will include detailing those elements of the monitoring program that have been triggered, the magnitude of the exceedance and the measures taken to mitigate them.

8 GENERAL COMMENTS

The recommendations presented in this report include specific issues to be addressed during the construction phase of the project. In the event that any of the construction phase recommendations presented in this report are not implemented, the general recommendations may become inapplicable and

JK Geotechnics accept no responsibility whatsoever for the performance of the structure where recommendations are not implemented in full and properly tested, inspected and documented.

The subsurface conditions between the completed boreholes may be found to be different (or may be interpreted to be different) from those expected. Variation can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, we recommend that you immediately contact this office.

As part of the documentation stage of this project, Contract Documents and Specifications may be prepared based on our report. However, there may be design features we are not aware of or have not commented on for a variety of reasons. The designers should satisfy themselves that all the necessary advice has been obtained. If required, we could be commissioned to review the geotechnical aspects of contract documents to confirm the intent of our recommendations has been correctly implemented.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described in this report then all recommendations should be reviewed. Copyright in this report is the property of JK Geotechnics. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report. The report shall not be reproduced except in full.

APPENDIX A1

REPORT TO

SITE 3 GROUP PTY LTD

ON

SITE HYDROLOGY

FOR

PROPOSED MIXED USE DEVELOPMENT

AT

810 PACIFIC HIGHWAY, GORDON, NSW

Date: 2 September 2025
Ref: 37403Yrpt5

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DOCUMENT REVISION RECORD

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37403Yrpt5	Report	30 June 2025
37403Yrpt5	Revision 1 – updated for deeper basement	2 September 2025

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Appendix A:

- **Architectural drawings prepared by pbd Architects Project No 2432, Drawings DA1000[A], DA01 [G], DA02 [A], DA03 [G], DA04 [H], DA05 [G], DA16 [F], DA17 [F], DA1 [F], all dated 8 April 2025, and DA106 [P5], DA107 [P4], dated 19 March 2025).**

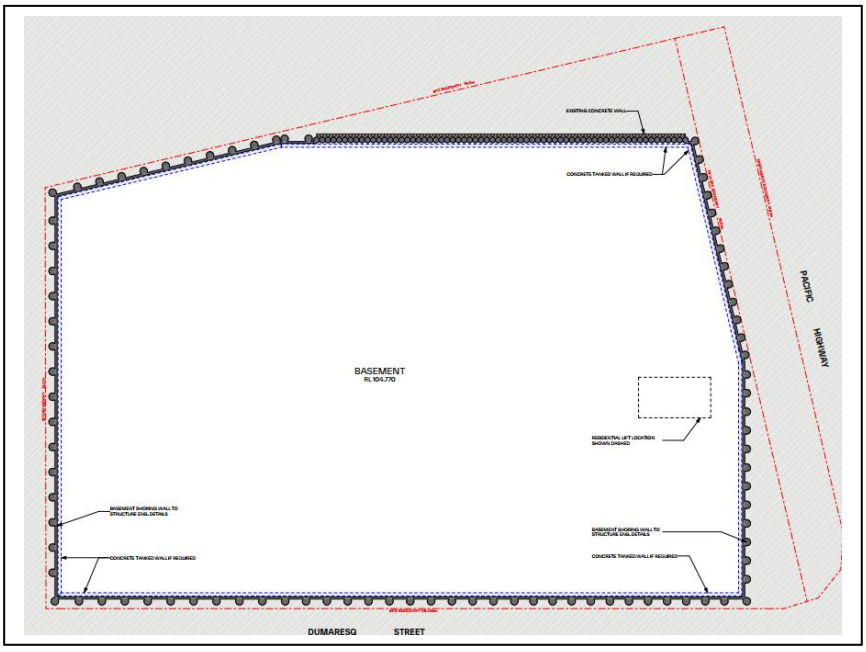
Appendix B: Geotechnical Report Prepared by JK Geotechnics (Ref: 37403Yrptrev1, dated 22 August 2025)

1 INTRODUCTION

This report presents the results of our groundwater seepage analysis for the proposed mixed-use development at 810 Pacific Highway, Gordon, NSW.

We have been supplied with Architectural drawings prepared by pbd Architects (Project No 2432, Drawings DA1000[A], DA01[G], DA02[A], DA03[G], DA04[H], DA05[G], DA16[F], DA17[F], DA1[F], all dated 8 April 2025, and DA106[P5], DA107[P4], dated 19 March 2025), which are attached as Appendix A. Based on this we understand that following demolition of the existing building the development comprises the following:

- Construction of a multi-storey building (loading dock level, ground floor retail level, plus seven residential levels) over six basement levels, with the lowest level having a finished floor level of RL102.37. This is anticipated to result in excavation to depths ranging from between about 15.6m and 25.3m. Localised deeper excavation may be required for lift pits etc.
- The footprint of the proposed basements and Loading Dock (which is the lower ground level and has finished floor levels ranging from RL119.2 to RL121.48m) extends to the southern and western boundaries and partially along the northern and proposed new eastern boundary.
- Along the northern boundary the existing retaining wall will remain over its eastern length, with the new basement extending along the northern boundary until it meets the existing retaining wall. This existing wall does not run parallel to the boundary but runs into the site and forms an acute angle to the boundary. The new retaining wall will be installed in front of the existing wall. Along the eastern side, the site boundary is to be amended such that it runs approximately 8m in from the existing boundary. The basement will extend to the northern portion of this boundary but is set back from the southern portion. The proposed extent of the basements and the Loading Dock is shown in the adjoining extract, which is taken from the architectural drawings. Figure 1 not only shows the basement outline but also the location of the boreholes drilled as part of the investigation.



- A soldier pile wall will be installed to support the upper soils and poorer quality bedrock. A drained basement is proposed to be adopted in both the short and long term.

The purpose of this groundwater modelling was to assess:

- The steady state extraction rate required per annum to maintain the basement in a drained state;
- The potential for drawdown of groundwater outside of the basement excavation.

JK Geotechnics have undertaken a geotechnical investigation of the site (Ref: 37403Yrptrev1, dated 22August 2025) which is attached as Appendix B. The investigation outlined in the above geotechnical report included five boreholes, insitu packer tests and the installation of five groundwater monitoring wells. This information has been used to develop the subsurface model analysed.

2 SITE CONDITIONS

2.1 Site Description

The site is located in hilly terrain and is positioned at the crest of a ridgeline that runs in a north-south direction. It is located on the western face of the ridgeline and slopes down at approximately 10°, resulting in an elevation relief of about 9.9m across the site. The Pacific Highway runs along the crest of the ridgeline and forms the eastern site boundary, which is the high end of the site. From the Pacific Highway the site slopes down to Radford Place, which forms the western site boundary. Dumaresq Street runs along the southern site boundary with a commercial development present on the southern side of the street.

At the time of the investigation the previous building on site had almost completely been demolished, with only the existing northern, southern and eastern retaining walls and portions of the basement slab and columns left to support the existing basement excavation. To do this, three basement levels of the existing structure had been left over the eastern portion of the site, as can be seen below. The surface of the upper slab level has a similar level to that of the ground surface at the eastern side of site while the existing lower basement slab, which covers much of the site has the same level as Radford Place.



Photo 1 – Facing East

While the site is bounded by roads to the east, south and west, to the north of the site was Kuring-Gai Council Chambers. This comprised a single storey rendered structure over the eastern half, and a three to four-storey

concrete structure over the western half, both set back about 1m from the site boundary. The Council Chambers appeared to be in good condition when viewed from the subject site.

2.2 Subsurface Profile

The investigation revealed the following subsurface conditions.

Concrete Pavements

Concrete pavements were encountered at the surface in BH1, BH5, BH201, BH202, BH301 and 302 and ranged in thickness from 120mm to 250mm. In BH201, another concrete slab was encountered below the concrete pavement and was 380mm thick. In BH203, a concrete slab was encountered at a depth of just over 0.6m and was 0.28m thick.

Fill

Fill was encountered either from the surface or below the slabs and in the case of BH201 and 203 it was present both above and below the slab. The fill typically extended to depths ranging from 0.3m to 2m, although in the north-eastern corner of the site (BH3 and BH4A) fill was encountered to depths of 7.8m and 9.6m. This fill appears to represent backfill placed behind the retaining walls. The fill typically comprised clayey soil, although in BH3 and BH4A, 1.8m to 5.1m of sand and a small amount of gravel was encountered at depths of 4.5m and 6m. Where tested, the fill was assessed as being poorly to moderately compacted.

Residual Clay

Residual silty clay of medium to high or high plasticity and very stiff to hard or hard strength was encountered beneath the fill in BH4 and BH203 and extended to the underlying bedrock, which was encountered at depths of 3m and 1.8m respectively.

Bedrock

Siltstone bedrock was encountered in all boreholes at depths ranging from 0.3m (BH301) to 14.7m (BH3). In BH201, BH202, BH301 and BH302, laminite was also logged in the upper portion of the siltstone at 2.63m (BH201), 2.46m (BH202), 2.56m (BH301) and 4m (BH302) and comprised interbedded siltstone and fine grained sandstone. This laminite extended to limited depths ranging from 4.9m (BH202) and 8.0m (BH302) and was not logged in any of the other boreholes.

When first encountered the bedrock was of poor quality, ranging in strength from extremely low or hard (soil strength) to very low to low strength, except in BH302 where the rock was of low strength. In this regard it must be recognised that BH301 and BH302 were drilled in the existing basement which has been cut into the hillside. With depth the quality of the siltstone improved, although it was generally deeply weathered with this poorer quality bedrock extending to typically greater depths over the eastern side of the site (14.7m to 17.6m at BH3 and BH5) than the western side (2.9m to 4.9m at BH2 and BH202). The exceptions to the deep weathering are at BH301 and BH302. At depths ranging from 1.0m to 17.6m the bedrock was of low to medium strength and quickly increased in strength to at least medium to high.

The laminite and siltstone contained many defects comprising of bedding partings, extremely weathered, clay and crushed seams and joints. Where joints are present, they dipped at between 15° and 90°. Some 'no core' zones were also logged. No core zones typically represent soil zones or zones of poor-quality rock that have been washed away in the coring process.

Sandstone bedrock was encountered in BH210, BH202, BH203, BH301 and BH302 at depths ranging from 14.5m to 23.2m or between RL102.9m and RL103.3m. The sandstone was of at least medium to high strength and contained few defects which, where present, consisted of bedding partings, extremely weathered seams and joints.

Subsurface Conditions Present Across the Site		
Strata	**Depth to Base of Unit (m)**	**Reduced Level at Base of Unit (mAHD)**
Fill (excluding backfill material behind retaining walls)	0.4m to 2.0m	RL116.5m to RL127.79m
Residual Soils	1.8m to 3.0m	RL124.4m to RL125.19m
Laminite and Siltstone Bedrock	14.5m to 23.2m	RL102.9m to RL103.3m
Sandstone Bedrock	Greater than 29m	<RL88.5m

2.3 Groundwater Conditions

2.3.1 Groundwater Levels

Five groundwater monitoring wells have been installed across the site, as shown in Figure 1.

Monitoring was completed for a period of greater than three months in BH201 to BH203 and is ongoing for BH301 and BH302. Graphs showing the measured reduced level of the groundwater and the daily rainfall versus time are presented in Figures 4 to 8. The table below sets out the results of the monitoring completed.

Minimum, Maximum, Average and Median Water Levels				
Monitoring Well	**Minimum Measured Level (RL/depth)**	**Maximum Measured Level (RL/depth)**	**Average Water Level**	**Median Water Level**
201	RL107.4m / 11.50m	RL108.2m / 10.70m	RL107.7m	RL107.7m
202	RL107.1m / 11.50m	RL107.8m / 10.70m	RL107.4m	RL107.4m
203	RL107.9m / 18.25m	RL107.9m / 18.20m	RL107.9m	RL107.9m
301	RL107.7m / 10.10m	RL108.1m / 9.70m	RL107.8m	RL107.8m
302	RL107.7m / 11.20m	RL108.0m / 10.80m	RL107.8m	RL107.9m

The above table excludes those groundwater measurements affected by the completion of insitu pump out tests.

Based on the results of the groundwater monitoring, the groundwater appears to flow uniformly across the site at between RL107.1m to 108.2m. The measured water levels reported above are those that have been adopted in our groundwater seepage model.

2.3.2 Coefficient of Permeability

The coefficient of permeability for the siltstone and sandstone bedrock were calculated following the completion of three successful packer tests. Following the completion of each tests the Lugeon Pattern was used to interpret the coefficient of permeability of the rock. The packer test results are presented in the table below while Figures 9 to 16 present graphical representations of the test results.

Calculated Coefficient of Permeability (m/s) – Siltstone Bedrock				
	BH201	**BH203**	**BH301**	**BH302**
Test 1	2.62×10^{-6}	4.83×10^{-7}	8.59×10^{-6}	1.2×10^{-7}
Test 2	-	-	1.66×10^{-6}	-

Calculated Coefficient of Permeability (m/s) – Sandstone Bedrock			
	BH202	**BH301**	**BH302**
Test 1	-	-	-
Test 2	8.17×10^{-7}	-	1.85×10^{-7}
Test 3	-	2.20×10^{-6}	-

3 ANALYSIS METHODOLOGY

A 2D steady state seepage analysis has been carried out for the proposed basement level excavation. The seepage analysis was carried out using the 2D finite element computer program SEEP2D by GeoStudio. The seepage analysis methodology comprised the following:

- A model comprising a profile of soil and bedrock including the proposed basement geometry
- Groundwater total head boundary conditions have been placed along the eastern and western sides of the model. The existing groundwater head level of RL108.2m have been adopted through the site.
- Bulk excavation level for the basement simulated at RL102.0m,
- The horizontal permeability of the siltstone and sandstone are ten times that of the vertical permeability,
- The sides and base of the propose basement excavation was modelled as ‘drained’, such that the groundwater flow could freely flow into the excavation via a free-flow boundary to simulate a drained basement, and
- Carry out a steady state seepage analysis after excavation and during dewatering.

4 SUBSURFACE MODEL

The subsurface model has been developed from the results of our earlier investigation presented in Appendix B. The subsurface conditions comprised a thin layer of soil overlying siltstone bedrock that in turn overlies sandstone bedrock.

Based on the results of the permeability testing, the coefficient of permeability, k, of the siltstone bedrock ranges from 1.2 x 10^{-7}m/s to 8.59 x 10^{-6}m/s while for the sandstone bedrock it ranges from 1.85 x 10^{-7}m/s to 2.2 x 10^{-6}m/s. In a paper by Paul Hewitt, *Groundwater Control for Sydney Rock Tunnels*[1], it was noted that while the permeability of the intact sandstone and siltstone bedrock is very low, the permeability of the rock mass is governed by fracturing and the continuity and interconnectedness and tightness of this fracturing. Bulk permeability of siltstone bedrock typically varies from 1 x 10^{-6} to 1 x 10^{-9}m/s while for sandstone bedrock it varies from 1 x 10^{-6}m/s to 2 x 10^{-8}m/s.

While the above paper provides a range of permeability values, the paper makes the point that the coefficient of permeability is governed by fractures. As a result, the groundwater ingress that will be experienced by the excavation will depend on the defects (i.e. bedding partings, joints etc.) encountered during excavation. In this regard some joints will make more water while others will make less. In accordance with NSW Department of Planning, Industry and Environment's document Minimum Requirements for Building Site Groundwater Investigations and Reporting, October 2022 we have adopted the highest coefficient of permeability for both the siltstone and sandstone bedrock, which are 8.59 x 10^{-6}m/s and 2.2 x 10^{-6}m/s respectively. These values exceed the range of rock mass permeabilities that are typically encountered in siltstone and sandstone in Sydney. While we have adopted these values in accordance with WaterNSW's requirements, we consider that they are unlikely to be representative of the permeability of the rock mass as a whole with predicted inflow rates based on these values likely to exceed those that will be actually experienced. In this regard we consider it more likely that rock mass permeabilities are more likely to be in the order of the average values, although we note that even these values are high when compared to the values quoted in the paper prepared by Paul Hewitt and may well over-estimate inflow rates.

Due to the horizontal depositional nature of siltstone, bedding partings and other horizontal features within the bedrock are more prominent that vertical defects (joints). Consequently, the horizontal permeability is likely to be greater than the vertical permeability. In this regard we have adopted a horizontal permeability that is ten times as large as the vertical permeability. This is shown in the table below.

The table below sets out the coefficient of permeabilities adopted in our groundwater analysis. The highest (worst), average and median case values have been considered.

[1] AGS AUCTA Mini-Symposium: Geotechnical Aspects of Tunnelling for Infrastructure Projects, October 2006

Adopted Coefficient of Permeability		
Strata	**Adopted Coefficient of Permeability (m/sec)**	**Ratio of Vertical to Horizontal Permeability (k_v/k_h)**
Siltstone Bedrock – Highest Value	8.59×10^{-6}	0.1
Siltstone Bedrock – Average Value	2.69×10^{-6}	0.1
Siltstone Bedrock – Median Value	1.28×10^{-6}	0.1
Sandstone Bedrock – Highest Value	2.2×10^{-6}	0.1
Sandstone Bedrock – Average Value	1.07×10^{-6}	0.1
Sandstone Bedrock – Median Value	8.17×10^{-7}	0.1

Total head boundary conditions have been adopted at the sides and base of the model. Infinite elements have been utilised at the sides and base of the model to represent the total head conditions beyond the model boundaries. The subsurface profile adopted for the model is presented in Figure 17.

5 ANALYSIS ASSUMPTIONS AND LIMITATIONS

The following assumptions have been made in the seepage analysis:

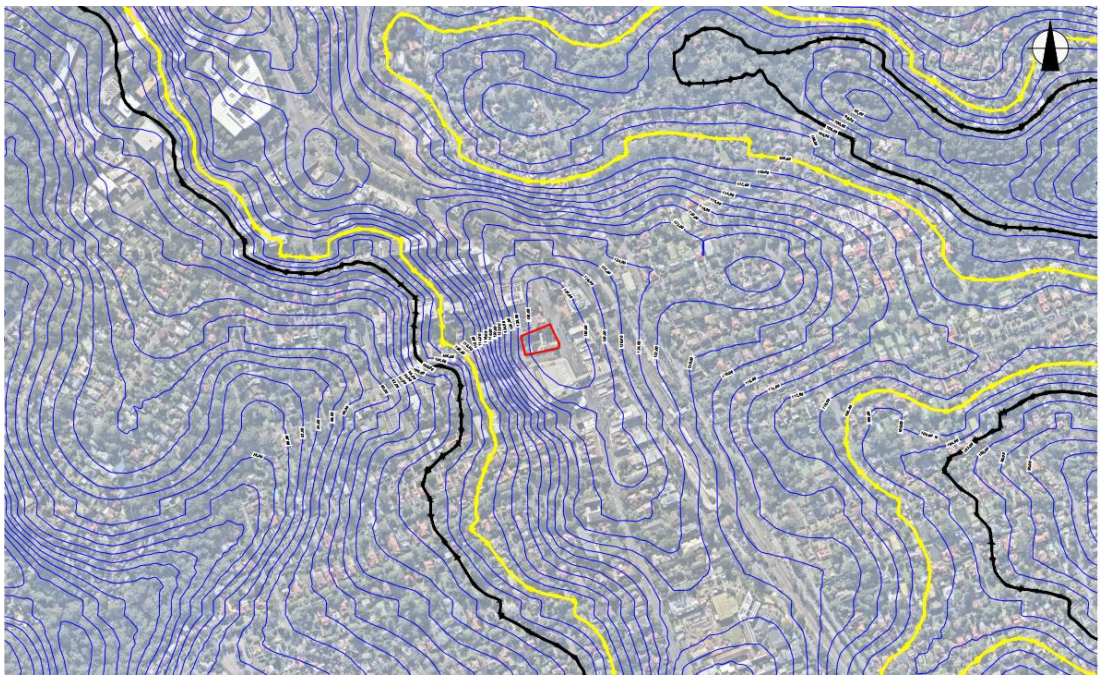
- Groundwater total head boundary conditions have been placed along the eastern and western sides of the model. The existing groundwater head level of RL108.2m have been adopted through the site.
- Bulk excavation level for the basement simulated at RL102.0m,
- Dewatering is uniformly completed across the site to bulk excavation level, and
- The horizontal permeability of the siltstone and sandstone are ten times that of the vertical permeability, and
- The total basement inflow values are represented by the calculated inflow values per metre run multiplied by the length of the site, which is 55m.

As can be seen from the topographical contour plan presented below and in Figure 2, the site is located at the crest of a ridgeline. The yellow and black lines represent contour lines RL108m and RL102m, which correspond to the groundwater level encountered below the site and the proposed bulk excavation level. From this it can be seen that to the east and west ground surface levels are lower than bulk excavation level. As a result, ground recharge can only occur from the northern and southern boundaries of the site.

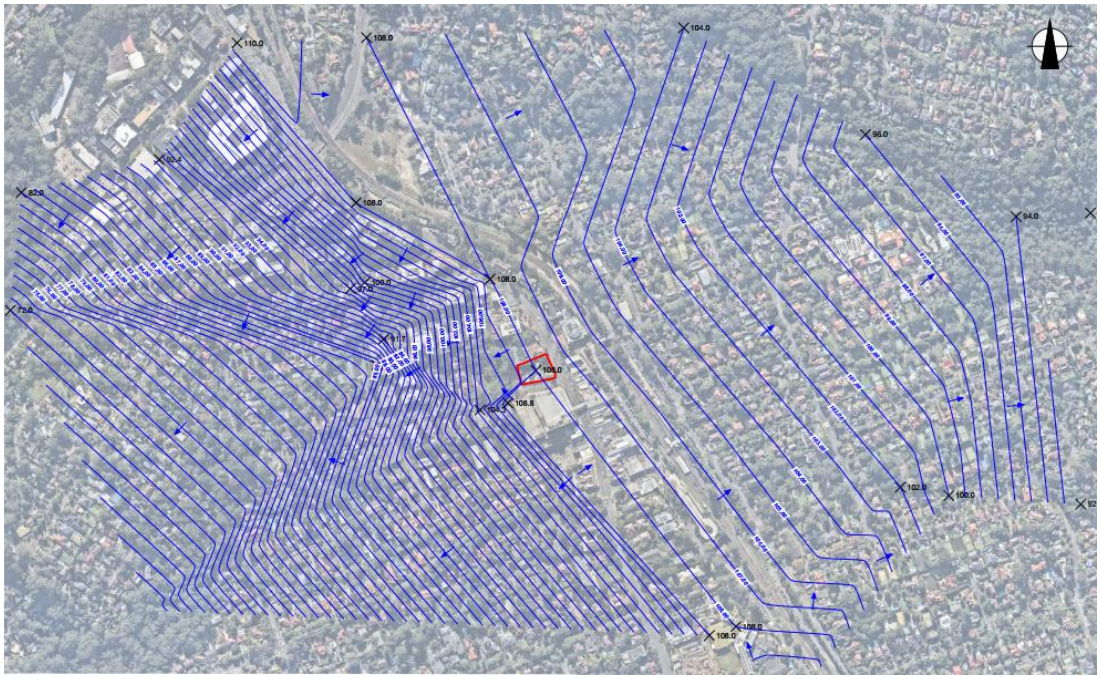
To gain an understanding of how groundwater levels vary across the wider region, groundwater levels encountered in geotechnical investigations completed across this area were plotted on this same plan. In addition, where creeks and streams were present the water levels were also plotted, as these represent groundwater levels. Combining this data the groundwater contours and the direction of flow could be determined. This information is presented below and in Figure 3. As can be seen from this, groundwater levels are typically at RL108m below the ridgeline but drop off relatively steeply and flow to both the east

and west. This also reinforces the fact that groundwater inflows into the basement excavation can only occur from the north and south of the site.

In the analysis completed it has been assumed that the groundwater table is horizontal and that there is a constant head of water at RL108m at the model boundaries. Considering the limited catchment, this assumption is obviously a very conservative assumption. As a result, it is our opinion that the calculated inflow volumes are likely an over-estimated of inflow rates.



Aerial Photo with Ground Surface Contours



Groundwater Contours

6 RESULTS OF ANALYSIS

6.1 Potential Impact of the Proposed Development on the Groundwater Regime

The analysis indicates that dewatering of the site will result in drawdown of the assumed groundwater table. The predicted drawdown will occur wholly within the bedrock and consequently there is no risk of damage to adjoining structures as a result of induced settlements. Figures 18 to 20 presents a graphical representations of the groundwater drawdown.

6.2 Predicted Daily Extraction Rates

The table below indicates the predicted pump out rates required to maintain the steady state drop in groundwater.

It should be noted that higher pumping rates will be required initially until steady state conditions are achieved.

Predicted Daily Extraction Rates		
	Litres/Day	**ML/Annum**
Highest (Worst) Value	36,200	13.2
Average Value	15,400	5.6
Median Value	10,150	3.7

Whilst we have provided the highest predicted inflow values for the basements, it is our expectation that this inflow value will not be experienced. This is due to the location of the site at the crest of a ridgeline, which limits steady state inflow to just the northern and southern boundaries and the inflow values are likely to be more in the order of the average or median values or possibly lower and may vary from 5.6ML/annum or 3.7ML/annum, or about 15,400litres/day to 10,150litres/day.

As discussed above, the rock mass is a natural material characterised by variably defects such as joints. Consequently, there will undoubtably be some variability in inflow values. In this regard, although unlikely, it is possible that the coefficients of permeability considered above could be out by up to one order of magnitude, possibly more.

Irrespective of the predicted groundwater inflow rates this site seems well suited to the adoption of a drained basement. This is because the basement will be excavated predominantly through bedrock with the groundwater table located wholly within the bedrock. In addition, the sites' location at the crest of a ridgeline means that there is only a limited catchment and the drawdown of the groundwater table will not result in an adverse impact on creeks, wetlands or similar.

7 COMMENTS AND RECOMMENDATIONS

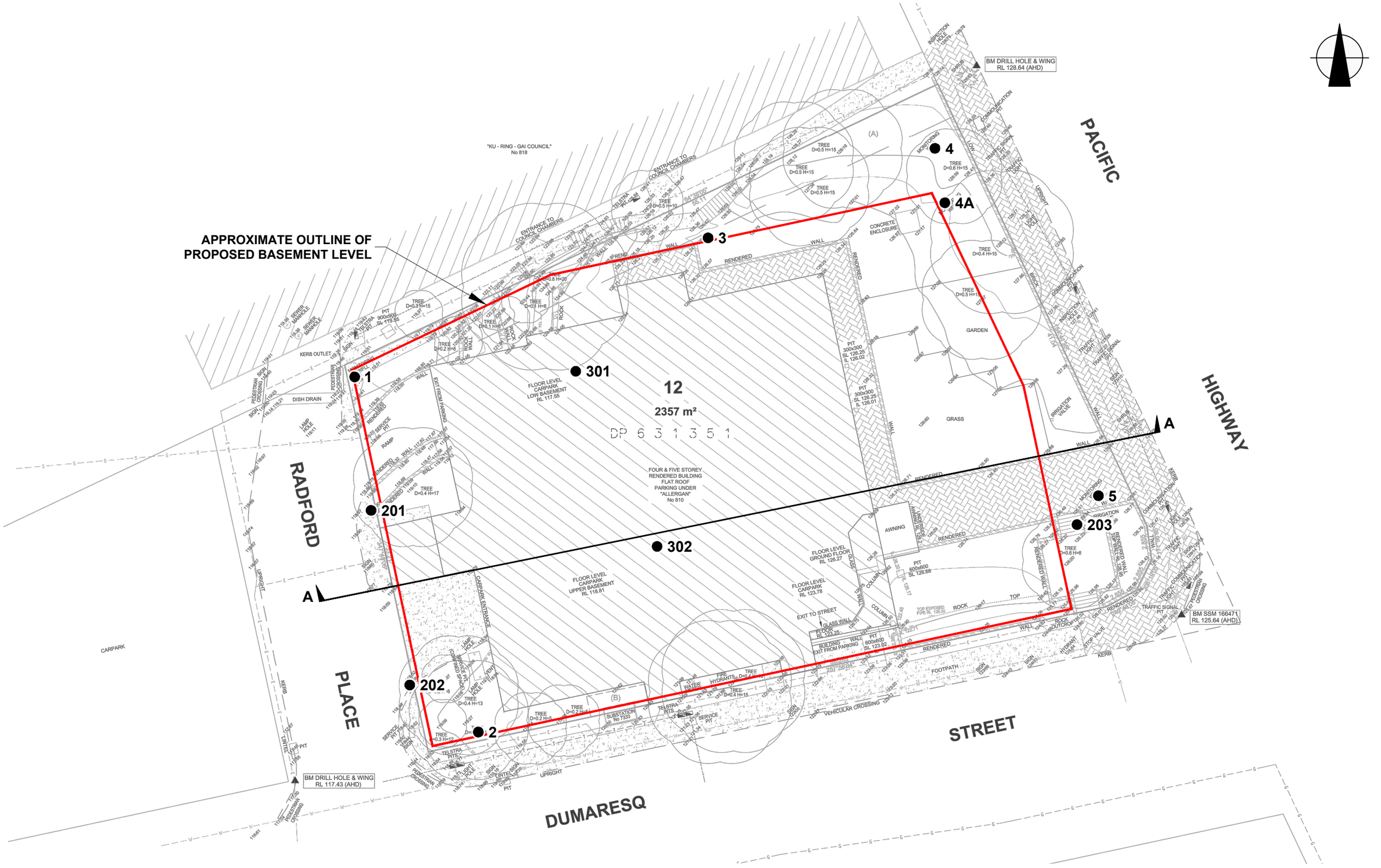
The seepage analysis has been based on our assumptions of likely permeability values within the bedrock. Based on the modelling completed, drawdown will be wholly within the bedrock and will not result in induced settlement below adjoining structures. The maximum daily steady state pumping rate is anticipated to be no greater than about 36,200 litres/day, although we anticipate that it will be markedly less than this and more in the order of about 15,400litres/day to 10,150litres/day.

Based on the location of the site and the presence of the groundwater table wholly within the rock mass, it is our opinion that a drained basement is well suited to this site.

8 GENERAL COMMENTS

This report provides advice on geotechnical aspects for the proposed civil and structural design. As part of the documentation stage of this project, Contract Documents and Specifications may be prepared based on our report. However, there may be design features we are not aware of or have not commented on for a variety of reasons. The designers should satisfy themselves that all the necessary advice has been obtained. If required, we could be commissioned to review the geotechnical aspects of contract documents to confirm the intent of our recommendations has been correctly implemented.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described in this report then all recommendations should be reviewed. Copyright in this report is the property of JK Geotechnics. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report. The report shall not be reproduced except in full.



NOTE:
REFER TO FIGURE 3 FOR CROSS SECTION A-A.

0 3 6 9 12 15
SCALE 1:300 @A3 METRES

This plan should be read in conjunction with the JK Geotechnics report.

Title: **BOREHOLE LOCATION PLAN**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Report No: 37403Y

Figure No: 1

JKGeotechnics

PLOT DATE: 3/09/2025 2:37:26 PM DWG FILE: J16F GEOTECHNICAL JOBS\37000'S\37403Y GORDON\CAD\37403Y.DWG

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LEGEND

- APPROXIMATE SITE BOUNDARY
- CONTOUR INTERVAL RL108m
- CONTOUR INTERVAL RL102m

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 50 100 150 200 250

SCALE 1:5000 @A3 METRES

This plan should be read in conjunction with the JK Geotechnics report.

Title: **GROUND SURFACE CONTOUR PLAN**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Report No: 37403Y

Figure No: 2

JKGeotechnics

PLOT DATE: 2/09/2025 1:07:10 PM DWG FILE: J:\6F GEOTECHNICAL JOBS\37000'S\37403Y GORDON\CAD\GW MODEL\37403Y.DWG

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LEGEND

APPROXIMATE SITE BOUNDARY

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 50 100 150 200 250

SCALE 1:5000 @A3 METRES

This plan should be read in conjunction with the JK Geotechnics report.

Title: **GROUNDWATER CONTOUR PLAN**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Report No: 37403Y

Figure No: 3

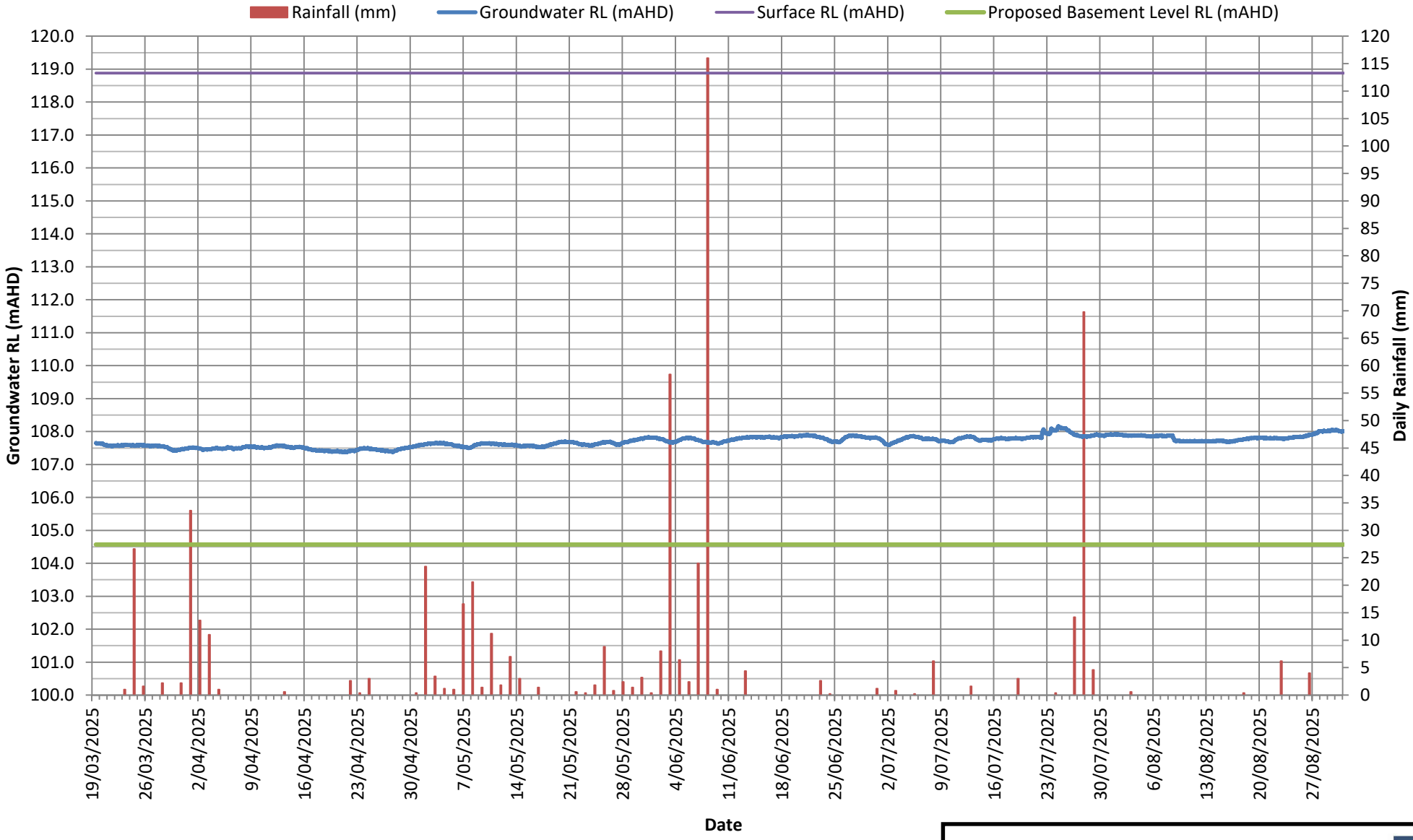
JKGeotechnics

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File Name: 37403Y BH201 GW v Rainfall Graph - AM
Date Printed: 3/09/2025

Groundwater Level and Daily Rainfall -v- Time Plot
BH201



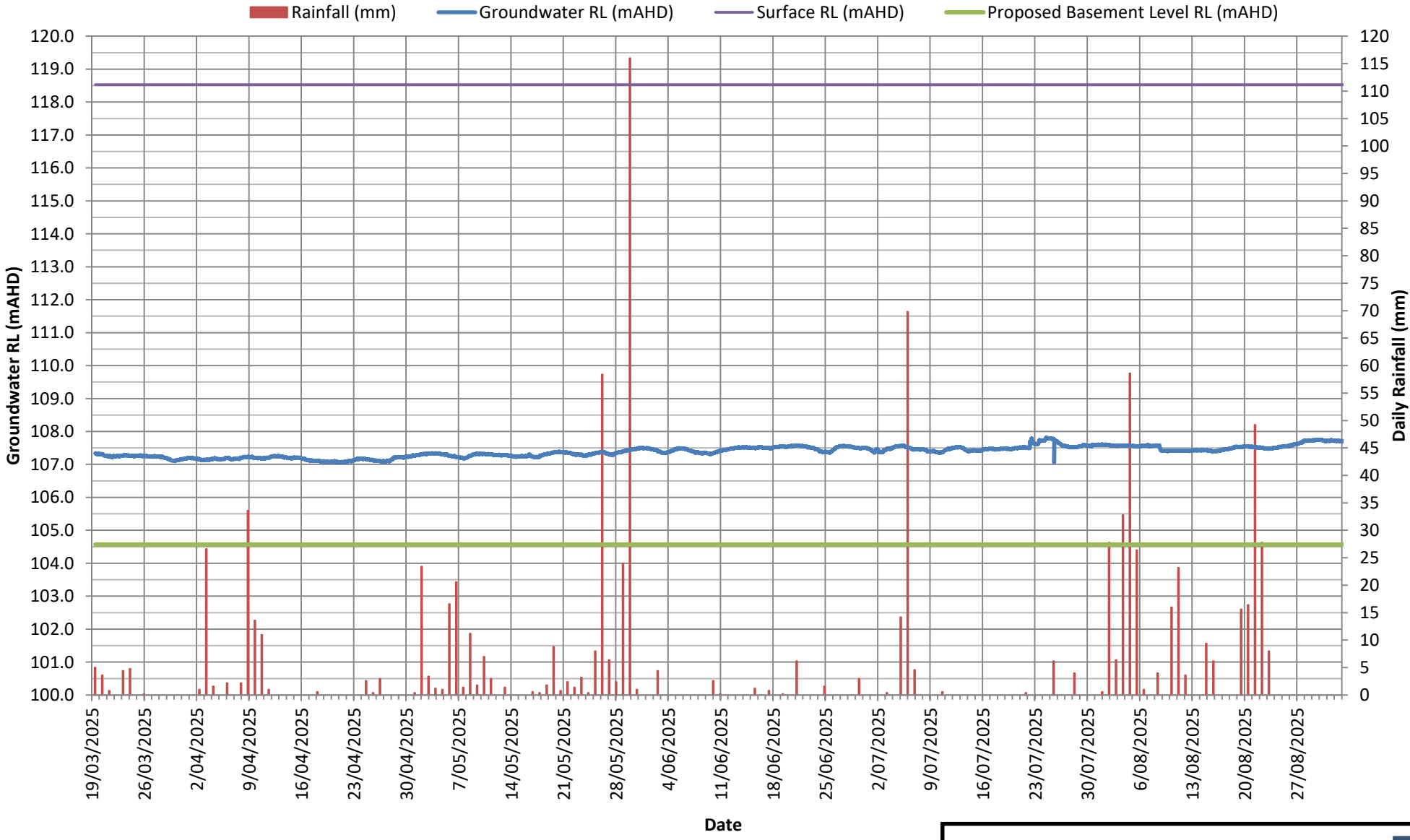
Rainfall data from Hornsby (Swimming Pool), Station number : 067065

JKGeotechnics

Report No. 37403Y **Figure No. 4**

File Name: 37403Y BH202 GW v Rainfall Graph - AM
Date Printed: 3/09/2025

Groundwater Level and Daily Rainfall -v- Time Plot
BH202



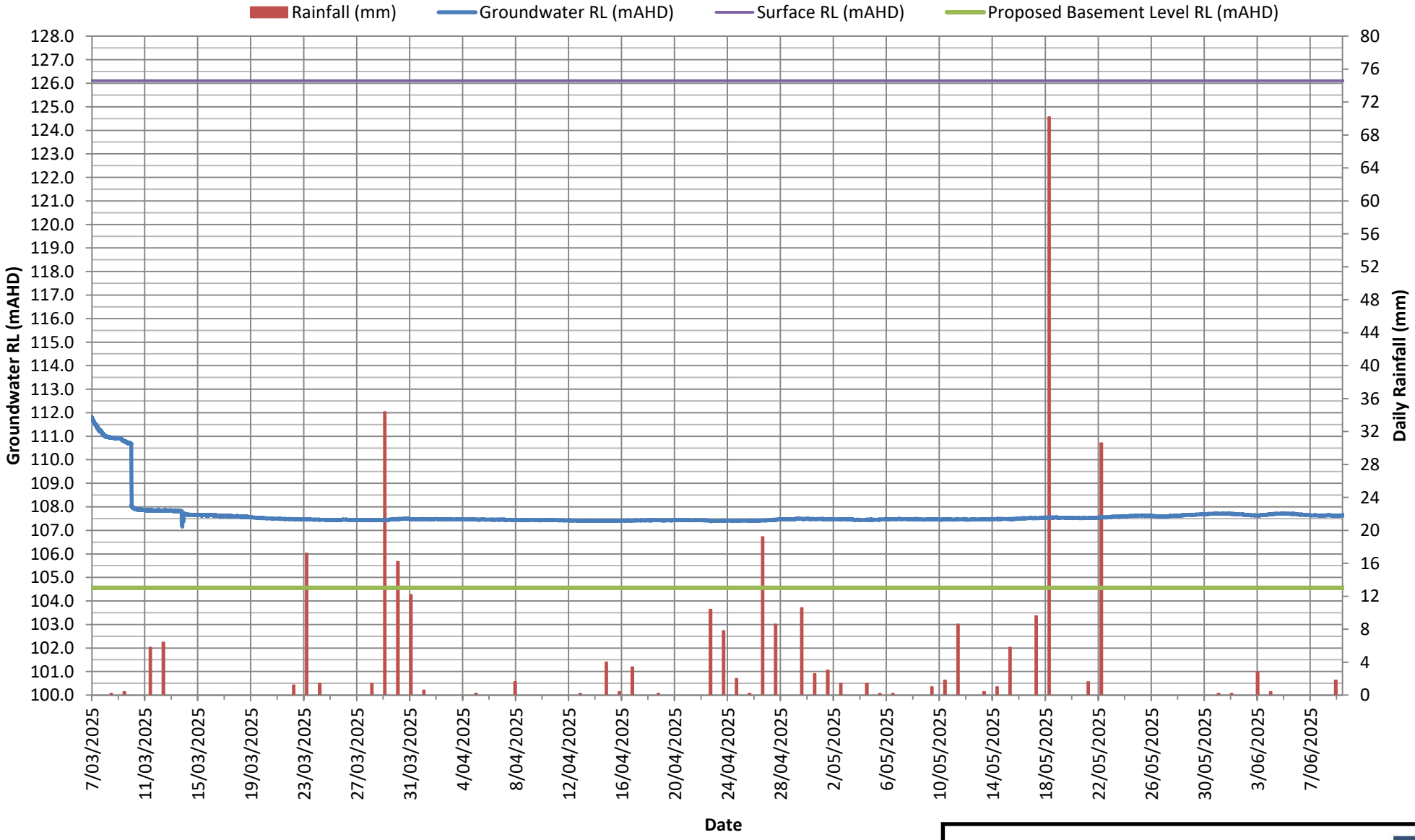
Rainfall data from Hornsby (Swimming Pool), Station number : 067065

JKGeotechnics

Report No. 37403Y **Figure No. 5**

File Name: 37403Y BH203 GW v Rainfall Graph - TF UPDATED
Date Printed: 3/09/2025

Groundwater Level and Daily Rainfall -v- Time Plot
BH203



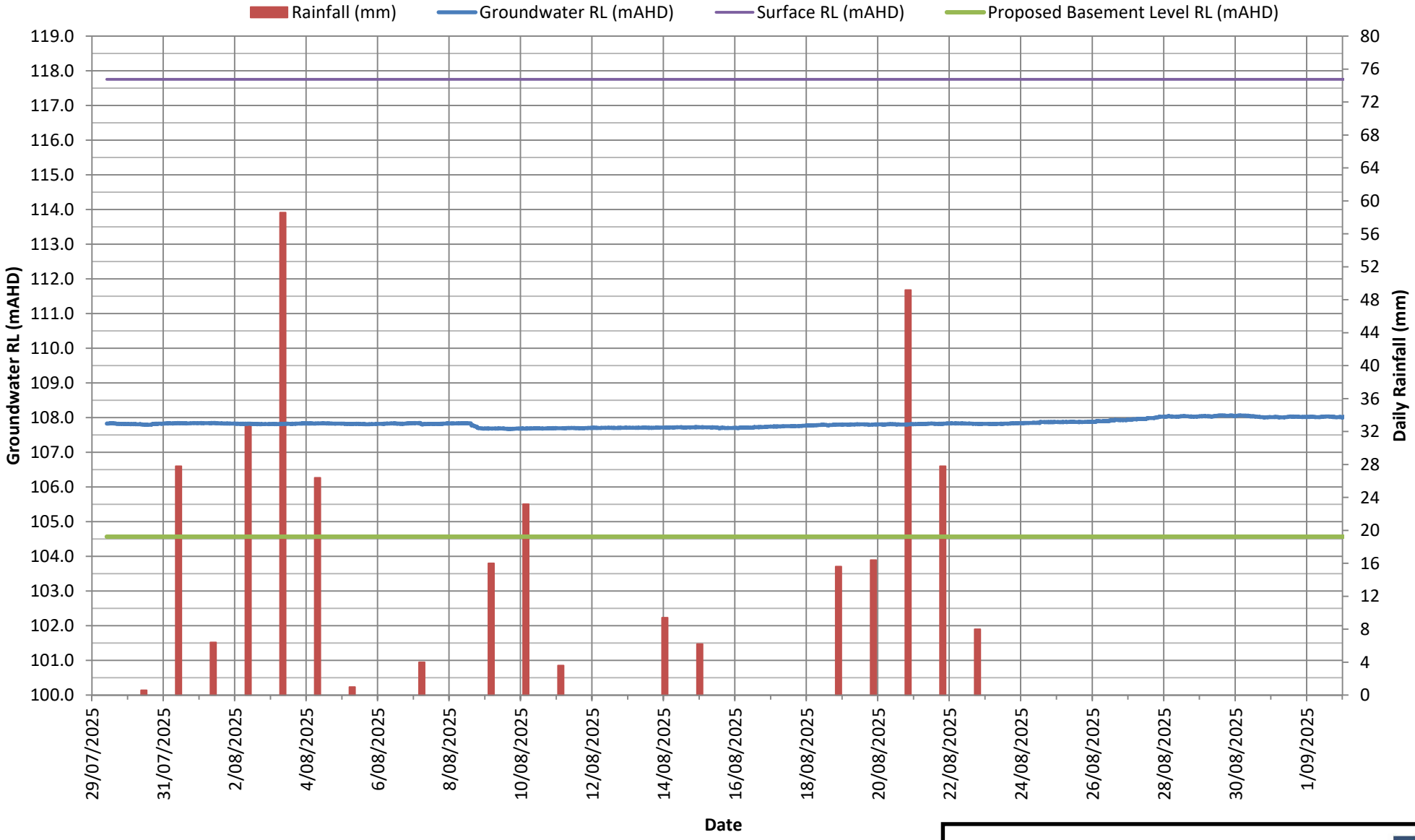
Rainfall data from Wahroonga (Ada Avenue), Station number : 066211

JKGeotechnics

Report No. 37403Y **Figure No. 6**

File Name: 37403Y BH301 GW v Rainfall Graph - AM
Date Printed: 3/09/2025

Groundwater Level and Daily Rainfall -v- Time Plot
BH301



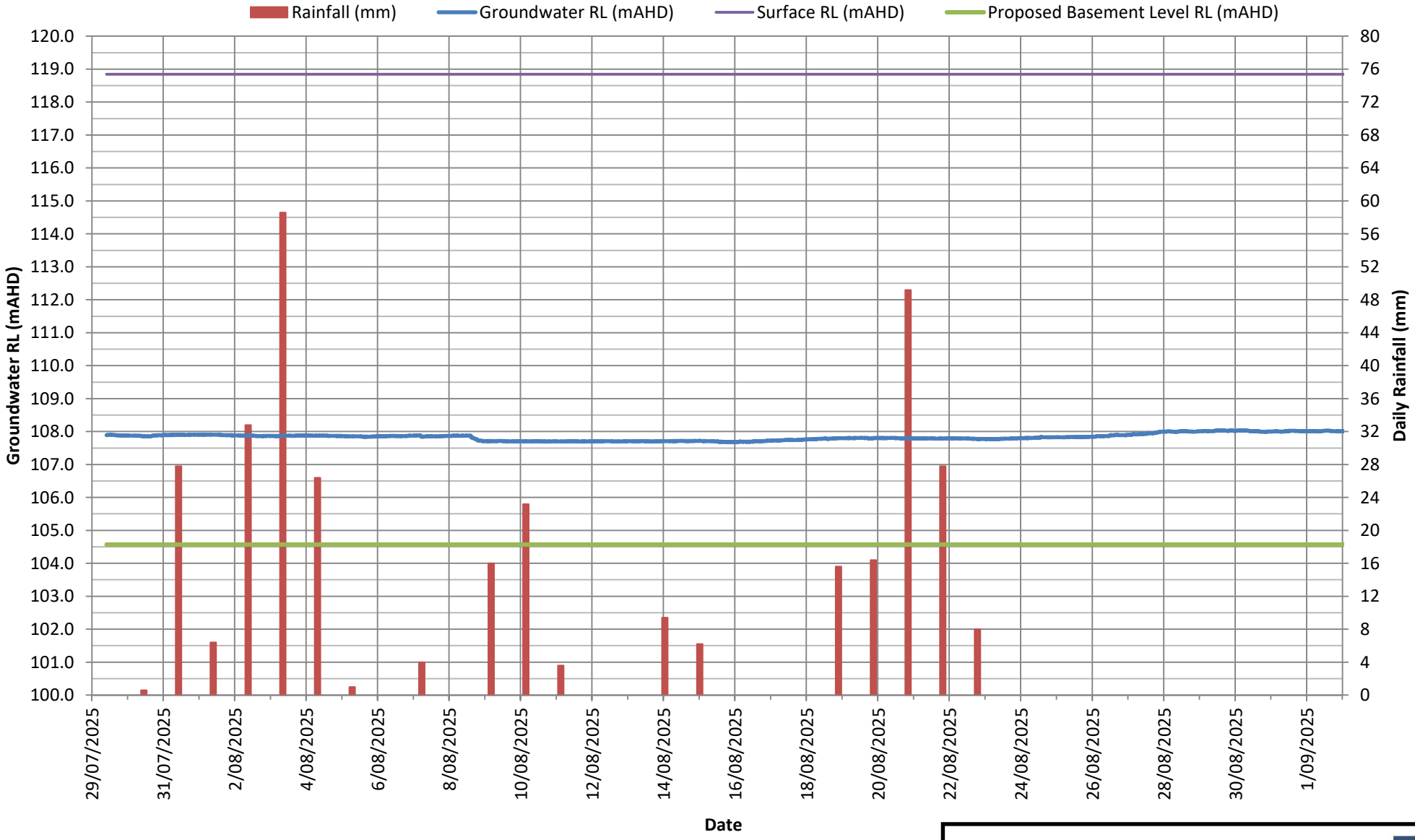
Rainfall data from Hornsby (Swimming Pool), Station number : 067065

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Report No. 37403Y **Figure No. 7**

File Name: 37403Y BH302 GW v Rainfall Graph - AM
Date Printed: 3/09/2025

Groundwater Level and Daily Rainfall -v- Time Plot
BH302



Rainfall data from Hornsby (Swimming Pool), Station number : 067065

JKGeotechnics

Report No. 37403Y **Figure No. 8**

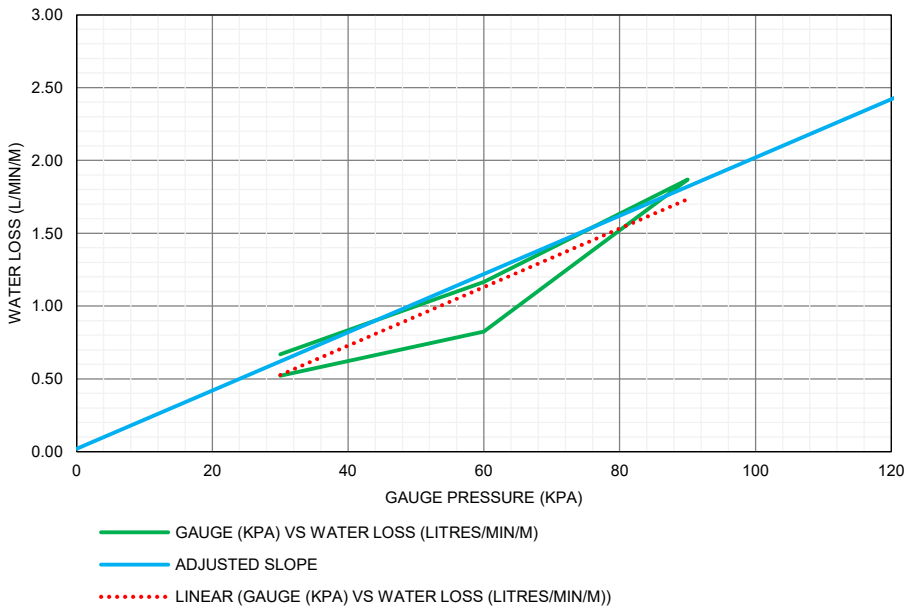
BH201 Test 1

Client: Site 3 Group
Project: Proposed Mixed Use Development
Location: 810 Pacific Highway, Gordon
Bore diameter (mm): 96
Bore inclination (deg): 90

Project: 37403Y
Borehole: BH201
Test: 1
Date: 26/02/2025
Hole depth (m): 12.2
Test Section (m) 9m to 12.2m
Test section length (m): 3.2
Diameter of barrel (m): 96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		64.8823				0.52
	30	30	5	64.8941	11.8	2.36	0.74	
	30	30	5	64.9007	6.6	1.32	0.41	
	30	30	5	64.9074	6.7	1.34	0.42	
2		Initial Reading		64.91				0.83
	60	60	5	64.923	13	2.60	0.81	
	60	60	5	64.9364	13.4	2.68	0.84	
3		Initial Reading		64.95				1.87
	90	90	5	64.9844	34.4	6.88	2.15	
	90	90	5	65.0132	28.8	5.76	1.80	
	90	90	5	65.0398	26.6	5.32	1.66	
4		Initial Reading		65.048				1.17
	60	60	5	65.0671	19.1	3.82	1.19	
	60	60	5	65.0853	18.2	3.64	1.14	
5		Initial Reading		65.0907				0.67
	30	30	5	65.1013	10.6	2.12	0.66	
	30	30	5	65.1121	10.8	2.16	0.68	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
30	0.52
60	0.83
90	1.87
60	1.17
30	0.67
Calculated Permeability	
20.117 L	
2.62E-06 m/s	



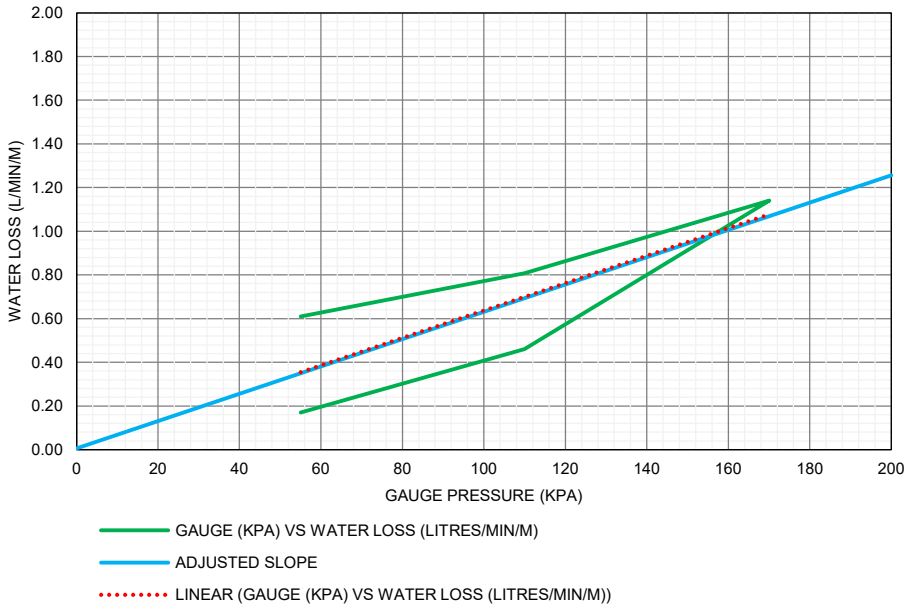
BH202 Test 2

Client: Site 3 Group
Project: Proposed Mixed Use Development
Location: 810 Pacific Highway, Gordon
Bore diameter (mm): 96
Bore inclination (deg): 90

Project: 37403Y
Borehole: 202
Test: 2
Date: 25/02/2025
Hole depth (m): 21.8
Test Section (m) 17m to 21.8m
Test section length (m): 4.8
Diameter of barrel (m): 96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		64.6676				0.61
	55	55	5	64.6809	13.3	2.66	0.55	
	55	55	5	64.6964	15.5	3.10	0.65	
	55	55	5	64.7115	15.1	3.02	0.63	
2		Initial Reading		64.7245				0.81
	110	110	5	64.744	19.5	3.90	0.81	
	110	110	5	64.7633	19.3	3.86	0.80	
3		Initial Reading		64.7746				1.14
	170	170	5	64.8015	26.9	5.38	1.12	
	170	170	5	64.8294	27.9	5.58	1.16	
4		Initial Reading		64.833				0.46
	110	110	5	64.8474	14.4	2.88	0.60	
	110	110	5	64.857	9.6	1.92	0.40	
	110	110	5	64.8661	9.1	1.82	0.38	
5		Initial Reading		64.8672				0.17
	55	55	5	64.8713	4.1	0.82	0.17	
	55	55	5	64.8754	4.1	0.82	0.17	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
55	0.61
110	0.81
170	1.14
110	0.46
55	0.17
Calculated Permeability	
6.281 L	
8.17E-07 m/s	



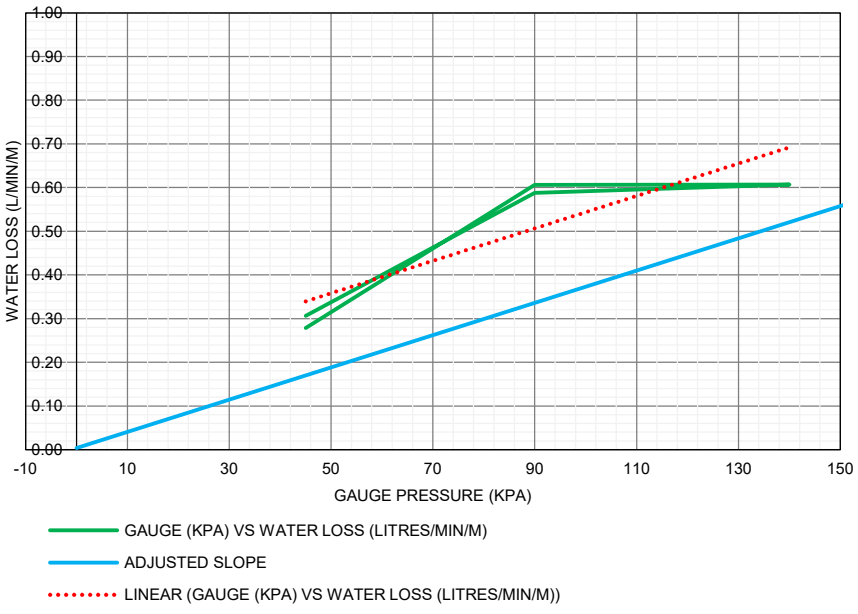
BH203 Test 1

Client: Site 3 Group
Project: Proposed Mixed Use Development
Location: 810 Pacific Highway, Gordon
Bore diameter (mm): 96
Bore inclination (deg): 90

Project: 37403Y
Borehole: BH203
Test: 1
Date: 28/02/2025
Hole depth (m): 18.05
Test Section (m) 14m to 18.05m
Test section length (m): 4.05
Diameter of barrel (m): 96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		68.4107				0.28
	45	45	5	68.4163	5.6	1.12	0.28	
	45	45	5	68.422	5.7	1.14	0.28	
2		Initial Reading		68.4314				0.61
	90	90	5	68.4451	13.7	2.74	0.68	
	90	90	5	68.4569	11.8	2.36	0.58	
	90	90	5	68.4682	11.3	2.26	0.56	
3		Initial Reading		68.482				0.61
	140	140	5	68.4937	11.7	2.34	0.58	
	140	140	5	68.5056	11.9	2.38	0.59	
	140	140	5	68.5189	13.3	2.66	0.66	
4		Initial Reading		68.5083				0.59
	90	90	5	68.5208	12.5	2.50	0.62	
	90	90	5	68.5328	12	2.40	0.59	
	90	90	5	68.544	11.2	2.24	0.55	
5		Initial Reading		65.5388				0.31
	45	45	5	65.5448	6	1.20	0.30	
	45	45	5	65.5512	6.4	1.28	0.32	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
45	0.28
90	0.61
140	0.61
90	0.59
45	0.31
Calculated Permeability	
3.712 L	
4.83E-07 m/s	

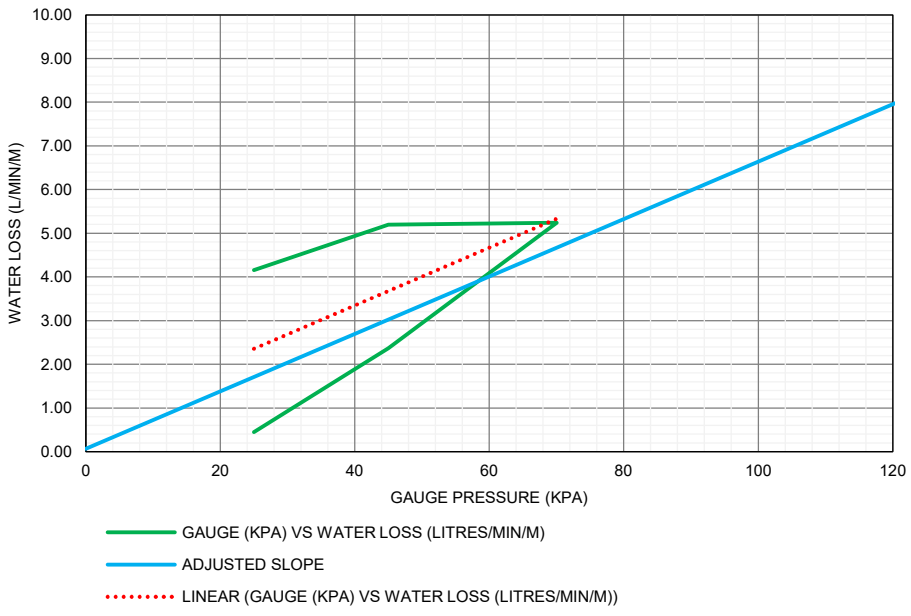


BH301 Test 1

Client:	Site 3 Group Pty Ltd	**Project:**	37403Y
Project:	Proposed Mixed Use Development	**Borehole:**	301
Location:	810 Pacific Highway, Gordon	**Test:**	1
Bore diameter (mm):	96	**Date:**	23/07/2025
Bore inclination (deg):	90	**Hole depth (m):**	10
		Test Section (m)	6.6m to 10m
		Test section length (m):	3.4
		Diameter of barrel (m):	96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		96.4739				0.45
	25	25	5	96.4815	7.6	1.52	0.45	
	25	25	5	96.4892	7.7	1.54	0.45	
	25	25	5	96.497	7.8	1.56	0.46	
2		Initial Reading		96.5164				2.37
	45	45	5	96.5556	39.2	7.84	2.31	
	45	45	5	96.5969	41.3	8.26	2.43	
3		Initial Reading		96.6298				5.24
	70	70	5	96.708	78.2	15.64	4.60	
	70	70	5	96.7999	91.9	18.38	5.41	
	70	70	5	96.8972	97.3	19.46	5.72	
4		Initial Reading		96.8582				5.20
	45	45	5	96.9456	87.4	17.48	5.14	
	45	45	5	97.0349	89.3	17.86	5.25	
5		Initial Reading		97.0558				4.15
	25	25	5	97.1255	69.7	13.94	4.10	
	25	25	5	97.197	71.5	14.30	4.21	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
25	0.45
45	2.37
70	5.24
45	5.20
25	4.15
Calculated Permeability	
66.088 L	
8.59E-06 m/s	

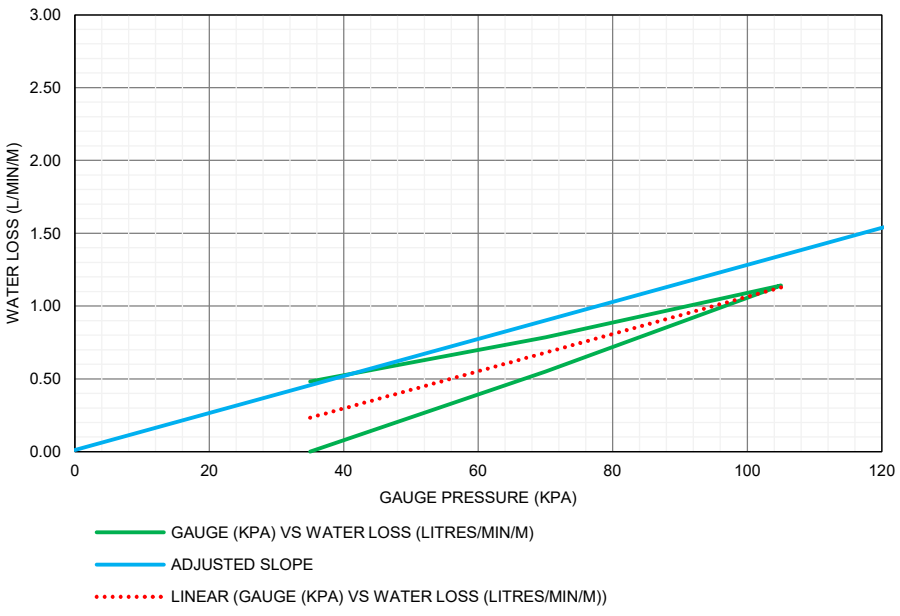


BH301 TEST 2

Client:	Site 3 Group Pty Ltd	**Project:**	37403Y
Project:	Proposed Mixed Use Development	**Borehole:**	301
Location:	810 Pacific Highway, Gordon	**Test:**	2
Bore diameter (mm):	96	**Date:**	24/07/2025
Bore inclination (deg):	90	**Hole depth (m):**	14
		Test Section (m)	10.6m to 14m
		Test section length (m):	3.4
		Diameter of barrel (m):	96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		97.159				0.00
	35	35	5	97.159	0	0.00	0.00	
	35	35	5	97.159	0	0.00	0.00	
	35	35	5	97.159	0	0.00	0.00	
2		Initial Reading		97.1727				0.55
	70	70	5	97.1816	8.9	1.78	0.52	
	70	70	5	97.1909	9.3	1.86	0.55	
	70	70	5	97.2007	9.8	1.96	0.58	
3		Initial Reading		97.2192				1.14
	105	105	5	97.2313	12.1	2.42	0.71	
	105	105	5	97.254	22.7	4.54	1.34	
	105	105	5	97.2775	23.5	4.70	1.38	
4		Initial Reading		97.287				0.79
	70	70	5	97.3006	13.6	2.72	0.80	
	70	70	5	97.3137	13.1	2.62	0.77	
5		Initial Reading		97.3203				0.48
	35	35	5	97.3286	8.3	1.66	0.49	
	35	35	5	97.3367	8.1	1.62	0.48	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
35	0.00
70	0.55
105	1.14
70	0.79
35	0.48
Calculated Permeability	
12.783 L	
1.66E-06 m/s	

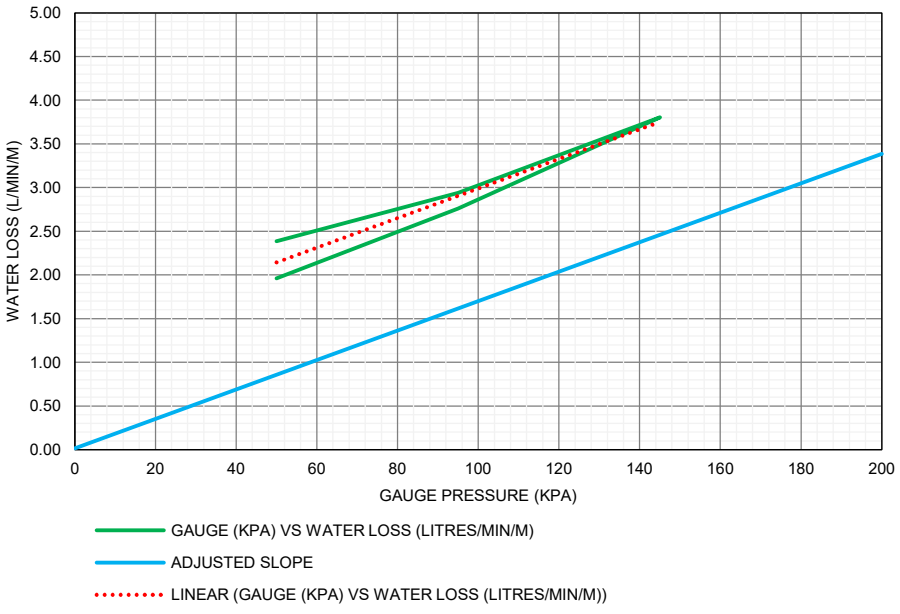


BH301 TEST 3

Client:	Site 3 Group Pty Ltd	**Project:**	37403Y
Project:	Proposed Mixed Use Development	**Borehole:**	301
Location:	810 Pacific Highway, Gordon	**Test:**	3
Bore diameter (mm):	96	**Date:**	24/07/2025
Bore inclination (deg):	90	**Hole depth (m):**	18.2
		Test Section (m)	15.2m to 18.2m
		Test section length (m):	3
		Diameter of barrel (m):	96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		97.359				1.96
	50	50	5	97.386	27	5.40	1.80	
	50	50	5	97.4158	29.8	5.96	1.99	
	50	50	5	97.4473	31.5	6.30	2.10	
2		Initial Reading		97.4728				2.76
	95	95	5	97.5153	42.5	8.50	2.83	
	95	95	5	97.5563	41	8.20	2.73	
	95	95	5	97.597	40.7	8.14	2.71	
3		Initial Reading		97.627				3.81
	145	145	5	97.6845	57.5	11.50	3.83	
	145	145	5	97.7413	56.8	11.36	3.79	
	145	145	5	97.7983	57	11.40	3.80	
4		Initial Reading		97.816				2.94
	95	95	5	97.862	46	9.20	3.07	
	95	95	5	97.9054	43.4	8.68	2.89	
	95	95	5	97.9483	42.9	8.58	2.86	
5		Initial Reading		97.968				2.39
	50	50	5	98.0039	35.9	7.18	2.39	
	50	50	5	98.0397	35.8	7.16	2.39	
	50	50	5	98.0754	35.7	7.14	2.38	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
50	1.96
95	2.76
145	3.81
95	2.94
50	2.39
Calculated Permeability	
16.931 L	
2.20E-06 m/s	

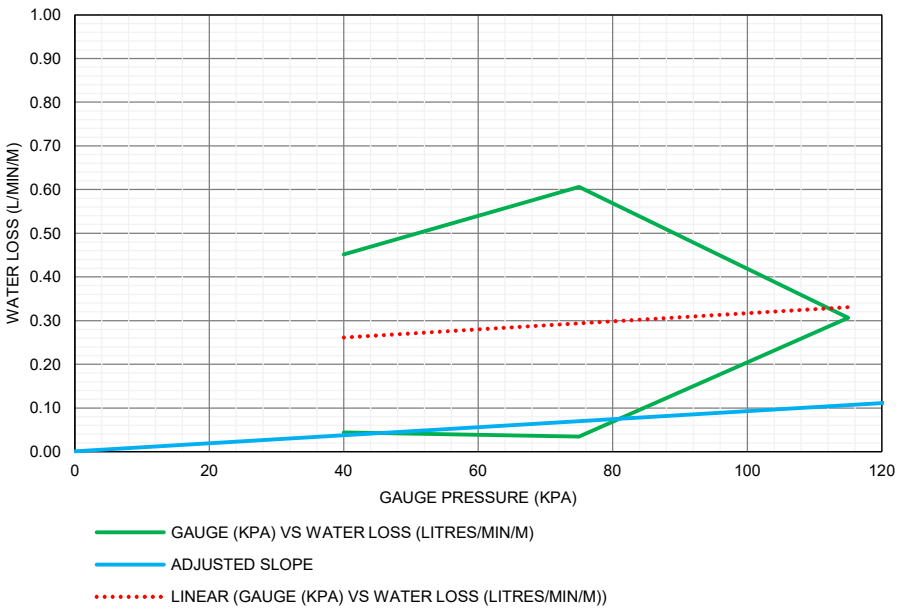


BH302 TEST 1

Client:	Site 3 Group Pty Ltd	**Project:**	37403Y
Project:	Proposed Mixed Use Development	**Borehole:**	302
Location:	810 Pacific Highway, Gordon	**Test:**	1
Bore diameter (mm):	96	**Date:**	21/07/2025
Bore inclination (deg):	90	**Hole depth (m):**	14.78
		Test Section (m)	11.3m to 14.78m
		Test section length (m):	3.48
		Diameter of barrel (m):	96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		96.3182				0.04
	40	40	5	96.3203	2.1	0.42	0.12	
	40	40	5	96.3207	0.4	0.08	0.02	
	40	40	5	96.3215	0.8	0.16	0.05	
	40	40	5	96.3224	0.9	0.18	0.05	
	40	40	5	96.3226	0.2	0.04	0.01	
	40	40	5	96.3228	0.2	0.04	0.01	
2		Initial Reading		96.3228				0.03
	75	75	5	96.3234	0.6	0.12	0.03	
	75	75	5	96.324	0.6	0.12	0.03	
	75	75	5	96.3246	0.6	0.12	0.03	
3		Initial Reading		96.3247				0.31
	115	115	5	96.3284	3.7	0.74	0.21	
	115	115	5	96.3344	6	1.20	0.34	
	115	115	5	96.3407	6.3	1.26	0.36	
4		Initial Reading		96.347				0.61
	75	75	5	96.3579	10.9	2.18	0.63	
	75	75	5	96.3681	10.2	2.04	0.59	
5		Initial Reading		96.3718				0.45
	40	40	5	96.3795	7.7	1.54	0.44	
	40	40	5	96.3875	8	1.60	0.46	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
40	0.04
75	0.03
115	0.31
75	0.61
40	0.45
Calculated Permeability	
0.926 L	
1.20E-07 m/s	

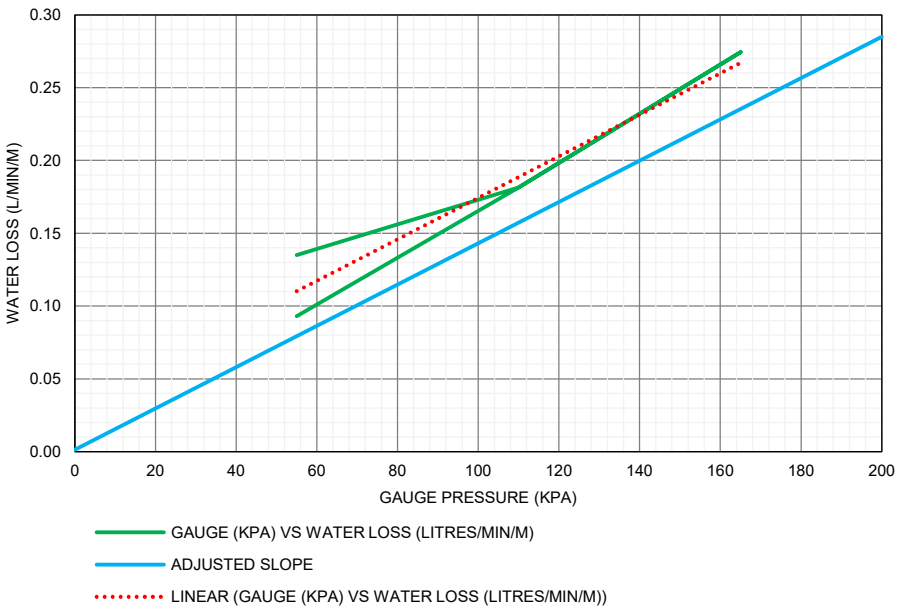


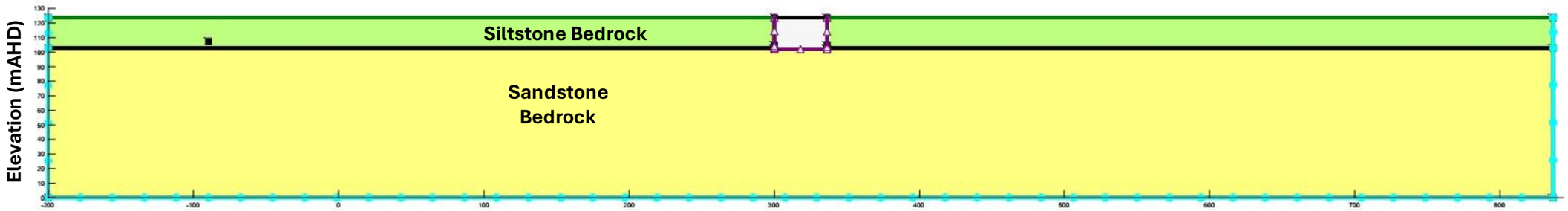
BH302 Test 2

Client:	Site 3 Group Pty Ltd	**Project:**	37403Y
Project:	Proposed Mixed Use Development	**Borehole:**	BH302
Location:	810 Pacific Highway, Gordon	**Test:**	2
Bore diameter (mm):	96	**Date:**	22/07/2025
Bore inclination (deg):	90	**Hole depth (m):**	20.8
		Test Section (m)	16.5m to 20.8m
		Test section length (m):	4.3
		Diameter of barrel (m):	96

Test No.	PRESSURE		TIME	WATER LOSS	FLOW RATES			Average q
	Gauge (P)	Total (h)	Duration	Flowmeter Reading	Flowmeter Readings	Q	q	
	(kPa)	(kPa)	(min)	(m3)	(litres)	(L/min)	(L/min/m)	
1		Initial Reading		96.4102				0.13
	55	55	5	96.4251	2.9	0.58	0.13	
	55	55	5	96.4415	2.9	0.58	0.13	
	55	55	5	96.4489	2.9	0.58	0.13	
2		Initial Reading		96.4491				0.18
	110	110	5	96.4499	3.9	0.78	0.18	
	110	110	5	96.4504	3.9	0.78	0.18	
	110	110	5	96.4509	3.9	0.78	0.18	
3		Initial Reading		96.4512				0.27
	165	165	5	96.4537	5.9	1.18	0.27	
	165	165	5	96.4564	5.9	1.18	0.27	
	165	165	5	96.4591	5.9	1.18	0.27	
4		Initial Reading		96.4598				0.18
	110	110	5	96.4602	3.9	0.78	0.18	
	110	110	5	96.4608	3.9	0.78	0.18	
	110	110	5	96.4612	3.9	0.78	0.18	
5		Initial Reading		96.4616				0.09
	55	55	5	96.4626	2	0.40	0.09	
	55	55	5	96.4642	2	0.40	0.09	
	55	55	5	96.4657	2	0.40	0.09	
NOTE: Barrel readings are taken if flowmeter readings are less than 1 litre per 5 minutes								

Gauge (kPa)	Average Water Loss (litres/min/m)
55	0.13
110	0.18
165	0.27
110	0.18
55	0.09
Calculated Permeability	
1.426 L	
1.85E-07 m/s	



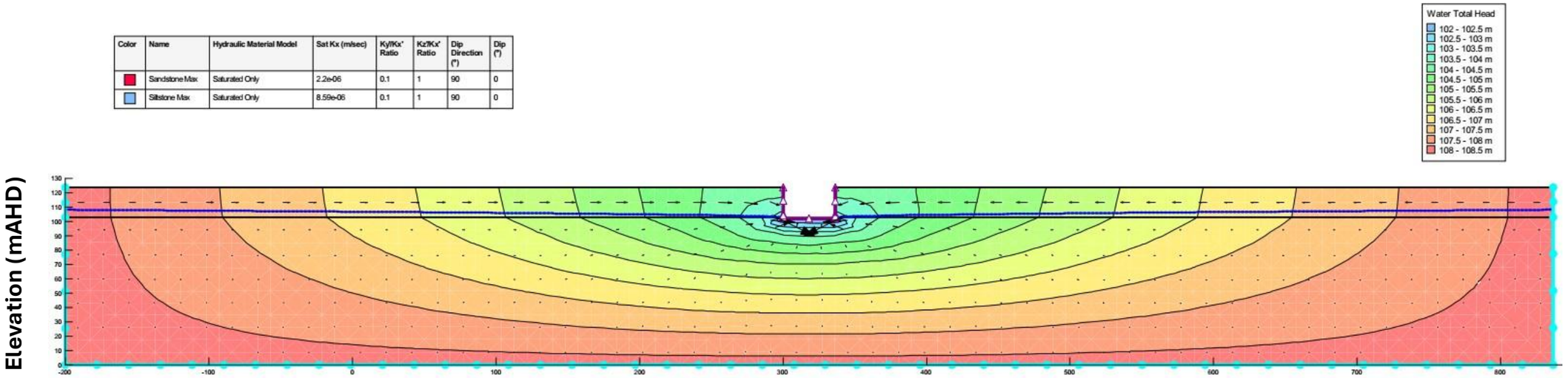


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Report No 37403Y Figure No. 17

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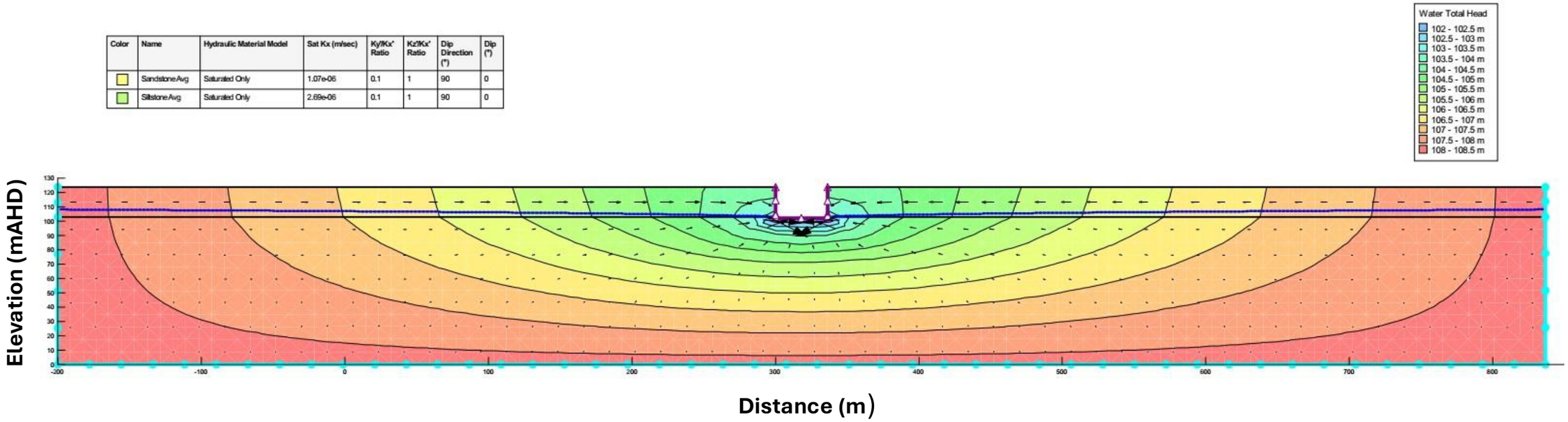
Color	Name	Hydraulic Material Model	Sat Kx (m/sec)	Ky/Kx' Ratio	Kz/Kx' Ratio	Dip Direction (°)	Dip (°)
	Sandstone Max	Saturated Only	2.2e-06	0.1	1	90	0
	Siltstone Max	Saturated Only	8.59e-06	0.1	1	90	0



Highest Coefficient Permeability (Worst)

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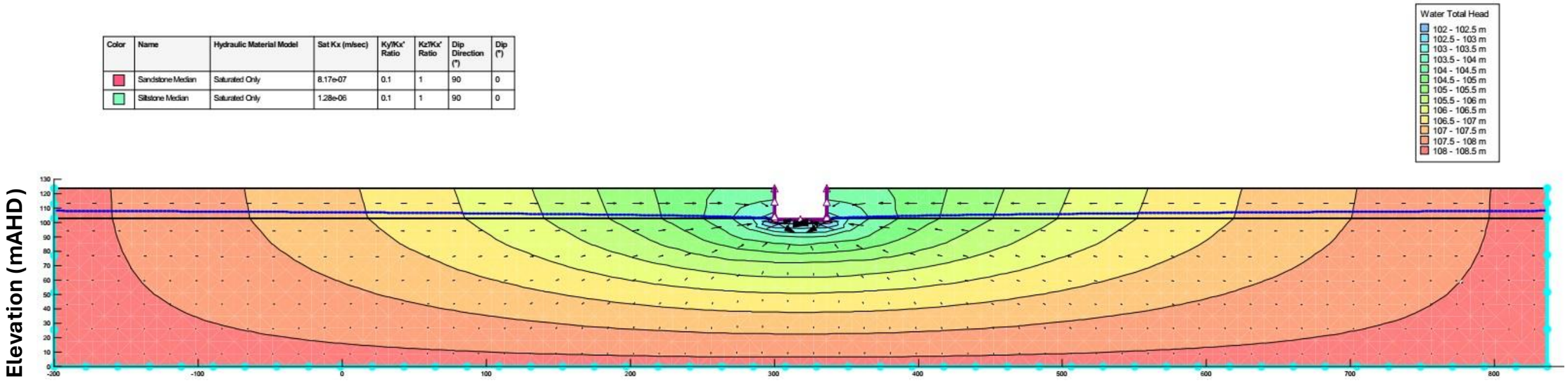
Color	Name	Hydraulic Material Model	Sat Kx (m/sec)	Ky/Kx' Ratio	Kz/Kx' Ratio	Dip Direction (°)	Dip (°)
	Sandstone Avg	Saturated Only	1.07e-06	0.1	1	90	0
	Siltstone Avg	Saturated Only	2.69e-06	0.1	1	90	0



Average Coefficient Permeability

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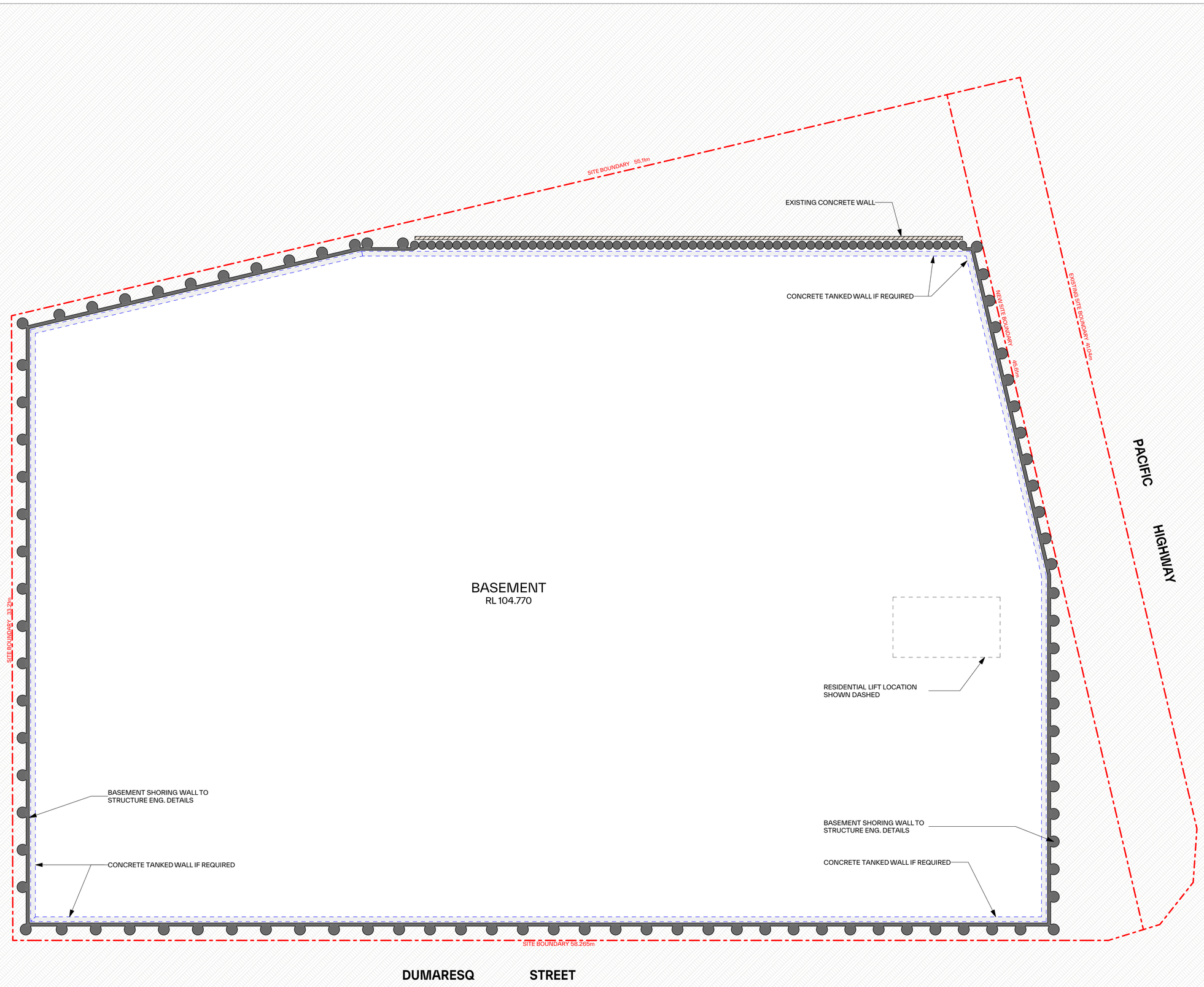
Color	Name	Hydraulic Material Model	Sat Kx (m/sec)	Ky/Kx' Ratio	Kz/Kx' Ratio	Dip Direction (°)	Dip (°)
	Sandstone Median	Saturated Only	8.17e-07	0.1	1	90	0
	Siltstone Median	Saturated Only	1.28e-06	0.1	1	90	0



Median Coefficient Permeability

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APPENDIX A



GENERAL NOTES:

- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVENT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVENT AUSTRALIAN BUILDING STANDARDS
- DRAWINGS FOR THE PURPOSES OF DA ONLY (NOT FOR CONSTRUCTION) - FURTHER CONSULTANT/ AUTHORITY COORDINATION WILL BE REQUIRED AT CC STAGE WHICH MAY IMPACT ON DESIGN AND PLANNING LAYOUTS
- ARCHITECTURAL PLANS TO BE READ IN CONJUNCTION WITH CONSULTANTS DRAWINGS, SPECIFICATIONS & REPORTS
- COPYRIGHT OF DESIGN SHOWN HEREON IS RETAINED BY PBD ARCHITECTS AND AUTHORITY IS REQUIRED FOR ANY REPRODUCTION
- AREA SCHEDULES SUPPLIED ARE APPROXIMATE ONLY - FUTURE ALLOWANCE FOR VERTICAL SERVICE DUCTS, STRUCTURAL WALL SYSTEMS AND CONSULTANT INPUT WILL BE REQUIRED

LEGEND:

AW	AWNING
AH	ACCESS HATCH
AC	A/C CONDENSER UNITS
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
FS	FIRE STAIRS
GC	GARBAGE CHUTE
HW	HIGHLIGHT WINDOW
MV	MECHANICAL RISER TO FUTURE DETAIL
MB	MAILBOX TO FUTURE DETAIL
R	240L RECYCLING BIN
SK	SKYLIGHT
ST	STORAGE
HWU	HOT WATER UNITS

MATERIALS LEGEND:

AFG	ALUMINIUM FRAMED GLAZING
LV	ALUMINIUM ELLIPTICAL FIXED LOUVERS
AW	AWNING (TO FUTURE DETAIL)
CONC	CONCRETE
FB	FACE BRICK
GB	FRAMELESS TOUCHENED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
MB	METAL BALUSTRADE
MC	METAL CLADDING
FCE	METAL FENCING (TO FUTURE SELECTION)
PC	COMPOSITE PANEL CLADDING
PSx	PRIVACY SCREEN (TO FUTURE SELECTION)
PTx	PAINT FINISH TYPEx
RD	ROLLER DOOR
RP	RIVER PEBBLES
RW	RENDERED FINISH/SELECTED PAINT FINISH
TC	TIMBER CLADDING
VB	EXTERNAL VENETIAN BLINDS

DISCLAIMER:

ARCHITECTURAL PLANS ARE BASED ON DRAWINGS BY LEFFLER SIMES ARCHITECTS AND ARE AMENDED FOR THE PURPOSE TO ISSUE THIS MODIFICATION DA.

Issue	Date	Description
A	08.04.2025	AMENDED DA

N

Scale Bar 1 : 100 @ A1

0 1 2 3 4 5m

CLIENT:
Ecove Group

pbd architects

P - 02 9698 8140
E - info@pbdarchitects.com.au
W - pbdarchitects.com.au

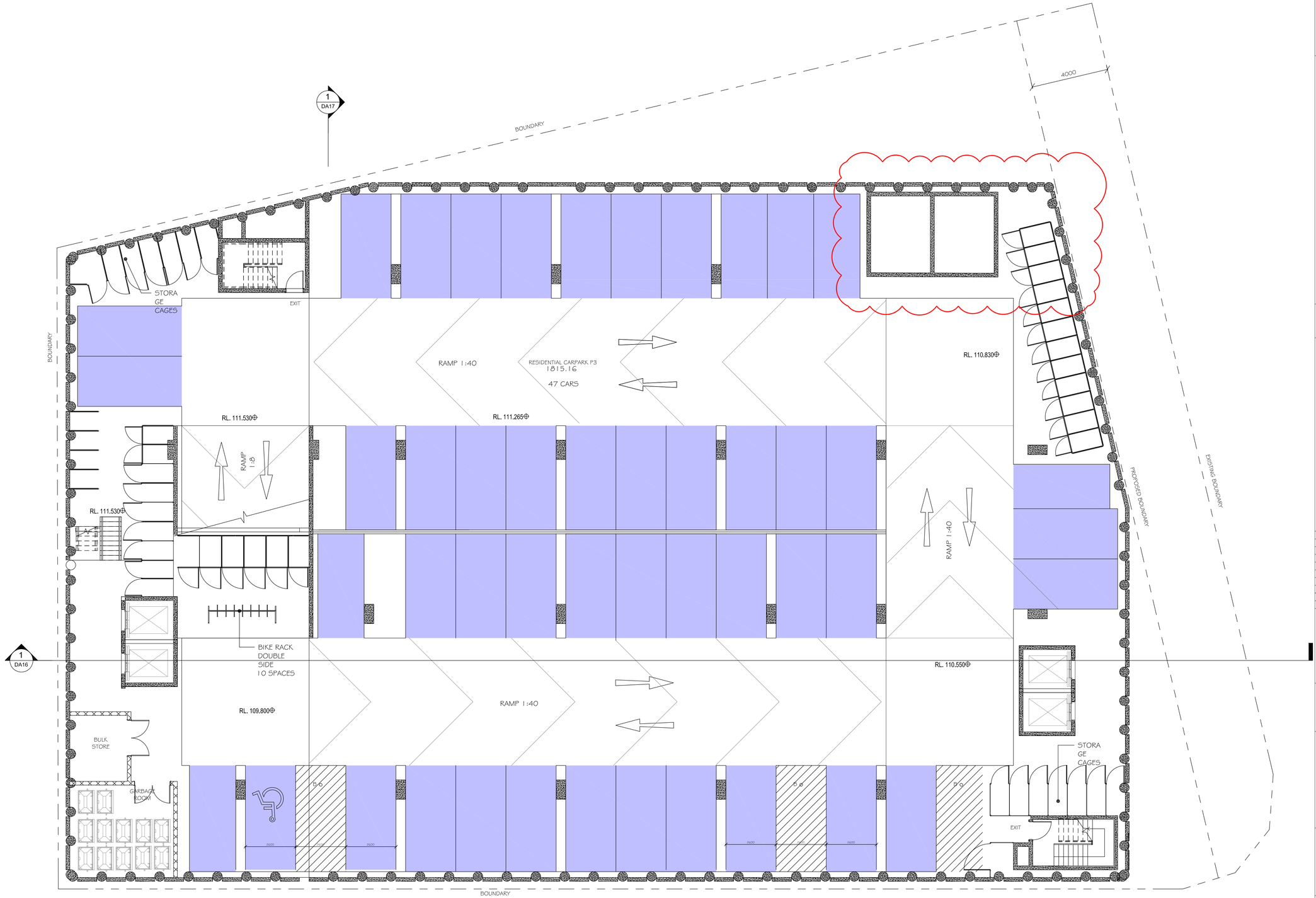
Level 2, 52 Albion Street,
Surry Hills NSW 2010

ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon Sydney NSW 2065 Australia

DRAWING TITLE:
Basement Envelope

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	8/04/2025
SCALE: 1:100@A1	DRAWING NO: DA1000	ISSUE: A
PROJECT NO: 2432		



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LEGEND:

AW AWNING
AH ACCESS HATCH
AC A/C CONDENSER UNITS
FH FIRE HYDRANT
FHR FIRE HOSE REEL
FS FIRE STAIRS
GC GARBAGE CHUTE
HW HIGHLIGHT WINDOW
MV MECHANICAL RISER TO FUTURE DETAIL
MB MAILBOX TO FUTURE DETAIL
R 240L RECYCLING BIN
SK SKYLIGHT
ST STORAGE
HWU HOT WATER UNITS

MATERIALS LEGEND:

AFG ALUMINIUM FRAMED GLAZING
LV ALUMINIUM ELLIPTICAL FIXED LOUVERS
AW AWNING (TO FUTURE DETAIL)
CONCCONCRETE
FB FACE BRICK
GB FRAMELESS TOUCHENED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
MB METAL BALUSTRADE
MC METAL CLADDING
FCE METAL FENCING (TO FUTURE SELECTION)
PC COMPOSITE PANEL CLADDING
PSx PRIVACY SCREEN (TO FUTURE SELECTION)
PTx PAINT FINISH TYPEx
RD ROLLER DOOR
RP RIVER PEBBLES
RW RENDERED FINISH/SELECTED PAINT FINISH
TC TIMBER CLADDING
VB EXTERNAL VENETIAN BLINDS

DISCLAIMER:
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Issue	Date	Description
G	08.04.2025	AMENDED DA

N

CLIENT:
Ecove Group

pbd architects

P - 02 9698 8140
E - info@pbdarchitects.com.au
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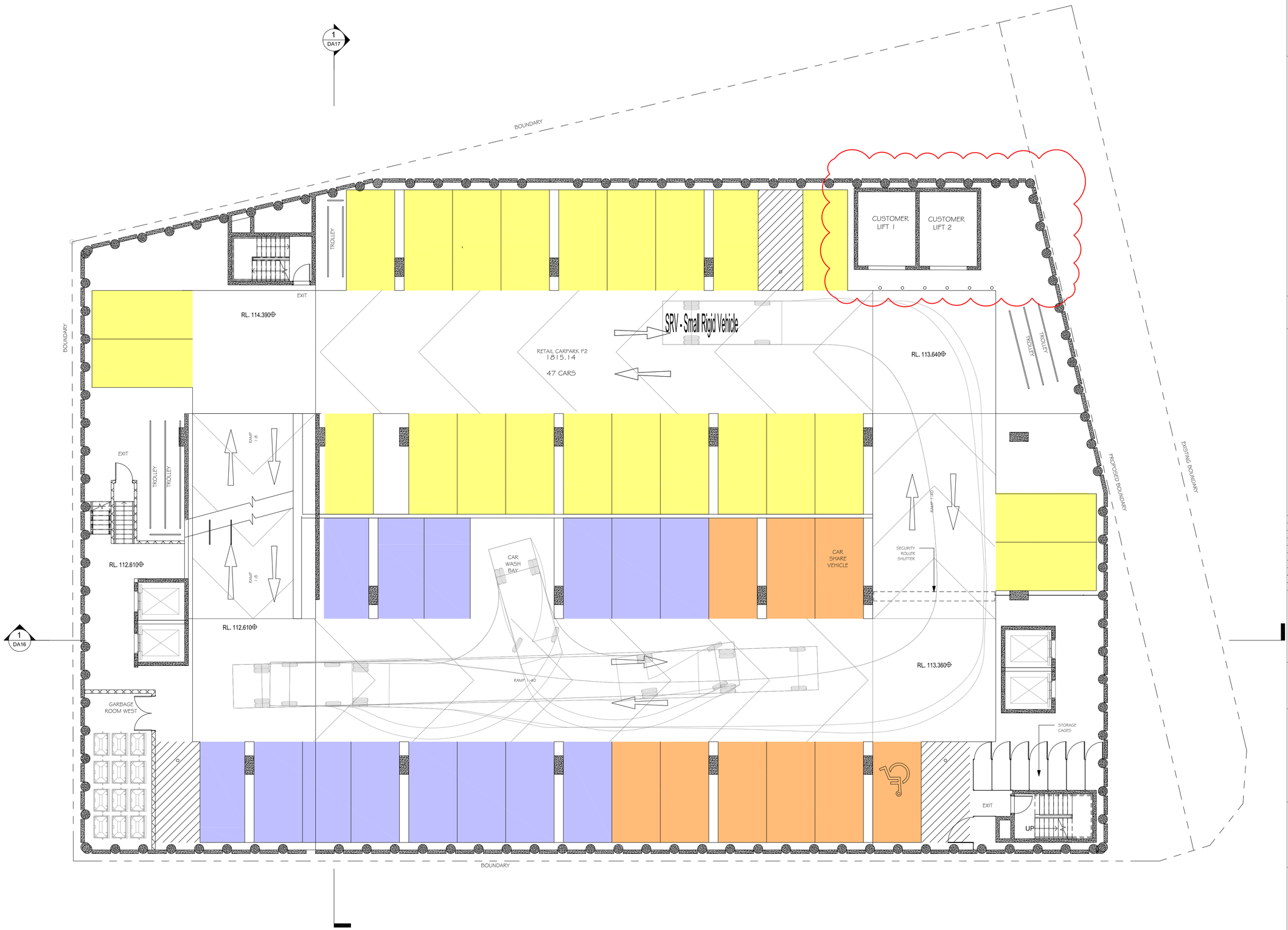
Level 2, 52 Albion Street,
Surry Hills NSW 2010

ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon
Sydney NSW 2065 Australia

DRAWING TITLE:
CARPARK LEVEL P3

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:100 @ A1	DRAWING NO: DA01	ISSUE: G
PROJECT NO: 2432		



GENERAL NOTES:

- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVENT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVENT AUSTRALIAN BUILDING STANDARDS
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Issue	Date	Description
G	08.04.2025	AMENDED DA

N

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Level 2, 52 Albion Street,
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ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon
Sydney NSW 2065 Australia

DRAWING TITLE:
CARPARK LEVEL P2

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:100 @ A1	DRAWING NO: DA02	ISSUE: G
PROJECT NO: 2432		



GENERAL NOTES:

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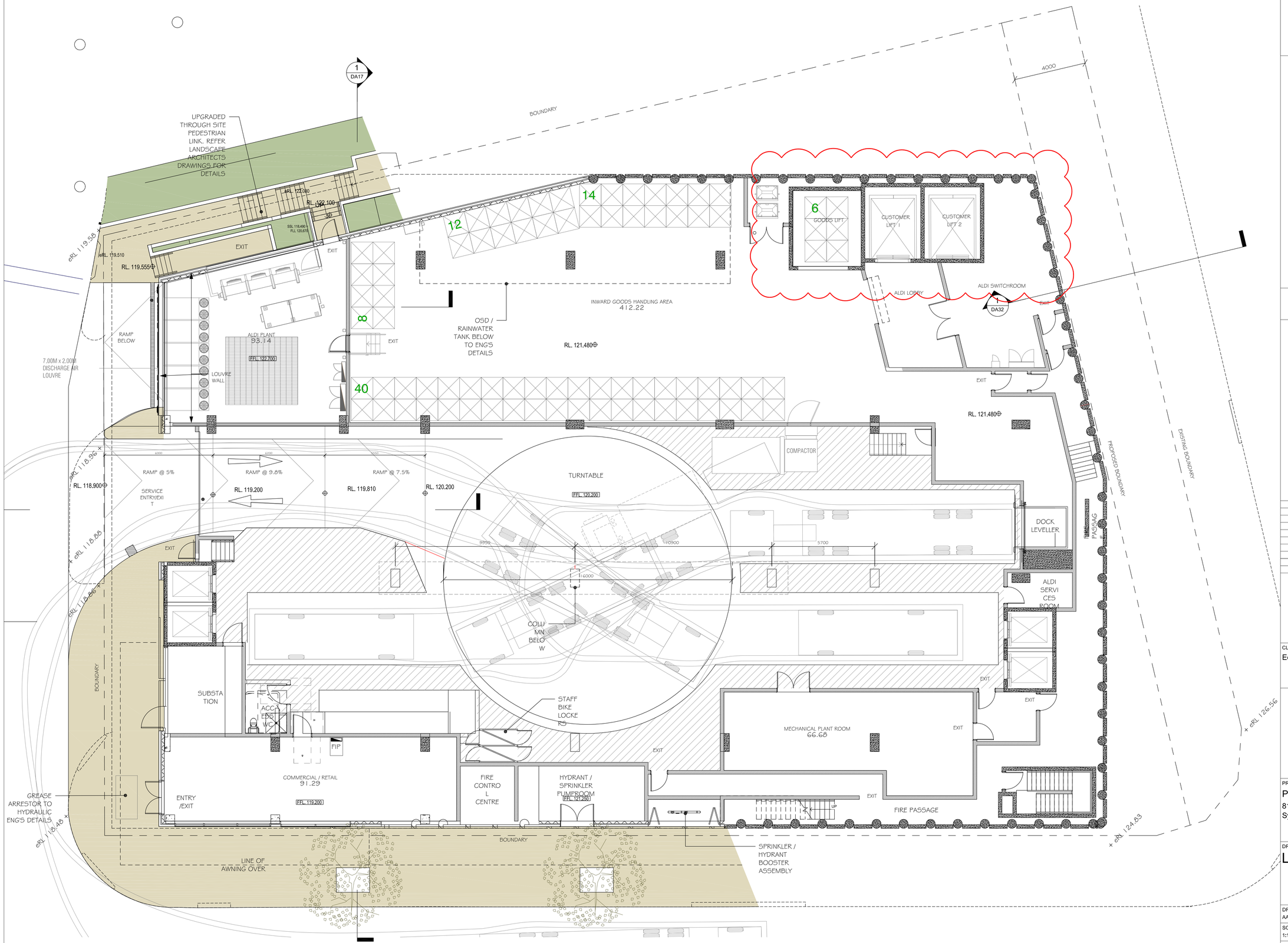
Level 2, 52 Albion Street,
Surry Hills NSW 2010

ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon
Sydney NSW 2065 Australia

DRAWING TITLE:
CARPARK LEVEL P1

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:100 @ A1	DRAWING NO: DA03	ISSUE: G
PROJECT NO: 2432		



GENERAL NOTES:

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Issue	Date	Description
G	08.04.2025	AMENDED DA

N

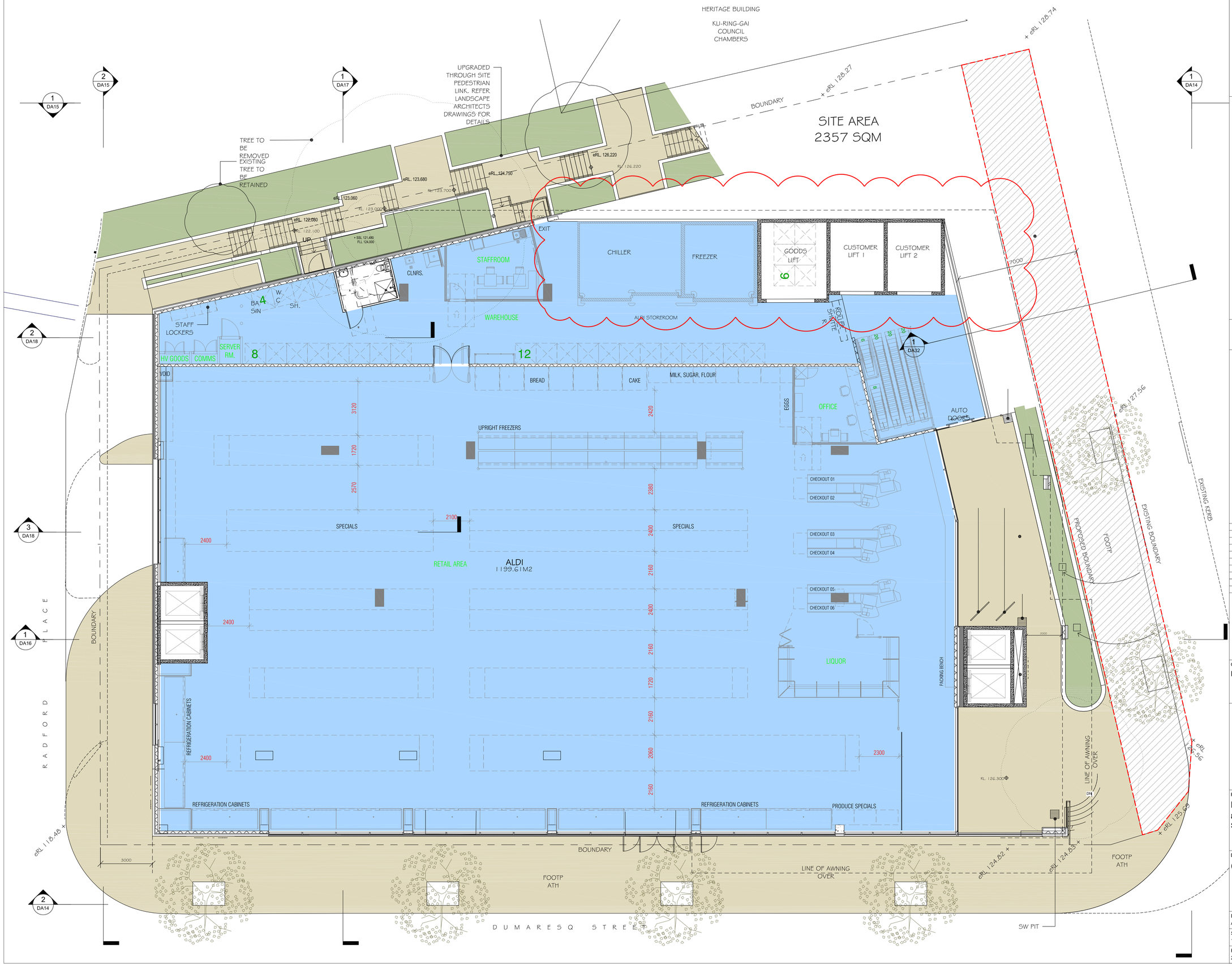
CLIENT:
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Level 2, 52 Albion Street, Surry Hills NSW 2010
ABN 36 147 035 550
Nominated Architect: Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon
Sydney NSW 2065 Australia

DRAWING TITLE:
LOADING DOCK

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:100 @ A1	DRAWING NO: DA04	ISSUE: H
PROJECT NO: 2432		



GENERAL NOTES:

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Issue	Date	Description
G	08.04.2025	AMENDED DA

N

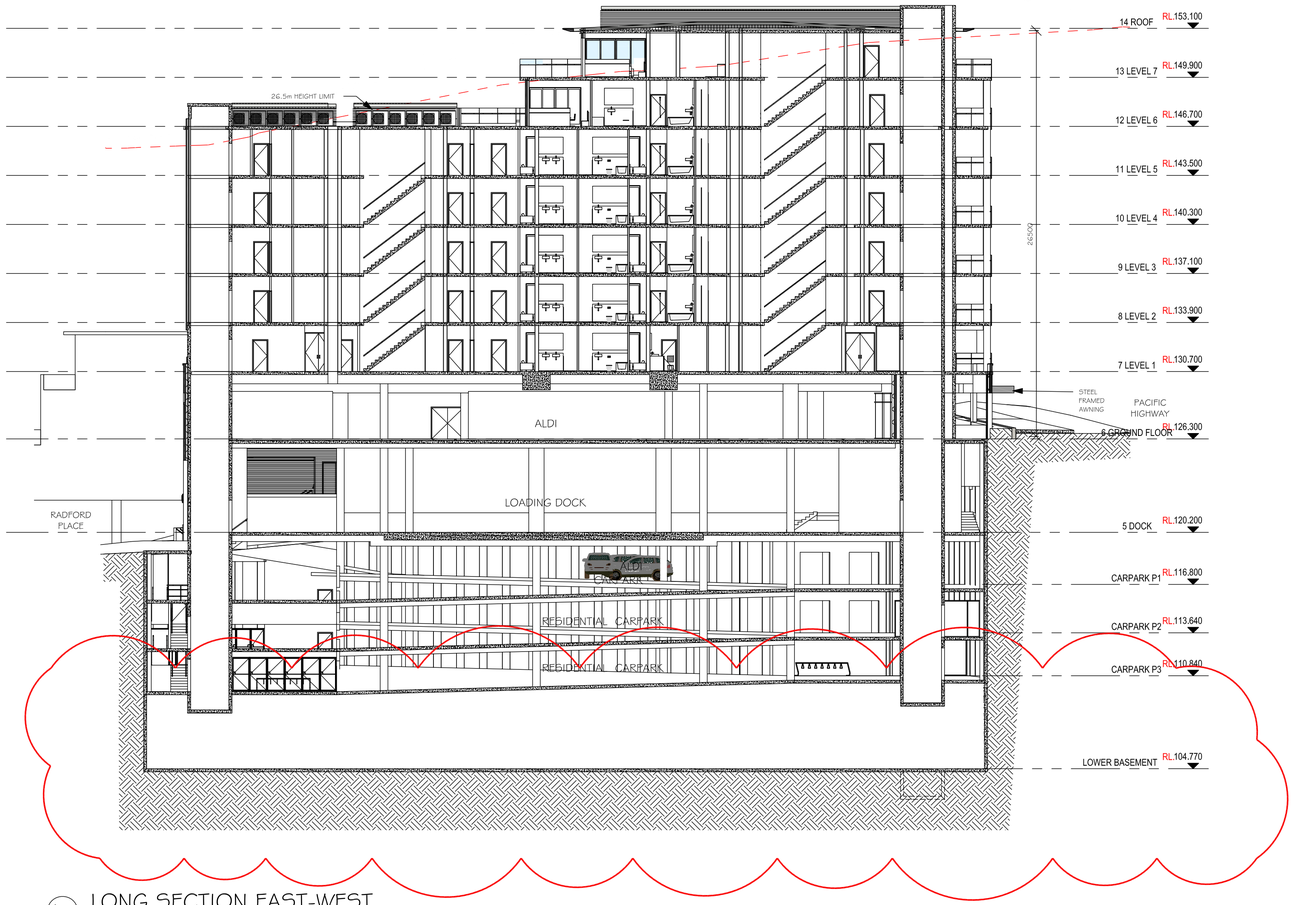
CLIENT:
Ecove Group

pbd architects
P - 02 9698 8140
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W - pbdarchitects.com.au
Level 2, 52 Albion Street, Surry Hills NSW 2010
ABN 36 147 035 550
Nominated Architect: Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon
Sydney NSW 2065 Australia

DRAWING TITLE:
GROUND FLOOR

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:100 @ A1	DRAWING NO: DA05	ISSUE: G
PROJECT NO: 2432		



1 LONG SECTION EAST-WEST
1 : 200

GENERAL NOTES:

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Issue	Date	Description
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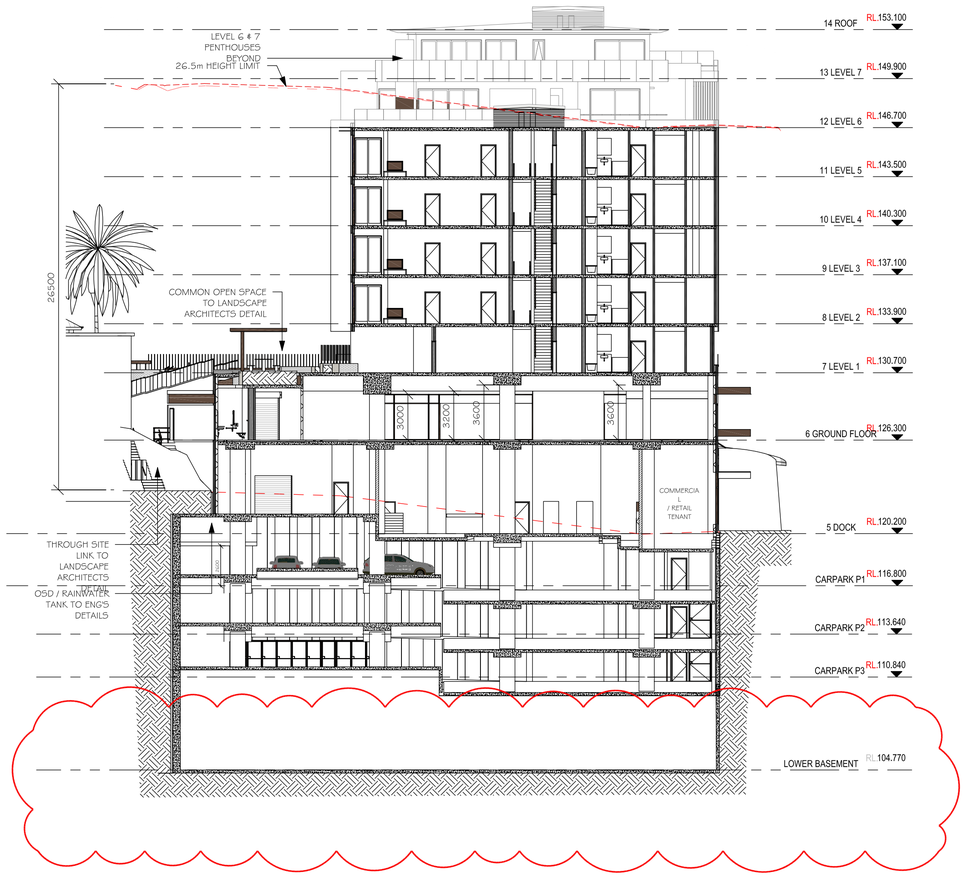
Level 2, 52 Albion Street,
Surry Hills NSW 2010

ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon
Sydney NSW 2065 Australia

DRAWING TITLE:
SECTION SHEET 1

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:200 @ A1	DRAWING NO: DA16	ISSUE: F
PROJECT NO: 2432		



CROSS SECTION NORTH-SOUTH 1

1 : 200

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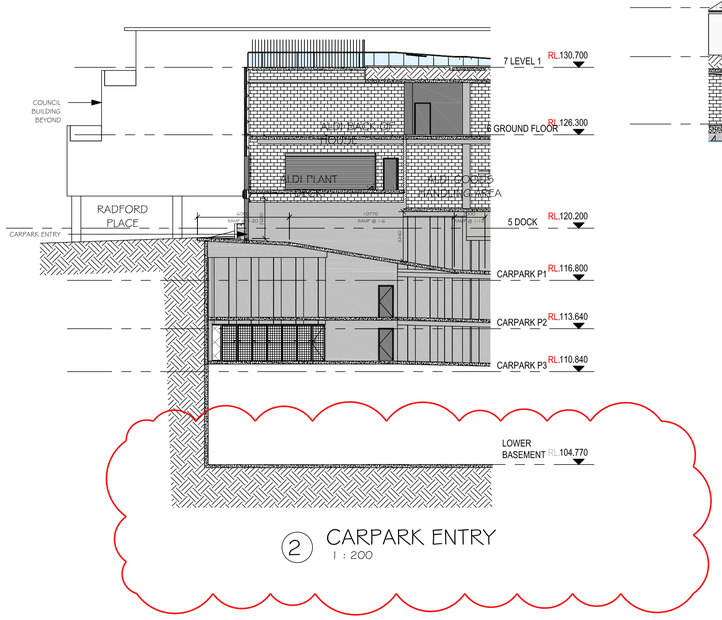
Level 2, 52 Albion Street,
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ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon
Sydney NSW 2065 Australia

DRAWING TITLE:
SECTION SHEET 2

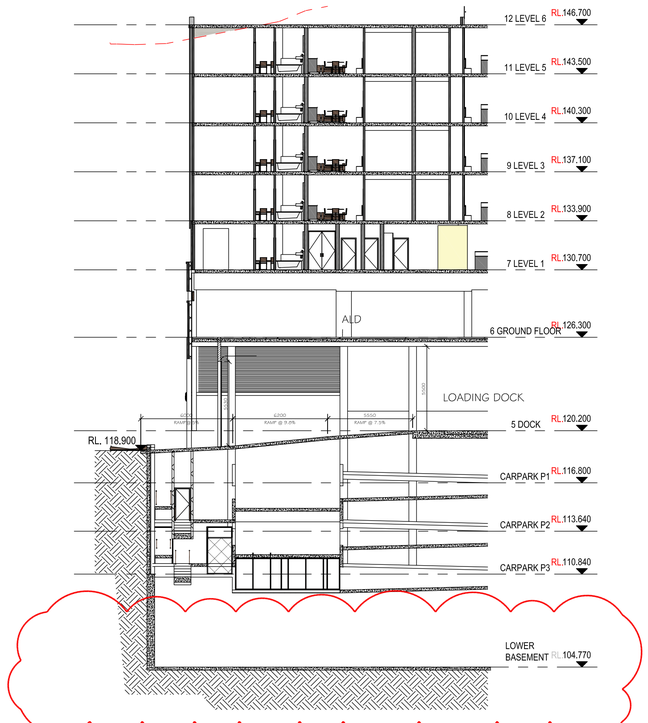
DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:200 @ A1	DRAWING NO: DA17	ISSUE: F
PROJECT NO: 2432		



2 CARPARK ENTRY
1 : 200



1 SECTION THROUGH PODIUM
1 : 200



SECTION THROUGH DOCK ENTRY
3 1 : 200

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DRAWING TITLE:
SECTION SHEET 3

DRAWING BY:	CHECKED BY:	DATE:
AA	KS	
SCALE: 1:200 @ A1	DRAWING NO: DA18	ISSUE: F
PROJECT NO: 2432		

RENDERED BUILDING TILE ROOF
NO 818
"KU-RING-GAI MUNICIPAL COUNCIL"
HERITAGE BUILDING

APPROXIMATE LOCATION OF TRANSPLANTED PALM T9

SITE BOUNDARY 55.11m

3m SITE SETBACK

6m SITE SETBACK

9m SITE SETBACK

SITE BOUNDARY 33.24m

0.45m SITE SETBACK

SITE BOUNDARY58.265m

NEW SITE BOUNDARY 45.81m

EXISTING SITE BOUNDARY 41.04m

RADFORD PLACE

PACIFIC HIGHWAY

DUMARESQ STREET

COMMUNAL OPEN SPACE

LIFT OVERRUN BELOW

SSL min 130.300 to suit 4.4m lift overrun below

SUBSTATION

CHUTE LOCATION TBC

EX. RL128,810
EX. RL128,740
EX. RL128,600
EX. RL 128,500
EX. RL128,280
TOW 129,950
EX. RL 128,550
RL 128,030
126,220
128,600
3,300
128,400
5,300
EX. RL128,360
EX. RL128,360
EX. RL128,170
TOW 131,800
TOW 131,700
130,600
130,700
RL 130,700
TOW 131,700
RL 130,700
+130,700
EX. RL127,860
EX. RL127,860
EX. RL127,560
RL 130,700
RL 130,700
RL 130,700

G.01
3-BED
105.6 m²

G0.2
1-BED
56.3 m²

G0.3
2-BED
77.6 m²

G0.4
1-BED
60.2 m²

G0.5
1-BED
60.5 m²

G0.6
3-BED
111.0 m²

G0.7
2-BED
81.1 m²

G0.8
2-BED
81.1 m²

G0.9
3-BED
114.7 m²

TERRACE 15.8 m²
TERRACE 15.9 m²
TERRACE 14.9 m²
TERRACE 15.0 m²
BALCONY 18.7 m²
BALCONY 14.1 m²
BALCONY 14.5 m²
BALCONY 14.3 m²
BALCONY 13.7 m²

BED 3 3.0 x 3.4m
LIVING + DINING 4.0 x 6.0m
BED 1 3.0 x 3.2m
LIVING + DINING 3.6 x 6.0m
BATH 1.9 x 2.9m
BATH 1.7 x 2.6m
BED 2 3.0 x 3.3m
L'DRY 2.1 x 1.2m
BED 1 3.5 x 3.1m
ENS 2.1 x 3.1m
BED 1 3.6 x 3.0m
ENS 3.7 x 1.8m
BATH 1.6 x 3.0m
LIVING + DINING 4.6 x 3.5m
L'DRY 1.8 x 1.5m
BED 3 3.0 x 3.2m
BED 2 3.0 x 3.2m
BED 2 3.0 x 3.4m
LIVING + DINING 4.0 x 6.1m
BED 1 3.6 x 3.1m
ENS 1.5 x 2.6m
BATH 2.7 x 1.5m
FS-2
FS-1
STAIR PRESS
FH
BED 1 3.0 x 3.2m
LIVING + DINING 0.0 x 0.0m
BATH 3.0 x 1.6m
Hyd
LIFT 1
LIFT 2
Ref pipes
Lobby SA
Comms
Hyd
Elec
Lobby Relief Air
Ref pipes
Hyd
ENS 1.8 x 2.6m
BATH 1.7 x 2.6m
BED 1 3.3 x 3.4m
ENS 1.8 x 2.8m
BATH 1.7 x 2.6m
BED 1 3.3 x 3.4m
LIVING + DINING 4.0 x 6.1m
BED 2 3.0 x 3.0m
BED 2 3.0 x 3.0m
LIVING + DINING 4.0 x 6.1m
ENS 3.0 x 3.0m
BATH 1.6 x 3.0m
BED 1 3.0 x 3.7m
BED 2 3.0 x 3.2m
BATH 1.6 x 2.6m
BED 1 3.5 x 3.0m
LIVING + DINING 0.0 x 0.0m
BED 3 3.0 x 3.1m
LIVING + DINING 0.0 x 0.0m

PLATFORM LIFT

T9

PRELIMINARY

GENERAL NOTES:

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LEGEND:

AW	AWNING
AH	ACCESS HATCH
AC	A/C CONDENSER UNITS
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
FS	FIRE STAIRS
GC	GARBAGE CHUTE
HW	HIGHLIGHT WINDOW
MV	MECHANICAL RISER TO FUTURE DETAIL
MB	MAILBOX TO FUTURE DETAIL
R	240L RECYCLING BIN
SK	SKYLIGHT
ST	STORAGE
HWU	HOT WATER UNITS

MATERIALS LEGEND:

AFG	ALUMINIUM FRAMED GLAZING
LV	ALUMINIUM ELLIPTICAL FIXED LOUVERS
AW	AWNING (TO FUTURE DETAIL)
CONC	CONCRETE
FB	FACE BRICK
GB	FRAMELESS TOUCHENED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
MB	METAL BALUSTRADE
MC	METAL CLADDING
FCE	METAL FENCING (TO FUTURE SELECTION)
PC	COMPOSITE PANEL CLADDING
PSx	PRIVACY SCREEN (TO FUTURE SELECTION)
PTx	PAINT FINISH TYPEx
RD	ROLLER DOOR
RP	RIVER PEBBLES
RW	RENDERED FINISH/SELECTED PAINT FINISH
TC	TIMBER CLADDING
VB	EXTERNAL VENETIAN BLINDS

Issue	Date	Description
P1	3/02/2025	Issue for Coordination
P2	17/02/2025	Issue for Coordination
P3	27/02/2025	Issue for Coordination
P4	5/03/2025	Issue for Coordination
P5	19/03/2025	Issue for Coordination

N

Scale Bar 1 : 100 @ A1

0 1 2 3 4 5m

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Surry Hills NSW 2010

ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon Sydney NSW
2065 Australia

DRAWING TITLE:
Level 1

DRAWING BY:	CHECKED BY:	DATE:
AA, KS	KS	19/03/2025
SCALE: 1:100@A1	DRAWING NO: **DA106**	ISSUE: **P5**
PROJECT NO: 2432		

RENDERED BUILDING TILE ROOF
NO 818
"KU-RING-GAI MUNICIPAL COUNCIL"
HERITAGE BUILDING

SITE BOUNDARY 55.11m

3m SITE SETBACK

3,000

6m SITE SETBACK

9m SITE SETBACK

SITE BOUNDARY 33.42m

0.45m SITE SETBACK

SITE BOUNDARY58.265m

NEW SITE BOUNDARY

EXISTING SITE BOUNDARY 41.04m

SITE BOUNDARY 55.81m

PACIFIC HIGHWAY

RADFORD PLACE

DUMARESQ STREET

RL 133,900

CHUTE LOCATION TBC

1.01-6.01
3-BED
105.6 m²

1.02-6.02
1-BED
56.3 m²

1.03-6.03
2-BED
77.7 m²

1.04-6.04
2-BED
77.7 m²

1.05-6.05
3-BED
115.3 m²

1.06-6.06
1-BED
60.9 m²

1.07-6.07
3-BED
111.0 m²

1.08-6.08
2-BED
81.1 m²

1.09-6.09
2-BED
81.1 m²

1.10-6.10
3-BED
114.7 m²

PRELIMINARY

GENERAL NOTES:

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LEGEND:

AW	AWNING
AH	ACCESS HATCH
AC	A/C CONDENSER UNITS
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
FS	FIRE STAIRS
GC	GARBAGE CHUTE
HW	HIGHLIGHT WINDOW
MV	MECHANICAL RISER TO FUTURE DETAIL
MB	MAILBOX TO FUTURE DETAIL
R	240L RECYCLING BIN
SK	SKYLIGHT
ST	STORAGE
HWU	HOT WATER UNITS

MATERIALS LEGEND:

AFG	ALUMINIUM FRAMED GLAZING
LV	ALUMINIUM ELLIPTICAL FIXED LOUVERS
AW	AWNING (TO FUTURE DETAIL)
CONC	CONCRETE
FB	FACE BRICK
GB	FRAMELESS TOUCHENED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
MB	METAL BALUSTRADE
MC	METAL CLADDING
FCE	METAL FENCING (TO FUTURE SELECTION)
PC	COMPOSITE PANEL CLADDING
PSx	PRIVACY SCREEN (TO FUTURE SELECTION)
PTx	PAINT FINISH TYPEx
RD	ROLLER DOOR
RP	RIVER PEBBLES
RW	RENDERED FINISH/SELECTED PAINT FINISH
TC	TIMBER CLADDING
VB	EXTERNAL VENETIAN BLINDS

Issue	Date	Description
P1	3/022/2025	Issue for Coordination
P2	17/02/2025	Issue for Coordination
P3	27/02/2025	Issue for Coordination
P4	19/03/2025	Issue for Coordination

Scale Bar 1 : 100 @ A1

0 1 2 3 4 5m

N

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Level 2, 52 Albion Street,
Surry Hills NSW 2010

ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon Sydney NSW
2065 Australia

DRAWING TITLE:
Level 2-7

DRAWING BY: AA, KS	CHECKED BY: KS	DATE: 19/03/2025
SCALE: 1:100@A1	DRAWING NO: **DA107**	ISSUE: **P4**
PROJECT NO: 2432		

"KU-RING-GAI MUNICIPAL COUNCIL"
HERITAGE BUILDING

PACIFIC HIGHWAY

RADFORD PLACE

DUMARESQ STREET

SITE BOUNDARY 55.11m

3m SITE SETBACK

6m SITE SETBACK

9m SITE SETBACK

SITE BOUNDARY 33.2m

0.45m SITE SETBACK

SITE BOUNDARY58.265m

NEW SITE BOUNDARY 55.61m

EXISTING SITE BOUNDARY 61.04m

AWNING ABOVE

COMMUNAL OPEN SPACE
451.2 m²

RL 153,100

COMMUNAL ROOM
41.4 m²

STAIR PRESS

FH

FS-2

FS-1

ENS
4.4 x 2.1m

BED 1
4.6 x 4.5m

LIVING + DINING
8.2 x 4.4m

BED 2
3.0 x 3.1m

BED 3
3.4 x 3.8m

BALCONY
50.3 m²

BALCONY
22.2 m²

7.01
3-BED
129.0 m²

L'DRY
1.9 x 1.4m

BATH
1.6 x 2.8m

POWDER
1.8 x 1.3m

LIFT 1

LIFT 2

CHUTE LOCATION TBC

ENS
2.6 x 3.4m

BED 1
3.7 x 3.4m

BED 2
3.1 x 3.1m

BATH
2.6 x 1.6m

L'DRY
1.9 x 2.4m

7.04
3-BED
112.7 m²

LIVING + DINING
4.0 x 5.4m

BED 3
3.0 x 3.3m

BALCONY
13.0 m²

ENS
3.0 x 3.0m

BATH
1.6 x 3.1m

BED 1
3.0 x 3.7m

BED 2
3.0 x 3.2m

7.03
3-BED
112.3 m²

7.02
1-BED
60.5 m²

BATH
1.6 x 2.6m

LIVING + DINING
6.9 x 3.6m

BED 1
3.5 x 3.0m

BALCONY
14.3 m²

BED 3
3.0 x 3.1m

LIVING + DINING
6.0 x 4.2m

BALCONY
12.8 m²

PRELIMINARY

GENERAL NOTES:

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LEGEND:

AW	AWNING
AH	ACCESS HATCH
AC	A/C CONDENSER UNITS
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
FS	FIRE STAIRS
GC	GARBAGE CHUTE
HW	HIGHLIGHT WINDOW
MV	MECHANICAL RISER TO FUTURE DETAIL
MB	MAILBOX TO FUTURE DETAIL
R	240L RECYCLING BIN
SK	SKYLIGHT
ST	STORAGE
HWU	HOT WATER UNITS

MATERIALS LEGEND:

AFG	ALUMINIUM FRAMED GLAZING
LV	ALUMINIUM ELLIPTICAL FIXED LOUVERS
AW	AWNING (TO FUTURE DETAIL)
CONC	CONCRETE
FB	FACE BRICK
GB	FRAMELESS TOUCHENED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
MB	METAL BALUSTRADE
MC	METAL CLADDING
FCE	METAL FENCING (TO FUTURE SELECTION)
PC	COMPOSITE PANEL CLADDING
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PTx	PAINT FINISH TYPEx
RD	ROLLER DOOR
RP	RIVER PEBBLES
RW	RENDERED FINISH/SELECTED PAINT FINISH
TC	TIMBER CLADDING
VB	EXTERNAL VENETIAN BLINDS

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P3	27/02/2025	Issue for Coordination
P4	19/03/2025	Issue for Coordination

Scale Bar 1 : 100 @ A1

0 1 2 3 4 5m

N

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Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon Sydney NSW 2065 Australia

DRAWING TITLE:
Level 8

DRAWING BY:	CHECKED BY:	DATE:
AA, KS	KS	19/03/2025
SCALE: 1:100@A1	DRAWING NO: **DA108**	ISSUE: **P4**
PROJECT NO: 2432		

"KU-RING-GAI MUNICIPAL COUNCIL"
HERITAGE BUILDING

RENDERED BUILDING TILE ROOF
NO 818
"KU-RING-GAI MUNICIPAL COUNCIL"
HERITAGE BUILDING

SITE BOUNDARY 55.11m

3m SITE SETBACK

6m SITE SETBACK

9m SITE SETBACK

SITE BOUNDARY 33.21m

0.45m SITE SETBACK

SITE BOUNDARY58.265m

NEW SITE BOUNDARY 55.61m

EXISTING SITE BOUNDARY 61.04m

PACIFIC HIGHWAY

RADFORD PLACE

DUMARESQ STREET

COMMUNAL OPEN SPACE BELOW
450.2 m²

RL 153.100

TBC SERVICES ZONES

LIFT OVERRUN

ROOF ACCESS HATCH

ALDI MECHANICAL PLANT CONDENSERS

PRELIMINARY

GENERAL NOTES:

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FH	FIRE HYDRANT
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FS	FIRE STAIRS
GC	GARBAGE CHUTE
HW	HIGHLIGHT WINDOW
MV	MECHANICAL RISER TO FUTURE DETAIL
MB	MAILBOX TO FUTURE DETAIL
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HWU	HOT WATER UNITS

MATERIALS LEGEND:

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LV	ALUMINIUM ELLIPTICAL FIXED LOUVERS
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N

Scale Bar 1 : 100 @ A1

0 1 2 3 4 5m

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ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Proposed Mixed Use Development
810 Pacific Highway , Gordon Sydney NSW 2065 Australia

DRAWING TITLE:
Roof Plan

DRAWING BY:	CHECKED BY:	DATE:
AA, KS	KS	19/03/2025
SCALE: 1:100@A1	DRAWING NO: DA109	ISSUE: P4
PROJECT NO: 2432		

APPENDIX B

SPECIALIST ADVICE TO

SITE 3 GROUP PTY LTD

ON

GEOTECHNICAL INVESTIGATION

FOR

PROPOSED MIXED USE DEVELOPMENT

AT

810 PACIFIC HIGHWAY, GORDON, NSW

Date: 22 August 2025
Ref: 37403Yrpt Rev1

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dlcs ISO 9001 certified ISO 45001 certified ISO 14001 certified

Report prepared by:



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Report reviewed by:



Paul Stubbs
Principal | Engineering Geologist

For and on behalf of
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PO BOX 976
NORTH RYDE BC NSW 1670

DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
37403Yrpt	Final Report	9 April 2025
37403Yrpt Rev1	Updated for 6th basement level and additional deeper boreholes	22 August 2025

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c) The terms of contract between JKG and the Client, including terms limiting the liability of JKG.

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ATTACHMENTS

STS Table A: Moisture Content (2 pages)

STS Table B: Point Load Strength Index Test Report (for BH1 to BH5)

JKG Tables A and A1: Point Load Strength Index Test Report (for BH201 to 203, 301 and 302)

Envirolab Services Certificate of Analysis No. 151921

Borehole Logs 1 to 5, 201 to 203, 301 and 302 (with Core Photographs)

Figure 1: Site Location Plan

Figure 2: Borehole Location Plan

Figure 3: Cross Section A-A

Vibration Emission Design Goals

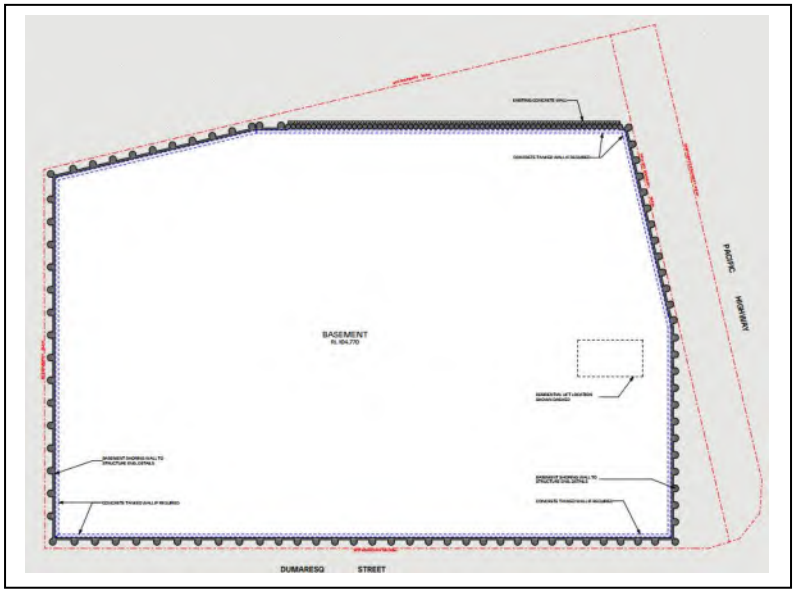
Report Explanation Notes

1 INTRODUCTION

This specialist advice report presents the results of a geotechnical investigation for the proposed mixed-use development at 810 Pacific Highway, Gordon, NSW. The location of the site is shown in Figure 1. The initial investigation dated 9 April 2025 was commissioned by Mr Mark Abraham of Site 3 Group Pty Ltd on 18 March 2025. The additional investigation for this revision was carried out in accordance with our proposal, Ref. P7202YM Rev1, dated 11 June 2025 and approved by Mr Dan Umansky of Lign.

Based on the architectural plans prepared by PBD Architects (Project No 2432, Drawings DA1000[A], DA01[G], DA02[A], DA03[G], DA04[H], DA05[G], DA16[F], DA17[F], DA1[F], all dated 8 April 2025, and DA106[P5], DA107[P4], dated 19 March 2025), and more recent discussions with Mr Benjamin Marks of Lign, we understand that following demolition of the existing building the development comprises the following:

- Construction of a multi-storey building (loading dock level, ground floor retail level, plus seven residential levels) over six basement levels, with the lowest level having a finished floor level of RL102.37. This is anticipated to result in excavation to depths ranging from between about 15.6m and 25.3m. Localised deeper excavation may be required for lift pits etc.
- The footprint of the proposed basements and Loading Dock (which is the lower ground level and has finished floor levels ranging from RL119.2 to RL121.48m) extends to the southern and western boundaries and partially along the northern and proposed new eastern boundary.
- Along the northern boundary the existing retaining wall will remain over its eastern length, with the new basement extending along the northern boundary until it meets the existing retaining wall which does not run parallel to the boundary but runs into the site and forms an acute angle to the boundary. The new retaining wall will be installed in front of the existing wall. Along the eastern side, the site boundary is to be amended such that it runs approximately 8m in from the existing boundary. The basement will extend to the northern portion of this boundary but is set back from the southern portion. The proposed extent of the basements and the Loading Dock is shown on the extract below, which is taken from the architectural drawings. Figure 2 not only shows the basement outline but also the location of the boreholes drilled as part of this investigation.



The purpose of the investigation was to obtain geotechnical information on the subsurface conditions at the borehole locations and to augment the subsurface information obtained in 2016, during an investigation for a different, smaller development. Based on this information we have provided comments and recommendations on excavation, retention, hydrogeology, footings, slabs on grade, soil aggression and earthquake subsoil class.

This report provides specialist advice for use by the structural and civil designers in preparing their designs. No part of this report is considered a regulated design in accordance with the Design and Building Practitioners Act 2020.

2 INVESTIGATION PROCEDURE

Previous Geotechnical Investigation

JK Geotechnics have undertaken a previous geotechnical investigation of the site for a different development proposal. This was completed in 2016 and presented in our previous geotechnical report (Ref:29430ZN2rpt Gordon, dated 16 September 2016). The previous investigation involved the drilling of six boreholes to depths ranging from 11.41m and 20.73m, or RL106.73m to RL109.67m. Of these six boreholes, one was drilled to its termination depth using spiral auger techniques while the remaining five were initially drilled using spiral auger techniques with the boreholes then extended to their termination depth using diamond coring techniques with water flush once more competent bedrock was encountered. Groundwater wells were installed in four of the boreholes. These were periodically monitored for between two and three weeks after installation. As the scope of the development and regulatory authority requirements have changed, additional investigation was required to provide information on groundwater and the quality of the bedrock over the full depth of the proposed excavation and within the zone of influence of the footings.

Current Geotechnical Investigation

The current investigation comprised the drilling of five boreholes BH201 to BH203, BH301 and BH302 using our track mounted JK308 and JK309 drill rigs. The boreholes were initially drilled using spiral auger techniques with an attached tungsten carbide (TC) bit. Once competent bedrock was encountered the boreholes were extended to depths of 16.9m (BH201), 29.0m (BH202), 24.80m (BH203) 18.5m (BH301) and 33.6m (BH302) (or between RL85.3m and RL102.0m) using diamond coring techniques with water flush.

The borehole locations, which include the boreholes drilled during our 2016 investigation, are shown on Figure 2 and were set out by tape measurements from existing surface features. The surface levels at the boreholes were initially interpolated from spot heights and contours shown on the survey plan prepared by Chadwick Cheng Consulting Surveyors (Ref: 36023/D-MGA-2d dated 11 August 2016). The height datum is Australian Height Datum (AHD). They were later more accurately surveyed using differential GPS. The surveyed levels are shown on the borehole logs.

The strength of the clay and degree of compaction of the fill were assessed from the Standard Penetration Test (SPT) 'N' values, which were augmented by hand penetrometer readings completed in cohesive samples recovered from the SPT split tube sampler. The strength of the bedrock in the augered portion of the boreholes was assessed from observation of drilling resistance and examination of rock cuttings recovered from the auger. It should be noted that rock strengths assessed in this way are approximate and variation of say one order of strength should not be unexpected.

The recovered core was photographed and tested to determine the point load strength index (I_{s50}) at regular intervals. Using established correlations, the unconfined compressive strength (UCS) of the bedrock was then calculated. Photographs of the core are presented with the borehole logs, while the Point Load Strength Index test results are summarised on the borehole logs and are also presented in JKG Tables A and A1.

Groundwater observations were made in the boreholes during and on completion of drilling. Standpipes with data loggers were installed in all three wells to allow for continuous monitoring of groundwater levels over a three-month period.

Our engineering geologist, Mr Tom Foster, was present full-time during the fieldwork to set out the borehole locations, direct the buried service scan, log the encountered subsurface profile and nominate in-situ testing and sampling. The borehole logs (which include groundwater observations) are attached, together with a glossary of logging terms and symbols used. Further details of the methods and procedures employed in the investigation are presented in the attached Report Explanation Notes.

3 RESULTS OF INVESTIGATION

3.1 Site Description

The site is located within hilly terrain and is positioned at the crest of a ridgeline that runs in a north-south direction. It is located on the western face of the ridgeline and slopes down at approximately 10°, resulting

in an elevation relief of about 9.9m across the site. The Pacific Highway runs along the crest of the ridgeline and forms the eastern site boundary, which is the high end of the site. From the Pacific Highway the site slopes down to Radford Place, which forms the western site boundary. Dumaresq Street runs along the southern site boundary with a commercial development present on the southern side of the street.

At the time of the investigation the previous building on site had almost completely been demolished, with only the existing northern, southern and eastern retaining walls and portions of the basement slab and columns left to support the existing basement excavation. To do this, three basement levels of the existing structure have been left over the eastern portion of the site, as can be seen below. The surface of the upper slab level has a similar level to that of the ground surface at the eastern side of site while the existing lower basement slab, which covers much of the site has the same level as Radford Place.



Photo 1 – Facing East

While the site is bounded by roads to the east, south and west, to the north of the site was Ku-ring-gai Council Chambers. This comprised a single storey rendered structure over the eastern half, and a 3 to 4 storey concrete structure over the western half, both set back about 1m from the site boundary. The Council Chambers appeared to be in good condition when viewed from the subject site.

3.2 Subsurface Conditions

The 1:100,000 Geological Map of Sydney indicates the site is underlain by Ashfield shale of the Wianamatta Group that in turn overlies Hawkesbury Sandstone.

The boreholes encountered a subsurface profile below the existing pavements comprising fill over siltstone bedrock, which was encountered at shallow depth. Sandstone bedrock was encountered at much greater depth. Groundwater was present within the bedrock profile. For details of the encountered subsurface profile, reference should be made to the attached borehole logs and Figure 3, which presents a section through the site. A summary of the encountered conditions is presented below:

Concrete Pavements

Concrete pavements were encountered at the surface in BH1, BH5, BH201, BH202, BH301 and 302 and ranged in thickness from 120mm to 250mm. In BH201 another concrete slab was encountered below the concrete pavement and was 380mm thick. In BH203, a concrete slab was encountered at a depth of just over 0.6m and was 0.28m thick.

Fill

Fill was encountered either from the surface or below the slabs and in the case of BH201 and 203 it was present both above and below the slab. The fill typically extended to depths ranging from 0.3m to 2m, although in the north-eastern corner of the site (BH3 and BH4A) fill was encountered to depths of 7.8m and 9.6m. This fill appears to represent backfill placed behind the retaining walls. The fill typically comprised clayey soil, although in BH3 and BH4A, 1.8m to 5.1m of sand and a small amount of gravel was encountered at depths of 4.5m and 6m. Where tested, the fill was assessed as being poorly to moderately compacted.

Residual Clay

Residual silty clay of medium to high or high plasticity and very stiff to hard or hard strength was encountered beneath the fill in BH4 and BH203 and extended to the underlying bedrock, which was encountered at depths of 3m and 1.8m respectively.

Bedrock

Siltstone bedrock was encountered in all boreholes at depths ranging from 0.3m (BH301) to 14.7m (BH3). In BH201, BH202, BH301 and BH302, laminite was also logged in the upper portion of the siltstone at 2.63m (BH201), 2.46m (BH202), 2.56m (BH301) and 4m (BH302) and comprised interbedded siltstone and fine grained sandstone. This laminite extended to limited depths ranging from 4.9m (BH202) and 8.0m (BH302) and was not logged in any of the other boreholes.

When first encountered the bedrock was of poor quality, ranging in strength from extremely low or hard (soil strength) to very low to low strength, except in BH302 where the rock was of low strength. In this regard it must be recognised that BH301 and 302 were drilled in the existing basement which has been cut into the hillside. With depth the quality of the siltstone improved, although it was generally deeply weathered with this poorer quality bedrock extending to typically greater depths over the eastern side of the site (14.7m to 17.6m at BH3 and BH5) than the western side (2.9m to 4.9m at BH2 and BH202). The exceptions to the deep

weathering are at BH301 and BH302. At depths ranging from 1.0m to 17.6m the bedrock was of low to medium strength and quickly increased in strength to at least medium to high.

The laminite and siltstone contained many defects comprising of bedding partings, extremely weathered, clay and crushed seams and joints. Where joints are present, they dipped at between 15° and 90°. Significant 'no core' zones were also logged. No core zones typically represent soil zones or zones of poor-quality rock that have been washed away in the coring process.

Sandstone bedrock was encountered in BH210, BH202, BH203, BH301 and BH302 at depths ranging from 14.5m to 23.2m or between RL102.9m and RL103.3m. The sandstone was of at least medium to high strength and contained few defects which, where present, consisted of bedding partings, extremely weathered seams and joints.

Groundwater

No groundwater seepage was encountered during or on the completion of auger drilling. The use of water during the coring process prohibited the meaningful measurements of groundwater levels. Following the completion of drilling, standing water was measured at the following depths in the installed standpipes:

Groundwater Depth (m) / RL (mAHD) on Date					
Date	**BH201**	**BH202**	**BH203**	**BH301**	**302**
27/2/25	10.7 / 108.2	10.3 / 108.2	-	-	-
28/2/25	10.8 / 108.1	10.4 / 108.1	-	-	-
3/3/25	-	-	11.4 / 114.8	-	-
7/3/25	11.0 / 107.9	10.7 / 107.8	13.4 / 112.8	-	-
7/3/25	GW pumped out	GW pumped out	-	-	-
10/3/25	11.2 / 107.7	10.8 /107.7	14.3 / 111.9	-	-
10/3/25	-	-	GW pumped out	-	-
14/3/25	11.2 / 107.7	10.9 / 107.6	18.5 / 107.7	-	-
14/3/25	GW pumped out	GW pumped out	GW pumped out	-	-
19/3/25	11.3 / 107.6	10.99 / 107.51	18.6 / 107.6	-	-
10/6/2025	11.6 / 107.3	10.86 / 107.64	18.36 / 107.84	-	-
25/7/2025	-	-	-	9.8 / 108	10.9 / 108
29/7/2025	11.0 / 107.9	10.8 / 107.7	-	9.95 / 107.85	11.0 / 107.9

Groundwater Depth (m) / RL (mAHD) on Date				
Date	**BH1 (installed 5/8/16)**	**BH2 (installed 12/8/16)**	**BH3 (installed 11/8/16)**	**BH5 (installed 8/8/16)**
10/8/16	9.1 / 110.37	-	-	-
15/8/16 *	10.4 / 109.07	9.75 / 109.25	12.2 / 114.2	10.5 / 116.09
22/8/16 **	11.4 / 108.07	'Dry' / <107.59	10.65 / 115.75	10.7 / 115.89

* Prior to purging

** After purging on 15 August 2016

Longer term groundwater monitoring is currently being undertaken so that groundwater levels are monitored for a period of 3 months.

3.3 Laboratory Test Results

The moisture content tests correlated well with our assessment of rock strength made in the field while the results of the point load strength index tests indicated that the unconfined compressive strength (UCS) of the bedrock ranged from 1MPa to 68MPa, but more typically in the range of 6MPa to 40MPa.

The table below presents the results of the aggression testing completed on the soil and bedrock samples.

Results of Aggression Testing						
	BH1 1.5m to 1.6m depth	BH3 3.0m to 3.45m depth	BH4 0.5m to 1.95m depth	BH4A 3.0m to 3.45m depth	BH4A 6.0m to 7.0m depth	BH5 0.5m to 0.95m depth
pH	6.4	7.8	4.5	8.2	8.6	8.0
Chloride Content (mg/kg)	<10	<10	46	22	36	<10
Sulfate Content (mg/kg)	60	<10	91	160	230	110
Resistivity (ohm.cm)	23,000	37,000	11,000	6,300	5,100	11,000

4 COMMENTS AND RECOMMENDATIONS

4.1 Geotechnical Challenges

The site poses a number of geotechnical challenges. These are:

- The depth of the proposed excavation, the fact that it extends up to or close to all boundaries, the presence of an appreciable depth of poor quality bedrock and the somewhat fractured nature of the better strength bedrock. In this regard, how the excavation will be supported, the design of this support and the movements that will be induced below adjoining structures and buildings will need to be carefully considered.
- Part of the existing retention system will be left along the northern site boundary. How this existing retention system will be maintained in a stable condition in the short term and incorporated into the new retention system will need to be carefully considered.
- The presence of groundwater across the site means that groundwater seepage will be encountered. Whether the basement can be designed as a drained or tanked basement will depend on the groundwater inflows.

- The regulatory requirements that will need to be met where deep excavations are proposed. This will include Transport for NSW (TfNSW) as the Pacific Highway is a TfNSW road, Sydney Water, where they have assets in the zone of influence of the excavation and WaterNSW, where the excavation intercepts the groundwater table. Where dewatering is completed, permission will also need to be sought from Ku-ring-gai Council prior to the discharge of groundwater into their stormwater system.

4.2 Regulatory Requirements

Construction of a basement that intersects the groundwater table is considered to be an aquifer interference activity. Such activities are subject to the Water Management Act 2000 and NSW Aquifer Interference Policy and are regulated by the Department of Planning, Industry and Environment (DPIE), WaterNSW and Natural Resource Access Regulator (NRAR). The DPIE's policy on basements is that ongoing or frequent dewatering of basements over their life is inconsistent with the principals of sustainable development and, where such dewatering is required, basements should be tanked. Dewatering during construction is permitted and it is also possible that ongoing dewatering of the site for the life of the development may be possible, however this is regulated through licencing which must either be obtained from WaterNSW or NRAR.

The existing wells have been installed to satisfy WaterNSW guidelines; monitoring of these wells is ongoing and is required to be completed for a 3 month period with 6 months of submission to WaterNSW. Following the completion of the required groundwater monitoring, these results will then be used in conjunction with the permeability testing completed and will inform the finite element analysis that will be used to prepare the Site Hydrology Report (SHR). The SHR will present the results of the seepage analysis, the predicted water take and the impact on surrounding structures and water users. This report is then incorporated in a Dewatering Management Plan (DMP), which is necessary for submission when applying for the relevant licence(s).

Where dewatering is required, potentially two approvals are required from WaterNSW. These are:

- A Water Access Licence (WAL).
- A Water Supply Works (WSW) approval.

A WAL is a licence that provides an allocation of a certain volume of water in the aquifer to a user. However, it does not provide the right to extract this water. To extract or pump water from an aquifer, such as is required during basement dewatering, a WSW approval is required. Currently, there is an exemption for WAL's for construction dewatering undertaken prior to 30 June 2029. There are no exemptions for WSW approvals and while a WAL may not be required, an application for a WSW approval must still be made.

Should WaterNSW provide permission for the adoption of a drained basement, permission will also need to be obtained from Ku-ring-gai Council should it be proposed to dispose of groundwater to the stormwater system. If Ku-ring-gai Council does not provide permission for disposal to their system, re-use of all extracted groundwater will need to be accommodated on site, whether by watering of vegetated areas, or use in toilets etc.

The Pacific Highway is a TfNSW road and as such, specific criteria exist for carrying out excavations adjacent to TfNSW infrastructure. These are set out in the Geotechnology Technical Direction (GTD) 2020/001 and, as a minimum require:

- Dilapidation surveys of the infrastructure.
- Assessment of the impact the excavation will have on the existing buried services, retaining walls and roadway.
- Specific requirements for anchors, some of the main criteria include:
    - Only temporary anchors permitted with a minimum design life of two years;
    - Stressing of anchors shall be no greater than 75% of the tendon ultimate tensile strength;
    - Anchors to be greater than 1.5m below the surface of the roadway.
- The total serviceability horizontal movement of the walls in any one direction is to be limited to 0.5% of the excavated height, 30mm or the structural serviceability requirements of the retaining wall, whichever is the lesser. To carry out this assessment numerical analysis will be required.
- Instrumentation is to include a minimum of two inclinometers installed to at least 3m below bulk excavation level. These inclinometers may be installed within piles where not installed in boreholes. Other monitoring systems such as a total station survey system may also be required.

Sydney Water assets are present along the eastern, western and southern boundaries. Consequently, a Specialist Engineering Assessment (SEA) will be required and must be submitted to Sydney Water prior to the commencement of excavation to confirm that the movements induced in their infrastructure fall within the criteria they have nominated. This process will be managed by a Sydney Water Coordinator but will require further geotechnical analysis and the preparation of an SEA. It is possible that an SEA will also need to be completed by the structural engineer.

4.3 Dilapidation Reports

Prior to commencement of any site works, we recommend that detailed internal and external dilapidation reports be completed on the neighbouring building to the north. Dilapidation surveys of the surrounding roadways and footpaths are also likely to be required. Utility owners, such as Sydney Water, may also require dilapidation surveys of their assets.

Dilapidation reports provide a record of existing conditions prior to commencement of any site works. The dilapidation reports would therefore be used as a benchmark against which to set vibration limits during rock excavation, and for assessing possible future claims for damage arising from the works and can be used to rebut claims that pre-existing damage has been caused by the works. The respective owners of the neighbouring properties should be asked to confirm, in writing, that the dilapidation reports present a fair assessment of existing conditions. As dilapidation reports are relied upon for the assessment of potential damage claims, they must be carried out thoroughly by reputable companies with all defects rigorously described (i.e. defect type, defect location, crack width, crack length etc.) and photographed.

The dilapidation reports should be reviewed by JK Geotechnics and the structural engineer prior to commencement of the works.

4.4 Excavation

Prior to any excavation commencing, we recommend that reference be made to the NSW Government 'Code of Practice, Excavation Work'.

The proposed basement will require excavation to depths ranging between approximately 15.2m and 24.9m below existing grade. Should a tanked basement be adopted a hydrostatic slab will require excavation to a deeper bulk excavation level. Locally deeper excavation will be required for lift overruns, service trenches, footings, etc. Based on the boreholes, over most of the site area excavation will likely encounter a thin layer of fill and residual soils with the majority of the excavation extending through siltstone or laminite bedrock that will be initially of poor quality but will increase in strength with depth to at least medium to high strength with zones of high, possibly very high strength bedrock. In the eastern part of the site deeper fill and natural soil should be expected.

Excavation of the soil and extremely weathered bedrock profiles, and much of the very low and low strength bedrock is expected to be able to be carried out using a bucket with tiger teeth fitted to a large hydraulic excavator (say 30 tonnes), using a ripping tyne where necessary. Hard rock excavation conditions should be expected for the medium strength or better bedrock. The locally deeper fill encountered in BH3 and BH4A appears to represent backfill placed behind the walls following their construction, which suggests that the existing basement was excavated, batters were formed around the edge of the excavation and the retaining walls were constructed and then backfilled.

"Hard rock" excavation techniques may consist of percussive or non-percussive techniques. Percussive techniques comprise the use of rock hammers while non-percussive techniques comprise rotary grinders, rock saws, ripping, rock splitting etc. Where percussive excavation techniques are adopted there is the risk that transmitted vibrations may damage nearby movement sensitive structures, such as the adjoining Council offices and retaining walls. Consequently, we recommend that the following measures be taken:

- During percussive excavation continuous quantitative vibration monitoring must be completed with real time feedback provided to both the excavation contractor and site supervisor on the suitability of the excavation equipment and techniques adopted. Vibration monitors should ideally be attached to the adjoining structures closest to the location of the percussive excavation. Where non-percussive excavation techniques are adopted no vibration monitoring is required,
- Percussive excavation should be completed so that the excavation is progressively enlarged by breaking small wedges out of the face,
- Rock hammers should only be operated in short bursts to prevent amplification of vibrations.
- Where transmitted vibrations exceed prescribed limits, excavation techniques must be altered to reduce transmitted vibrations to within acceptable limits. This may mean that the size of percussive equipment used may need to be reduced, or non-percussive techniques adopted. Whether reducing

the size of the percussive equipment is effective in controlling transmitted vibrations must be confirmed by quantitative vibration monitoring.

Alternatively, non-percussive excavation techniques may comprise the use of rock saws, ripping tynes, rotary grinders etc. Consideration could be given to the use of dozers such as a D10 or larger. However, due to the size of the equipment the site may be too small for its efficient use and its extraction on completion of the deep excavation would be problematic. Due to the strength of the siltstone bedrock, should ripping tynes on excavators be used it is anticipated that closely spaced saw cuts will be required to aid in the ripping process. Care must also be taken to ensure that the tyne is not hammered into the rock in an attempt to break or dislodge the bedrock as this action will result in the creation of possibly damaging transmitted vibrations. Where non-percussive excavation techniques are adopted we consider that vibration monitoring will not be necessary.

Dust suppression by spraying with water should be carried out whenever rock breaking, grinding or sawing is being completed.

4.5 Vibration Monitoring

Rock excavation using hydraulic rock hammers will need to be strictly controlled as there may be direct transmission of ground vibrations to surrounding neighbouring buildings and roadways. Excavation procedures and the dilapidation reports should be carefully reviewed by the geotechnical and structural engineers prior to the commencement of demolition and excavation so that appropriate equipment is used. We recommend that full-time quantitative vibration monitoring be carried out on the neighbouring building to the north.

The vibration monitoring should include geophones affixed to the neighbouring building and a real time warning system (e.g. SMS, flashing lights, audible alarm, etc.) which is set to trigger if the permissible vibration limit has been recorded. The locations of the geophones should be assessed following review of the dilapidation survey report, and should be jointly nominated by JK Geotechnics and the acoustic consultant. The vibrations on the neighbouring building should be tentatively limited to a peak particle velocity of 5mm/s, subject to review of the dilapidation survey report.

If higher vibrations are recorded, then they should be assessed against the attached Vibration Emission Design Goals as higher vibrations may be acceptable depending on the associated vibration frequency. If it is confirmed that transmitted vibrations are excessive, it will be necessary to change to alternative rock excavation methods such as a smaller rock hammer.

4.6 Hydrogeology

The most recent investigations suggests that groundwater is uniformly present across the site at between RL107.5m to RL107.9m. For a relatively steeply sloping site this is somewhat unusual and we would typically expect the groundwater to roughly mirror the surface slope. The monitoring completed in 2016 was over a

shorter duration and suggested that groundwater levels were more in the order of RL115.8m over the eastern or higher end of the site and at RL<107.5m to RL109.1m over the western end of the site, which matches more closely with the groundwater profile we would expect in this topography. Notwithstanding this the groundwater levels measured during this later monitoring period are remarkably uniform and may well be representative. We are currently completing three months of groundwater monitoring and this will provide greater insight into groundwater levels and their fluctuations in response to rainfall.

Due to the relatively low permeability of residual clay and bedrock, we expect that inflows will be relatively slow and seepage during construction would be able to be controlled using conventional sump and pump techniques. Consequently, from a geotechnical perspective we consider that a drained basement is well suited to this site. However, to adopt a drained basement approval will be required from WaterNSW and Ku-ring-gai Council respectively to allow the extraction and disposal of the groundwater.

Groundwater seepage into the basement excavation would be expected to reduce as the excavation progresses, and the surrounding profile is drained, particularly given the location of the site along a ridge. Locally higher inflows could be expected to occur through open joints or bedding partings during and following heavy rainfall events. Such a process would not be expected to cause any adverse effects on any surrounding structures or improvements.

Groundwater seepage into the excavation should be monitored by the site foreman and geotechnical engineer as excavation progresses to confirm that seepage volumes are within the range anticipated.

4.7 Retention

Due to the depth of the excavation and it extending to the site boundaries space does not exist for the formation of temporary batters. Consequently, a retention system will need to be installed prior to the commencement of excavation. Due to the fractured nature of the bedrock, we recommend that this retention system be installed to below bulk excavation level.

As the soil is clayey the retention system may comprise an anchored or internally propped soldier pile wall with shotcrete infill panels, although care must be taken to define the extent of the sandy backfill behind the existing basement wall. If the sandy backfill extends beyond the proposed retaining wall alignment a contiguous pile wall will need to be installed to at least the base of the fill and a nominal depth into the underlying natural soil/bedrock. While the apparent deep groundwater table and the low permeability of the clay and bedrock would suggest that bored piers are suited to this site, the presence of deep granular fill behind the existing walls along at least part of the alignment of the new retaining walls may mean that bored piers are not suitable and CFA piles will need to be adopted, at least for those portions of the site where sandy fill is present.

Along the eastern portion of the northern boundary the existing retaining wall will remain and excavation to bulk excavation level will be completed in front of this wall. Consequently, a retention system will need to be installed in front of this existing wall. This will require careful coordination and sequencing as the existing

wall will need to be appropriately supported during the demolition of the other structures on site while still allowing retention piles to be installed.

For the design of the retaining walls the following design philosophy may be adopted:

- For support of the soil and bedrock of less than medium strength a trapezoidal earth pressure distribution may be adopted. This distribution is constant over the middle 50% of the distribution and uniformly decreases to 0% at the top and bottom of the distribution. Where no movement sensitive structures are located within the zone of influence of the excavation (within a horizontal distance 2H from the top of the retaining wall where H is the depth to siltstone bedrock of greater than low strength), a lateral earth pressure of 6H kPa should be adopted. Where movement sensitive structures are present within the zone of influence of the excavation, a lateral earth pressure distribution of 8H kPa should be adopted.
- Where medium strength or stronger bedrock is present a uniform pressure of 10kPa should be adopted, which allows for the presence of smaller wedges within the rock mass; shotcrete protection between piles should extend to the base of the excavation.
- However, to confirm that the excavation does not expose large potentially unstable wedges of rock, the exposed faces between the piles must be progressively inspected by a geotechnical engineer every 1.5m of vertical excavation prior to shotcreting. Where adverse defects are present that potentially isolate large blocks, additional anchors or props would likely be required. These inspections should commence from the top of the zone where 10kPa lateral pressure is applied and extend to bulk excavation level.
- The designer should model a 45^{o} joint daylighting just above bulk excavation level and assume that this joint is exposed but not identified until the geotechnical engineer completes their inspection. In this instance the designer must confirm that the wall will not fail, which will allow the installations of remedial measures such as temporary anchors or internal props.
- Long term support will be provided by the installed floor slabs.

All surcharge loads and appropriate hydrostatic pressures should be added to the above pressures.

It is anticipated that in the long term the retention system will be propped by the structure, once completed. However, in the short-term, temporary anchors or internal props will be required to support the wall. Considering the geometry of the development and proposed depth of excavation, temporary anchors are likely to be better suited to this site than internal propping. All anchors should have minimum free and bond lengths of 3m, with the bond length starting behind a line drawn upwards from the base of the excavation at no steeper than 1V:1H. Anchors formed within siltstone bedrock of very low and medium strength may be designed for allowable bond stresses of 100kPa and 250kPa respectively. All anchors should be proof loaded to a minimum 1.3 times the design load. Lift-off tests should be completed on 10% of the anchors after 48 hours; if any tests fail then all the anchors should be tested.

Where anchors extend beyond the site boundaries, permission must be sought from the property owners prior to the installation of temporary anchors. Therefore, the feasibility of installing anchors should be

investigated at an early stage of the design and planning process. The location of surrounding basements, piled footings etc. should be determined prior to the commencement of anchoring so that they are not affected by the anchor installation. Where anchors cannot be adopted, internal propping will be required. The contract for the installation of the anchors should be on a design and construct basis so that should anchors fail proof loading, there is no dispute over whether the design parameters or the installation methods are the cause of the failure.

Where piles extend below bulk excavation level and any localised excavations and are socketed in sandstone bedrock of medium strength, a lateral pressure of 1,000kPa may be adopted for the part of the socket that extends greater than 0.5m below bulk excavation level and any localised excavations. Where piles extend below bulk excavation level, the potential impact of stress relief must be considered when designing the piles.

Where numerical analysis using specialist software is used to design the retention system, the material parameters shown in the table below may be adopted. While we have populated this table, the designers must note that the critical item to consider in the design of the retention system is the potential kinematic failure mechanisms that may arise from the presence of adverse defects within the rock mass. In this regard, the designer must make an allowance for the potential impact adverse defects such as joints dipping out of the face may have on their retention system design.

We have also provided ultimate end bearing and shaft adhesion pressures. It must be recognised that these values only relate to that portion of the rock mass that is present below a line drawn upwards from the base of the excavation at 1 Vertical(V):1Horizontal(H). All footings and piles should be founded behind a line drawn up from the base of the excavation at 1H:1V.

Material Type or Allowable Bearing Pressure (kPa) (as defined below in Section 4.5)	Ultimate End Bearing for Confined Rock Mass (MPa)	Ultimate Shaft Adhesion for Confined Rock Mass (kPa)	Unit Weight (kN/m^3)	Friction Angle (phi')	Drained Cohesion c'(kPa)	Wall Friction as a % of adjoining material	Youngs Modulus E (MPa)	Poisson Ratio
Fill	-	-	17	27	0	67	10	0.3
Silty Clay Very Stiff to Hard Strength	-	-	20	28	5	67	30	0.3
600	3	75	22	30	10	67	100	0.3
1,000	3	150	23	30	20	67	400	0.25
3500	20	475	24	35	100	67	1,200	0.2

When using the parameters in the above table, the designer must recognise that the above rock parameters relate to a confined rock mass and/or a rock mass not impacted by adversely orientated defects. In this regard they must assess the reasonableness of the above parameters with regards to the location of the

proposed structures, adjoining structures or services, the constituent model adopted and other modes of failure that may occur, such as kinematic failure resulting from a 45° joint dipping out of the rock face. As we are not the designers, we are in no position to judge this.

4.8 Footing Design

Due to the presence of clayey fill that extends to depths of greater than 0.4m, the site classifies as a Class "P" site in accordance with AS2870-2011. Notwithstanding this site classification, due to the scale of the proposed development AS2870 does not apply to this project.

Following bulk excavation, siltstone bedrock is expected to be uniformly exposed across the building footprint. Consequently, we recommend all footings be uniformly founded on the siltstone bedrock. While the majority of the structure will be located within the basement footprint and founded on pad and strip footings, it appears that sections of the building may extend beyond the basement footprint. Where these structures are not cantilevered out beyond the basement footprint, they too must be founded on the underlying siltstone bedrock. Based on the rock depths, it is likely that these footings will be piled. These piles must be founded below a line drawn upwards from the base of the excavation at no steeper than 1V:1H.

For the design of these footings and piles, and shoring piles that are founded below BEL that carry structural loads, the ABP's shown in the table below may be adopted. Where piles extend below the 1V:1H line, that portion of the shaft below the line may be designed for a shaft adhesion of 10% of the ABP for compressive load and 5% of the ABP for tensile loads. Pad and strip footings founded at bulk excavation level may also be designed based on the allowable bearing pressures given below. The ABP's below are based on limiting settlement of the footing to no more than 1% of the footing width/diameter.

Borehole	Depth to, and Reduced Level of, top of Siltstone Adequate for Allowable Bearing Pressure					
	700kPa		1,000kPa		3,500kPa	
	Depth (m)	≈RL (AHD)	Depth (m)	≈RL (AHD)	Depth (m)	≈RL (AHD)
BH1	1.6	117.87	-	-	4.7	114.77
BH2	1.1	117.9	4.5	114.5	7.2	111.8
BH3	-	-	9.6	116.8	15.9	110.5
BH4/4A^	-	-	4.2	123.99	13.7^	113.76^
BH5	6.0	120.59	16.0	110.59	17.5	109.09
BH201	2.3	116.6	2.3	116.6	5.7	113.2
BH202	2.0	116.5	2.85	115.65	4.7	113.8
BH203	7.6	118.6	7.6	118.6	10.0	116.2
BH301	0.3	117.5	1.0	116.8	3.8	114.0
BH302	-	-	0.5	118.4	4.1	114.8

* Adoption of this bearing pressure at this depth/BEL will depend on the size of the footing as defects at depth will impact the allowable bearing pressure that may be adopted if the zone of influence of the footing will extend to this depth. Further advice should be sought from this office once the preliminary footing design has been finalised.

Prior to pouring concrete, all footings should be inspected by a geotechnical engineer to confirm that the design ABP's are achieved. All footings should be free from all loose or softened materials prior to pouring.

Where water ponds in the base of the footings they should first be pumped dry and then all loosened or softened materials removed prior to pouring concrete. Where delays in pouring are anticipated, a blinding layer may be placed once they have been inspected to protect them from softening.

4.9 On-Grade Floor Slabs

The basement on-grade floor slabs will directly overlie bedrock and no particular subgrade preparation will be required. Slab-on-grade construction is therefore considered appropriate. Underfloor drainage must however be provided. The underfloor drainage should connect with the wall drains, where appropriate, and direct groundwater seepage to a sump for pumped disposal to a stormwater system. All slabs should isolated from all other structural elements with joints in the on-grade floor slabs incorporating dowels or keys which allow the transfer of shear forces but not bending moments.

Where a drained basement is not approved, a tanked basement will be required which will require a hydrostatic slab and retaining walls appropriately designed to resist the design hydrostatic pressures.

4.10 Soil Aggressively

Based on the soil chemistry test results, a 'Mild' exposure classification for concrete piles is applicable in accordance with Table 6.4.2 (C) in AS2159-2009.

4.11 Earthquake Design

In accordance with Table 4.1 of AS1170.4-2007, a Site Sub Soil Class B_e – Rock applies for the subject site.

4.12 Additional Geotechnical Input Required

The following summarises the further geotechnical input which is required and which has been detailed in the preceding sections of this report:

- Completion of three months of groundwater monitoring.
- Numerical analysis to predict groundwater inflows and the preparation of a Site Hydrology Report and Dewatering Management Plan.
- Finite element analysis of basement retaining walls for both design purposes and to complete the required analysis predicting the potential impact of the proposed development on TfNSW and Sydney Water assets.
- Dilapidation surveys on the adjoining building to the north and surrounding road pavements and possibly the water assets also.
- Quantitative vibration monitoring during excavation.
- Proof-testing of anchors.
- Geotechnical inspection of bedrock cut faces at vertical intervals of no greater than 1.5m below the level at which a lateral pressure of 10kPa is applied in design.

- Seepage monitoring during excavation.
- Geotechnical footing inspections.

5 GENERAL COMMENTS

The recommendations presented in this report include specific issues to be addressed during the design and construction phases of the project. In the event that any of the advice presented in this report is not implemented, the general recommendations may become inapplicable and JK Geotechnics accept no responsibility whatsoever for the performance of the structure where recommendations are not implemented in full and properly tested, inspected and documented.

The subsurface conditions between the completed boreholes may be found to be different (or may be interpreted to be different) from those expected. Variation can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, we recommend that you immediately contact this office.

This report provides advice on geotechnical aspects for the proposed civil and structural design. As part of the documentation stage of this project, Contract Documents and Specifications may be prepared based on our report. However, there may be design features we are not aware of or have not commented on for a variety of reasons. The designers should satisfy themselves that all the necessary advice has been obtained. If required, we could be commissioned to review the geotechnical aspects of contract documents to confirm the intent of our recommendations has been correctly implemented.

A waste classification is required for any soil and/or bedrock excavated from the site prior to offsite disposal. Subject to the appropriate testing, material can be classified as Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM), General Solid, Restricted Solid or Hazardous Waste. Analysis can take up to seven to ten working days to complete, therefore, an adequate allowance should be included in the construction program unless testing is completed prior to construction. If contamination is encountered, then substantial further testing (and associated delays) could be expected. We strongly recommend that this requirement is addressed prior to the commencement of excavation on site.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described in this report then all recommendations should be reviewed. Copyright in this report is the property of JK Geotechnics. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report. The report shall not be reproduced except in full.

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SOIL TEST SERVICES
ABN 43 002 145 173

TABLE A
MOISTURE CONTENT TEST REPORT

Client:	JK Geotechnics	**Ref No:**	29430ZN
Project:	Proposed Mixed Use Development	**Report:**	A
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	17/08/2016
		Page 1 of 1	

AS 1289	**TEST METHOD**	**2.1.1**
BOREHOLE NUMBER	**DEPTH m**	**MOISTURE CONTENT %**
1	2.20-2.60	7.1
2	1.20-2.20	5.8
3	9.60-9.80	8.7
4	5.00-6.00	10.8
4	8.40-8.80	12.2
4	9.00-9.20	5.6
4A	7.80-8.20	11.5
4A	8.30-8.50	3.5
5	4.20-4.40	12.3
5	6.00-6.50	6.7

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SOIL TEST SERVICES

ABN 43 002 145 173

TABLE A

MOISTURE CONTENT TEST REPORT

Client:	JK Geotechnics	**Report No.:**	37403Y - A
Project:	Proposed Mixed Use Development	**Report Date:**	25/03/2025
Location:	810 Pacific Highway, Gordon, NSW	**Page 1 of 1**	

AS 1289	**TEST METHOD**	**2.1.1**
BOREHOLE NUMBER	**DEPTH m**	**MOISTURE CONTENT %**
201	2.30 - 2.50	7.0
202	2.00 - 2.30	7.2
203	1.50 - 1.80	13.6
203	5.00 - 6.00	12.9

Notes:

- Refer to appropriate notes for soil descriptions
- Date of receipt of sample: 19/03/2025.
- Sampled and supplied by client. Samples tested as received.

NATA

NATA Accredited Laboratory Number:1327

Accredited for compliance with ISO/IEC 17025 - Testing.
This document shall not be reproduced except
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the items tested or sampled.

25/03/2025
Authorised Signature / Date
(D. Treweek)

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SOIL TEST SERVICES
ABN 43 002 145 173

TABLE B
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	JK Geotechnics	**Ref No:**	29430ZN
Project:	Proposed Mixed Use Development	**Report:**	B
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	17/08/2016
		Page 1 of 3	

BOREHOLE NUMBER	DEPTH m	$I_{S(50)}$ MPa	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)
1	3.26-3.29	0.07	1
	3.73-3.76	0.3	6
	4.48-4.43	0.4	8
	5.00-5.05	0.3	6
	5.88-5.92	0.5	10
	6.40-6.44	0.8	16
	7.14-7.19	1.0	20
	7.76-7.81	1.0	20
	8.50-8.53	0.6	12
	9.62-9.67	0.5	10
	10.44-10.48	0.8	16
	11.56-11.60	1.2	24
2	3.36-3.41	0.4	8
	3.97-4.00	0.3	6
	4.50-4.54	0.09	2
	5.04-5.09	0.2	4
	5.65-5.69	0.5	10
	6.29-6.33	1.0	20
	7.00-7.05	1.5	30
	8.20-8.23	0.3	6
	8.70-8.74	0.4	8
	9.46-9.50	0.6	12
	10.33-10.37	0.9	18
	11.25-11.29	1.0	20
3	10.25-10.30	0.07	1
	10.75-10.79	0.4	8
	11.37-11.40	0.5	10

NOTES: See Page 3 of 3

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SOIL TEST SERVICES
ABN 43 002 145 173

TABLE B
POINT LOAD STRENGTH INDEX TEST REPORT

Client: JK Geotechnics
Project: Proposed Mixed Use Development
Location: 810 Pacific Highway, Gordon, NSW

Ref No: 29430ZN
Report: B
Report Date: 17/08/2016

BOREHOLE NUMBER	DEPTH m	$I_{S(50)}$ MPa	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)
3	12.28-12.32	0.1	2
	12.80-12.84	0.03	1
	13.45-13.49	0.3	6
	14.10-14.13	0.2	4
	14.70-14.73	1.6	32
	15.40-15.43	1.0	20
	16.28-16.31	1.3	26
	16.68-16.73	1.0	20
4A	9.03-9.07	1.4	28
	9.77-9.81	0.7	14
	10.48-10.52	0.2	4
	11.07-11.10	0.5	10
	11.75-11.78	0.09	2
	12.36-12.40	0.06	1
	12.82-12.84	0.1	2
	13.30-13.33	0.6	12
	13.70-13.74	1.0	20
	14.53-14.57	0.9	18
	15.16-15.21	2.2	44
	15.83-15.87	1.4	28
	16.59-16.63	0.8	16
	17.16-17.20	1.8	36
	17.76-17.80	0.6	12
	18.50-18.55	0.9	18
	19.40-19.44	1.2	24
	19.97-20.00	3.2	64
	20.59-20.63	2.4	48

NOTES: See Page 3 of 3

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SOIL TEST SERVICES
ABN 43 002 145 173

TABLE B
POINT LOAD STRENGTH INDEX TEST REPORT

Client: JK Geotechnics
Project: Proposed Mixed Use Development
Location: 810 Pacific Highway, Gordon, NSW

Ref No: 29430ZN
Report: B
Report Date: 17/08/2016

BOREHOLE NUMBER	DEPTH m	$I_{S(50)}$ MPa	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)
5	6.87-6.90	0.07	1
	7.23-7.27	0.04	1
	7.94-7.98	0.4	8
	8.29-8.34	0.4	8
	9.24-9.29	0.07	1
	9.76-9.80	0.1	2
	10.50-10.54	0.2	4
	11.22-11.26	0.04	1
	11.73-11.77	0.03	1
	12.54-12.58	0.07	1
	13.23-13.27	0.08	2
	13.73-13.78	0.06	1
	14.43-14.47	0.2	4
	15.05-15.10	0.05	1
	15.85-15.89	0.7	14
	16.47-16.52	0.4	8
	17.22-17.27	0.6	12
	17.74-17.77	0.6	12
	18.50-18.54	0.9	18
	19.16-19.21	1.2	24

NOTES:

1. In the above table testing was completed in the Axial direction.
2. The above strength tests were completed at the 'as received' moisture content.
3. Test Method: RMS T223.
4. For reporting purposes, the $I_{S(50)}$ has been rounded to the nearest 0.1MPa, or to one significant figure if less than 0.1MPa
5. The Estimated Unconfined Compressive Strength was calculated from the point load Strength Index by the following approximate relationship and rounded off to the nearest whole number :
   U.C.S. = 20 $I_{S(50)}$

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TABLE A
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	Sterling Project Solutions Pty Ltd	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	6/03/25

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
201	2.88 - 2.91	0.1	2	A
	3.22 - 3.25	0.3	6	A
	3.69 - 3.72	0.5	10	A
	4.28 - 4.32	0.2	4	A
	4.88 - 4.92	0.4	8	A
	5.07 - 5.10	0.3	6	A
	5.75 - 5.79	0.8	16	A
	6.19 - 6.23	0.4	8	A
	6.46 - 6.51	1	20	A
	6.96 - 6.99	1.1	22	A
	7.04 - 7.07	1.1	22	A
	7.79 - 7.84	1.5	30	A
	8.24 - 8.28	1.4	28	A
	8.83 - 8.88	1	20	A
	9.41 - 9.44	0.5	10	A
	9.90 - 9.93	0.5	10	A
	10.23 - 10.27	1.6	32	A
	10.77 - 10.81	1.8	36	A
	11.09 - 11.13	1.1	22	A
	11.36 - 11.39	1.6	32	A
	12.04 - 12.07	0.8	16	A
	12.65 - 12.70	1.5	30	A
	13.29 - 13.32	1.3	26	A
	13.67 - 13.70	1.5	30	A
	14.16 - 14.19	1.5	30	A

NOTE: SEE PAGE 6

TABLE A
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	Sterling Project Solutions Pty Ltd	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	6/03/25

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
201	14.95 - 14.97	0.7	14	A
	15.10 - 15.14	0.9	18	A
	15.80 - 15.85	2.1	42	A
	16.05 - 16.09	0.6	12	A
	16.20 - 16.24	1	20	A
	16.42 - 16.45	0.5	10	A
	16.62 - 16.66	0.6	12	A
	16.82 - 16.86	3	60	A
202	3.13 - 3.17	0.3	6	A
	3.39 - 3.41	0.1	2	A
	3.91 - 3.93	0.09	2	A
	4.28 - 4.31	0.1	2	A
	4.63 - 4.65	0.4	8	A
	4.90 - 4.94	0.6	12	A
	5.19 - 5.21	0.8	16	A
	5.88 - 5.91	0.7	14	A
	6.34 - 6.36	0.6	12	A
	6.76 - 6.79	0.6	12	A
	6.87 - 6.91	0.2	4	A
	7.26 - 7.30	0.6	12	A
	7.76 - 7.79	0.8	16	A
	8.00 - 8.02	1.6	32	A
	8.46 - 8.49	1.5	30	A
	9.17 - 9.21	0.5	10	A
	9.76 - 9.80	1.5	30	A

NOTE: SEE PAGE 6

TABLE A
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	Sterling Project Solutions Pty Ltd	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	6/03/25

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
202	10.07 - 10.10	0.9	18	A
	10.84 - 10.87	1.7	34	A
	11.16 - 11.19	1	20	A
	11.90 - 11.93	1.1	22	A
	12.09 - 12.12	1.7	34	A
	12.46 - 12.51	1.3	26	A
	12.78 - 12.80	1.1	22	A
	13.28 - 13.31	1.1	22	A
	13.58 - 13.62	0.9	18	A
	14.09 - 14.11	1	20	A
	14.65 - 14.68	1.1	22	A
	15.19 - 15.22	0.5	10	A
	15.69 - 15.73	1.5	30	A
	16.09 - 16.12	0.8	16	A
	16.41 - 16.45	2.4	48	A
	16.83 - 16.88	1.2	24	A
	17.14 - 17.18	2.5	50	A
	17.79 - 17.83	1	20	A
	18.21 - 18.26	0.9	18	A
	18.72 - 18.76	1.2	24	A
	19.14 - 19.19	0.8	16	A
	19.42 - 19.47	0.9	18	A
	19.82 - 19.85	1.1	22	A
	20.20 - 20.24	1	20	A
	20.73 - 20.77	1	20	A

NOTE: SEE PAGE 6

TABLE A
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	Sterling Project Solutions Pty Ltd	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	6/03/25
		Page 4 of 6	

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
202	21.12 - 21.16	1.1	22	A
	21.66 - 21.69	1.1	22	A
	22.10 - 22.15	1.2	24	A
	22.50 - 22.55	0.9	18	A
	22.91 - 22.95	2.7	54	A
	23.21 - 23.25	1	20	A
	23.76 - 23.80	0.9	18	A
	24.27 - 24.30	0.8	16	A
	24.82 - 24.86	1.7	34	A
	25.50 - 25.55	1.1	22	A
	25.70 - 25.75	0.9	18	A
	26.11 - 26.15	1.4	28	A
	26.74 - 26.77	1	20	A
	27.08 - 27.12	2.6	52	A
	27.67 - 27.71	1.6	32	A
	28.07 - 28.12	1.4	28	A
	28.76 - 28.79	1.3	26	A
203	8.20 - 8.23	0.5	10	A
	8.83 - 8.87	0.2	4	A
	9.02 - 9.06	0.2	4	A
	9.65 - 9.68	0.6	12	A
	10.13 - 10.16	0.9	18	A
	10.26 - 10.29	0.2	4	A
	11.40 - 11.43	0.4	8	A
	11.68 - 11.72	0.3	6	A

NOTE: SEE PAGE 6

TABLE A
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	Sterling Project Solutions Pty Ltd	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	6/03/25
		Page 5 of 6	

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
203	11.88 - 11.92	0.3	6	A
	12.11 - 12.16	0.2	4	A
	12.83 - 12.86	0.4	8	A
	13.05 - 13.08	0.4	8	A
	13.71 - 13.74	0.2	4	A
	14.26 - 14.29	0.3	6	A
	14.83 - 14.86	0.2	4	A
	15.14 - 15.17	0.4	8	A
	15.67 - 15.71	0.4	8	A
	16.29 - 16.32	0.1	2	A
	16.59 - 16.62	0.4	8	A
	17.29 - 17.32	0.3	6	A
	17.52 - 17.56	0.9	18	A
	17.84 - 17.87	0.9	18	A
	18.31 - 18.34	1	20	A
	18.94 - 18.97	1.5	30	A
	19.17 - 19.20	1.9	38	A
	19.79 - 19.83	1.9	38	A
	20.06 - 20.10	2	40	A
	20.81 - 20.85	1.9	38	A
	21.22 - 21.25	1.6	32	A
	21.90 - 21.93	1.3	26	A
	22.18 - 22.20	0.9	18	A
	22.71 - 22.74	0.8	16	A
	23.09 - 23.12	0.6	12	A

NOTE: SEE PAGE 6

TABLE A
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	Sterling Project Solutions Pty Ltd	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	6/03/25
		Page 6 of 6	

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
203	23.85 - 23.87	1.8	36	A
	24.08 - 24.12	0.8	16	A
	24.69 - 24.72	1.1	22	A

NOTES

1. In the above table, testing was completed in test direction A for the axial direction, D for the diametral direction, B for the block test and L for the lump test.
2. The above strength tests were completed at the 'as received' moisture content.
3. Test Method: RMS T223.
4. For reporting purposes, the $I_{S(50)}$ has been rounded to the nearest 0.1MPa, or to one significant figure if less than 0.1MPa.
5. The estimated Unconfined Compressive Strength was calculated from the Point Load Strength Index based on the correlation provided in AS1726:2017 'Geotechnical Site Investigations' and rounded off to the nearest whole number: U.C.S. = 20 $I_{S(50)}$.

TABLE A1
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	PROPOSED MIXED USE DEVELOPMENT	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A1
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	11/08/25

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
301	2.66 - 2.69	0.2	4	A
	2.88 - 2.90	0.5	10	A
	3.12 - 3.14	0.9	18	A
	3.74 - 3.78	0.4	8	A
	4.07 - 4.10	0.6	12	A
	4.83 - 4.86	0.8	16	A
	5.21 - 5.25	0.6	12	A
	5.68 - 5.72	1	20	A
	6.40 - 6.44	0.7	14	A
	6.84 - 6.87	0.9	18	A
	7.15 - 7.18	1	20	A
	7.59 - 7.62	1.4	28	A
	8.20 - 8.23	1.3	26	A
	8.90 - 8.94	1.2	24	A
	9.25 - 9.29	0.9	18	A
	9.73 - 9.77	2.7	54	A
	9.84 - 9.86	1.4	28	A
	10.10 - 10.13	0.9	18	A
	10.43 - 10.46	1.3	26	A
	11.21 - 11.25	1.1	22	A
	11.80 - 11.83	1.4	28	A
	12.10 - 12.14	1.5	30	A
	12.78 - 12.82	2.5	50	A
	13.24 - 13.28	0.9	18	A
	13.92 - 13.95	1.4	28	A

NOTE: SEE PAGE 4

TABLE A1
POINT LOAD STRENGTH INDEX TEST REPORT

Client: PROPOSED MIXED USE DEVELOPMENT **Ref No:** 37403Y

Project: Geotechnical Investigation and Groundwater Analysis **Report:** A1

Location: 810 Pacific Highway, Gordon, NSW **Report Date:** 11/08/25

BOREHOLE NUMBER	DEPTH (m)	$I_{S(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
301	14.38 - 14.42	0.8	16	A
	14.80 - 14.83	1.5	30	A
	15.06 - 15.09	2.2	44	A
	15.80 - 15.84	2.6	52	A
	16.21 - 16.25	1.1	22	A
	16.84 - 16.87	1.1	22	A
	17.06 - 17.09	0.9	18	A
	17.77 - 17.79	0.8	16	A
	18.03 - 18.05	0.8	16	A
	18.29 - 18.32	1.1	22	A
302	4.37 - 4.40	0.5	10	A
	4.56 - 4.59	1.2	24	A
	4.83 - 4.86	1.3	26	A
	5.27 - 5.30	1.1	22	A
	5.65 - 5.68	0.8	16	A
	6.19 - 6.22	1	20	A
	6.74 - 6.76	0.7	14	A
	7.23 - 7.26	1.1	22	A
	7.33 - 7.36	1.7	34	A
	8.05 - 8.07	1.4	28	A
	8.84 - 8.88	1	20	A
	9.14 - 9.18	1.3	26	A
	9.65 - 9.67	1.7	34	A
	10.25 - 10.27	1.2	24	A
	10.64 - 10.67	1.4	28	A

NOTE: SEE PAGE 4

TABLE A1
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	PROPOSED MIXED USE DEVELOPMENT	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A1
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	11/08/25

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
302	11.07 - 11.10	1.8	36	A
	11.75 - 11.78	3.4	68	A
	11.84 - 11.86	1.3	26	A
	12.19 - 12.22	1	20	A
	12.64 - 12.66	2.1	42	A
	13.10 - 13.12	1.4	28	A
	13.85 - 13.88	1.4	28	A
	14.24 - 14.26	1.3	26	A
	14.91 - 14.93	1.2	24	A
	15.52 - 15.54	0.7	14	A
	15.63 - 15.66	1.2	24	A
	15.94 - 15.97	2.4	48	A
	16.01 - 16.05	3.2	64	A
	16.86 - 16.88	2.3	46	A
	17.10 - 17.13	2.3	46	A
	17.90 - 17.92	1.1	22	A
	18.20 - 18.22	0.9	18	A
	18.72 - 18.74	1.1	22	A
	19.26 - 19.30	1.1	22	A
	19.74 - 19.78	1	20	A
	20.18 - 20.21	0.7	14	A
	20.53 - 20.57	1.2	24	A
	21.06 - 21.10	0.7	14	A
	21.75 - 21.78	1	20	A
	22.13 - 22.16	1	20	A

NOTE: SEE PAGE 4

TABLE A1
POINT LOAD STRENGTH INDEX TEST REPORT

Client:	PROPOSED MIXED USE DEVELOPMENT	**Ref No:**	37403Y
Project:	Geotechnical Investigation and Groundwater Analysis	**Report:**	A1
Location:	810 Pacific Highway, Gordon, NSW	**Report Date:**	11/08/25
		Page 4 of 4	

BOREHOLE NUMBER	DEPTH (m)	$I_{S\,(50)}$ (MPa)	ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (MPa)	TEST DIRECTION
302	22.88 - 22.91	1.3	26	A
	23.06 - 23.10	1.7	34	A
	23.57 - 23.60	1.2	24	A
	24.05 - 24.07	2.7	54	A
	24.96 - 24.99	2.1	42	A
	25.15 - 25.20	1	20	A
	25.69 - 25.73	1.3	26	A
	26.20 - 26.24	1.1	22	A
	26.87 - 26.90	1.5	30	A
	27.34 - 27.38	1.6	32	A
	27.59 - 27.61	1.2	24	A
	27.88 - 27.92	3.2	64	A
	28.20 - 28.23	2.1	42	A
	28.65 - 28.68	2	40	A
	29.00 - 29.04	1.7	34	A
	29.55 - 29.59	2.3	46	A
	30.18 - 30.21	2.5	50	A
	30.95 - 30.99	2	40	A
	31.00 - 31.04	1.6	32	A
	31.61 - 31.64	2.4	48	A
	32.05 - 32.09	0.9	18	A
	32.10 - 32.12	0.7	14	A
	32.66 - 32.69	1.1	22	A
	33.00 - 33.04	1.8	36	A
	33.39 - 33.42	1.1	22	A

NOTES

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Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 151921

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: D Fisher

Sample log in details:

Your Reference:	**29430ZN, Gordon**		
No. of samples:	6 soils		
Date samples received / completed instructions received	16/08/16	/	16/08/16

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	23/08/16	/	19/08/16
Date of Preliminary Report:	Not Issued		

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Results Approved By:

David Springer
General Manager

Misc Inorg - Soil						
Our Reference:	UNITS	151921-1	151921-2	151921-3	151921-4	151921-5
Your Reference	----------	BH1	BH3	BH4	BH4A	BH4A
	-					
Depth	----------	1.5-1.6	3.0-3.45	0.5-1.95	3.0-3.45	6.0-7.0
Date Sampled		5/08/2016	11/08/2016	9/08/2016	10/08/2016	10/08/2016
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	17/08/2016	17/08/2016	17/08/2016	17/08/2016	17/08/2016
Date analysed	-	17/08/2016	17/08/2016	17/08/2016	17/08/2016	17/08/2016
pH 1:5 soil:water	pH Units	5.4	7.8	4.5	8.2	8.6
Chloride, Cl 1:5 soil:water	mg/kg	<10	<10	46	22	36
Sulphate, SO4 1:5 soil:water	mg/kg	60	<10	91	160	230
Resistivity in soil*	ohm m	230	370	110	63	51

Misc Inorg - Soil		
Our Reference:	UNITS	151921-6
Your Reference	----------	BH5
	-	
Depth	----------	0.5-0.95
Date Sampled		9/08/2016
Type of sample		soil
Date prepared	-	17/08/2016
Date analysed	-	17/08/2016
pH 1:5 soil:water	pH Units	8.0
Chloride, Cl 1:5 soil:water	mg/kg	<10
Sulphate, SO4 1:5 soil:water	mg/kg	110
Resistivity in soil*	ohm m	110

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity.

QUALITY CONTROL Misc Inorg - Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			17/08/2016	151921-1	17/08/2016 || 17/08/2016	LCS-1	17/08/2016
Date analysed	-			17/08/2016	151921-1	17/08/2016 || 17/08/2016	LCS-1	17/08/2016
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	151921-1	5.4 || 5.3 || RPD: 2	LCS-1	100%
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	151921-1	<10 || <10	LCS-1	103%
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	151921-1	60 || 58 || RPD: 3	LCS-1	106%
Resistivity in soil*	ohm m	1	Inorg-002	<1.0	151921-1	230 || 240 || RPD: 4	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 1
1 / 3

BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** 119.47 m
Date: 5/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										CONCRETE: 150mm.t				NO OBSERVED REINFORCEMENT
					N = 7 4,4,3	119	1		-	FILL: Silty clay, medium plasticity, grey and orange brown, with fine to coarse grained shale gravel.	MC<PL			APPEARS POORLY TO MODERATELY COMPACTED
					N=SPT 5/ 110mm REFUSAL	118	2			SHALE: grey and orange brown.	DW	VL - L		VERY LOW TO LOW 'TC' BIT RESISTANCE
ON COMPLETION OF CORING						117								
						116	3			REFER TO CORED BOREHOLE LOG				
						115	4							
						114	5							
						113	6							

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Borehole No. 1
2 / 3

CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** 119.47 m
Date: 5/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: DEFECT SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
		117			START CORING AT 2.89m					
100% RETURN		116	3		SHALE: dark grey and orange brown, with occasional fine grained sandstone laminae, bedded at 0-5°.	DW	VL - L			(2.95m) Cr, 0°, 110 mm.t (3.03m) CS, 0°, 5 mm.t (3.09m) CS, 0°, 10 mm.t (3.13m) Cr, 0°, 20 mm.t (3.19m) Cr, 0°, 60 mm.t (3.28m) CS, 0°, 20 mm.t (3.35m) XWS, 0°, 20 mm.t (3.38m) XWS, 0°, 5 mm.t (3.47m) CS, 0°, 15 mm.t (3.58m) XWS, 0°, 25 mm.t (3.65m) CS, 0°, 20 mm.t
			4				L			(3.82m) XWS, 0°, 40 mm.t (3.92m) XWS, 0°, 30 mm.t (4.17m) XWS, 0°, 10 mm.t (4.26m) Be, 5°, P, R
		115			CORE LOSS 0.12m					
					SHALE: dark grey and orange brown, bedded at 0-5°.	DW XW - DW DW	L EL - VL L - M			(4.81m) XWS, 0°, 30 mm.t (4.88m) Cr, 0°, 50 mm.t (5.04m) J, 50°, P, HEALED (5.10m) Be, 0°, P (5.17m) Cr, 0°, 10 mm.t (5.25m) XWS, 0°, 10 mm.t (5.42m) J, 60°, P, R (5.53m) XWS, 0°, 10 mm.t (5.62m) Cr, 0°, 10 mm.t (5.69m) J, 25°, P, R (5.72m) J, 20°, P, S (5.79m) XWS, 0°, 15 mm.t (5.88m) J, 85 - 90°, Un, R
		114	5							
			6		as above, but dark grey and grey.	SW	M			(6.44m) Cr, 0°, 10 mm.t
		113								(6.83m) Cr, 0°, 20 mm.t
			7							(7.26m) J, 60°, Un, R (7.30m) J, 15°, P, S
		112								(7.50m) J, 50°, P, R (7.53m) J, 20°, Un, S (7.57m) J, 20°, Un, R
			8							(8.00m) Cr, 0°, 40 mm.t
		111								(8.91m) J, 20°, P, R

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Borehole No. 1
3 / 3

CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** 119.47 m
Date: 5/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: DEFECT SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
10/8/16		110	10		SHALE: dark grey and grey, bedded at 0-5°.	SW	M			(9.13m) Jx2, 45°, Un, R (9.22m) XWS, 0°, 5 mm.t (9.30m) J, 50°, P, R, IS (9.51m) FRACTURED ZONE, 130mm.t (9.58m) J, 50°, P, R
15/08/2016		109	11							(10.13m) J, 45°, P, R (10.35m) Be, 5°, P, R (10.51m) J, 45°, P, R (10.63m) Cr, 0°, 20 mm.t (10.73m) XWS, 0°, 10 mm.t (10.74m) J, 25°, Un, R (10.86m) Cr, 0°, 5 mm.t (10.95m) J, 60°, P, R (11.03m) Cr, 0°, 5 mm.t (11.25m) XWS, 0°, 5 mm.t
22/08/2016		108	12		END OF BOREHOLE AT 11.89 m					(11.89m) J, SUBVERTICAL, P, HEALED CLASS 18 PVC STANDPIPE INSTALLED TO 11.89m DEPTH. SLOTTED 11.89m TO 2.89m DEPTH, CASING 2.89m TO 0.0m DEPTH, BACKFILLED WITH 2mm FILTER SAND FROM 11.89m TO 1.5m DEPTH, BENTONITE PLUG FROM 1.5m TO 0.0m DEPTH, CAST IRON GATIC COVER CONCRETED AT SURFACE
		107	13							
		106	14							
		105	15							
		104								

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29430ZN BH1 START CORING AT 2.89m
3
4
CORE LOSS
0.12m
5
6
7
8
9
10
11
END OF BH
AT 11.89m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 2
1 / 3

BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** ~119.0 m
Date: 12/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING & ON 22/8/16					N = 9 3,3,6	118	1			FILL: Silty clay, low plasticity, dark brown, trace of tree roots, sand and fine to coarse grained shale gravel.	MC<PL			MULCH COVER APPEARS MODERATELY COMPACTED
						117	2		-	SHALE: grey and orange brown.	DW	L		LOW 'TC' BIT RESISTANCE
						116	3			REFER TO CORED BOREHOLE LOG				
						115	4							
						114	5							
						113	6							

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Borehole No. 2

CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** ~119.0 m
Date: 12/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: DEFECT SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
					START CORING AT 2.92m					
100% RETURN		116	3		CORE LOSS 0.08m SHALE: grey and orange brown, bedded at 0°-5°.	DW	L - M			(3.46m) XWS, 0°, 5 mm.t (3.48m) Cr, 0°, 30 mm.t (3.56m) XWS, 0°, 130 mm.t (3.68m) J, 60°, Un, R (3.82m) XWS, 0°, 10 mm.t (3.95m) Cr, 0°, 100 mm.t (4.09m) XWS, 0°, 10 mm.t
		115	4							
					CORE LOSS 0.08m SHALE: grey and orange brown, bedded at 0°-5°.	DW	VL - L			(4.26m) Cr, 0°, 20 mm.t (4.30m) XWS, 0°, 5 mm.t (4.32m) XWS, 0°, 5 mm.t (4.40m) XWS, 0°, 5 mm.t (4.45m) XWS, 0°, 30 mm.t (4.49m) XWS, 0°, 30 mm.t (4.60m) J, 85°, Un, R (4.68m) XWS, 0°, 10 mm.t (4.77m) XWS, 0°, 20 mm.t (4.83m) J, 40°, P, R (4.87m) XWS, 0°, 60 mm.t (5.02m) XWS, 0°, 10 mm.t (5.21m) J, 70°, P, S (5.34m) XWS, 0°, 20 mm.t
		114	5							
					SHALE: grey and dark grey, bedded at 0°-5°.		M - H			(5.65m) Cr, 0°, 20 mm.t (5.87m) XWS, 0°, 10 mm.t
		113	6							
										(6.34m) J, 30°, P, S, IS (6.36m) J, 30°, P, S, IS (6.59m) Cr, 0°, 70 mm.t (6.69m) J, 20°, P, S (6.81m) J, 20°, P, S (6.84m) J, 30°, P, S (6.86m) Cr, 0°, 30 mm.t (6.96m) J, 20°, P, S, IS (7.08m) Cr, 0°, 50 mm.t (7.17m) J, 20°, P, S, IS (7.20m) J, 20°, P, S, IS (7.27m) J, 20°, P, S, IS (7.41m) J, 20°, P, S, IS
		112	7							
		111	8							(8.05m) J, 85 - 90°, Un, S, IS
					SHALE: dark grey, with light grey laminae, bedded at 0°-5°.					(8.60m) J, 20°, P, R

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Borehole No.
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CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** ~119.0 m
Date: 12/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL 0.03 / VL 0.1 / L 0.3 / M 1 / H 3 / VH 10 / EH	DEFECT SPACING (mm) 500 300 100 50 30 10	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
15/8/15 ▼					SHALE: dark grey, with light grey laminae, bedded at 0°-5°. *(continued)*	DW	M - H			(9.03m) J, 85°, Un, R (9.13m) Cr, 0°, 30 mm.t (9.26m) XWS, 0°, 10 mm.t
100% RETURN		109	10			SW				(10.23m) XWS, 0°, 20 mm.t (10.27m) XWS, 0°, 20 mm.t
		108	11							(10.77m) Cr, 0°, 30 mm.t (10.82m) J, 15°, P, S (10.88m) J, 40°, P, S (10.95m) J, 30°, Un, S
					END OF BOREHOLE AT 11.41 m					CLASS 18 PVC STANDPIPE INSTALLED TO 10.7m DEPTH. SLOTTED 10.7m TO 1.7m DEPTH, BACKFILLED WITH 2mm FILTER SAND FROM 10.7m TO 1.4m DEPTH, BENTONITE PLUG FROM 1.4m TO 0.2m DEPTH, CAST IRON GATIC COVER CONCRETED AT SURFACE
		107	12							
		106	13							
		105	14							
		104	15							

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29430ZN BH2 START CORING AT 2.92m
CORE LOSS 0.08m
3
4
CORE LOSS 0.08m
5
6
7
8
9
10
11
END OF BOREHOLE AT 11.41m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 3
1 / 4

BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** ~126.4 m
Date: 11/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						126	0			FILL: Silty clay, low to medium plasticity, brown and grey, with fine to medium grained shale gravel, trace of sand and coarse grained sandstone gravel.	MC~PL			MULCH COVER APPEARS MODERATELY COMPACTED
				■	N = 8 4,4,4		1							
				■	N = 8 5,4,4	125	2							
				■	N = 8 4,4,4	124	3							
				■	N = 2 1,1,1	123	4			FILL: Sand, fine to coarse grained, light brown.	M			APPEARS POORLY COMPACTED
				■	N = 1 0,0,1	122	5							
						121	6							
						120								

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Borehole No. 3
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BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** ~126.4 m
Date: 11/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						119	8			FILL: Sand, fine to coarse grained, light brown. *(continued)*	M			APPEARS POORLY COMPACTED
				■	N = 1 1,0,1									
						118	9							
						117				FILL: Gravel, medium to coarse grained igneous, grey.				
				■					-	SHALE: dark grey and grey.	DW	VL - L		
						116	10			REFER TO CORED BOREHOLE LOG				
						115	11							
						114	12							
						113	13							

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Borehole No. 3
3 / 4

CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** ~126.4 m
Date: 11/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		117			START CORING AT 9.95m					
			10		CORE LOSS 0.13m					
		116			SHALE: dark grey and grey, bedded at 10°.	DW	VL - L			(10.13m) Cr, 0°, 30 mm.t (10.32m) XWS, 0°, 40 mm.t (10.53m) Cr, 0°, 40 mm.t
							L - M			(10.94m) J, 60°, Un, R (11.00m) XWS, 0°, 40 mm.t (11.06m) XWS, 0°, 5 mm.t (11.15m) XWS, 0°, 60 mm.t
22/08/2016			11							
					CORE LOSS 0.08m					
		115			SHALE: dark grey and grey, bedded at 0-5°.	DW	VL - L			(11.34m) XWS, 0°, 40 mm.t (11.45m) XWS, 0°, 60 mm.t (11.75m) J, 85 - 90°, P, R
			12							(12.03m) J, 30°, P, R (12.10m) Cr, 0°, 80 mm.t
15/08/2016						XW	EL			
		114				DW	VL			(12.38m) Cr, 0°, 170 mm.t
							L - M			(12.53m) XWS, 0°, 10 mm.t
										(12.73m) Cr, 0°, 50 mm.t (12.74m) XWS, 0°, 20 mm.t
						XW	EL			
		113	13			DW	VL - L			(13.38m) XWS, 0°, 40 mm.t (13.68m) XWS, 0°, 100 mm.t (13.81m) J, 45°, P, S
100% RETURN			14							(14.21m) J, 70°, P, R (14.30m) XWS, 0°, 90 mm.t (14.37m) J, 90°, P, R
		112								(14.51m) Cr, 0°, 20 mm.t (14.64m) XWS, 0°, 90 mm.t
							M - H			(14.87m) XWS, 0°, 50 mm.t (14.94m) XWS, 0°, 30 mm.t
25% RETURN		111	15							(15.57m) J, 30°, P, S (15.65m) XWS, 0°, 100 mm.t (15.73m) XWS, 0°, 5 mm.t (15.79m) XWS, 0°, 10 mm.t (15.84m) XWS, 0°, 5 mm.t

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Borehole No.
3
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CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** ~126.4 m
Date: 11/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL 0.03 / VL 0.1 / L 0.3 / M 1 / H 3 / VH 10 / EH	DEFECT DETAILS DEFECT SPACING (mm) 500 / 300 / 100 / 50 / 30 / 10 DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
25% RETURN		110			SHALE: dark grey and grey, bedded at 0-5°. *(continued)*	DW	M - H		(16.13m) XWS, 0°, 10 mm.t (16.17m) XWS, 0°, 5 mm.t (16.21m) J, 85°, P, S (16.58m) J, 85°, P, S
		109 108 107 106 105 104	17 18 19 20 21 22		END OF BOREHOLE AT 16.83 m				CLASS 18 PVC STANDPIPE INSTALLED TO 16.81m DEPTH. SLOTTED 16.81m TO 8.81m DEPTH, CASING FROM 8.81m TO SURFACE, BACKFILLED WITH 2mm FILTER SAND FROM 16.81m TO 7.5m DEPTH, BENTONITE PLUG FROM 7.5m TO 5.0m DEPTH, SPOIL FROM 5.0m TO SURFACE, CAST IRON GATIC COVER CONCRETED AT SURFACE

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29430ZN BH3 START CORING AT 9.95m
10
CORE LOSS
0.13m
11
CORE LOSS
0.09m
12
13
14
15
16
EOBH AT 16.83m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 4
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BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** 128.19 m
Date: 9/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						128				FILL: Silty clay, low to medium plasticity, grey and brown, with fine to coarse grained igneous gravel.	MC<PL			MULCH COVER
				■	N = 9 2,4,5				CH	SILTY CLAY: high plasticity, orange brown and light grey, trace of fine to medium grained ironstone gravel.	MC~PL	VSt - H		RESIDUAL
						127	1							
				■	N = 34 10,18,16					SILTY CLAY: high plasticity, red brown and light grey, with fine to medium grained ironstone gravel.	MC<PL	H		
						126	2							PVC PIPE
				■	N > 9 5,9/ 100mm REFUSAL	125	3		-	SHALE: light grey.	XW	EL		VERY LOW 'TC' BIT RESISTANCE
						124	4			as above, but with iron indurated bands.	DW	VL		
				■		123	5							
						122	6							

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Borehole No. 4
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BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** 128.19 m
Date: 9/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						121				SHALE: light grey, with L-M strength iron indurated bands.	DW	VL		VERY LOW 'TC' BIT RESISTANCE
							8					VL - L		
						120				SHALE: dark grey and grey.		VL		
							9				SW	M - H		MODERATE TO HIGH RESISTANCE
						119				END OF BOREHOLE AT 9.40 m				
							10							
						118								
							11							
						117								
							12							
						116								
							13							
						115								

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Borehole No.
4A
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BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** 127.46 m
Date: 10/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						127	0			FILL: Silty clay, low to medium plasticity, light brown and light grey, trace of fine to coarse grained igneous gravel and sand.	MC<PL			MULCH COVER
										FILL: Silty clay, low to medium plasticity, grey, with fine to coarse grained shale gravel.				
						126	1							
							2							
						125								
					N = 11 6,6,5		3							
						124								
							4							
						123								
							5							
						122								
							6			FILL: Sand, fine to coarse grained, light brown.	M			
						121								

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Borehole No.
4A
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BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** 127.46 m
Date: 10/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						120				FILL: Sand, fine to coarse grained, light brown. *(continued)*	M			
				■			8		-	SHALE	DW	VL - L		VERY LOW 'TC' BIT RESISTANCE
				■		119						L - M		LOW TO MODERATE RESISTANCE
							9							
										REFER TO CORED BOREHOLE LOG				
						118	10							
						117	11							
						116	12							
						115	13							
						114								

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Borehole No.
4A
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CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** 127.46 m
Date: 10/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: DEFECT SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
		119	9		START CORING AT 9.05m					
0% RETURN		118	10		SHALE: dark grey and grey, bedded at 0-5°.	DW	L			(9.32m) Cr, 0°, 10 mm.t (9.33m) CS, 0°, 5 mm.t (9.46m) J, 85°, P, R (9.53m) Cr, 0°, 30 mm.t (9.60m) XWS, 0°, 2 mm.t (9.63m) XWS, 0°, 2 mm.t
		117	11				VL - L			(10.60m) XWS, 0°, 5 mm.t (10.68m) XWS, 0°, 5 mm.t (10.75m) XWS, 0°, 30 mm.t (10.82m) XWS, 0°, 40 mm.t (10.87m) XWS, 0°, 30 mm.t (11.01m) XWS, 0°, 120 mm.t
		116	12			XW - DW	EL - VL			(11.25m) CS, 0°, 30 mm.t (11.28m) Cr, 0°, 30 mm.t (11.39m) CS, 0°, 20 mm.t (11.45m) XWS, 0°, 30 mm.t (11.50m) XWS, 0°, 5 mm.t (11.52m) Cr, 0°, 30 mm.t (11.60m) XWS, 0°, 10 mm.t (11.66m) XWS, 0°, 20 mm.t (11.68m) XWS, 0°, 10 mm.t
		115	13			SW	VL			(13.20m) XWS, 0°, 100 mm.t (13.41m) XWS, 0°, 60 mm.t (13.62m) Cr, 0°, 60 mm.t
		114	14				M - H			(13.75m) XWS, 0°, 30 mm.t (13.81m) J, 45°, P, R (13.89m) J, 45°, P, R (13.90m) Cr, 0°, 20 mm.t (14.13m) XWS, 0°, 15 mm.t
		113								(14.44m) XWS, 0°, 20 mm.t

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Borehole No.
4A
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CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** 127.46 m
Date: 10/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
0% RETURN		112	16		SHALE: dark grey and grey, bedded at 0-5°. *(continued)*	SW	M - H			(15.08m) Cr, 0°, 20 mm.t (15.22m) J, 20°, Un, R (15.29m) J, 20°, P, R
		111	17							(16.21m) XWS, 0°, 50 mm.t (16.26m) XWS, 0°, 15 mm.t (16.35m) J, 50°, P, S (16.38m) Cr, 0°, 50 mm.t (16.43m) J, 30°, P, S (16.44m) XWS, 0°, 30 mm.t (16.53m) J, 30°, P, S
		110	18							(17.27m) J, 60°, Un, S (17.34m) Cr, 0°, 40 mm.t
		109	19				H - VH			(18.02m) J, 70°, Un, S (18.08m) J, 50°, P (18.14m) XWS, 0°, 10 mm.t (18.17m) XWS, 0°, 40 mm.t (18.21m) J, 80 - 90°, Un, S
		108	20							(18.95m) J, 30°, P, S (19.08m) J, 50°, P, S (19.33m) J, 50°, P, S
		107	21							(20.10m) J, 40°, P, S (20.17m) J, 45°, P, S
		106			END OF BOREHOLE AT 20.73 m					

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29430ZN BH4A START CORING AT 9.05m



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Borehole No. 5
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BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Method:** SPIRAL AUGER **R.L. Surface:** 126.59 m
Date: 8/8/16 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** D.A.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										TILE: 20mm.t CONCRETE: 250mm.t				NO OBSERVED REINFORCEMENT
				■	N = 6 3,3,3	126	1		-	FILL: Clayey sand, fine to coarse grained, light red brown, trace of fine to coarse grained sandstone gravel and silt fines.				APPEARS POORLY COMPACTED
				■	N > 5 13,5/ 50mm REFUSAL	125	2			SHALE: light grey.	XW	EL		HYDROCARBON ODOUR VERY LOW 'TC' BIT RESISTANCE
				■		124	3							
				■		123	4			as above, but with iron indurated bands and occasional clay bands.				
				■							XW - DW	EL - VL		
▼ ON COMPLETION OF CORING						122	5							
				■		121	6			SHALE: grey and dark grey.	DW	VL - L		
						120				REFER TO CORED BOREHOLE LOG				

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Borehole No.
5
2 / 3

CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH | **Core Size:** NMLC | **R.L. Surface:** 126.59 m
Date: 8/8/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DESCRIPTION: Type, inclination, thickness, planarity, roughness, coating. Specific / General
		120			START CORING AT 6.75m					
100% RETURN 15/08/2016		119	7		SHALE: dark grey and grey, bedded at 0-5°.	XW	EL			(7.06m) J, 30°, P, R
		118	8			DW	M			(7.76m) Cr, 0°, 120 mm.t (7.88m) J, 85 - 90°, Un, S (8.00m) J, 50°, P, S (8.04m) J, 50°, P, S (8.11m) CS, 0°, 20 mm.t (8.20m) J, 65°, P, R
		117	9			XW - DW	EL - VL			
		116	10			DW	VL - L			(9.74m) XWS, 0°, 50 mm.t (9.79m) XWS, 0°, 50 mm.t (10.17m) J, 15°, P, R (10.19m) J, 50°, P, S (10.31m) Cr, 0°, 30 mm.t (10.41m) XWS, 0°, 10 mm.t (10.48m) XWS, 0°, 40 mm.t (10.65m) XWS, 0°, 20 mm.t
100% RETURN 22/08/2016		115	11			XW - DW	EL - VL			
		114	12							

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Borehole No. 5 3 / 3

CORED BOREHOLE LOG

Client: ALDI STORES
Project: PROPOSED MIXED USE DEVELOMENT
Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 29430ZH **Core Size:** NMLC **R.L. Surface:** 126.59 m
Date: 8/8/16 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK205 **Bearing:** N/A **Logged/Checked By:** D.A.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
100% RETURN		113	14		SHALE: dark grey and grey, bedded at 0-5°. *(continued)*	XW - DW	EL - VL			
		112				DW	VL - L			(14.69m) XWS, 0°, 110 mm.t
			15			XW	EL			
		111	16							
						DW	M			(16.16m) Cr, 0°, 110 mm.t (16.30m) XWS, 0°, 40 mm.t (16.42m) XWS, 0°, 40 mm.t (16.46m) Cr, 0°, 20 mm.t (16.65m) J, 85 - 90°, Un, S (16.85m) XWS, 0°, 130 mm.t
		110	17							(16.98m) J, 45°, P, S
						XW	EL			
						DW	VL - L			(17.29m) CS, 0°, 80 mm.t (17.42m) Cr, 0°, 90 mm.t
		109					M - H			(17.54m) XWS, 0°, 20 mm.t (17.62m) CS, 0°, 10 mm.t (17.71m) XWS, 0°, 20 mm.t
			18							(17.87m) Cr, 20°, 5 mm.t (17.90m) J, 40°, P, S (18.02m) J, 30°, Un, R
		108								(18.29m) J, 40°, P, S (18.48m) J, 40°, P, S
			19							(19.10m) J, 40°, P, S (19.28m) J, 60°, P, S
		107			END OF BOREHOLE AT 19.35 m					CLASS 18 PVC STANDPIPE INSTALLED TO 19.35m DEPTH. SLOTTED 19.35m TO 5.85m DEPTH, CASING 5.85m TO 0.0m DEPTH, BACKFILLED WITH 2mm FILTER SAND FROM 19.35m TO 5.8m DEPTH, BENTONITE PLUG FROM 5.8m TO 0.0m DEPTH, CAST IRON GATIC COVER CONCRETED AT SURFACE

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29430ZN BH5 START CORING AT 6.75m
7
8
9
10
11
12
13
14
15
16
17
18
19
END OF BH5 AT 19.35m

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BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										CONCRETE: 150mm.t CONCRETE: 380mm.t				7mm DIA. REINFORCEMENT, 55mm TOP COVER
					N = 23 3,5,18	118	1		-	FILL: Gravelly sandy clay, low plasticity, grey brown, fine to coarse grained ironstone and siltstone gravel.	w<PL			APPEARS MODERATELY COMPACTED BANDED 'TC' BIT RESISTANCE
					N=SPT 4/ 10mm REFUSAL	117	2		-	Extremely Weathered siltstone: silty CLAY, medium to high plasticity, grey brown, fine to coarse grained ironstone and siltstone gravel.	XW	Hd		ASHFIELD SHALE
										SILTSTONE: grey, with iron indurated bands.	DW	VL - L		LOW TO MODERATE RESISTANCE
						116 115 114 113 112	3 4 5 6			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 16.9m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 16.9m TO 10.9m. CASING 0.1m TO 10.9m. 2mm SAND FILTER PACK 16.9m TO 10.0m. BENTONITE SEAL 10.0m TO 6.0m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.

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CORED BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 2.50m						
					NO CORE 0.13m						
60% RETURN		116	3		LAMINITE: Siltstone, grey and orange brown, and Sandstone, fine to medium grained, light grey, with laminae, bedded at 0-5° .	MW	VL - L	0.10		(2.78m) Be, 0°, Ir, R, Fe Sn (2.86m) Be, 0°, Ir, R, Fe Sn (2.91m) Be, 0°, Ir, R, Fe Sn (2.99m) Be, 0°, Ir, R, Fe Sn (3.01m) Be, 0°, Ir, R, Fe Sn (3.16m) Be, 0°, Ir, R, Fe Sn (3.21m) Be, 0°, Ir, R, Fe Sn (3.22m) Be, 0°, Ir, R, Fe Sn (3.31m) Be, 0°, Ir, R, Fe Sn (3.41m) CS, 0°, 3 mm.t	
								0.30			
						SW	L - M	0.50		(3.56m) Be, 0°, Ir, R, Fe Sn (3.62m) Be, 0°, Ir, R, Fe Sn	
		115	4					0.20		(3.80m) Be, 0°, Ir, R, Fe Sn (3.86m) Be, 0°, Ir, R, Fe Sn (3.93m) Be, 0°, Ir, R, Fe Sn (4.05m) Be, 0°, Ir, R, Fe Sn (4.15m) Be, 0°, Ir, R, Fe Sn	
										(4.38m) Jh, 50°, Ir, R, Fe Sn (4.40m) J, 60°, Ir, R, Fe Sn	
										(4.61m) Ji, 45°, Ir, R, Fe Sn (4.65m) Ji, 50°, Ir, R, Fe Sn (4.69m) Ji, 50°, Ir, R, Fe Sn	
		114	5					0.40			
								0.30		(5.00m) J, 55°, Ir, R, Fe Sn (5.11m) XWS, 0°, 5 mm.t (5.13m) J, 75°, Ir, R, Cn	
										(5.28m) Jh, 50°, Ir, R, Fe Sn (5.34m) Be, 0°, Ir, R, Fe Sn	
75% RETURN										(5.51m) J, 50 - 70°, Ir, R, Fe Sn (5.63m) XWS, 0°, 3 mm.t	
		113	6					0.80		(5.88m) J, 75°, Ir, R, Fe Sn (6.05m) J, 30°, Ir, R, Fe Sn	
								0.40		(6.24m) J, 50°, Ir, R, Fe Sn (6.30m) J, 70°, P, R, Fe Sn	
							H	1.0		(6.50m) Be, 0°, Ir, R, Fe Sn (6.56m) J, 65°, Ir, R, Fe Sn (6.60m) Ji, 80 - 50°, Ir, R, Fe Sn (6.70m) J, 60°, Ir, R, Fe Sn (6.77m) J, 60°, Ir, R, Fe Sn (6.82m) J, 40°, Ir, R, Fe Sn (6.87m) J, 45°, Ir, R, Fe Sn (6.95m) J, 20°, Ir, R, Fe Sn	
		112	7		SILTSTONE: grey, with light grey laminae, bedded at 0-5°.	FR		1.1			
								1.1			
								1.5		(7.92m) Be, 5°, Ir, R, Fe Sn (8.04m) J, 30°, Ir, R, Cn (8.14m) J, 50°, Ir, R, Cn	
		111	8					1.4			
										(8.52m) J, 60°, Ir, R, Cn (8.65m) J, 55°, Ir, R, Fe Sn (8.73m) J, 15°, Ir, R, Fe Sn (8.82m) J, 45°, Ir, R, Fe Sn	
		110						1.0			

Ashfield Shale

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CORED BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y | **Core Size:** HQ | **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
AFTER 15 DAYS		109	10		SILTSTONE: grey, with light grey laminae, bedded at 0-5°. *(continued)*	FR	M	0.50			Ashfield Shale
								0.50			
							H	1.6		(10.32m) Be, 3°, Ir, R, Cn	
										(10.47m) J, 50°, Ir, R, Cn	
										(10.70m) J, 50°, Ir, R, Cn	
		108	11					1.8			
								1.1			
								1.6			
75% RETURN										(11.58m) J, 75°, Ir, R, Cn	
										(11.68-12.00m) ROCK IS FRACTURED	
		107	12					0.80			
										(12.48m) J, 50°, Ir, R, Cn	
										(12.60m) J, 40°, Ir, R, Cn	
								1.5		(12.79m) J, 75°, Ir, R, Cn	
		106	13							(13.05m) J, 60 - 70°, Ir, R, Cn	
										(13.20m) J, 50°, Ir, R, Cn	
								1.3		(13.50m) J, 60°, Ir, R, Cn	
								1.5			
		105	14							(13.90m) J, 50 - 85°, Ir, R, Cn	
								1.5			
										(14.42m) J, 70°, Ir, R, Cn	
										(14.62m) J, 70°, Ir, R, Cn	
60% RETURN		104	15					0.70			
								0.90			
										(15.68m) Be, 0°, Ir, R, Cn	
		103			SANDSTONE: as below			2.1			

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CORED BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
60% RETURN		102	17		SANDSTONE: fine grained, light grey, with occasional grey laminae, bedded at 0-5°. *(continued)*	FR	M - H	0.60, 1.0, 0.50, 0.60, 3.0		(16.33m) XWS, 0°, Ir, R, Fe Sn, 35 mm.t	Hawkesbury Sandstone
		102	17		SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-5°.						
					END OF BOREHOLE AT 16.90 m						
		101	18								
		100	19								
		99	20								
		98	21								
		97	22								
		96									

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PROJECT: Geotechnical Investigation & Groundwater Analysis

PROJECT No: 37403Y **DATE:** 06/03/2025

LOCATION ID: BH201 **DEPTH:** 2.50-9.00m

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37403Y BH201 START CORING AT 2.50m

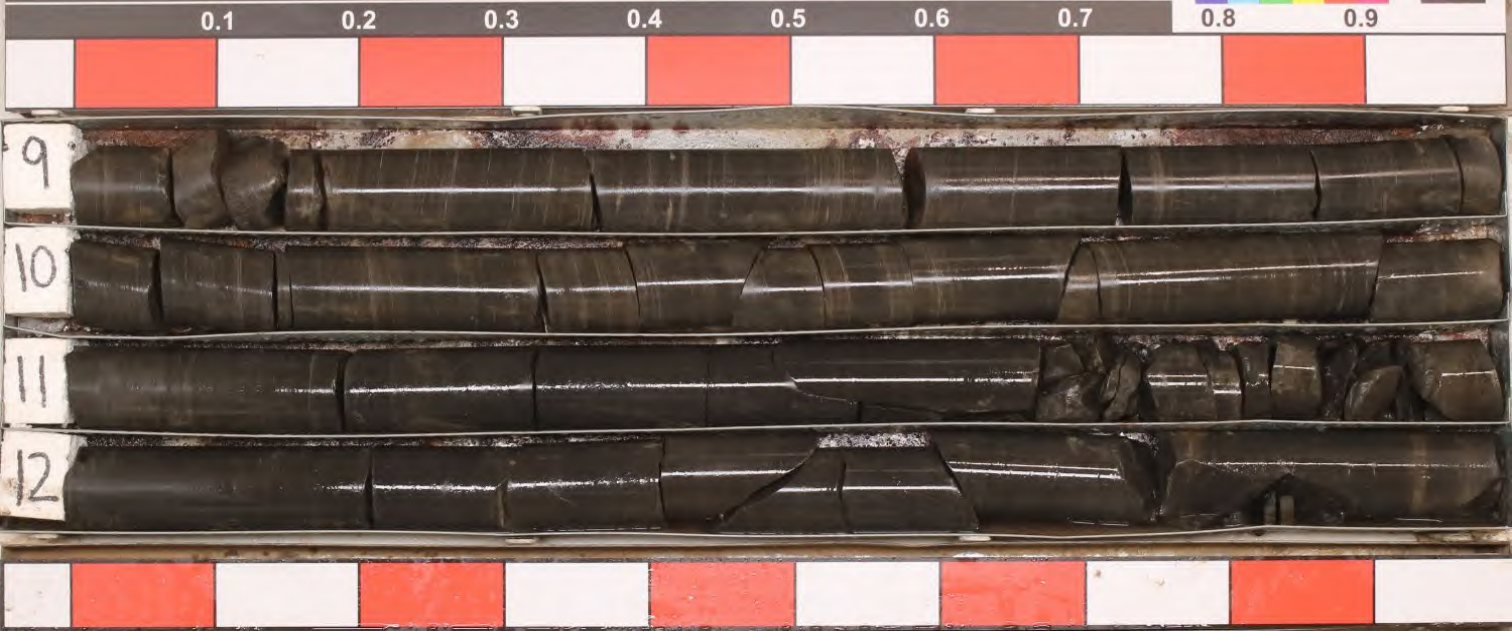


PROJECT: Geotechnical Investigation & Groundwater Analysis

PROJECT No: 37403Y **DATE:** 06/03/2025

LOCATION ID: BH201 **DEPTH:** 9.0 - 13.0m

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PROJECT: Geotechnical Investigation & Groundwater Analysis

PROJECT No: 37403Y **DATE:** 06/03/2025

LOCATION ID: BH201 **DEPTH:** 13.0 - 16.90m

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BOREHOLE LOG

Borehole No. 202

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										CONCRETE: 185mm.t				7mm DIA. REINFORCEMENT, 20mm TOP COVER
				■		118			-	FILL: Gravelly silty clay, low plasticity, grey, fine to coarse grained igneous gravel.	w<PL			APPEARS POORLY COMPACTED
				■	N = 26 4,17,9		1			FILL: Gravelly silty clay, low plasticity, grey brown, fine to coarse grained ironstone gravel.				
						117								
				■	N = 5 4,1,4		2		-	SILTSTONE: grey, dark grey, with iron indurated bands.	DW	VL - L		ASHFIELD SHALE
						116	3			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 16.8m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 16.8m TO 10.8m. CASING 0.1m TO 10.8m. 2mm SAND FILTER PACK 16.8m TO 10.5m. BENTONITE SEAL 10.5m TO 7.0m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER. BACKFILLED SAND FROM 29.0m TO 19.0m. BENTONITE FROM 19.0m TO 16.8m.
						115	4							
						114	5							
						113	6							
						112								

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CORED BOREHOLE LOG

Borehole No. 202

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness) Specific / General	Formation
					START CORING AT 2.33m						
					NO CORE 0.13m						
		116			SILTSTONE: grey, with iron indurated bands, bedded at 0-5°.	SW	L - M			(2.60m) XWS, 0°, Ir, R, Fe Sn, 50 mm.t	Ashfield Shale
					NO CORE 0.17m						
			3		LAMINITE: Siltstone, grey, and Sandstone, fine to medium grained, light grey, bedded at 30-40°.	SW	VL - L			(2.95m) J, 75°, Ir, R, Cn	
					as above, but bedded at 0-5°.			0.30		(3.18m) Be, 0°, Ir, R, Fe Sn	
		115						0.10		(3.36m) Be, 0°, Ir, R, Fe Sn (3.41m) XWS, 6°, 6 mm.t (3.46m) Be, 0°, Ir, R, Fe Sn (3.55m) XWS, 0°, 13 mm.t (3.61m) XWS, 0°, 15 mm.t (3.67m) Be, 0°, Ir, R, Fe Sn	
								0.090		(3.88m) J, 50 - 60°, Ir, R, Fe Sn	
			4				L				
								0.10		(4.12m) Be, 0°, P, R, Fe Sn (4.20m) Be, 0°, P, R, Fe Sn (4.21m) Be, 0°, P, R, Fe Sn (4.34m) CS, 0°, 5 mm.t (4.39m) XWS, 0°, 10 mm.t	
		114						0.40		(4.52m) XWS, 0°, 3 mm.t (4.59m) XWS, 0°, 5 mm.t (4.61m) XWS, 0°, 5 mm.t	
			5		SILTSTONE: grey, with light grey laminae, bedded at 0-5°.	FR	M	0.60		(4.97m) Be, 0°, P, R, Fe Sn (5.05m) Be, 0°, P, R, Fe Sn	
0% RETURN								0.80			
		113								(5.49m) J, 50°, P, R, Fe Sn	
										(5.63m) Be, 0°, P, R, Fe Sn (5.64m) Be, 0°, P, R, Fe Sn	
			6					0.70		(5.84m) Be, 0°, P, R, Fe Sn (5.93m) Be, 0°, P, R, Fe Sn (5.97m) J, 50°, Ir, R, Fe Sn (6.07m) Be, 5°, Ir, R, Fe Sn	Ashfield Shale
								0.60		(6.39m) J, 45°, Ir, R, Fe Sn	
		112								(6.57m) J, 55°, Ir, R, Fe Sn	
								0.60		(6.81m) J, 50°, Ir, R, Fe Sn	
			7					0.20		(6.94m) Be, 0°, Ir, R, Fe Sn	
										(7.00-7.17m) ROCK IS FRACTURED BY, J, 60-80°, Ir, R, Fe, Sn	
								0.60		(7.22m) Be, 3°, Ir, R, Fe Sn (7.32m) J, 40°, Ir, R, Fe Sn (7.42m) J, 50°, Ir, R, Fe Sn	
		111								(7.58m) J, 60 - 70°, Ir, R, Fe Sn (7.61m) J, 50°, Ir, Fe Cn (7.69m) J, 35°, Ir, R, Fe Sn	
								0.80		(7.79m) J, 45°, Ir, R, Fe Sn (7.86m) Be, Ir, R, Fe Sn	
			8				H			(7.92m) Be, 5°, Ir, R, Fe Sn (7.96m) Be, 2°, Ir, R, Fe Sn	
								1.6		(8.04-8.20m) ROCK IS FRACTURED BY, J, 85°, Ir, R, Fe, Cn	
		110						1.5		(8.25m) J, 85°, Ir, R, Fe Sn (8.32m) J, 30°, Ir, R, Fe Sn (8.39m) J, 70°, Ir, R, Fe Sn (8.41m) Be, 5°, Ir, R, Fe Sn (8.57m) J, 60°, Ir, R, Fe Sn	
										(8.71m) J, 60°, Ir, R, Fe Sn	
										(8.90m) J, 85°, Ir, R, Fe Sn	

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CORED BOREHOLE LOG

Borehole No. 202

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y | **Core Size:** HQ | **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
AFTER 15 DAYS ▽		109	10		SILTSTONE: grey, with light grey laminae, bedded at 0-5°. *(continued)*	FR	M - H	0.50		(9.10m) J, 85°, Ir, R, Fe Sn	
										(9.32m) J, 25°, Ir, R, Cn	
										(9.50m) J, 60°, Ir, R, Cn	
										(9.65m) J, 60°, Ir, R, Cn	
								1.5			
								0.90			
		108	11				H			(10.09-10.80m) ROCK IS FRACTURED BY, J, 85°, Ir, R, Fe, Cn	
								1.7		(10.93m) J, 60°, Ir, R, Cn	
										(11.05m) Cr, 0°, 10 mm.t	
								1.0		(11.13m) J, 40°, Ir, R, Cn	
										(11.35m) J, 80°, Ir, R, Cn	
		107	12							(11.40m) Cr, 0°, 25 mm.t	
										(11.56m) J, 90°, Ir, R, Cn	
										(11.72m) Cr, 0°, 35 mm.t	
					SILTSTONE: dark grey, with occasional light grey laminae, bedded at 0-5°.					(11.78m) Be, 0°, P, R, Clay Vn	
								1.1			
								1.7		(12.16m) J, 55°, Ir, R, Cn	
0% RETURN		106	13					1.3			
								1.1			
		105	14				M - H	0.90		(13.05m) J, 85°, Ir, R, Cn	
								1.1			
								1.0		(14.30m) J, 85°, Ir, R, Cn	
		104	15					1.1		(14.77m) J, 75 - 85°, C, R, Cn	
								0.50			
		103			SANDSTONE: fine grained, grey, interbedded with siltstone, dark grey, bedded at 0-5°.			1.5		(15.50m) Be, 0°, P, R, Clay Vn	Ashfield Shale

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CORED BOREHOLE LOG

Borehole No. 202 **4 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
0% RETURN		102	17		SANDSTONE: fine grained, grey, interbedded with siltstone, dark grey, bedded at 0-5°. *(continued)*	FR	M - H	0.80		(16.20m) Be, 0°, P, R, Clay Vn (16.29m) Be, 0°, P, R, Cn (16.35m) Be, 0°, P, R, Cn	Hawkesbury Sandstone
							H	2.4			
		101			SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-10°.			1.2		(16.72m) J, 40°, Ir, R, Cn	
								2.5			
		100	18					1.0		(17.98m) J, 40°, Ir, R, Cn	
							M - H	0.90			
		99	19					1.2			
								0.80			
								0.90			
		98	20					1.1			
								1.0			
		97	21					1.0			
								1.1			
		96	22					1.1			
								1.2			
								0.90			
								2.7			

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CORED BOREHOLE LOG

Borehole No. 202 **5 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
0% RETURN		95	24		SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-10°. *(continued)*	FR	M - H	1.0			Hawkesbury Sandstone
		94						0.90			
								0.80			
		93	25					1.7			
								1.1			
		92	26				H	0.90			
								1.4			
		91	27					1.0			
								2.6			
		90	28					1.6			
								1.4			
		89	29		END OF BOREHOLE AT 29.00 m			1.3			

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PROJECT: Proposed Mixed Use Development

PROJECT No: 37403Y **DATE:** 27/02/25

LOCATION ID: BH202 **DEPTH:** 2.33m – 9.00m

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0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9

37403Y BH202 START CORING AT 2.33m

2 NO CORE 0.13m NO CORE 0.18m

3

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PROJECT: Proposed Mixed Use Development

PROJECT No: 37403Y **DATE:** 27/02/25

LOCATION ID: BH202 **DEPTH:** 9.00m – 17.00m

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PROJECT: Proposed Mixed Use Development

PROJECT No: 37403Y **DATE:** 27/02/25

LOCATION ID: BH202 **DEPTH:** 17.00m-25.00m

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PROJECT: Proposed Mixed Use Development

PROJECT No: 37403Y **DATE:** 27/02/25

LOCATION ID: BH202 **DEPTH:** 25.00m – 29.00m

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BOREHOLE LOG

Borehole No. 203

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						126				FILL: Gravelly sand, fine to medium grained, grey and brown, fine to coarse grained igneous and sandstone gravel, with brick and concrete fragments.	M			
					N=SPT 7/ 120mm REFUSAL				-	CONCRETE: 280mm.t				NO OBSERVED REINFORCEMENT
						125	1		-	FILL: Silty clay, medium to high plasticity, orange brown, with fine to coarse grained igneous and ironstone gravel.	w>PL			
					N > 12 11,12/ 150mm REFUSAL				CI-CH	Silty CLAY: medium to high plasticity, light grey, trace of fine to coarse grained ironstone gravel.	w<PL	Hd	>600 >600 >600	RESIDUAL
						124	2		-	Extremely Weathered siltstone: silty CLAY, medium to high plasticity, orange brown, with fine to coarse grained igneous and ironstone gravel.	XW	Hd		ASHFIELD SHALE VERY LOW 'TC' BIT RESISTANCE WITH LOW BANDS
						123	3							
							4							
						122				as above, but with very low to low strength siltstone bands and iron indurated bands.				
						121	5							
							6							
						120								

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BOREHOLE LOG

Borehole No. 203

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						119			-	Extremely Weathered siltstone: as above	XW	Hd		
										SILTSTONE: grey.	DW	L - M		
										REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 24.8m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 24.8m TO 18.8m. CASING 0.1m TO 18.8m. 2mm SAND FILTER PACK 24.8m TO 18.4m. BENTONITE SEAL 18.4m TO 12.0m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						118	8							
						117	9							
						116	10							
						115	11							
						114	12							
						113	13							

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CORED BOREHOLE LOG

Borehole No. 203

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		119			START CORING AT 7.53m						
75% RETURN		118	8		NO CORE 0.09m LAMINITE: Siltstone, grey, and Sandstone, fine to medium grained, light grey, bedded at 0-5°.	SW	VL - L	0.50		(7.80m) J, 85°, Ir, R, Fe Sn (8.16m) XWS, 0°, 10 mm.t (8.30m) XWS, 0°, 10 mm.t	
						FR		0.20		(8.58m) XWS, 0°, 3 mm.t (8.64m) XWS, 0°, 5 mm.t	
		117	9				L	0.20			
								0.60		(9.71m) Cr, 0°, 45 mm.t	
							VL				
		116	10				M	0.90		(10.20m) Be, 0°, Ir, R, Fe Sn	
95% RETURN								0.20		(10.46m) XWS, 0°, 10 mm.t (10.58m) XWS, 0°, 10 mm.t (10.69m) CS, 0°, 12 mm.t (10.83m) Ji, 85°, Ir, R, Cn	Ashfield Shale
		115	11					0.40		(11.20m) Ji, 85°, Ir, R, Cn	
								0.30		(11.66m) XWS, 0°, 8 mm.t (11.74m) XWS, 0°, 10 mm.t	
			12					0.30		(11.87m) XWS, 0°, 6 mm.t	
		114						0.20		(12.16m) XWS, 0°, 6 mm.t (12.18m) XWS, 0°, 4 mm.t (12.22m) XWS, 0°, 5 mm.t	
										(12.45m) XWS, 0°, 10 mm.t (12.58m) XWS, 0°, 15 mm.t	
			13		SILTSTONE: grey, with occasional light grey laminae, bedded at 0-5°.			0.40			
		113						0.40			
								0.20			

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CORED BOREHOLE LOG

Borehole No. 203 **4 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
95% RETURN		112	15		SILTSTONE: grey, with occasional light grey laminae, bedded at 0-5°. *(continued)*	FR	M	0.30		(14.11m) J, 60°, Ir, R, Cn	Ashfield Shale
		111						0.20		(14.57m) Be, 0°, Ir, R, Cn (14.66m) CS, 0°, 4 mm.t	
								0.40		(14.85m) CS, 0°, 10 mm.t (14.92m) J, 60°, Ir, R, Cn	
								0.40		(15.35m) J, 50°, Ir, R, Cn	
		110	16					0.10		(15.67m) XWS, 0°, 10 mm.t (15.73m) XWS, 0°, 4 mm.t	
								0.40		(15.90m) XWS, 7°, 8 mm.t (15.91m) XWS, 0°, 4 mm.t	
										(16.12m) J, 70°, Ir, R, Cn (16.17m) Cr, 0°, 20 mm.t	
		109	17					0.30		(16.39m) XWS, 0°, 4 mm.t (16.52m) J, 60°, Ir, R, Cn	
								0.90		(16.70m) CS, 0°, 16 mm.t (16.75m) J, 30°, Ir, R, Cn (16.83m) J, 30°, Ir, R, Cn (16.86m) XWS, 0°, 8 mm.t (16.89m) CS, 0°, 10 mm.t (16.98m) XWS, 0°, 4 mm.t (17.15m) XWS, 0°, 20 mm.t	
								0.90		(17.38m) XWS, 0°, 4 mm.t	
		108	18				H	1.0		(17.65m) J, 75°, Ir, R, Cn	
AFTER 11 DAYS								1.5		(18.18m) J, 35°, Ir, R, Cn (18.27m) J, 45°, Ir, R, Cn (18.37m) J, 40°, Ir, R, Cn	
		107	19					1.9		(18.54m) J, 80°, Ir, R, Cn	
								1.9		(18.81m) J, 40°, Ir, R, Cn (18.87m) J, 40°, Ir, R, Cn	
		106	20					2.0		(20.27m) J, 50°, Ir, R, Cn	
								1.9		(20.92m) J, 50°, Ir, R, Cn	

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CORED BOREHOLE LOG

Borehole No. 203 **5 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
95% RETURN		105	22		SILTSTONE: grey, with occasional light grey laminae, bedded at 0-5°. *(continued)*	FR	H	1.6			Ashfield Shale
		104						1.3			
							M - H	0.90			
			23					0.80			
		103						0.60			
					SANDSTONE: fine grained, grey, with occasional grey laminae, bedded at 0-5°.						Hawkesbury Sandstone
			24		SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-5°.			1.8			
		102						0.80			
								1.1			
					END OF BOREHOLE AT 24.80 m						
		101	25								
			26								
		100									
			27								
		99									

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PROJECT: Geotechnical Investigation & Groundwater Analysis

PROJECT No: 37403Y DATE: 06/03/2025

LOCATION ID: BH203 DEPTH: 7.53-14.00m

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37403Y BH203 START CORING AT 7.53m

NO CORE 0.095m

7

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PROJECT: Geotechnical Investigation & Groundwater Analysis

PROJECT No: 37403Y **DATE:** 06/03/2025

LOCATION ID: BH203 **DEPTH:** 14.00 - 22.00m

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PROJECT: Geotechnical Investigation & Groundwater Analysis

PROJECT No: 37403Y **DATE:** 06/03/2025

LOCATION ID: BH203 **DEPTH:** 22.00 – 24.80m

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BOREHOLE LOG

Borehole No. 301

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** 117.8 m

Date: 23/7/25 TO 24/7/25 **Datum:** AHD

Plant Type: JK309 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										CONCRETE: 120mm.t				7mm DIA. REINFORCEMENT, 70mm TOP COVER
									-	FILL: Gravelly sand, fine to medium grained, grey brown, fine to coarse grained igneous and sandstone gravel.				
									-		DW	VL		ASHFIELD SHALE
						117				SILTSTONE: grey.				LOW 'TC' BIT RESISTANCE
							1							
												L - M		LOW TO MODERATE RESISTANCE
						116								
							2							
										REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 18.2m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 18.2m TO 12.2m. CASING 0.1m TO 12.2m. 2mm SAND FILTER PACK 18.2m TO 11.5m. BENTONITE SEAL 11.5m TO 6.0m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						115								
							3							
						114								
							4							
						113								
							5							
						112								
							6							
						111								

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CORED BOREHOLE LOG

Borehole No. 301

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y | **Core Size:** HQ | **R.L. Surface:** 117.8 m

Date: 23/7/25 TO 24/7/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK309 | **Bearing:** N/A | **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 2.56m					(2.56m) XWS, 0°, 60 mm.t	
100% RETURN		115	3		LAMINITE: Siltstone, grey, and Sandstone, fine to medium grained, light grey, bedded at 0-10°.	SW	L				Ashfield Shale
						FR					
		114	4				M			(3.32m) Ji, 80°, Ir, R, Cn (3.50m) XWS, 0°, 20 mm.t (3.58m) Be, 5°, Ir, R, Fe Sn (3.67m) J, 50°, Ir, R, Fe Sn (3.83m) Be, 10°, Ir, R, Fe Sn	
							M - H			(4.15m) J, 30°, Ir, R, Cn	
		113	5							(5.04m) J, 25°, Ir, R, Cn	
		112	6		SILTSTONE: grey, with light grey laminae, bedded at 0-10°.					(6.11m) J, 60°, Ir, R, Cn (6.16m) J, 40°, Ir, R, Cn (6.26m) J, 30°, Ir, R, Cn	
		111	7								
		110	8							(7.78m) Ji, 85°, Ir, R, Cn (8.23m) Ji, 30°, Ir, R, Cn	
		109								(8.52-8.78m) Rock Fractured, J,, 60 - 85°, Ir, R, Cn (8.71m) CS, 50°, 10 mm.t (8.81m) J, 85°, Ir, R, Cn	

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JKGeotechnics

CORED BOREHOLE LOG

Borehole No. 301

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y | **Core Size:** HQ | **R.L. Surface:** 117.8 m

Date: 23/7/25 TO 24/7/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK309 | **Bearing:** N/A | **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness) Specific / General	Formation
100% RETURN		108	10		SILTSTONE: grey, with light grey laminae, bedded at 0-10°. *(continued)*	FR	M - H			(9.02m) J, 85°, Ir, R, Cn	Ashfield Shale
AFTER 5 DAYS										(9.59m) J, 20°, Ir, R, Cn (9.65m) CS, 0°, Ir, R, 8 mm.t	
		107	11							(10.13m) J, 25°, Ir, R, Cn (10.24m) Ji, 85°, Ir, R, Cn	
		106	12							(10.74m) J, 30°, Ir, R, Cn (10.83m) J, 40°, Ir, R, Cn (10.90m) J, 40°, Ir, R, Cn	
										(11.15m) J, 40°, Ir, R, Cn (11.31m) Be, 10°, Ir, R, Cn	
75% RETURN		105	13							(12.53m) J, 40°, Ir, R, Cn	
		104	14							(13.52m) J, 75°, Ir, R, Cn (13.77m) J, 80°, Ir, R, Cn	
		103	15		SANDSTONE: fine grained, light grey and grey, with grey laminae, bedded at 0-10°.					(14.60m) Be, 0°, Ir, R, Cn	Hawkesbury Sandstone
		102			SANDSTONE: fine to medium grained, light grey, with grey laminae, bedded at 0-10°.					(15.23m) Be, 0°, Ir, R, Cn (15.58m) Be, 0°, Ir, R, Cn	

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JKGeotechnics

CORED BOREHOLE LOG

Borehole No. 301

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** 117.8 m

Date: 23/7/25 TO 24/7/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ VL 0.1 L 0.3 M 1 H 3 VH 10 EH	DEFECT DETAILS SPACING (mm) 600 200 60 20	DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific / General	Formation
75% RETURN		101	17		SANDSTONE: fine to medium grained, light grey, with grey laminae, bedded at 0-10°. *(continued)*	FR	M - H			(17.18m) Be, 0°, Ir, R, Cn	Hawkesbury Sandstone
		100	18								
		99	19		END OF BOREHOLE AT 18.46 m						
		98	20								
		97	21								
		96	22								
		95									

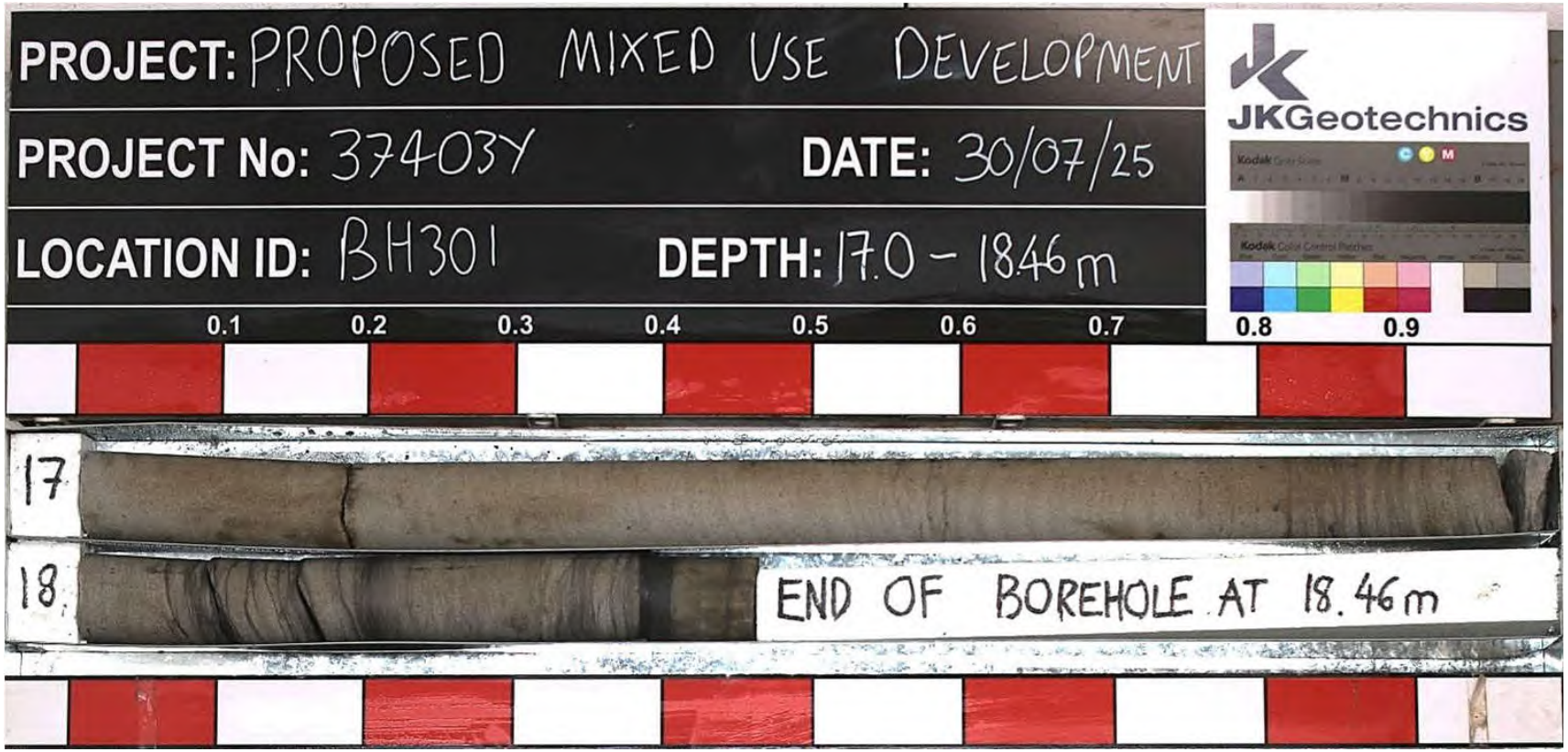
JK 9.02.4 LIB:GLB Log JK CORED BOREHOLE - MASTER 37403Y GORDON.GPJ <<DrawingFile>> 21/08/2025 17:04 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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PROJECT: PROPOSED MIXED USE DEVELOPMENT
PROJECT No: 37403Y
DATE: 30/07/25
LOCATION ID: BH301
DEPTH: 2.56m - 9.00m
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
37403Y. BH301 START CORING AT 2.56m
2
3
4
5
6
7
8


PROJECT: PROPOSED MIXED USE DEVELOPMENT
PROJECT No: 37403Y
DATE: 30/07/25
LOCATION ID: BH301
DEPTH: 9.00 - 17.00m
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
9
10
11
12
13
14
15
16


PROJECT: PROPOSED MIXED USE DEVELOPMENT
PROJECT No: 37403Y
DATE: 30/07/25
LOCATION ID: BH301
DEPTH: 17.0 - 18.46 m
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
17
18
END OF BOREHOLE AT 18.46 m

JKGeotechnics

BOREHOLE LOG

Borehole No. 302

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** 118.9 m

Date: 21/7/25 TO 22/7/25 **Datum:** AHD

Plant Type: JK309 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										CONCRETE: 150mm.t				7mmDIA. REINFORCEMENT, 95mm TOP COVER
									-	FILL: Gravelly sand, fine to medium grained, grey brown, fine to coarse grained igneous gravel.				
					N=SPT 4/ 0mm REFUSAL				-	SILTSTONE: grey, with iron indurated bands.	DW	L		ASHFIELD SHALE LOW 'TC' BIT RESISTANCE
						118	1					L - M		LOW TO MODERATE RESISTANCE
						117	2							
						116	3							
						115	4							
										REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 19.5m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 19.5m TO 13.5m. CASING 0.1m TO 13.5m. 2mm SAND FILTER PACK 19.5m TO 13.0m. BENTONITE SEAL 13.0m TO 8.0m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						114	5							
						113	6							
						112								

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CORED BOREHOLE LOG

Borehole No. 302

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y | **Core Size:** HQ | **R.L. Surface:** 118.9 m

Date: 21/7/25 TO 22/7/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK309 | **Bearing:** N/A | **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		115	4		START CORING AT 4.09m						
100% RETURN		114	5		LAMINITE: Siltstone, grey, and Sandstone, fine to medium grained, light grey, bedded at 0-5°.	FR	M - H			(4.12m) Ji, 55°, Ir, R, Fe Sn (4.20m) Be, 0°, P, R, Fe Sn	Ashfield Shale
		113	6							(5.05m) J, 60°, Ir, R, Fe Sn (5.48m) Be, 0°, Ir, R, Fe Sn (5.53m) J, 55°, Ir, R, Fe Sn (5.89m) Be, 0°, P, R, Fe Sn	
		112	7				H			(6.41m) XWS, 0°, 5 mm.t (6.98m) J, 30°, Ir, R, Fe Sn (7.02m) Ji, 30°, Ir, R, Cn (7.07m) J, 5°, Ir, R, Fe Sn (7.19m) J, 50°, Ir, R, Fe Sn (7.23m) J, 80°, Ir, R, Fe Sn	
		111	8		SILTSTONE: grey, with light grey laminae, bedded at 0-5°.					(7.69m) Ji, 45°, Ir, R, Cn	
		110	9								
		109									

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CORED BOREHOLE LOG

Borehole No. 302 **3 / 6**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** 118.9 m

Date: 21/7/25 TO 22/7/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
AFTER 7 DAYS		108	11		SILTSTONE: grey, with light grey laminae, bedded at 0-5°. *(continued)*	FR	H	VL -0.1, L -0.3, M -1, H -3, VH -10, EH	600, 200, 60, 20	(10.82m) J, 60°, Ir, R, Cn (11.22m) J, 40°, Ir, R, Clay Vn	Ashfield Shale
100% RETURN		107	12							(12.04m) Ji, 85°, Ir, R, Cn	
		106	13								
		105	14							(13.62m) Fractured Rock, J, 40 - 50°, Ir, R, Cn (14.07m) Ji, 80°, Ir, R, Cn	
		104	15							(14.50m) J, 30°, Ir, R, Cn (14.57m) Cr, 0°, 40 mm.t (14.64m) J, 50°, Ir, R, Cn (14.99m) J, 30°, Ir, R, Cn (15.03m) J, 85°, Ir, R, Cn (15.11m) J, 30°, Ir, R, Cn (15.17m) J, 60°, Ir, R, Cn (15.27m) Be, 0°, P, R, Cn (15.38m) J, 50°, Ir, R, Cn	
50% RETURN		103	16		SANDSTONE: fine grained, grey and light grey, with occasional grey laminae, bedded at 0-5°.						Hawkesbury Sandstone
		102								(16.76m) Be, 0°, P, R, Clay Vn	

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CORED BOREHOLE LOG

Borehole No. 302 **4 / 6**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** 118.9 m

Date: 21/7/25 TO 22/7/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
50% RETURN		101	18		SANDSTONE: as above SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-10°.	FR	M - H	VL -0.1, L -0.3, M -1, H -3, VH -10, EH	600, 200, 60, 20	(17.28m) Be, 0°, Ir, R, Clay Vn	Hawkesbury Sandstone
		100	19		as above, but bedded at 0-20°, with occasional siltstone laminae.					(18.64m) Be, 0°, Ir, R, Cn	
		99	20		SANDSTONE: fine to medium grained, light grey, with grey laminae, bedded at 0-15°.						
		98	21								
		97	22								
		96	23				H				
		95									

JK 9.02.4 LIB:GLB Log JK CORED BOREHOLE - MASTER 37403Y GORDON.GPJ <<DrawingFile>> 21/08/2025 17:05 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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CORED BOREHOLE LOG

Borehole No. 302 **5 / 6**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** 118.9 m

Date: 21/7/25 TO 22/7/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ VL 0.1 L 0.3 M 1 H 3 VH 10 EH	DEFECT DETAILS SPACING (mm) 600 200 60 20	DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific / General	Formation
50% RETURN		94	25		SANDSTONE: fine to medium grained, grey and light grey, with grey laminae, bedded at 0-10°. *(continued)*	FR	H			(24.58m) Ji, 80 - 85°, Ir, R, Cn	
		93	26		SANDSTONE: fine to medium grained, light grey, with grey laminae, bedded at 0-10°.					(26.45m) CROSS BEDDING	
		92	27								Hawkesbury Sandstone
		91	28								
		90	29								
		89	30		SANDSTONE: fine to medium grained, light grey, with interbedded siltstone, grey, bedded at 0-5°.						
		88									

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CORED BOREHOLE LOG

Borehole No. 302 **6 / 6**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** 118.9 m

Date: 21/7/25 TO 22/7/25 **Inclination:** VERTICAL **Datum:** AHD

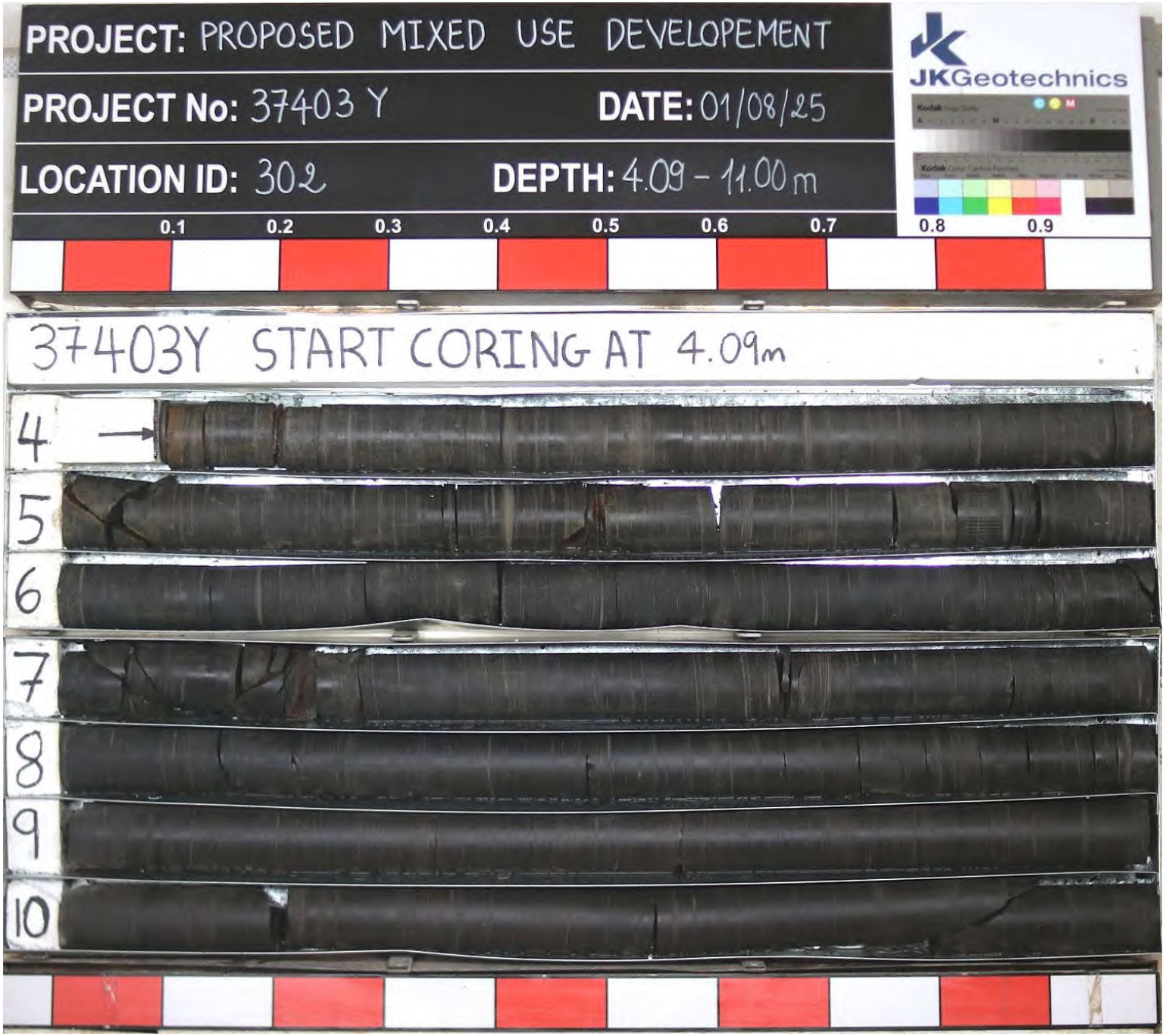
Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
50% RETURN		87	32		SANDSTONE: fine to medium grained, light grey, with interbedded siltstone, grey, bedded at 0-5°. *(continued)*	FR	H				Hawkesbury Sandstone
		86	33		SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-10°.						
		85	34		END OF BOREHOLE AT 33.59 m						
		84	35								
		83	36								
		82	37								
		81									

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PROJECT: PROPOSED MIXED USE DEVELOPEMENT
PROJECT No: 37403 Y
DATE: 01/08/25
LOCATION ID: 302
DEPTH: 4.09 - 11.00 m
JKGeotechnics
37403Y START CORING AT 4.09m
4
5
6
7
8
9
10


PROJECT: PROPOSED MIXED USE DEVELOPEMENT
PROJECT No: 37403 Y
DATE: 01/08/25
LOCATION ID: 302
DEPTH: 11.0 - 19.0m
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
11
12
13
14
15
16
17
18


PROJECT: PROPOSED MIXED USE DEVELOPEMENT
PROJECT No: 37403 Y
DATE: 01/08/25
LOCATION ID: 302
DEPTH: 19.0 - 27.0 m
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
19
20
21
22
23
24
25
26


PROJECT: PROPOSED MIXED USE DEVELOPEMENT
PROJECT No: 37403 Y
DATE: 01/08/25
LOCATION ID: 302
DEPTH: 27.00 - 33.59 m
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
27
28
29
30
31
32
33
END OF BOREHOLE
AT 33.59m



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

This plan should be read in conjunction with the JK Geotechnics report.

Title: **SITE LOCATION PLAN**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

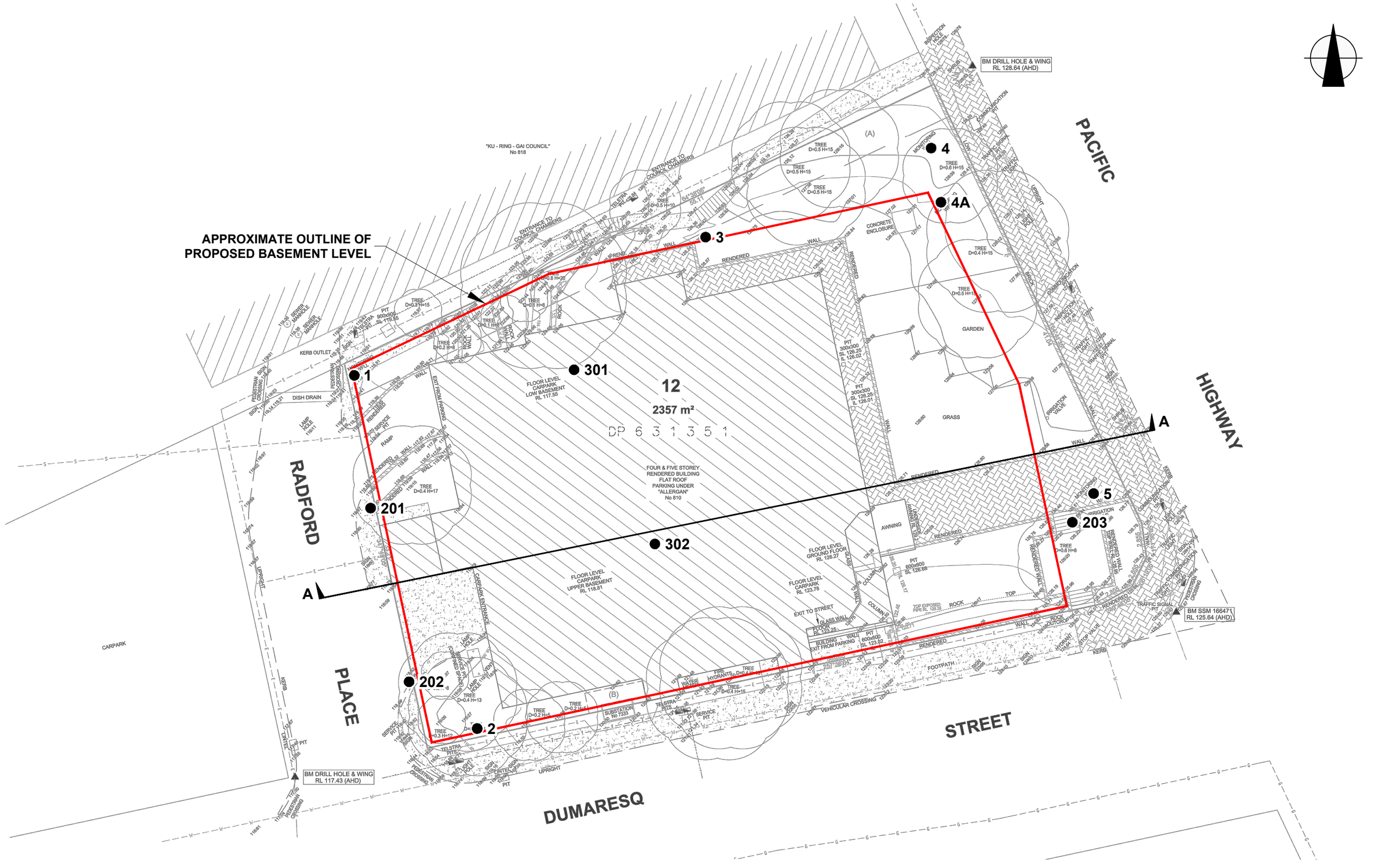
Report No: 37403Y

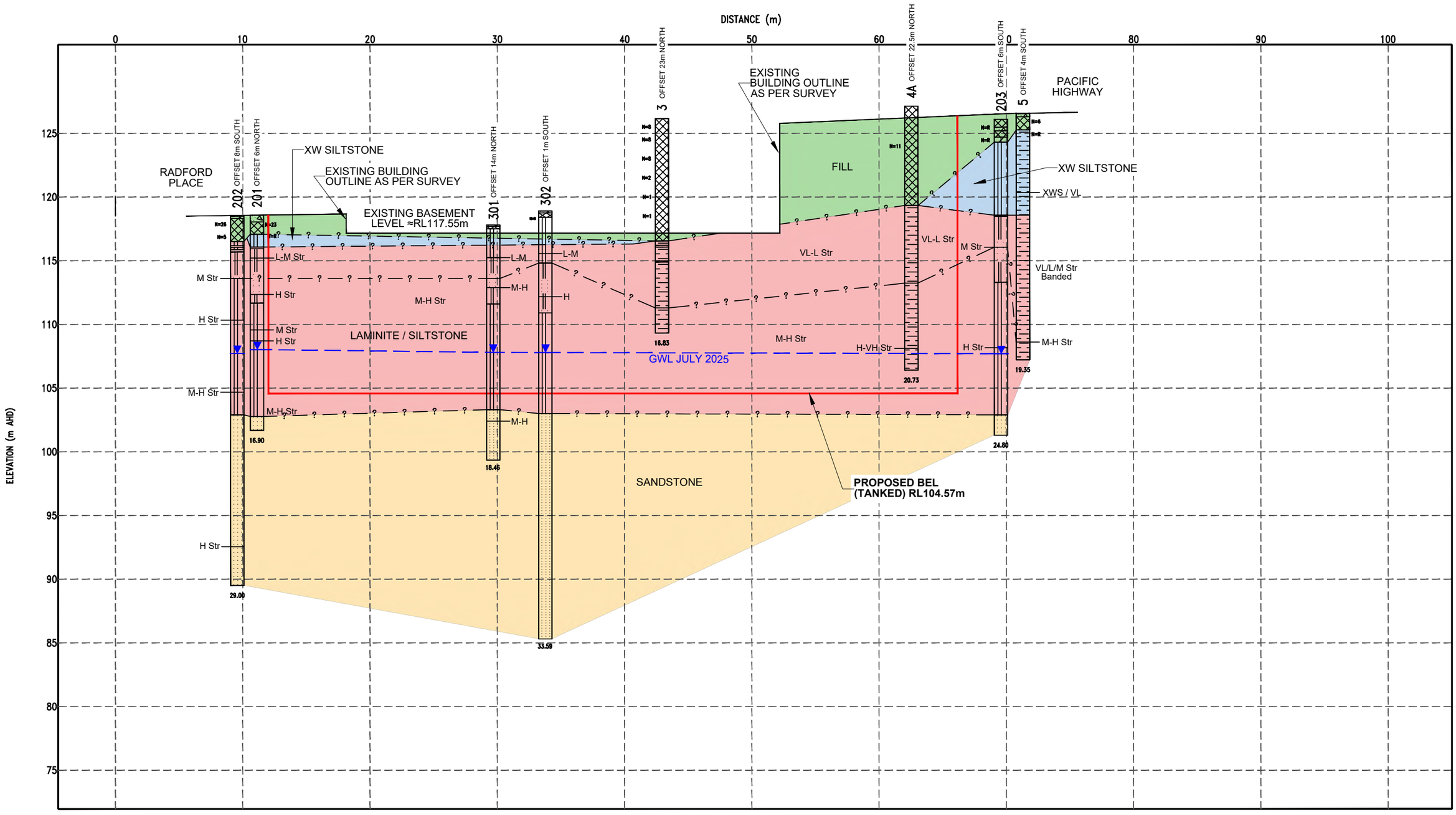
Figure No: 1

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PLOT DATE: 18/03/2025 9:08:53 AM DWG FILE: J:\6F GEOTECHNICAL JOBS\37000'S\37403Y GORDON\CAD\37403Y.DWG

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APPROXIMATE OUTLINE OF PROPOSED BASEMENT LEVEL
PACIFIC HIGHWAY
RADFORD PLACE
DUMARESQ STREET
1
2
3
4
4A
5
201
202
203
301
302
A
A
12
2357 m²
DP 631351
FOUR & FIVE STOREY RENDERED BUILDING FLAT ROOF PARKING UNDER "ALLERGAN" No 810
"KU - RING - GAI COUNCIL" No 818
BM DRILL HOLE & WING RL 128.64 (AHD)
BM DRILL HOLE & WING RL 117.43 (AHD)
BM SSM 166471 RL 125.64 (AHD)
FLOOR LEVEL CARPARK LOW BASEMENT RL 117.55
FLOOR LEVEL CARPARK UPPER BASEMENT RL 118.81
FLOOR LEVEL GROUND FLOOR RL 126.27
FLOOR LEVEL CARPARK RL 123.78
CARPARK ENTRANCE
EXIT FROM PARKING
EXIT TO STREET
ENTRANCE TO COUNCIL CHAMBERS
CONCRETE ENCLOSURE
GARDEN
GRASS
CARPARK
FOOTPATH
KERB
RENDERED
BRICK
ROCK
TOP
AWNING
GLASS WALL
VEHICULAR CROSSING
PEDESTRIAN CROSSING
TRAFFIC SIGNAL PIT
STOP VALVE
IRRIGATION VALVE
HYDRANT
SUBSTATION No 7333
TELSTRA PITS
SERVICE PIT
KERB OUTLET
DISH DRAIN
RAMP
UPRIGHT
TINTED
SIGN
LAMP HOLE
TREE D=0.4 H=17
TREE D=0.4 H=13
TREE D=0.2 H=5
TREE D=0.2 H=4
TREE D=0.4 H=15
TREE D=0.5 H=15
TREE D=0.6 H=15
TREE D=0.4 H=15
TREE D=0.5 H=15
TREE D=0.6 H=8
TREE D=0.4 H=15
TREE D=0.3 H=15
TREE D=0.2 H=8
TREE D=0.1 H=8
TREE D=0.8 H=20
PIT 900x900 SL 119.95
PIT 300x300 SL 126.25 IL 126.02
PIT 300x300 SL 126.25 IL 126.01
PIT 600x600 SL 126.65
PIT 600x600 SL 123.92
PIT 600x600
SEWER MANHOLE
SEWER MANHOLE
TELSTRA PIT
TELSTRA PIT
TELSTRA PIT
TELSTRA PIT
WATER
FIRE HYDRANTS
INSPECTION HOLE
INSPECTION HOLE
INSPECTION HOLE
COMMUNICATION
COMMUNICATION
TRAFFIC SIGNAL PIT
TRAFFIC SIGNAL PIT
TRAFFIC CONTROL PIT
TRAFFIC CONTROL PIT
TRAFFIC CONTROL PIT
TRAFFIC CONTROL PIT
MONITORING
MONITORING
MONITORING
LOW VOLTAGE
LOW VOLTAGE
LOW VOLTAGE



MATERIAL GRAPHIC

- NO CORE
- SILTY CLAY (CL, CI, CH)
- SILTSTONE
- CONCRETE
- FILL
- SHALE, MUDSTONE
- LAMINITE (SILTSTONE, SANDSTONE)
- SANDSTONE

SCALE 1:300 @A3 METRES (0 3 6 9 12 15)

This plan should be read in conjunction with the JK Geotechnics report.

Title: **CROSS SECTION A-A**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Report No: 37403YrptRev1

Figure No: 3

JKGeotechnics

PLOT DATE: 22/08/2025 10:40:36 AM DWG FILE: J:\GF GEOTECHNICAL JOBS\37000'S\37403Y GORDON\CAD\37403YRPTREV1.DWG

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VIBRATION EMISSION DESIGN GOALS

German Standard DIN 4150 – Part 3: 1999 provides guideline levels of vibration velocity for evaluating the effects of vibration in structures. The limits presented in this standard are generally recognised to be conservative.

The DIN 4150 values (maximum levels measured in any direction at the foundation, OR, maximum levels measured in (x) or (y) horizontal directions, in the plane of the uppermost floor), are summarised in Table 1 below.

It should be noted that peak vibration velocities higher than the minimum figures in Table 1 for low frequencies may be quite 'safe', depending on the frequency content of the vibration and the actual condition of the structure.

It should also be noted that these levels are 'safe limits', up to which no damage due to vibration effects has been observed for the particular class of building. 'Damage' is defined by DIN 4150 to include even minor non-structural effects such as superficial cracking in cement render, the enlargement of cracks already present, and the separation of partitions or intermediate walls from load bearing walls. Should damage be observed at vibration levels lower than the 'safe limits', then it may be attributed to other causes. DIN 4150 also states that when vibration levels higher than the 'safe limits' are present, it does not necessarily follow that damage will occur. Values given are only a broad guide.

Table 1: DIN 4150 – Structural Damage – Safe Limits for Building Vibration

Group	Type of Structure	Peak Vibration Velocity in mm/s			
		At Foundation Level at a Frequency of:			Plane of Floor of Uppermost Storey
		Less than 10Hz	10Hz to 50Hz	50Hz to 100Hz	All Frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design.	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use.	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 and 2 and have intrinsic value (eg. buildings that are under a preservation order).	3	3 to 8	8 to 10	8

Note: For frequencies above 100Hz, the higher values in the 50Hz to 100Hz column should be used.

REPORT EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the geotechnical report in regard to classification methods, field procedures and certain matters relating to the Comments and Recommendations section. Not all notes are necessarily relevant to all reports.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Geotechnical engineering involves gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 *'Geotechnical Site Investigations'*. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geotechnical practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) is referred to as 'laminite'.

SAMPLING

Sampling is carried out during drilling or from other excavations to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on plasticity, grain size, colour, moisture content, minor constituents and, depending upon the degree of disturbance, some information on strength and structure. Bulk samples are similar but of greater volume required for some test procedures.

Undisturbed samples are taken by pushing a thin-walled sample tube, usually 50mm diameter (known as a U50), into the soil and withdrawing it with a sample of the soil contained in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shrink-swell behaviour, strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling used are given on the attached logs.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

  N = 13
  4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

  N > 30
  15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'N_c' on the borehole logs, together with the number of blows per 150mm penetration.

Cone Penetrometer Testing (CPT) and Interpretation: The cone penetrometer is sometimes referred to as a Dutch Cone. The test is described in Australian Standard 1289.6.5.1–1999 (R2013) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Static Cone Penetration Resistance of a Soil – Field Test using a Mechanical and Electrical Cone or Friction-Cone Penetrometer'*.

In the tests, a 35mm or 44mm diameter rod with a conical tip is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with a hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the frictional resistance on a separate 134mm or 165mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are electrically connected by wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck. The CPT does not provide soil sample recovery.

As penetration occurs (at a rate of approximately 20mm per second), the information is output as incremental digital records every 10mm. The results given in this report have been plotted from the digital data.

The information provided on the charts comprise:

- Cone resistance – the actual end bearing force divided by the cross sectional area of the cone – expressed in MPa. There are two scales presented for the cone resistance. The lower scale has a range of 0 to 5MPa and the main scale has a range of 0 to 50MPa. For cone resistance values less than 5MPa, the plot will appear on both scales.
- Sleeve friction – the frictional force on the sleeve divided by the surface area – expressed in kPa.
- Friction ratio – the ratio of sleeve friction to cone resistance, expressed as a percentage.

  The ratios of the sleeve resistance to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1% to 2% are commonly encountered in sands and occasionally very soft clays, rising to 4% to 10% in stiff clays and peats. Soil descriptions based on cone resistance and friction ratios are only inferred and must not be considered as exact.

Correlations between CPT and SPT values can be developed for both sands and clays but may be site specific.

Interpretation of CPT values can be made to empirically derive modulus or compressibility values to allow calculation of foundation settlements.

Stratification can be inferred from the cone and friction traces and from experience and information from nearby boreholes etc. Where shown, this information is presented for general guidance, but must be regarded as interpretive. The test method provides a continuous profile of engineering properties but, where precise information on soil classification is required, direct drilling and sampling may be preferable.

There are limitations when using the CPT in that it may not penetrate obstructions within any fill, thick layers of hard clay and very dense sand, gravel and weathered bedrock. Normally a 'dummy' cone is pushed through fill to protect the equipment. No information is recorded by the 'dummy' probe.

Flat Dilatometer Test: The flat dilatometer (DMT), also known as the Marchetti Dilometer comprises a stainless steel blade having a flat, circular steel membrane mounted flush on one side.

The blade is connected to a control unit at ground surface by a pneumatic-electrical tube running through the insertion rods. A gas tank, connected to the control unit by a pneumatic cable, supplies the gas pressure required to expand the membrane. The control unit is equipped with a pressure regulator, pressure gauges, an audio-visual signal and vent valves.

The blade is advanced into the ground using our CPT rig or one of our drilling rigs, and can be driven into the ground using an SPT hammer. As soon as the blade is in place, the membrane is inflated, and the pressure required to lift the membrane (approximately 0.1mm) is recorded. The pressure then required to lift the centre of the membrane by an additional 1mm is recorded. The membrane is then deflated before pushing to the next depth increment, usually 200mm down. The pressure readings are corrected for membrane stiffness.

The DMT is used to measure material index (I_D), horizontal stress index (K_D), and dilatometer modulus (E_D). Using established correlations, the DMT results can also be used to assess the 'at rest' earth pressure coefficient (K_o), over-consolidation ratio (OCR), undrained shear strength (C_u), friction angle (ϕ), coefficient of consolidation (C_h), coefficient of permeability (K_h), unit weight (γ), and vertical drained constrained modulus (M).

The seismic dilatometer (SDMT) is the combination of the DMT with an add-on seismic module for the measurement of shear wave velocity (V_s). Using established correlations, the SDMT results can also be used to assess the small strain modulus (G_o).

Portable Dynamic Cone Penetrometers: Portable Dynamic Cone Penetrometer (DCP) tests are carried out by driving a 16mm diameter rod with a 20mm diameter cone end with a 9kg hammer dropping 510mm. The test is described in Australian Standard 1289.6.3.2–1997 (R2013) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – 9kg Dynamic Cone Penetrometer Test'*.

The results are used to assess the relative compaction of fill, the relative density of granular soils, and the strength of cohesive soils. Using established correlations, the DCP test results can also be used to assess California Bearing Ratio (CBR).

Refusal of the DCP can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Vane Shear Test: The vane shear test is used to measure the undrained shear strength (C_u) of typically very soft to firm fine grained cohesive soils. The vane shear is normally performed in the bottom of a borehole, but can be completed from surface level, the bottom and sides of test pits, and on recovered undisturbed tube samples (when using a hand vane).

The vane comprises four rectangular blades arranged in the form of a cross on the end of a thin rod, which is coupled to the bottom of a drill rod string when used in a borehole. The size of the vane is dependent on the strength of the fine grained cohesive soils; that is, larger vanes are normally used for very low strength soils. For borehole testing, the size of the vane can be limited by the size of the casing that is used.

For testing inside a borehole, a device is used at the top of the casing, which suspends the vane and rods so that they do not sink under self-weight into the 'soft' soils beyond the depth at which the test is to be carried out. A calibrated torque head is used to rotate the rods and vane and to measure the resistance of the vane to rotation.

With the vane in position, torque is applied to cause rotation of the vane at a constant rate. A rate of 6° per minute is the common rotation rate. Rotation is continued until the soil is sheared and the maximum torque has been recorded. This value is then used to calculate the undrained shear strength. The vane is then rotated rapidly a number of times and the operation repeated until a constant torque reading is obtained. This torque value is used to calculate the remoulded shear strength. Where appropriate, friction on the vane rods is measured and taken into account in the shear strength calculation.

LOGS

The borehole or test pit logs presented herein are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse engineering characteristics or behaviour. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing is normally carried out in accordance with Australian Standard 1289 *'Methods of Testing Soils for Engineering Purposes'* or appropriate NSW Government Roads & Maritime Services (RMS) test methods. Details of the test procedure used are given on the individual report forms.

ENGINEERING REPORTS

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building) the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company will be pleased to review the report and the sufficiency of the investigation work.

Reasonable care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions – the potential for this will be partially dependent on borehole spacing and sampling frequency as well as investigation technique.
- Changes in policy or interpretation of policy by statutory authorities.
- The actions of persons or contractors responding to commercial pressures.
- Details of the development that the Company could not reasonably be expected to anticipate.

If these occur, the Company will be pleased to assist with investigation or advice to resolve any problems occurring.

SITE ANOMALIES

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

REPRODUCTION OF INFORMATION FOR CONTRACTUAL PURPOSES

Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Copyright in all documents (such as drawings, borehole or test pit logs, reports and specifications) provided by the Company shall remain the property of Jeffery and Katauskas Pty Ltd. Subject to the payment of all fees due, the Client alone shall have a licence to use the documents provided for the sole purpose of completing the project to which they relate. Licence to use the documents may be revoked without notice if the Client is in breach of any obligation to make a payment to us.

REVIEW OF DESIGN

Where major civil or structural developments are proposed or where only a limited investigation has been completed or where the geotechnical conditions/constraints are quite complex, it is prudent to have a joint design review which involves an experienced geotechnical engineer/engineering geologist.

SITE INSPECTION

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related.

Requirements could range from:

i) a site visit to confirm that conditions exposed are no worse than those interpreted, to

ii) a visit to assist the contractor or other site personnel in identifying various soil/rock types and appropriate footing or pile founding depths, or

iii) full time engineering presence on site.

SYMBOL LEGENDS

SOIL


FILL


TOPSOIL


CLAY (CL, CI, CH)


SILT (ML, MH)


SAND (SP, SW)


GRAVEL (GP, GW)


SANDY CLAY (CL, CI, CH)


SILTY CLAY (CL, CI, CH)


CLAYEY SAND (SC)


SILTY SAND (SM)


GRAVELLY CLAY (CL, CI, CH)


CLAYEY GRAVEL (GC)


SANDY SILT (ML, MH)


PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK


CONGLOMERATE


SANDSTONE


SHALE/MUDSTONE


SILTSTONE


CLAYSTONE


COAL


LAMINITE


LIMESTONE


PHYLLITE, SCHIST


TUFF


GRANITE, GABBRO


DOLERITE, DIORITE


BASALT, ANDESITE


QUARTZITE

OTHER MATERIALS


BRICKS OR PAVERS


CONCRETE


ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
Fine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $Cu > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_U = \frac{D_{60}}{D_{10}} \qquad and \qquad C_C = \frac{(D_{30})^2}{D_{10}\, D_{60}}$$

Where D_{10}, D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

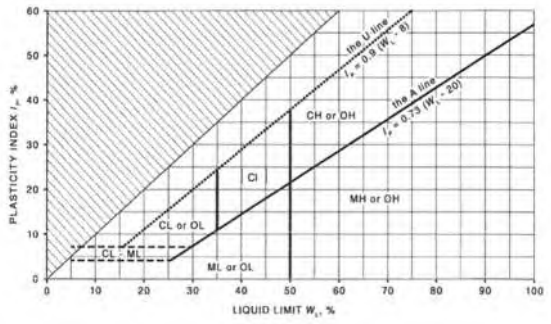
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record	▼	Standing water level. Time delay following completion of drilling/excavation may be shown.
	C	Extent of borehole/test pit collapse shortly after drilling/excavation.
	▶	Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25	Vane shear reading in kPa of undrained shear strength.
	PID = 100	Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	*w* > PL	Moisture content estimated to be greater than plastic limit.
	w ≈ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	w ≈ LL	Moisture content estimated to be near liquid limit.
	w > LL	Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D	DRY – runs freely through fingers.
	M	MOIST – does not run freely but no free water visible on soil surface.
	W	WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.
	Hd	HARD – unconfined compressive strength > 400kPa.
	Fr	FRIABLE – strength not attainable, soil crumbles.
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.

Density Index/ Relative Density (Cohesionless Soils)		**Density Index (I_D) Range (%)**	**SPT 'N' Value Range (Blows/300mm)**
	VL	VERY LOOSE	≤ 15	0 – 4
	L	LOOSE	> 15 and ≤ 35	4 – 10
	MD	MEDIUM DENSE	> 35 and ≤ 65	10 – 30
	D	DENSE	> 65 and ≤ 85	30 – 50
	VD	VERY DENSE	> 85	> 50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.		

Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.

Log Column	Symbol	Definition
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: *'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'*. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Abbreviations Used in Defect Description

Cored Borehole Log Column		Symbol Abbreviation	Description
Point Load Strength Index		• 0.6	Axial point load strength index test result (MPa)
		x 0.6	Diametral point load strength index test result (MPa)
Defect Details	– Type	Be	Parting – bedding or cleavage
		CS	Clay seam
		Cr	Crushed/sheared seam or zone
		J	Joint
		Jh	Healed joint
		Ji	Incipient joint
		XWS	Extremely weathered seam
	– Orientation	Degrees	Defect orientation is measured relative to normal to the core axis (ie. relative to the horizontal for a vertical borehole)
	– Shape	P	Planar
		C	Curved
		Un	Undulating
		St	Stepped
		Ir	Irregular
	– Roughness	Vr	Very rough
		R	Rough
		S	Smooth
		Po	Polished
		Sl	Slickensided
	– Infill Material	Ca	Calcite
		Cb	Carbonaceous
		Clay	Clay
		Fe	Iron
		Qz	Quartz
		Py	Pyrite
	– Coatings	Cn	Clean
		Sn	Stained – no visible coating, surface is discoloured
		Vn	Veneer – visible, too thin to measure, may be patchy
		Ct	Coating ≤ 1mm thick
		Filled	Coating > 1mm thick
	– Thickness	mm.t	Defect thickness measured in millimetres

APPENDIX B1

REPORT TO

SITE 3 GROUP PTY LTD

ON

GROUNDWATER QUALITY SCREENING

FOR

PROPOSED MIXED USE DEVELOPMENT

AT

810 PACIFIC HIGHWAY, GORDON, NSW

Date: 16 April 2025
Ref: E37465PHrpt

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DOCUMENT REVISION RECORD

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E37465PHrpt	Final Report	16 April 2025

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Attachments

Appendix A: Report Figures
Appendix B: Laboratory Results Summary Tables
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Appendix D: Borehole Logs
Appendix E: Laboratory Report & COC Documents
Appendix F: Groundwater Field Sheets
Appendix G: Report Explanatory Notes

Abbreviations

Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Above-Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Chain of Custody	**COC**
Development Application	**DA**
Environment Protection Authority	**EPA**
International Organisation of Standardisation	**ISO**
JK Environments	**JKE**
JK Geotechnics	**JKG**
Lab Control Spike	**LCS**
Light Non-Aqueous Phase Liquid	**LNAPL**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**
Potential ASS	**PASS**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Relative Percentage Difference	**RPD**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Standing Water Level	**SWL**
Standard Sampling Procedure	**SSP**
Trip Blank	**TB**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Volatile Organic Compounds	**VOC**
Work Health and Safety	**WHS**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Micrograms per litre	**µg/L**

1 INTRODUCTION

Site 3 Group Pty Ltd ('the client') commissioned JK Environments (JKE) to undertake a groundwater quality screening for the proposed development at 810 Pacific Highway, Gordon, NSW ('the site'). The site location is shown on Figure 1 and the screening was limited to sampling from the three groundwater monitoring wells as shown on Figure 2 attached in the appendices.

A geotechnical investigation was undertaken in conjunction with this assessment by JK Geotechnics (JKG). The results of the investigation are presented in a separate report (Ref: 37403Yrpt, dated 9 April 2025)[1]. This report should be read in conjunction with the JKG report.

1.1 Proposed Development Details

We understand that the proposed development includes construction of a 10 level building over five basement levels, with the lowest basement have a finished floor level of RL104.97m. This is anticipated to result in excavation to maximum depths of approximately 24m. The lower levels will be occupied by retail premises and the upper levels will include residential apartments.

1.2 Objectives

The primary objective of this screening was to provide preliminary groundwater quality data that could be used to support an application for a temporary construction dewatering license.

1.3 Scope of Work

The screening was undertaken generally in accordance with a combined JKG and JKE proposal (Ref: P70989Yrev) of 24 January 2025 and written acceptance from the client of 18 March 2025. The scope of work included the following:

- Sampling from three monitoring wells installed at the site by JKG;
- Analysis of groundwater samples for a range of contaminants and parameters;
- Interpretation of the results with reference to relevant screening criteria;
- Data quality assessment; and
- Preparation of a report.

The analytical schedule was selected with reference to the 'mandatory' testing requirements outlined in the NSW DPIE Minimum requirements for building site groundwater investigations and reporting (2022)[2] document.

[1] Referred to as JKG report

[2] NSW DPIE, (2022). *Minimum requirements for building site groundwater investigations and reporting.* (Referred to as DPIE 2022).

2 SITE INFORMATION

2.1 Site Identification and Description

Table 2-1: Site Identification

Site Address:	810 Pacific Highway, Gordon, NSW
Lot & Deposited Plan:	Lot 12 in DP 631351
Current Land Use:	Commercial
Local Government Authority (LGA):	Ku-Ring-Gai Council
Site Area (m^2):	2,400
RL (metres AHD) (approx.):	120
Geographical Location (MGA) (approx.):	Latitude: -33.754592 Longitude: 151.151740

The site is located at the intersection of Pacific Highway and Dumaresq Street, near the top of a ridgeline that approximately follows the Pacific Highway. The region typically falls to the west, away from the ridgeline, at approximately 5-6°.

At the time of the screening, the site was an inactive demolition site. A dilapidated/partially demolished building occupied part of the site and demolition rubble was apparent across the site. Concrete pavement was apparent beneath the building. Large parts of the site had been levelled to accommodate the previous building.

The site is located in a predominantly commercial area of Gordon. Commercial areas to north included Ku-Ring-Gai Council offices and a family centre. Retail premises, including Gordon Centre were located to the south and east of the site. An access road and paved car park were located to the west of the site, with residential area beyond that included houses and high-rise apartment buildings. There were no suspected contaminating land uses in nearby, up-gradient areas.

2.2 Regional Geology

Regional geological information was reviewed for the investigation. The information was sourced from the Lotsearch report attached in the appendices. The report indicates that the site is underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

2.3 Registered Groundwater Bores

Hydrogeological information presented in the Lotsearch report indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There was a total of 18 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 640m from the site. This was utilised as a water supply bore, however, given the shallow depth (4.8m) was unlikely to have been used to supply drinking water;
- Other water supply/irrigation bores were located within 700m of the site;
- The majority of the remaining bores were registered for monitoring purposes;
- There were no nearby bores within 600m of the site; and
- The drillers log information from the closest registered bores typically identified shallow bedrock. Standing water levels (SWLs) in the bores ranged from 4.5m below ground level (BGL) to 63mBGL.

The information reviewed for the screening indicates that the subsurface conditions at the site are likely to consist of relatively low permeability (residual) soils overlying shallow bedrock. The potential for viable groundwater abstraction and use of groundwater under these conditions is considered to be low. There is a reticulated water supply in the area and consumption of groundwater is not expected to occur.

2.4 Receiving Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is Amaroo Gully located approximately 600m to the south-west of the site, which eventually discharges into the upper reaches of the Lane Cove River. Due to the distance from the site, the water body is unlikely to be a potential receptor for direction migration of groundwater, however, groundwater pumped to stormwater services would likely flow to the gully and eventually discharge into the upper reaches of the Lane Cove River.

3 SITE HISTORY INFORMATION

3.1 Review of Historical Aerial Photographs

Historical aerial photographs were reviewed for the investigation. The information was sourced from the Lotsearch report attached in the appendices. JKE has reviewed the photographs, and summarised relevant information in the following table:

Table 3-1: Summary of Historical Aerial Photographs

Year	Details
1930	The photograph was of poor quality. **On-site:** The site appeared to be occupied by buildings in the north-east and west sections, that may have ben under construction. **Off-site:** A 'U-shaped' building was located immediately north of the site that appeared similar to the existing (2025) council building. A large vacant area was located south of the site that may have been grassed. Rows of small to medium sized buildings were located along the east side of Pacific Highway. A vacant area was located immediately west of the site that included dense vegetation.
1943	**On-site:** Medium sized buildings were located in the north-east and south-east sections of the site that appeared likely to be commercial in nature. Two smaller buildings were located in the west section of the site that appeared likely to be houses. **Off-site:** The area to the south appeared to include a building on the corner of Pacific Highway and Dumaresq Street with a possible paved yard. The vacant area to the west of the yard included scattered trees.
1951-56	The site and surrounding features appeared generally similar to the previous photograph, except that some additional medium sized building had been constructed to the south of the site.
1961	**On-site:** The site appeared generally similar to the previous photograph. **Off-site:** A very large excavation was apparent to the south of the site and some redevelopment had occurred to the east in the form of medium sized buildings. A driveway/road had been constructed immediately west of the site that appeared to include some car parking.
1965	**On-site:** One of the houses in the west section of the site had been demolished and the area appeared vacant. **Off-site:** A very large building had been constructed to the south of the site that appeared similar to the existing shopping centre. The council building to the north of the site had been extended to the west and the driveway had been extended further to the north.
1970	**On-site:** The site appeared generally similar to the previous photograph, except that the vacant portion appeared to be used as a car park. **Off-site:** A large extension to the shopping centre, located south of the site, had been constructed immediately west of the centre.
1978	**On-site:** The remaining house in the west section of the site had been demolished and the area appeared to be in use as a car park. **Off-site:** The surrounds appeared generally similar to the previous photograph.

Year	Details
1982	The site and surrounding features appeared generally similar to the previous photograph.
1986	**On-site:** The buildings at the site had been demolished and a new medium sized building had been constructed across the majority of the site. The east portion of the site appeared vacant, with the exception of a paved accessway from Pacific Highway. **Off-site:** The surrounds appeared generally similar to the previous photograph.
1991	The site and surrounding features appeared generally similar to the previous photograph, except that a medium sized building had been constructed to the north of the council building.
1994	The site and surrounding features appeared generally similar to the previous photograph, except that a new building had been constructed to the north-east of the site that appeared similar to the existing Gordon Police Station and Library and some residential redevelopment had been undertaken to the west of the site.
2003	The site and surrounding features appeared generally similar to the previous photograph.
2014	The site and surrounding features appeared generally similar to the previous photograph, except that some residential redevelopment had been undertaken to the north-west of the site.
2025	**On-site:** The building on site appeared to have been partially demolished, although pavements appeared to remain. **Off-site:** The surrounds appeared generally similar to the previous photograph.

3.2 NSW EPA and Department of Defence Records

A review of the NSW EPA and Department of Defence databases was undertaken for the PSI. Information from the following databases were sourced from the Lotsearch report:

- Records maintained in relation to contaminated land under Section 58 of the CLM Act 1997;
- Records of sites notified in accordance with the Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[3];
- Licensed activities under the Protection of the Environment Operations Act (1997)[4];
- Sites being investigated under the NSW EPA per-and polyfluoroalkyl substances (PFAS) investigation program;
- Sites being investigated by the Department of Defence for PFAS contamination; and
- Sites being managed by the Department of Defence for PFAS contamination.

[3] NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997*. (referred to as Duty to Report Contamination)

[4] Protection of the Environment Operations Act 1997 (NSW) (referred to as POEO Act 1997)

The search included the site and surrounding areas in the report buffer. A summary of the information is provided below:

Table 3-2: NSW EPA and Department of Defence Records

Records	On-site	Off-site
Records under Section 58 of the CLM Act 1997	None	A former gasworks site was listed approximately 580m to the north-west of the site. Due to the distance from the site and cross gradient location, the gasworks is considered unlikely to represent an off-site source of contamination. Three sites that were either services stations or adjacent to service stations were listed in the report buffer. All were more than 700m from the site and considered unlikely to represent off-site sources of contamination.
Records under the Duty to Report Contamination under Section 60 of the CLM Act 1997	None	Two of the service station related properties from above were listed and the conclusions remained the same.
Licences under the POEO Act 1997	None	Current and historical licenses were identified for several properties within the report buffer, including railway systems activities and the application of herbicides along waterways. However, these activities are considered unlikely to pose a contamination risk to the site or represent and off-site source of contamination. A penalty notice was listed for a Sydney Trains property for contravenance of licence conditions. This was limited to the railway corridor located approximately 90m to the north-east of the site and was considered unlikely to represent an off-site source of contamination.
Records relating to the NSW EPA PFAS Investigation Program	None	None
Records relating to the Department of Defence PFAS management and investigation programs	None	None

3.3 Historical Business Directory and Additional Lotsearch Information

Historical business records and other relevant information were reviewed for the investigation. The information was sourced from the Lotsearch report and summarised in the following table:

Table 3-3: Historical Business Directory and other Records

Records	On-site	Off-site
Historical dry cleaners, motor garages and service stations	A motor garage and panel beater were located on the site from the 1950's to 1980's.	A motor garage/dealer was located approximately 120m to the north-west of the site from the 1960's to 1990's. Various other motor garages have been historically located more than 200m from the site. Various dry cleaners were located within 200m of the site, generally to the south-east, from the 1940's to 1980's. These businesses may represent potential off-site sources of contamination.
Other historical businesses that could represent potential sources of contamination	None	A paint and varnish manufacturer was located approximately 25m east of the site in the 1970's.
National waste management site database	None	None
National liquid fuel facilities	None	One service station was listed, which was located approximately 730m to the west of the site. Due to the distance from the site was considered unlikely to represent an off-site source of contamination.
Mapped heritage items	None	Various heritage items were mapped in the report buffer. These are not considered to have any relevance in the context of the screening objectives.
Mapped ecological constraints	None	Various ecological items were mapped in the report buffer. These are not considered to have any relevance in the context of the screening objectives.
Mapped naturally occurring asbestos	None	None

3.4 Summary of Site History Information

A time line summary of the historical land uses and activities is presented in the following table. The information presented in the table is based on a weight of evidence assessment of the site history documentation and observations made by JKE.

Table 3-4: Summary of Historical Land Uses / Activities

Year(s)	On-site - Potential Land Use / Activities	Off-site - Potential Land Use / Activities
1930-1980's	The east section of the site was occupied by a motor garage and the west section was occupied by residential premises prior to those being demolished to allow for construction of a car park.	The area surrounding the site was gradually developed for commercial purposes, including construction of the large shopping centre to the south of the site in the 1960's. Various services stations and dry cleaners were present during this period.
1980's - 2024	The site was redeveloped for commercial purposes.	Surrounding areas included commercial premises in all direction, except west where residential premises were located.
2025	The building on the site was demolished.	As above.

3.5 Integrity of Site History Information

The majority of the site history information was obtained from government organisations as outlined in the relevant sections of this report. The veracity of the information from these sources is considered to be relatively high. A certain degree of information loss can be expected given the lack of specific land use details over time. JKE has relied upon the Lotsearch report and have not independently verified any information contained within. However, it is noted that the Lotsearch report is generated based on databases maintained by various government agencies and is expected to be reliable.

4 SCREENING CRITERIA

The client should obtain advice from the consent authority regarding specific groundwater disposal criteria based on the preferred disposal method. In the absence of this information, JKE have screened the groundwater against the following criteria in relation to potential disposal to stormwater:

- Groundwater Investigation Levels for 95% protection of freshwater species were adopted based on the Default Guideline Values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)[5]. The 99% trigger values were adopted where required to account for bioaccumulation. Low and moderate reliability trigger values were also adopted for some contaminants where high-reliability trigger values don't exist; and
- The Australian Drinking Water Guidelines 2011 (updated 2021)[6] multiplied by a factor of 10 to assess potential risks associated with incidental/recreational-type exposure to groundwater (e.g. within down-gradient water bodies such as the Lane Cove River).

The screening criteria are referred to as Site Assessment Criteria (SAC).

Reference should be made to the attached Table G1 for the specific criteria.

5 INVESTIGATION PROCEDURE

5.1 Subsurface Investigation and Groundwater Sampling

Three groundwater monitoring wells (MW201, MW202 and MW203) were installed in boreholes drilled for the JKG investigation between 24 February and 3 March 2025. The sampling locations are shown on Figure 2 attached in the appendices.

A summary of the sampling/screening methodology is presented in the following table:

Table 5-1: Groundwater Sampling/Screening Methodology

Aspect	Input
Sampling Plan	Assuming that groundwater flow is likely to be towards the south-west (based on the topography and the nearest surface water body), MW203 is considered to be capturing the groundwater conditions in the 'up-gradient' area of the site. MW201 and MW202 are considered to be capturing the groundwater conditions in the 'down-gradient' area of the site.
Monitoring Well Installation Procedure	The monitoring well construction details are documented on the borehole logs attached in the appendices. The monitoring wells were installed to depths of approximately 16.8m to 24.8mBGL. The wells were generally constructed as follows: • A 50mm diameter Class 18 PVC casing and machine slotted screen (wells were screened at the bottom 6m);

[5] Australian and New Zealand Governments (ANZG), (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (referred to as ANZG 2018)

[6] National Health and Medical Research Council (NHMRC), (2021). *National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011* (referred to as ADWG 2011)

Aspect	Input
	• A 2mm sand filter pack was installed around the slotted screen to approximately 0.5m above the screen interval; • A bentonite seal/plug was installed above the filter pack to seal the wells at a depth of approximately 0.5m to 1m below ground level; • The void around the casing was backfilled with spoil as required; and • A gatic cover was installed at the surface with a concrete plug to limit the inflow of surface water, and the wells were sealed with an envirocap.
Monitoring Well Development	The monitoring wells were developed on 26 March 2025 using a submersible electrical pump or a foot valve pump (MW203). A minimum of three well volumes was removed and the following parameters were monitored using calibrated field instruments: • Standing water level (SWL) using an electronic dip meter; and • pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (Eh) using a YSI Multi-probe water quality meter. The field monitoring records are attached in the appendices. Calibration data is retained on file by JKE.
Groundwater Sampling	Groundwater samples were obtained on date 31 March 2025. Prior to sampling, the monitoring wells were checked for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) using an inter-phase probe electronic dip meter. The samples were obtained using a micropurge pump. During sampling, parameters were recorded as outlined in the development step in order to assess steady state conditions. Groundwater samples were obtained directly from the single use tubing and placed in the sample containers. Duplicate samples were obtained by alternate filling of sample containers. This technique was adopted to minimise disturbance of the samples and loss of volatile contaminants associated with mixing of liquids in secondary containers, etc. Groundwater removed from the wells during development and sampling was transported to JKE in jerry cans and stored in holding drums prior to collection by a licensed waste water contractor for off-site disposal. The field monitoring records are attached in the appendices. Calibration data is retained on file by JKE.
Sample Preservation	The samples were placed in appropriate plastic and glass containers (preserved as required). Samples for heavy metals analysis were field filtered. On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

5.2 Laboratory Analysis

Samples were analysed for a range of potential contaminants and water quality parameters based on the 'mandatory' analysis suite outlined in DPIE 2022. The analytes are outlined below:

- Heavy metals including: arsenic, cadmium, chromium (total), copper, lead, mercury, nickel, zinc, aluminium, antimony, boron, beryllium, cobalt, iron, lithium, manganese, molybdenum, selenium, silver, strontium, uranium and vanadium;
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Total Recoverable Hydrocarbons (TRHs);
- Monocyclic aromatic hydrocarbons including benzene, toluene, ethylbenzene and xylene (BTEX);
- EC, pH, redox potential, dissolved oxygen (DO) and hardness;
- Total dissolved solids (TDS), total suspended solids (TSS) and turbidity;
- Total organic carbon (TOC), sodium adsorption ratio (SAR) and silica (SiO_2);
- Ammonia, nitrate, nitrite, total nitrogen and nitrogen oxides (NOx);
- Phosphorus and phosphate;
- Ionic balance including: calcium, potassium, sodium, magnesium, alkalinity, chloride and sulphate; and
- Faecal coliforms and escherichia coli (E coli).

In addition to the above, groundwater samples were also analysed for a broader suite of volatile organic compounds (VOCs) to consider additional potential contaminants of concern, based on the historical information presented in Section 3.

Samples were analysed by Envirolab Services (NATA Accreditation Number – 2901. Reference should be made to the laboratory report (Ref: 377127) attached in the appendices for further information regarding the laboratory methods and practical quantitation limits (PQLs) for each analyte.

6 RESULTS

6.1 Groundwater Levels and Screening

SWLs recorded during sampling ranged from approximately 11.07m to 18.62m BGL. LNAPL was not detected during development or sampling..

There were sulfur-like (organic) odours observed during development of all three wells, with the strongest odour recorded in MW201. The water pumped from MW201 during development was also noted to be grey. This was potentially indicative of a leaking sewer.

6.2 Laboratory Results

Reference should be made to the attached Table G1 for a summary of the laboratory results compared to the screening criteria presented in Section 4. The following results were above the SAC:

- The nickel and zinc concentrations in all three wells exceeded the ecological SAC;
- The copper concentration in MW202 exceeded the ecological SAC;
- The aluminium concentration in MW203 exceeded the ecological SAC;

- The pH in MW201 and MW203 was outside the range for recreational and fresh waters;
- Trace concentrations of VOCs were detected in MW201 and MW203, and a trace of the PAH compound naphthalene was also detected in MW203 (below the SAC); and
- Faecal coliforms and E Coli were detected in all three wells.

7 ASSESSMENT OF DATA QUALITY

For the purpose of the screening, JKE have undertaken a preliminary assessment of the data quality against the following Data Quality Indicators (DQIs): precision, accuracy, representativeness, completeness and comparability. In this regard, we are of the opinion that the data quality is suitable for the purpose of the screening based on the following:

- Standard sampling procedures (SSP) were complied with. The SSP is attached in the appendices;
- Representative groundwater samples were analysed for a broad range of potential contaminants;
- Field indicators were used as a screening tool;
- Samples were analysed by a NATA registered laboratory. Laboratory quality control/quality assurance (QA/QC) samples were analysed and were generally within the acceptance criteria adopted by the laboratory;
- Turbidity in some samples could not be reported due to the high concentration of solid matter in the samples;
- One duplicate sample (GWDUP1 – duplicate of MW202) was analysed. The relative percentage difference (RPD) was calculated for each analysed based on the formula provided in the appendices. The RPD for cadmium exceeded the acceptable limits. This was due to very low concentrations in the sample (close to the limit of detection) which make the RPDs unreliable. The analysis indicted that field sampling and laboratory precision were acceptable; and
- The trip spike results ranged from 84% to 88% and indicated that field preservation methods were appropriate.

8 DISCUSSION AND RECOMMENDATIONS

Based on the results of the assessment, the groundwater samples identified concentrations of copper, nickel, zinc and aluminium at concentrations above the screening criteria adopted for potential disposal to stormwater. pH was also outside of the acceptable range. We note that faecal coliforms and E. coli were encountered in all three samples, which indicated a potential sewer leak impacting the groundwater in the area (this was supported by observations of odours during the well development/pump-out process).

Relatively high concentrations of iron were encountered in the samples and, although no SAC exists for iron, it is worth noting these elevations as iron can precipitate from water and stain pavements/gutters. Therefore, the iron concentrations should be considered when exploring water treatment options.

Trace concentrations of VOCs/BTEX including Chloroform, 1,2-dichloroethane, Cyclohexane, Ethylbenzene, o-xylene, 1-4,-dichlorobenzene, 1,3,5-trimethyl benzene and 1,2,4-trimethyl benzene, and the PAH compound naphthalene, were detected in the samples, in particular in the east section of the site (MW203).

We note that site section of the site was historically occupied by a service station/motor garage and the occurrence of these compounds in the groundwater may be associated with the historical land use.

Council approval should be obtained prior to discharge and conditions imposed by Council on the discharge should be complied with.

A specialist contractor must be contacted to design an appropriate water treatment system to facilitate the disposal of groundwater during temporary construction dewatering, should off-site disposal of groundwater to stormwater be required. Use of a 'WETSEP' system or equivalent to hold and treat water prior to discharge could be considered to achieve the water quality standards imposed by the authority (e.g. Council) permitting the discharge of groundwater. The 'WETSEP' system combines treatment processes including flocculation which may reduce concentrations of heavy metals which are likely to be at least partly associated with sediment particles in the groundwater. Organic contaminants can be treated via filtration through activated carbon and the pH can be adjusted by passing through a dosing unit. The client will need to consider these site-specific factors, in addition to the potential volume of water being extracted, in consultation with the dewatering contractor and the manufacturers of any treatment system to be utilised for the project.

Turbidity and pH are parameters that can fluctuate depending on site conditions and activities such as excavation. JKE recommend that the extracted groundwater be held in a settlement tank or lined sump pit so that the turbidity and pH can be measured. If required (i.e. if the turbidity is greater than 50NTU or the pH is outside the range of 6.5 and 8.5) the pH can be adjusted by passing through a dosing unit and the turbidity can be adjusted by use of a flocculent.

Based on our experience, disposal of groundwater to sewer is unlikely to be accepted by Sydney Water. Sydney Water should be contacted directly for information if this option is to be considered further. Additional information, analysis and/or data assessment may be required to support a license application for disposal to sewer.

The relevant consent authorities should be contacted to clarify the requirements to obtain disposal approval to stormwater or sewer. In addition, a license from WaterNSW may be required for temporary construction dewatering. The information required to support the license application can be onerous and JKE recommend that the client contact WaterNSW well before the start of construction in order to commence the application process.

In the event unexpected conditions are encountered during development work or during dewatering that may pose a contamination risk, all works should stop and an environmental consultant should be engaged to inspect the site and address the issue.

9 LIMITATIONS

The report limitations are outlined below:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Groundwater conditions may vary, especially after climatic changes and wet/dry periods;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose;
- Copyright in this report is the property of JKE. JKE has used a degree of care, skill and diligence normally exercised by consulting professionals in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report;
- If the client, or any person, provides a copy of this report to any third party, such third party must not rely on this report except with the express written consent of JKE; and
- Any third party who seeks to rely on this report without the express written consent of JKE does so entirely at their own risk and to the fullest extent permitted by law, JKE accepts no liability whatsoever, in respect of any loss or damage suffered by any such third party.

Important Information about this Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE/J&K will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the assessment. If the subject site is sold, ownership of the assessment report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions
Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an assessment report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data
Site assessments identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Assessment Limitations
Although information provided by a site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Assessments by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Assessment Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely

Because an environmental site assessment is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Report Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

This plan should be read in conjunction with the Environmental report.

Title: **SITE LOCATION PLAN**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Project No: E37465PH

Figure No: 1

JKEnvironments

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LEGEND

- APPROXIMATE SITE BOUNDARY
- BH/MW(Fill Depth) BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

0 3 6 9 12 15
SCALE 1:300 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **SAMPLE LOCATION PLAN**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Project No: E37465PH

Figure No: 2

JKEnvironments

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APPROXIMATE OUTLINE OF PROPOSED BASEMENT LEVEL

12
2357 m²
DP 631351

FOUR & FIVE STOREY RENDERED BUILDING FLAT ROOF PARKING UNDER "ALLERGAN" No 810

"KU - RING - GAI COUNCIL" No 818

BM DRILL HOLE & WING RL 128.64 (AHD)

BM SSM 166471 RL 125.64 (AHD)

BH/MW201 (1.5)

BH/MW202 (2.0)

BH/MW203 (1.4)

MW201	
pH	6.2
Nickel	17µg/L
Zinc	73µg/L

MW202	
Copper	9µg/L
Nickel	17µg/L
Zinc	73µg/L

MW203	
pH	5.9
Nickel	36µg/L
Zinc	130µg/L
Aluminium	60µg/L

PACIFIC HIGHWAY

RADFORD PLACE

DUMARESQ STREET

LEGEND

- APPROXIMATE SITE BOUNDARY
- BH/MW(Fill Depth) BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

SAMPLE ID	-
CHEMICAL	CONCENTRATION (µg/L)

GROUNDWATER SAMPLE EXCEEDANCE

GROUNDWATER CONTAMINATION ABOVE SAC

0 3 6 9 12 15
SCALE 1:300 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **SAC EXCEEDANCE PLAN**

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Project No: E37465PH

Figure No: 3

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Appendix B: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ADWG: AustralianDrinking Water Guidelines
ANZG Australian and New Zealand Guidelines
B(a)P: Benzo(a)pyrene
CRC: Cooperative Research Centre
ESLs: Ecological Screening Levels
GIL: Groundwater Investigation Levels
HILs: Health Investigation Levels
HSLs: Health Screening Levels
HSL-SSA: Health Screening Level-SiteSpecific Assessment
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSL: Regional Screening Levels
SAC: Site Assessment Criteria
SSA: Site Specific Assessment
SSHSLs Site Specific Health Screening Levels
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Agency
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

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TABLE G1
GROUNDWATER LABORATORY RESULTS
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	Recreational (10 x NHMRC ADWG)	ANZG 2018 Fresh Waters	MW201	MW201 (dup)	MW202	MW202 (dup)	MW203	GWDUP1
Inorganic Compounds and Parameters									
pH		6.5 - 8.5	6.5 - 8.5	**6.2**	NA	**6.5**	NA	**5.9**	NA
Electrical Conductivity (µS/cm)	1	NSL	NSL	**930**	NA	**500**	NA	**1000**	NA
Turbidity (NTU)		NSL	NSL	NT	NA	**240**	NA	NT	NA
Redox Potential (Eh)	-	NSL	NSL	**54**	NA	**73**	NA	**96**	NA
Total Dissolved Solids (TDS) (mg/L)	5	NSL	NSL	**500**	NA	**310**	NA	**540**	NA
Total Suspended Solids (TSS) (mg/L)	5	NSL	NSL	**1600**	NA	**220**	NA	**17000**	NA
Total Organic Carbon (TOC) (mg/L)	1	NSL	NSL	**13**	NA	**9**	NA	**25**	NA
Dissolved Oxygen (mg/L)	0.1	NSL	NSL	**6.8**	NA	**7.2**	NA	**7**	NA
Total Hardness (mg/L)	3	NSL	NSL	**70**	**77**	**170**	NA	**100**	NA
Silica (SiO2) (mg/L)	0.1	NSL	NSL	**11**	**11**	**20**	NA	**25**	NA
Phosphorus (mg/L)	0.05	NSL	NSL	**1.8**	NA	**0.2**	**0.2**	**2.6**	NA
Acidity (as CaCO3)	5	NSL	NSL	**140**	NA	**140**	NA	**140**	NA
Metals and Metalloids									
Arsenic (As III)	1	100	24	**11**	**11**	<1	NA	<1	<1
Cadmium	0.1	20	0.2	<0.1	<0.1	<0.1	NA	<0.1	0.1
Chromium (total)	1	500	3.3	<1	<1	<1	NA	<1	<1
Copper	1	20000	1.4	<1	<1	**9**	NA	<1	**9**
Lead	1	100	3.4	<1	<1	<1	NA	<1	<1
Total Mercury (inorganic)	0.05	10	0.06	<0.05	<0.05	<0.05	NA	<0.05	<0.05
Nickel	1	200	11	**17**	**17**	**14**	NA	**36**	**14**
Zinc	1	30000	8	**73**	**73**	**78**	NA	**130**	**78**
Aluminium	10	NSL	55	**50**	**50**	**20**	NA	**60**	NA
Antimony	1	30	NSL	<1	<1	<1	NA	<1	NA
Barium	1	20000	NSL	**40**	**41**	**31**	NA	**71**	NA
Boron	20	40000	940	<20	<20	**30**	NA	<20	NA
Beryllium	0.05	600	NSL	<0.5	<0.5	<0.5	NA	<0.5	NA
Cobalt	1	NSL	NSL	**3**	**3**	**7**	NA	**26**	NA
Iron	10	NSL	NSL	**7400**	**8000**	**180**	NA	**9000**	NA
Lithium	1	NSL	NSL	**31**	**32**	**5**	NA	**31**	NA
Manganese	5	5000	1900	**640**	**650**	**220**	NA	**470**	NA
Molybdenum	1	500	NSL	**1**	**1**	**5**	NA	<1	NA
Selenium	1	100	5	<1	<1	<1	NA	<1	NA
Silver	1	1000	0.05	<1	<1	<1	NA	<1	NA
Strontium	1	NSL	NSL	**21**	**21**	**250**	NA	**36**	NA
Uranium	0.5	200	NSL	<0.5	<0.5	**1.5**	NA	<0.5	NA
Vanadium	1	NSL	NSL	1	<1	<1	NA	<1	NA
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)									
Benzene	1	10	950	<1	<1	<1	NA	<1	NA
Toluene	1	8000	180	<1	<1	<1	NA	<1	NA
Ethylbenzene	1	3000	80	<1	<1	<1	NA	**3**	NA
m+p-xylene	2	NSL	75	<2	<2	<2	NA	<2	NA
o-xylene	1	NSL	350	<1	<1	<1	NA	**2**	NA
Total xylenes	2	6000	NSL	<2	<2	<2	NA	**2**	NA
Total Recoverable Hydrocarbons (TRHs)									
TRH F1	10	NSL	NSL	<10	<10	<10	NA	**150**	NA
TRH F2	50	NSL	NSL	<50	NA	<50	NA	**170**	NA
TRH F3	100	NSL	NSL	<100	NA	<100	NA	<100	NA
TRH F4	100	NSL	NSL	<100	NA	<100	NA	<100	NA
Volatile Organic Compounds (VOCs), including chlorinated VOCs									
Dichlorodifluoromethane	10	NSL	NSL	<10	<10	<10	NA	<10	NA
Chloromethane	10	NSL	NSL	<10	<10	<10	NA	<10	NA
Vinyl Chloride	10	3	100	<10	<10	<10	NA	<10	NA
Bromomethane	10	NSL	NSL	<10	<10	<10	NA	<10	NA
Chloroethane	10	NSL	NSL	<10	<10	<10	NA	<10	NA
Trichlorofluoromethane	10	NSL	NSL	<10	<10	<10	NA	<10	NA
1,1-Dichloroethene	**1**	300	700	<1	<1	<1	NA	<1	NA
Trans-1,2-dichloroethene	1	600	NSL	<1	<1	<1	NA	<1	NA
1,1-dichloroethane	1	NSL	90	<1	<1	<1	NA	<1	NA
Cis-1,2-dichloroethene	1	600	NSL	<1	<1	<1	NA	<1	NA
Bromochloromethane	1	2500	NSL	<1	<1	<1	NA	<1	NA
Chloroform	1		370	**1**	**1**	<1	NA	**1**	NA
2,2-dichloropropane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,2-dichloroethane	1	30	1900	<1	<1	<1	NA	**3**	NA
1,1,1-trichloroethane	1	NSL	270	<1	<1	<1	NA	<1	NA
1,1-dichloropropene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
Cyclohexane	1	NSL	NSL	<1	<1	<1	NA	**5**	NA
Carbon tetrachloride	1	30	240	<1	<1	<1	NA	<1	NA
Benzene	1	10	950	<1	<1	<1	NA	<1	NA
Dibromomethane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,2-dichloropropane	1	NSL	900	<1	<1	<1	NA	<1	NA
Trichloroethene	1	NSL	330	<1	<1	<1	NA	<1	NA
Bromodichloromethane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
trans-1,3-dichloropropene	1	1000	NSL	<1	<1	<1	NA	<1	NA
cis-1,3-dichloropropene	1	1000	NSL	<1	<1	<1	NA	<1	NA
1,1,2-trichloroethane	1	NSL	6500	<1	<1	<1	NA	<1	NA
Toluene	1	8000	180	<1	<1	<1	NA	<1	NA
1,3-dichloropropane	1	NSL	1100	<1	<1	<1	NA	<1	NA
Dibromochloromethane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,2-dibromoethane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
Tetrachloroethene	1	500	70	<1	<1	<1	NA	<1	NA
1,1,1,2-tetrachloroethane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
Chlorobenzene	1	3000	55	<1	<1	<1	NA	<1	NA
Ethylbenzene	1	3000	80	<1	<1	<1	NA	**3**	NA
Bromoform	1	NSL	NSL	<1	<1	<1	NA	<1	NA
m+p-xylene	2	NSL	75	<2	<2	<2	NA	<2	NA
Styrene	1	300	NSL	<1	<1	<1	NA	<1	NA
1,1,2,2-tetrachloroethane	1	NSL	400	<1	<1	<1	NA	<1	NA
o-xylene	1	NSL	350	<1	<1	<1	NA	**2**	NA
1,2,3-trichloropropane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
Isopropylbenzene	1	NSL	30	<1	<1	<1	NA	<1	NA
Bromobenzene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
n-propyl benzene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
2-chlorotoluene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
4-chlorotoluene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,3,5-trimethyl benzene	1	NSL	NSL	<1	<1	<1	NA	**3**	NA
Tert-butyl benzene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,2,4-trimethyl benzene	1	NSL	NSL	<1	<1	<1	NA	**4**	NA
1,3-dichlorobenzene	1	200	260	<1	<1	<1	NA	<1	NA
Sec-butyl benzene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,4-dichlorobenzene	1	400	60	<1	<1	**1**	NA	<1	NA
4-isopropyl toluene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,2-dichlorobenzene	1	15000	160	<1	<1	<1	NA	<1	NA
n-butyl benzene	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,2-dibromo-3-chloropropane	1	NSL	NSL	<1	<1	<1	NA	<1	NA
1,2,4-trichlorobenzene	1	300	85	<1	<1	<1	NA	<1	NA
1,2,3-trichlorobenzene	1	300	3	<1	<1	<1	NA	<1	NA
Hexachlorobutadiene	1	7	NSL	<1	<1	<1	NA	<1	NA
Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	0.2	NSL	16	<0.1	NA	<0.1	NA	**0.2**	NA
Acenaphthylene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Acenaphthene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Fluorene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Phenanthrene	0.1	NSL	0.6	<0.1	NA	<0.1	NA	<0.1	NA
Anthracene	0.1	NSL	0.01	<0.1	NA	<0.1	NA	<0.1	NA
Fluoranthene	0.1	NSL	1	<0.1	NA	<0.1	NA	<0.1	NA
Pyrene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Benzo(a)anthracene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Chrysene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Benzo(b,j+k)fluoranthene	0.2	NSL	NSL	<0.2	NA	<0.2	NA	<0.2	NA
Benzo(a)pyrene	0.1	0.1	0.1	<0.1	NA	<0.1	NA	<0.1	NA
Indeno(1,2,3-c,d)pyrene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Dibenzo(a,h)anthracene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Benzo(g,h,i)perylene	0.1	NSL	NSL	<0.1	NA	<0.1	NA	<0.1	NA
Anions and Cations									
Calcium (mg/L)	0.5	NSL	NSL	**7.7**	**8.5**	**48**	NA	**14**	NA
Potassium (mg/L)	0.5	NSL	NSL	**6.2**	**6.9**	**7.2**	NA	**5.4**	NA
Sodium (mg/L)	0.5	NSL	NSL	**160**	**170**	**39**	NA	**170**	NA
Magnesium (mg/L)	0.5	NSL	NSL	**12**	**14**	**11**	NA	**17**	NA
Hydroxide Alkalinity (as CaCO3) (mg/L)	5	NSL	NSL	<5	[NT]	<5	NA	<5	NA
Bicarbonate Alkalinity (as CaCO3) (mg/L)	5	NSL	NSL	**140**	[NT]	**140**	NA	**140**	NA
Carbonate Alkalinity (as CaCO3) (mg/L)	5	NSL	NSL	<5	[NT]	<5	NA	<5	NA
Total Alkalinity (as CaCO3) (mg/L)	5	NSL	NSL	**140**	[NT]	**140**	NA	**140**	NA
Sulphate (mg/L)	1	NSL	NSL	**72**	[NT]	**50**	NA	**70**	NA
Chloride (mg/L)	1	NSL	NSL	**130**	[NT]	**34**	NA	**160**	NA
Ionic Balance (%)	-	NSL	NSL	**3**	[NT]	**4**	NA	**6**	NA
Sodium Adsorption Ratio (SAR)	0.01	NSL	NSL	**8.1**	8.3	**1.3**	NA	**7.3**	NA
Nutrients									
Ammonia (mg/L) (pH dependent)	0.005	NSL	0.9	**0.033**	[NT]	**0.014**	NA	**0.025**	NA
Nitrate (mg/L)	0.005	500000	NSL	**0.051**	[NT]	**3.2**	NA	<0.005	NA
Nitrite (mg/L)	0.005	30000	NSL	<0.005	[NT]	**0.017**	NA	<0.005	NA
Nitrogen Oxides (NOX) (mg/L)	0.005	NSL	NSL	**0.05**	[NT]	**3.2**	NA	<0.005	NA
Total Nitrogen (mg/L)	0.1	NSL	NSL	**3.1**	[NT]	**3.6**	NA	**1.9**	NA
Phosphate (mg/L)	0.005	NSL	NSL	<0.005	[NT]	<0.005	NA	<0.005	NA
Microbiological Organisms									
Faecal Coliforms (MPN/100mL)	1	NA	NSL	**46**	NA	**330**	NA	**230**	NA
E Coli (MPN/100mL)	1	NA	NSL	**20**	NA	**330**	NA	**230**	NA

Concentration above the SAC	**Bold**
Positive result	**Bold**
GIL >PQL	Red

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TABLE G2
GROUNDWATER QA/QC SUMMARY

		TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD	*10*	*50*	*100*	*100*	*1*	*1*	*1*	*2*	*1*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
	PQL Envirolab VIC	*10*	*50*	*100*	*100*	*1.0*	*1.0*	*1.0*	*2.0*	*1.0*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
Intra	MW202	<10	<50	<100	<100	<1	<1	<1	<2	<1	<1	<0.1	<1	9	<1	<0.05	14	78
laboratory	GWDUP1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	0.1	<1	9	<1	<0.05	14	78
duplicate	MEAN	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.075	nc	9	nc	nc	14	78
	RPD %	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	nc	0%	nc	nc	0%	0%
Trip	TS1	-	-	-	-	84%	85%	88%	86%	88%	-	-	-	-	-	-	-	
Spike	31/03/2025																	

Result outside of QA/QC acceptance criteria Value

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Appendix C: Lotsearch Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 21 Mar 2025 16:37:47

Reference: LS076826 EP

Address: 810 Pacific Highway, Gordon, NSW 2072

Disclaimer:
The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.
You should obtain independent advice before you make any decision based on the information within the report.
The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

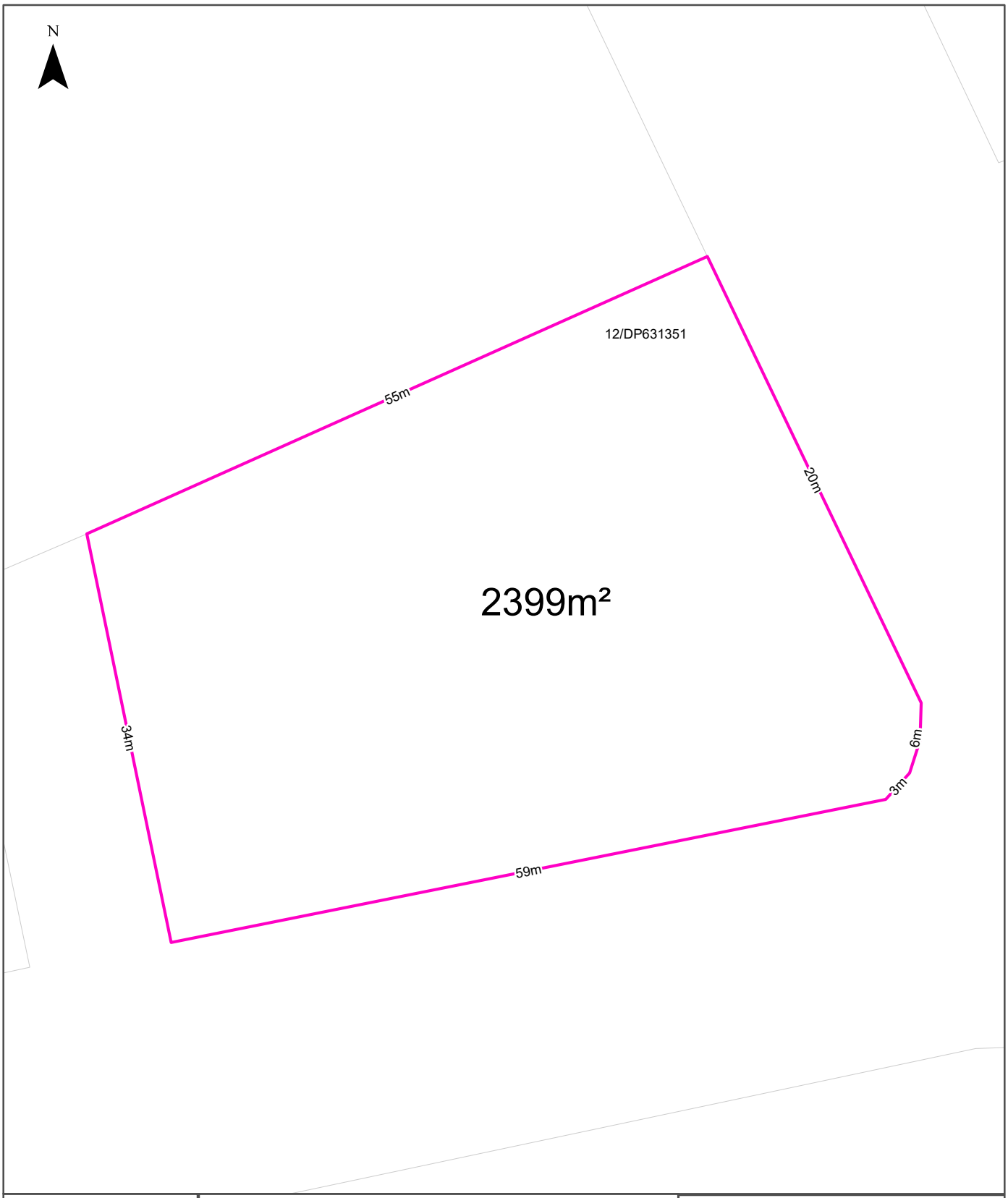
Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	07/03/2025	07/03/2025	Monthly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	21/05/2024	21/05/2024	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority NSW	07/03/2025	11/12/2024	Monthly	1000m	0	0	4
Contaminated Land Records of Notice	Environment Protection Authority NSW	07/03/2025	07/03/2025	Monthly	1000m	0	0	2
Former Gasworks	Environment Protection Authority NSW	21/02/2025	14/07/2021	Quarterly	1000m	0	0	0
Notices under the POEO Act 1997	Environment Protection Authority NSW	20/02/2025	20/02/2025	Monthly	1000m	0	1	1
National Waste Management Facilities Database	Geoscience Australia	29/04/2024	29/11/2022	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	16/10/2024	19/01/2023	Annually	1000m	0	0	1
EPA PFAS Investigation Program	Environment Protection Authority NSW	21/02/2025	05/02/2025	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Australian Department of Defence	05/03/2025	28/10/2024	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Australian Department of Defence	05/03/2025	28/10/2024	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	05/03/2025	05/03/2025	Monthly	2000m	0	0	0
Defence Controlled Areas	Australian Department of Defence	23/01/2025	23/01/2025	Quarterly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Australian Department of Defence	18/02/2025	02/09/2022	Quarterly	2000m	0	0	0
National Unexploded Ordnance (UXO)	Australian Department of Defence	23/01/2025	23/01/2025	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority NSW	28/11/2024	15/12/2022	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority NSW	13/03/2025	13/03/2025	Monthly	1000m	0	1	1
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority NSW	13/03/2025	13/03/2025	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority NSW	13/03/2025	13/03/2025	Monthly	1000m	0	0	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	31	149	223
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	14	15
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	29	29	201
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	8	36
Points of Interest	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	9	50
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Customer Service - Spatial Services	21/02/2025	21/02/2025	Quarterly	1000m	0	0	3
State Forest	Forestry Corporation of NSW	18/12/2024	11/11/2024	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Geoscience Australia	17/04/2024	19/08/2019	Annually	1000m	1	1	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024	NSW Department of Climate Change, Energy, the Environment and Water	12/02/2025	28/06/2024	Quarterly	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	28/05/2024	20/06/2023	Annually	2000m	0	0	18
NSW Seamless Geology Single Layer: Rock Units	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	1	1	2
NSW Seamless Geology Single Layer: Geological Boundaries and Faults	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
NSW Seamless Geology Single Layer: Trendlines	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
NSW Seamless Geology Single Layer: Fold Axes	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Department of Primary Industries and Regional Development	26/04/2024	14/03/2024	Annually	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	15/01/2025	17/02/2011	Annually	1000m	1	1	2
Soil Landscapes of Central and Eastern NSW	NSW Department of Climate Change, Energy, the Environment and Water	18/12/2024	27/07/2020	Annually	1000m	1	1	4
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Housing and Infrastructure	10/03/2025	14/02/2025	Monthly	500m	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	15/01/2025	21/02/2013	Annually	1000m	1	1	2
Dryland Salinity - National Assessment	Australian Bureau of Agricultural and Resource Economics and Sciences	03/06/2024	24/05/2024	Annually	1000m	0	0	0
Mining Subsidence Districts	NSW Department of Customer Service	21/02/2025	21/02/2025	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Primary Industries and Regional Development	04/03/2025	04/03/2025	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Primary Industries and Regional Development	04/03/2025	04/03/2025	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Primary Industries and Regional Development	04/03/2025	04/03/2025	Monthly	1000m	11	11	14
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Housing and Infrastructure	10/03/2025	08/09/2023	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Housing and Infrastructure	10/03/2025	21/02/2025	Monthly	1000m	2	8	87
Commonwealth Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000m	0	0	0
National Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000m	0	1	1
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	21/02/2025	17/12/2024	Quarterly	1000m	0	1	6
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Housing and Infrastructure	10/03/2025	21/02/2025	Monthly	1000m	0	2	117
Bush Fire Prone Land	NSW Rural Fire Service	20/03/2025	10/01/2025	Monthly	1000m	0	0	3
NSW Native Vegetation Type Map	NSW Department of Climate Change, Energy, the Environment and Water	26/02/2025	08/11/2024	Quarterly	1000m	1	4	40
Ramsar Wetlands of Australia	Australian Department of Climate Change, Energy, the Environment and Water	16/05/2024	11/04/2024	Annually	1000m	0	0	0
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Terrestrial	Australian Department of Climate Change, Energy, The Environment and Water	20/03/2025	19/06/2024	Annually	1000m	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Marine	Australian Department of Climate Change, Energy, The Environment and Water	20/03/2025	30/06/2022	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	0	0	0
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	0	0	0
NSW BioNet Species Sightings	NSW Department of Climate Change, Energy, the Environment and Water	12/02/2025	12/02/2025	Monthly	10000m	-	-	-

Site Diagram

810 Pacific Highway, Gordon, NSW 2072



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 2399m²

Total Perimeter: 197m

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Scale: 0 10 20 Meters

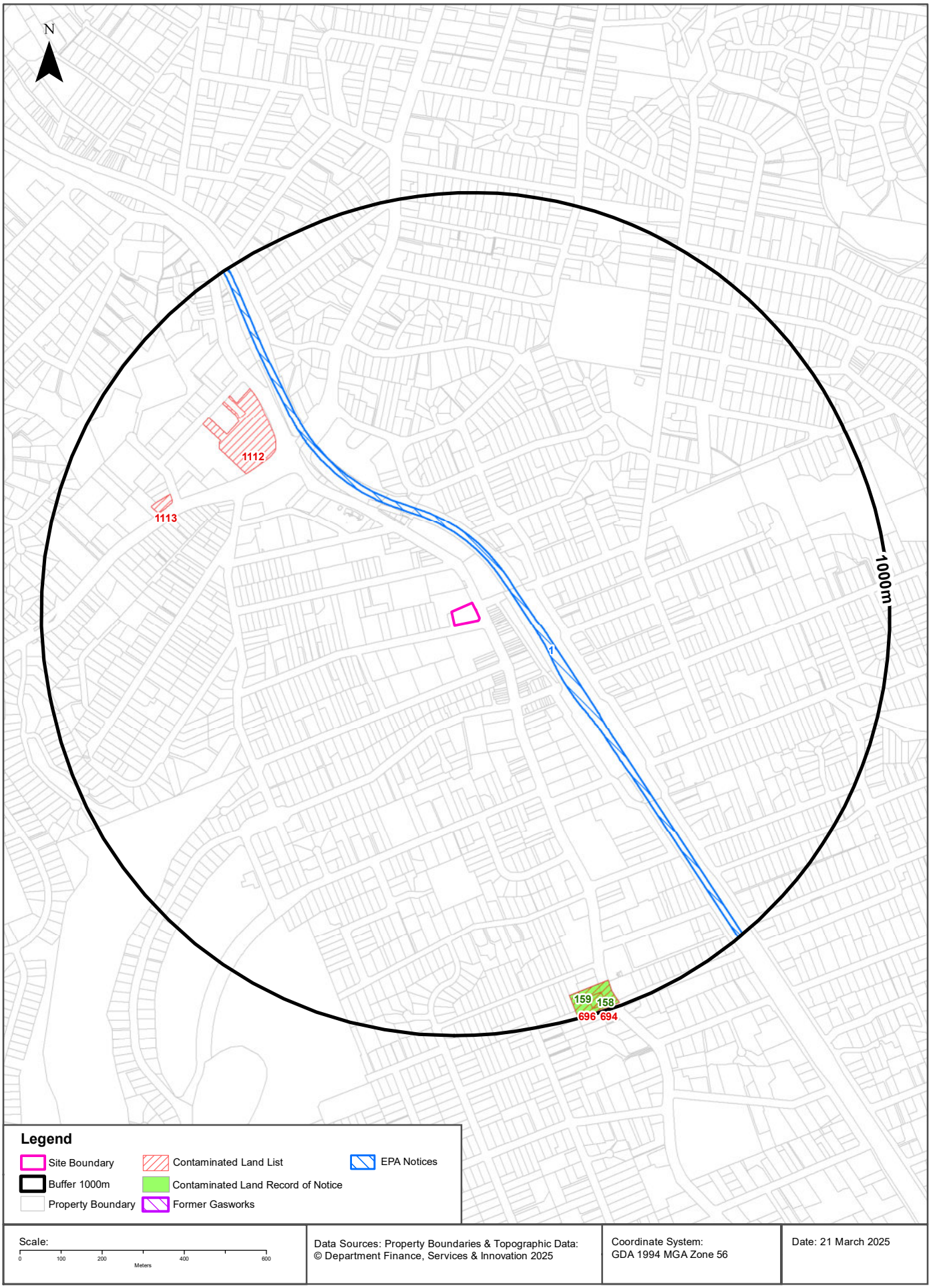
Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 21 March 2025

Contaminated Land

810 Pacific Highway, Gordon, NSW 2072



Contaminated Land

810 Pacific Highway, Gordon, NSW 2072

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
1112	Former 3M site	950 Pacific Highway	Pymble	Gasworks	Regulation under CLM Act not required	Current EPA List	Premise Match	582m	North West
1113	Shell Coles Express Service Station	21 Ryde Road	Pymble	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	732m	West
696	Land Adjacent to Former Service Station Site	684-684a, 690, 692 and 696 Pacific Highway	Killara	Service Station	Contamination formerly regulated under the CLM Act	Current EPA List	Premise Match	931m	South
694	Former Caltex Service Station	692B-694 Pacific Highway	Killara	Service Station	Contamination formerly regulated under the CLM Act	Current EPA List	Premise Match	953m	South

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.

EPA site management class	Explanation
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Contaminated Land

810 Pacific Highway, Gordon, NSW 2072

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
159	Land adjacent to Former Service Station Site	684-684a, 690, 692 and 696 Pacific Highway	Killara	22 former	3349	Premise Match	931m	South
158	Former Caltex Service Station	692B-694 Pacific Highway	Killara	1 former	3343	Premise Match	953m	South

Contaminated Land Records of Notice Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority
Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm

Former Gasworks

Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Contaminated Land

810 Pacific Highway, Gordon, NSW 2072

EPA Notices

Penalty Notices, s.91 & s.92 Clean up Notices and s.96 Prevention Notices within the dataset buffer:

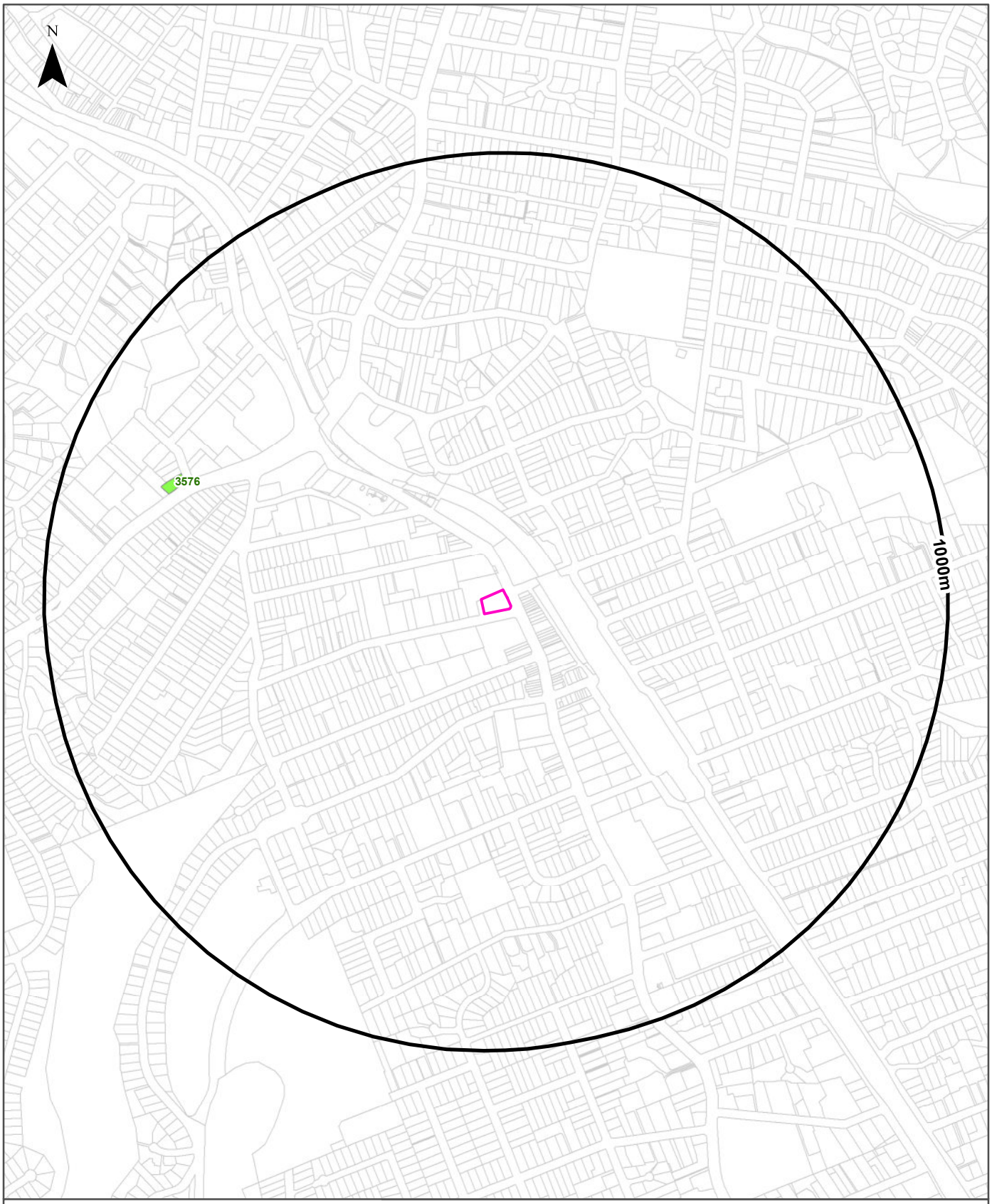
Map ID	Number	Type	Name	Address	Status	Issued Date	Act	Offence	Offence Date	Loc Conf	Dist	Dir
1	3173530755	Penalty Notice	SYDNEY TRAINS	SYDNEY TRAINS, HAYMARKET, NSW 1238	Issued	10/11/2021	Protection of the Environment Operations Act 1997 - 64(1)	Contravene condition of licence - Corporation	31/05/2021	Network of Features	92m	North East

NSW EPA Notice Data Source: Environment Protection Authority

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Waste Management & Liquid Fuel Facilities

810 Pacific Highway, Gordon, NSW 2072



Legend

- Site Boundary
- Buffer 1000m
- Property Boundary
- Waste Management Facilities
- National Liquid Fuel Facilities

Scale:	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025	Coordinate System: GDA 1994 MGA Zone 56	Date: 21 March 2025

0 100 200 400 600
Meters

Waste Management & Liquid Fuel Facilities

810 Pacific Highway, Gordon, NSW 2072

National Waste Management Facilities Database

Sites on the National Waste Management Facilities Database within the dataset buffer:

Map ID	Owner	Name	Address	Management Type	Facility Type	Status	Loc Conf	Dist	Dir
N/A	No records in buffer								

Source: Waste Management Facilities Database
Creative Commons 4.0 © Commonwealth of Australia (Geoscience Australia) 2022

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
3576	COLES EXPRESS	COLES EXPRESS PYMBLE	21 RYDE ROAD	PYMBLE	PETROL STATION	Operational		25/07/2011	Premise Match	732m	West

National Liquid Fuel Facilities Data Source: Geoscience Australia
Creative Commons 4.0 © Commonwealth of Australia

PFAS Investigation & Management Programs

810 Pacific Highway, Gordon, NSW 2072

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Map ID	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Defence PFAS Investigation Program

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Investigation Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Management Program

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites and Unexploded Ordnance

810 Pacific Highway, Gordon, NSW 2072

Defence Controlled Areas (DCA)

Defence Controlled Areas provided by the Department of Defence within the dataset buffer:

Site ID	Location Name	Loc Conf	Dist	Dir
N/A	No records in buffer			

Defence Controlled Areas, Data Custodian: Department of Defence, Australian Government

Defence 3 Year Regional Contamination Investigation Program (RCIP)

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

National Unexploded Ordnance (UXO)

Sites which have been assessed by the Department of Defence for the potential presence of unexploded ordnance within the dataset buffer:

Site ID	Location Name	Category	Area Description	Additional Information	Commonwealth	Loc Conf	Dist	Dir
N/A	No records in buffer							

National Unexploded Ordnance (UXO), Data Custodian: Department of Defence, Australian Government

EPA Other Sites with Contamination Issues

810 Pacific Highway, Gordon, NSW 2072

EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasminco Lead Abatement Strategy Area

Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Current EPA Licensed Activities

810 Pacific Highway, Gordon, NSW 2072



EPA Activities

810 Pacific Highway, Gordon, NSW 2072

Licensed Activities under the POEO Act 1997

Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

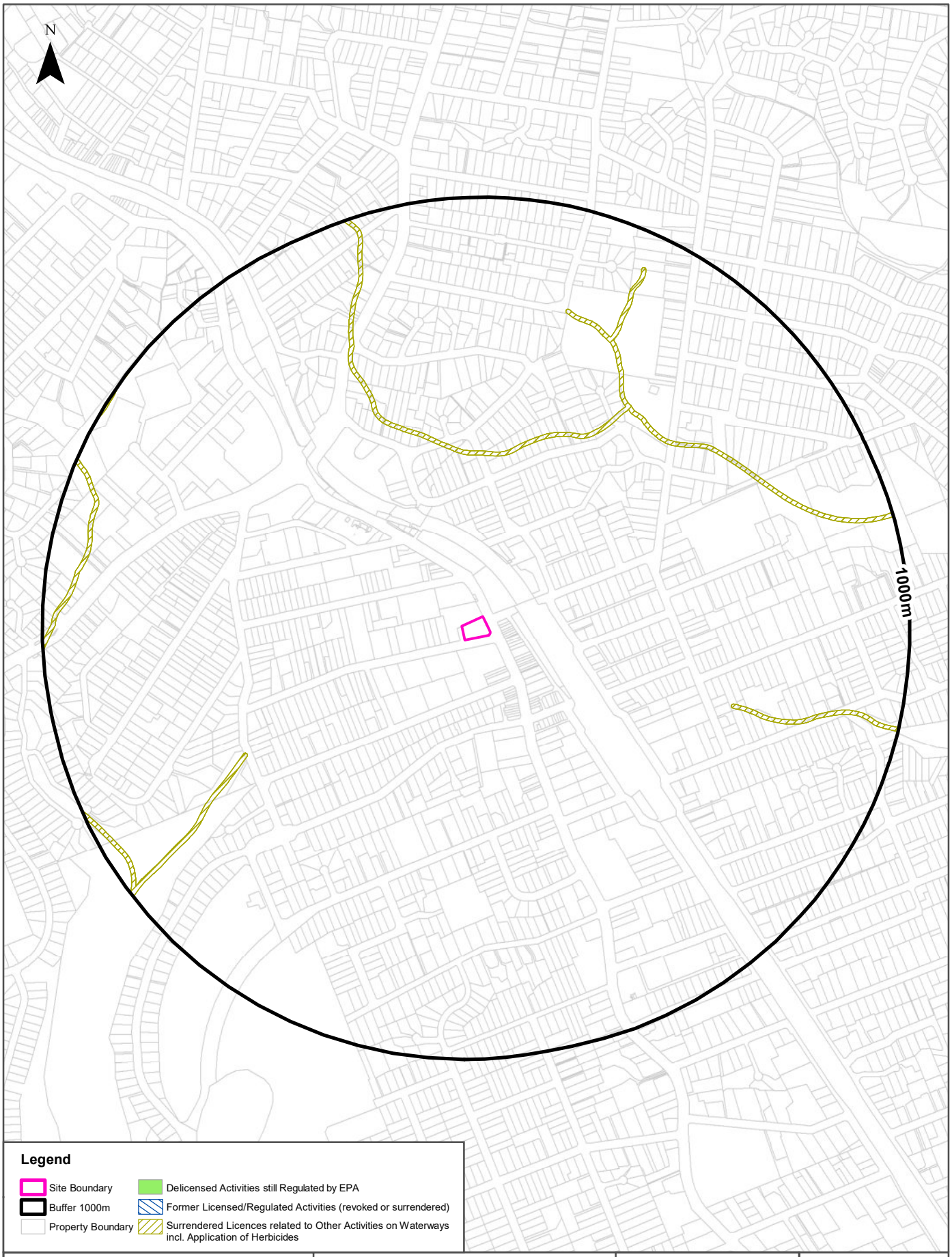
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
12208	SYDNEY TRAINS		SYDNEY TRAINS, HAYMARKET, NSW 1238		Railway systems activities	Network of Features	92m	North East

POEO Licence Data Source: Environment Protection Authority

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Delicensed & Former Licensed EPA Activities

810 Pacific Highway, Gordon, NSW 2072



EPA Activities

810 Pacific Highway, Gordon, NSW 2072

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	384m	North
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	384m	North
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	384m	North

Former Licensed Activities Data Source: Environment Protection Authority

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Historical Business Directories

810 Pacific Highway, Gordon, NSW 2072



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 30 60 90 120 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 21 March 2025

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2025

Historical Business Directories

810 Pacific Highway, Gordon, NSW 2072

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR ACCESSORIES DEALERS.(M4690)	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072.	53912	1982	Premise Match	0m	On-site
	MOTOR CAR &/OR TRUCK DEALERS - NEW &/OR USED. (M5840)	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072.	54988	1982	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072.	57435	1982	Premise Match	0m	On-site
	MOTOR SPARE PARTS DEALERS -RETAIL. (M7840)	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072.	59237	1982	Premise Match	0m	On-site
	MOTOR SPARE PARTS DEALERS-RETAIL.	Radford Motors Pty Ltd, 810 Pacific H'way, Gordon 2072	52803	1978	Premise Match	0m	On-site
	MOTOR ACCESSORIES DEALERS.	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072	47477	1978	Premise Match	0m	On-site
	MOTOR CAR &/OR TRUCK DEALERS-NEW &/OR USED.	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072	48464	1978	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072	50713	1978	Premise Match	0m	On-site
	MOTOR ACCESSORIES DEALERS.	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072	56269	1975	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072	59437	1975	Premise Match	0m	On-site
	MOTOR CAR &/OR TRUCK DEALERS- NEW &/OR USED.	Radford Motors Pty. Ltd., 810 Pacific H'way., Gordon. 2072.	57368	1975	Premise Match	0m	On-site
	MOTOR CAR/TRUCK DEALERS-NEW/USED (M520)	Radford Motors Pty. Ltd., 810 Pacific Hghwy., Gordon	336213	1970	Premise Match	0m	On-site
	MOTOR ACCESSORIES/DEALERS (M448)	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	334793	1970	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS(M6S6)	Radford Motors Pty. Ltd., 810 Pacific Highway., GORDON	338472	1970	Premise Match	0m	On-site
	MOTOR PANEL BEATERS (M680)	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	340352	1970	Premise Match	0m	On-site
	Motor Garages & Engineers	Radford Motors Pty. Ltd., 810 Pacific Highway. Gordon	122709	1965	Premise Match	0m	On-site
	Motor Accessories - Dealers	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	119596	1965	Premise Match	0m	On-site
	Motor Car/Truck Dealers - New/Used	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	120883	1965	Premise Match	0m	On-site
	Motor Panel Beaters	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	124947	1965	Premise Match	0m	On-site
	Cake Shops & Pastrycooks	Thompson's Cakes & Pies., 812 Pacific Highway., Gordon	61633	1965	Premise Match	0m	On-site
	PHOTOGRAPHERS—PORTRAIT	Barret, Elizabeth Studios, 812 Pacific Highway., Gordon	357698	1961	Premise Match	0m	On-site
	MOTOR ACCESSORIES/DEALERS	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	343733	1961	Premise Match	0m	On-site
	MOTOR CAR/TRUCK DEALERS—NEW/USED	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	345321	1961	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	347971	1961	Premise Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	BATTERY SERVICE STATIONS	Radford and Sons, 810 Pacific Highway, Gordon	6634	1950	Premise Match	0m	On-site
	MOTOR ACCESSORIES-DEALER	Radford and Sons, 810 Pacific Highway., Gordon	81743	1950	Premise Match	0m	On-site
	MOTOR CAR & TRUCK DEALERS-USED	Radford and Sons, 810 Pacific Highway., Gordon	82528	1950	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS	Radford and Sons, 810 Pacific Highway., Gordon	84251	1950	Premise Match	0m	On-site
	MOTOR SERVICE STATIONS-PETROL, Etc.	Radford and Sons, 810 Pacific Highway., Gordon	86314	1950	Premise Match	0m	On-site
	WELDERS-ELECTRIC &/OR OXY	Radford and Sons, 810 Pacific Highway., Gordon	113026	1950	Premise Match	0m	On-site
	MOTOR GLASS REPLACEMENTS	Radford and Sons., 810 Pacific Highway., Gordon	84607	1950	Premise Match	0m	On-site
2	Bakers	Ludwigs Bakery, Shop 13, Gordon Centre, 808 Pacific H'way, Gordon 2072	35318	1991	Premise Match	21m	South
	Computer Software	SPL (Australia) Pty. Limited., Level 7, 802 Pacific H'way., Gordon 2072	40379	1991	Premise Match	21m	South
	CHEMISTS-PHARMACEUTICAL.	Amcal Chemist, Shop 4 Gordon Centre, 808 Pacific H'way., Gordon. 2072	13901	1986	Premise Match	21m	South
	GREETING CARD SPECIALISTS-RETAIL.	Basically Barnes, Shop 18 Gordon Centre, 808 Pacific H'way., Gordon. 2072	40308	1986	Premise Match	21m	South
	DISCOUNT HOUSES.	Harvey Norman, Shop 24 Gordon Centre, 808 Pacific H'way., Gordon. 2072	24160	1986	Premise Match	21m	South
	CAKE SHOPS &/OR PASTRYCOOKS.	La-Piece Montee, Shop 5 Gordon Centre, 808 Pacific H'way., Gordon. 2072	11756	1986	Premise Match	21m	South
	BAKERS-BREAD.	Ludwigs Bakery, Shop 13 Gordon Centre, 808 Pacific H'way., Gordon. 2072	5115	1986	Premise Match	21m	South
	JEWELLERS &/OR WATCHMAKERS-RETAIL.	Tapners, Shop 17 Gordon Centre, 808 Pacific H'way., Gordon. 2072	49993	1986	Premise Match	21m	South
	BEAUTICIANS.	Touch of Genius, Shop 1 Gordon Centre, 808 Pacific H'way, Gordon. 2072	5864	1986	Premise Match	21m	South
	BAKERS-BREAD	Curran, J., 806 Pacific Highway., Gordon	5234	1950	Premise Match	21m	South
	BOOT & SHOE REPAIRERS	Patterson, T., 792 Pacific Highway., Gordon	10520	1950	Premise Match	21m	South
	BAKERS-BREAD	Schmeising, F., 806 Pacific Highway., Gordon	5468	1950	Premise Match	21m	South
3	COMPUTER-SOFTWARE.	Compracc Pty. Ltd., 1st Fl. 795 Pacific H'way., Gordon. 2072	19640	1986	Premise Match	25m	East
	COMPUTER SALES &/OR SERVICE.	Compracc Pty. Ltd., 1st Fl., 795 Pacific H'way, Gordon. 2072	19530	1986	Premise Match	25m	East
	PHOTO COPYING EQUIPMENT MFRS. &/OR DISTS. (P3240)	U.P.S. Copiers, 795 Pacific H'way., Gordon. 2072.	63377	1982	Premise Match	25m	East
	Cake Shops & Pastrycooks	Dots Pantry., 793 Pacific Highway., Gordon	61187	1965	Premise Match	25m	East
	CAKE SHOPS & PASTRYCOOKS	Dots Pantry, 793 Pacific Highway., Gordon	282957	1961	Premise Match	25m	East
	CAKE SHOPS & PASTRYCOOKS	Dots Pantry, 793 Pacific Highway., Gordon	16632	1950	Premise Match	25m	East
4	POLLUTION CONTROL EQUIPMENT MFRS. &/OR DISTS.	Mideco Manufacturing Pty, Ltd., 789 Pacific H'way., Gordon. 2072	75469	1986	Premise Match	26m	East
	DUST COLLECTION &/OR FUME EXTRACTION EQUIPMENT MFRS. &/OR DISTS.	Mideco Manufacturing Pty. Ltd., 789 Pacific H'way., Gordon. 2072	25655	1986	Premise Match	26m	East
	MATERIAL HANDLING EQUIPMENT MFRS. &/OR IMPS. &/OR DISTS.	Mideco Manufacturing Pty. Ltd., 789 Pacific H'way., Gordon. 2072	53134	1986	Premise Match	26m	East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
4	PAINT VARNISH OILS &/OR COLOUR MERCHANTS.	Colour Shop., The, 789 Pacific H'way., Gordon. 2072	65518	1975	Premise Match	26m	East
5	PAINT VARNISH OILS &/OR COLOUR MERCHANTS.	Colour Shop, The. 787 Pacific H'way, Gordon. 2072	55621	1978	Premise Match	29m	East
	LEATHER GOODS MFRS. &/OR WHOLESALERS	Chic Leather Goods, 787 Pacific Highway., Gordon	331038	1961	Premise Match	29m	East
6	WINE/SPIRIT MERCHANTS-RETAIL	Sheargolds Pty. Ltd., 785-785a Pacific Highway., Gordon	263119	1961	Premise Match	31m	East
	WINE & SPIRIT MERCHANTS-RETAIL	Sheargolds Pty. Ltd., 785-785a Pacific Highway., Gordon	113563	1950	Premise Match	31m	East
7	DENTISTS.	Williams, M. W., 785 Pacific H'way, Gordon. 2072	23539	1986	Premise Match	34m	East
	DENTISTS. (D1800)	Williams, M. W., 785 Pacific H'way, Gordon. 2072.	21010	1982	Premise Match	34m	East
	DENTISTS.	Williams, M.W., 785 Pacific H'way, Gordon. 2072	18594	1978	Premise Match	34m	East
	DENTISTS.	Williams, M., 785 Pacific H'way, Gordon. 2072	21482	1975	Premise Match	34m	East
	PHOTOGRAPHERS-PORTRAIT (P284)	Dupain, D., 785 Pacific Highway., Gordon	348054	1970	Premise Match	34m	East
	UPHOLSTERERS (U050)	North Shore Upholstery, 785 Pacific Highway., Gordon	372100	1970	Premise Match	34m	East
	Photographers - Portrait	Barrett, Elizabeth Studios, 785 Pacific Highway., Gordon (& Strathfield)	132426	1965	Premise Match	34m	East
	Upholsterers	North Shore Upholstery, 785 Pacific Hghwy, Gordon	154951	1965	Premise Match	34m	East
	UPHOLSTERERS	North Shore Upholstery, 785 Pacific Highway., Gordon	260506	1961	Premise Match	34m	East
	LEATHER GOODS MFRS. &/OR WHOLESALERS	Acme Bag Manufacturing Co., 785 Pacific Hghwy., Gordon	68036	1950	Premise Match	34m	East
	UPHOLSTERERS	North Shore Upholstery, 785 Pacific Highway., Gordon	111248	1950	Premise Match	34m	East
	WINE & SPIRIT MERCHANTS-RETAIL	Sheargolds Pty. Ltd., 785 Pacific Highway., Gordon	113562	1950	Premise Match	34m	East
	HANDBAG MFRS. &/OR WHOLESALERS	Teen Age Handbags Pty. Ltd., 785 Pacific Hghwy., Gordon	60733	1950	Premise Match	34m	East
8	WINE &/OR SPIRIT MERCHANTS RETAIL.	Sheargolds Cellars Pty. Ltd., 781 Pacific H'way., Gordon. 2072	99541	1986	Premise Match	38m	East
	RECORDS BARS.	Tarantella Pty. Ltd., 783 Pacific H'way, Gordon. 2072	80548	1986	Premise Match	38m	East
	WINE &/OR SPIRIT MERCHANTS -. RETAIL. (W5960)	Sheargolds Cellars Pty. Ltd., 781 Pacific H'way., Gordon. 2072.	84938	1982	Premise Match	38m	East
	RECORD BARS. (R2835)	Tarantella Pty. Ltd., 783 Pacific H'way, Gordon. 2072.	70034	1982	Premise Match	38m	East
	EXPORTERS.	Avon Export & Import Co., 781 Pacific H'way, Gordon. 2072	26803	1978	Premise Match	38m	East
	IMPORTERS.	Avon Export & Import Co., 781 Pacific H'way, Gordon. 2072	36717	1978	Premise Match	38m	East
	WINE &/OR SPIRIT MERCHANTS- RETAIL.	Sheargolds Cellars Pty. Ltd., 781 Pacific Hway., Gordon. 2072	74834	1978	Premise Match	38m	East
	MUSIC SHEET &/OR RECORDS DEALERS.	Tarantella Pty Ltd, 783 Pacific H'way, Gordon 2072	53580	1978	Premise Match	38m	East
	EXPORTERS.	Avon Export & Import Co., 781 Pacific H'way, Gordon. 2072	30951	1975	Premise Match	38m	East
	IMPORTERS.	Avon Export & Import Co., 781 Pacific H'way., Gordon. 2072	43481	1975	Premise Match	38m	East
	MUSIC SHEET &/OR RECORDS DEALERS.	Tarantella Pty. Ltd., 783 Pacific H'way., Gordon. 2072	63102	1975	Premise Match	38m	East
	Builders & Contractors - (M.M.B.A.)	Edward, Gough Pty. Ltd., 781 Pacific Highway. Gordon	54729	1965	Premise Match	38m	East
	Wine/Spirit Merchants - Retail	Sheargolds Liquor Store, (Piven-Large, Harold), 781 Pacific Highway, Gordon & St. Ives	157363	1965	Premise Match	38m	East
	Jewellers/Watchmakers - Retail	Tapner, John, 781 Pacific Highway., Gordon	106245	1965	Premise Match	38m	East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
8	ELECTRICAL CONTRACTORS &/OR ELECTRICIANS	Page, N. W., 781 Pacific Highway., Gordon	37792	1950	Premise Match	38m	East
	RADIO SALES &/OR SERVICEMEN	Page, N. W., 781 Pacific Highway., Gordon	97490	1950	Premise Match	38m	East
9	RADIO - TWO-WAY SALES &/OR SERVICE.	Communication Site Rentals Pty. Ltd., 830 Pacific H'way, Gordon. 2072	78859	1986	Premise Match	40m	North West
	RADIO - TWO-WAY RADIO TELEPHONE COMMUNICATION.	Communication Site Rentals Pty. Ltd., 830 Pacific H'way., Gordon. 2072	78841	1986	Premise Match	40m	North West
	DENTISTS.	Gould, A., 832 Pacific H'way., Gordon. 2072	22656	1986	Premise Match	40m	North West
	RADIO - TWO-WAY SALES &/OR SERVICE.	Hy-Spek Telecommunications Pty, Ltd., 828 Pacific H'way., Gordon. 2072	78868	1986	Premise Match	40m	North West
	TELECOMMUNICATIONS EQUIPMENT &/OR SYSTEM MFRS. &/OR IMPS. &/OR DISTS.	Hy-Spek Telecommunications Pty. Ltd., 828 Pacific H'way., Gordon. 2072	92507	1986	Premise Match	40m	North West
	DENTISTS.	Kenner, B. H., 832 Pacific H'way., Gordon. 2072	22829	1986	Premise Match	40m	North West
	EXPORTERS.	Multiline Exports Pty. Ltd. 832 Pacific H'way, Gordon. 2072	31688	1986	Premise Match	40m	North West
	EXPORTERS.	Multiline Exports Pty. Ltd., 832 Pacific H'way., Gordon. 2072	31781	1986	Premise Match	40m	North West
	PAGING SYSTEMS.	Page Alert, 830 Pacific H'way., Gordon. 2072	71452	1986	Premise Match	40m	North West
	ELECTRONIC INDUSTRIAL CONTROL EQUIPMENT MFRS.	Ramtel Data Systems, 830 Pacific H'way., Gordon. 2072	28135	1986	Premise Match	40m	North West
	HEALTH CENTRES & OR CLINICS	Withers, R. C., Constructions. Pty. Ltd., 824 Pacific H'way, Gordon. 2072	41719	1975	Premise Match	40m	North West
	INTERIOR DECORATORS (I620)	Benson, Fay, Quality House Decorations., 830 Pacific Hghwy., Gordon	320533	1970	Premise Match	40m	North West
	Interior Decorators	Benson, Fay, Quality House Decorations., 830 Pacific Hghwy., Gordon	105144	1965	Premise Match	40m	North West
	Animal & Bird Food Supplies	Gordon Pet Shop., 832 Pacific Highway., Gordon	46268	1965	Premise Match	40m	North West
10	CHEMISTS-PHARMACEUTICAL.	Gordon Pharmacy, 779 Pacific H'way, Gordon. 2072	14274	1986	Premise Match	44m	East
	CHEMISTS - PHARMACEUTICAL.(C4110)	Rogers, M., 779 Pacific H'way, Gordon. 2072.	15592	1982	Premise Match	44m	East
	CHEMISTS-PHARMACEUTICAL.	Cooper. P., 779 Pacific H'way, Gordon. 2072	13095	1978	Premise Match	44m	East
	CHEMISTS-PHARMACEUTICAL	Cooper Chemist, 779 Pacific H'way, Gordon. 2072.	15126	1975	Premise Match	44m	East
	RADIO &/OR TELEVISION SALES & SERVICEMEN	Page, N. W., 777 Pacific Highway. GORDON	364226	1961	Premise Match	44m	East
11	HARDWARE DEALERS &/OR IRONMONGERS	Adams, W. J., 773 Pacific Hghwy., Gordon	60816	1950	Premise Match	56m	East
	RADIO SALES &/OR SERVICEMEN	Adams, W. J., 773 Pacific Highway., Gordon	96893	1950	Premise Match	56m	East
12	Photographic Developing Printing &/or Colouring Services	Integrity Colour Photos, Shop 1A Gordon Village Arc., 767 Pacific H'way., Gordon 2072	57403	1991	Premise Match	63m	South East
	GREETING CARD SPECIALISTS-RETAIL.	Gordon Stationary, Gordon Village Arc., 767 Pacific H'way., Gordon. 2072	40324	1986	Premise Match	63m	South East
	GARDENERS SUPPLIES-RETAIL.	La-Plantique, 8 Gordon Village Arc., 767 Pacific H'way., Gordon. 2072	38364	1986	Premise Match	63m	South East
	BEAUTICIANS.	O'Neil, Susan, 11 Gordon Village Arc., 767 Pacific H'way, Gordon. 2072	5818	1986	Premise Match	63m	South East
	VIDEO RECORDER &/OR CASSETTE SALES &/OR HIRE &/OR SERVICE.	Warlords Video, 13 Gordon Village Arc. 767 Pacific H'way. Gordon. 2072	97886	1986	Premise Match	63m	South East
	GREETING CARD SPECIALISTS -RETAIL. (G7450)	Gordon Stationary, Gordon Village Arc., 767 Pacific H'way., Gordon. 2072.	37262	1982	Premise Match	63m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
12	JEWELLERS &/OR WATCHMAKERS RETAIL. (J0550)	Muirs, 15 Gordon Village Arc., 767 Pacific H'way., Gordon. 2072.	43686	1982	Premise Match	63m	South East
13	CHEMISTS-PHARMACEUTICAL.	Spencer, N. A. & St. Clair, I. J., 765 Pacific H'way., Gordon. 2072	14907	1986	Premise Match	81m	South East
	CHEMISTS - PHARMACEUTICAL.(C4110)	Spencer, N.A. & St. Clair, I.J., 765 Pacific H'way, Gordon. 2072.	15707	1982	Premise Match	81m	South East
	CHEMISTS-PHARMACEUTICAL.	Spencer, N. A. & St. Clair, I. J., 765 Pacific H'way, Gordon. 2072	13855	1978	Premise Match	81m	South East
14	CHEMISTS-PHARMACEUTICAL	Soul Pattinson, 763 Pacific H'way., Gordon. 2072	15927	1975	Premise Match	87m	South East
15	Engineers Consulting	Varmo Holdings Pty Ltd, Suite 9/788 Pacific H'way., Gordon 2072	43537	1991	Premise Match	90m	South East
	PODIATRISTS.	Lee, J. M, 788A Pacific H'way., Gordon. 2072	75396	1986	Premise Match	90m	South East
	DENTISTS.	Mallard, P. L., 788 Pacific H'way, Gordon. 2072	22990	1986	Premise Match	90m	South East
	DENTISTS.	Norton, I. A., 788 Pacific H'way., Gordon. 2072	23108	1986	Premise Match	90m	South East
	DENTISTS.	Rowe, D. K., 788 Pacific H'way, Gordon. 2072	23268	1986	Premise Match	90m	South East
	DENTISTS. (D1800)	Mallard, P. L., 788 Pacific H'way, Gordon, 2072.	20568	1982	Premise Match	90m	South East
	DENTISTS. (D1800)	Rowe, D. K., 788 Pacific H'way, Gordon, 2072.	20791	1982	Premise Match	90m	South East
	DENTISTS.	Mallard, P.L., 788 Pacific H'way, Gordon. 2072	18283	1978	Premise Match	90m	South East
	DENTISTS.	Rowe, D. K., 788 Pacific H'way, Gordon. 2072	18464	1978	Premise Match	90m	South East
	DENTISTS.	MacLard, P. L., 788 Pacific H'way, Gordon. 2072	21144	1975	Premise Match	90m	South East
	DENTISTS.	Rowe, D. K., 788 Pacific H'way., Gordon. 2072	21342	1975	Premise Match	90m	South East
	NEWSPAPERS/PERIODICALS (N130)	Kuringai Courier (The)., 788 Pacific Hghwy., Gordon	344201	1970	Premise Match	90m	South East
	DENTISTS (D140)	Rowe, D. K., 788 Pacific Highway., Gordon	288989	1970	Premise Match	90m	South East
	Dentists	Rowe, D. K., 788 Pacific Highway., Gordon	73704	1965	Premise Match	90m	South East
	Washing Machine Sales/Service	Yorkes Pty. Ltd, 788 Pacific Hghwy, Gordon	155936	1965	Premise Match	90m	South East
	Ranges - Electric - Mfrs.	Yorkes Pty. Ltd., 788 Pacific Hghwy., Gordon	138585	1965	Premise Match	90m	South East
	Radio &/Or Television Hirers	Yorkes Pty. Ltd., 788 Pacific Highway., Gordon	137905	1965	Premise Match	90m	South East
	Refrigerator Dealers &/or Servicemen	Yorkes, Pty. Ltd., 788 Pacific Hghwy., Gordon	140096	1965	Premise Match	90m	South East
	PAINT, VARNISH, OILS/COLOUR MERCHANTS	Macsim Distributors Pty. Ltd., 788 Pacific Highway., Gordon	355694	1961	Premise Match	90m	South East
	DENTISTS	Rowe, D. K., 788 Pacific Highway., Gordon	296381	1961	Premise Match	90m	South East
	RADIO &/OR TELEVISION SALES & SERVICEMEN	Yorkes Pty. Ltd., 788 Pacific Highway. GORDON	364227	1961	Premise Match	90m	South East
16	PHOTOGRAPHERS - AERIAL.	Australian Aerial Mapping Pty. Ltd., 786 Pacific H'way., Gordon. 2072	72794	1986	Premise Match	96m	South East
	PHOTOGRAPHERS - AERIAL. (P3440)	Australian Aerial Mapping Pty. Ltd., 786 Pacific H'way, Gordon. 2072.	63446	1982	Premise Match	96m	South East
	AERIAL SURVEYORS. (A1980)	Australian Aerial Mapping Pty. Ltd., 786 Pacific H'way., Gordon. 2072.	1554	1982	Premise Match	96m	South East
	JEWELLERS &/OR WATCHMAKERS RETAIL. (J0550)	Taran Trading Co., 786 Pacific H'way., Gordon. 2072.	43792	1982	Premise Match	96m	South East
	PHOTOGRAPHERS-AERIAL	Australian Aerial Mapping Pty. Ltd., 786 Pacific Highway, Gordon. 2072	56502	1978	Premise Match	96m	South East
	AERIAL SURVEYORS.	Australian Aerial Mapping Pty. Ltd., 786 Pacific H'way, Gordon. 2072	1554	1978	Premise Match	96m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
16	PHOTOGRAPHERS-AERIAL	Australian Aerial Mapping Pty. Ltd., 786 Pacific H'way, Gordon. 2072	66579	1975	Premise Match	96m	South East
	AERIAL SURVEYORS.	Australian Aerial Mapping Pty. Ltd., 786 Pacific H'way, Gordon. 2072.	1278	1975	Premise Match	96m	South East
	AIR SERVICE BOOKING AGENTS.	Gordon Travel Centre, 786 Pacific H'way, Gordon. 2072.	1845	1975	Premise Match	96m	South East
	CARRIERS & CARTAGE CONTRACTORS	Gordon Produce Store, 786 Pacific Highway., Gordon	18912	1950	Premise Match	96m	South East
17	HEALTH CENTRES &/OR CLINICS.	Gordon Natural Health Centre, 757 Pacific H'way, Gordon. 2072	35220	1978	Premise Match	103m	South East
	HEALTH CENTRES & OR CLINICS	Gordon Guidance Centre, 757 Pacific H'way. Gordon. 2072	41649	1975	Premise Match	103m	South East
	CHEMISTS-PHARMACEUTICAL	Hodgson, Peter., 757 Pacific Hghwy., Gordon	280534	1970	Premise Match	103m	South East
	Chemists - Pharmaceutical	Hodgson, Peter, 757 Pacific Highway., Gordon	65137	1965	Premise Match	103m	South East
	CHEMISTS-PHARMACEUTICAL	Hodgson, Peter., 757 Pacific Highway., Gordon	287689	1961	Premise Match	103m	South East
	CHEMISTS-PHARMACEUTICAL	Hodgson, Peter, 757 Pacific Highway., Gordon	21651	1950	Premise Match	103m	South East
18	DRAINLAYERS	Kinsela, L. J., 15 Moree St., Gordon	297663	1961	Premise Match	103m	South West
	DRAINLAYERS	Kinsela, L. J., 15 Moree St., Gordon	33399	1950	Premise Match	103m	South West
19	Mineral Exploration Companies	Kinex Pty. Ltd., 784 Pacific H'way., Gordon. 2072	51797	1991	Premise Match	108m	South East
	JEWELLERS &/OR WATCHMAKERS-RETAIL.	Kinex Gems Pty. Ltd., 784 Pacific H'way., Gordon. 2072	49808	1986	Premise Match	108m	South East
	GEM CUTTERS &/OR MERCHANTS.	Taran Trading Co, 784 Pacific H'way., Gordon. 2072	38691	1986	Premise Match	108m	South East
	JEWELLERY-MFRS. &/OR IMPS. &/OR W/SALERS.	Taran Trading Co. Pty. Ltd., 784 Pacific H'way., Gordon. 2072	49508	1986	Premise Match	108m	South East
	JEWELLERS &/OR WATCHMAKERS-RETAIL.	Taran Trading Co., 784 Pacific H'way., Gordon. 2072	49995	1986	Premise Match	108m	South East
	MANUFACTURERS AGENTS, (M0800)	Taran Trading Co. Pty. Ltd., 784 Pacific H'way, Gordon. 2072.	46362	1982	Premise Match	108m	South East
	MANUFACTURERS AGENTS.	Taran Trading Co. Pty. Ltd., 784 Pacific H'way, Gordon. 2072	41473	1978	Premise Match	108m	South East
	Radio &/Or Television Sales & Servicemen	Yorkes (Service) Pty. Ltd. Rear, 784 Pacific Hgltwy. Gordon	138208	1965	Premise Match	108m	South East
	MERCHANTS & IMPORTERS	Transmare Trading Co., 784 Pacific Hghwy., Gordon	75669	1950	Premise Match	108m	South East
	EXPORTERS	Transmare Trading Co., 784 Pacific Highway., Gordon	43165	1950	Premise Match	108m	South East
20	CHEMISTS-PHARMACEUTICAL	Spencer's Pharmacy, 755 Pacific H'way., Gordon. 2072	15936	1975	Premise Match	111m	South East
21	Builders Supplies	B.B.C. Hardware., 751 Pacific H'way., Gordon 2072	37060	1991	Premise Match	118m	South East
	BUILDERS SUPPLIERS.	B.B.C. Hardware, 751 Pacific H'way., Gordon. 2072	8477	1986	Premise Match	118m	South East
	BUILDERS SUPPLIERS. (B7060)	B.B.C. Hardware, 751 Pacific H'way., Gordon. 2072.	9644	1982	Premise Match	118m	South East
	BUILDERS' SUPPLIERS (B814)	Epstein & Co. Pty. Ltd., 751 Pacific Hghwy., Gordon	271333	1970	Premise Match	118m	South East
	PLUMBERS' SUPPLIES (P612)	Epstein & Co. Pty. Ltd., 751 Pacific Highway., Gordon	350262	1970	Premise Match	118m	South East
	HARDWARE DEALERS/IRONMONGERS (H230)	Epstein G Co. Pty. Ltd., 751 Pacific Highway., GORDON	315031	1970	Premise Match	118m	South East
	Hardware Dealers &/or Iron Mongers	Epstein & Co. Pty. Ltd., 751 Pacific Hghwy. Gordon	99235	1965	Premise Match	118m	South East
	HARDWARE DEALERS/IRONMONGERS	Murrays Pty. Ltd., 751 Pacific Highway., GORDON	323269	1961	Premise Match	118m	South East
	FENCE & GATE MANUFACTURERS	Armboyd Welding Co. (Iron), 751 Pacific Highway., Gordon	43594	1950	Premise Match	118m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
21	ENGINEERS-STRUCTURAL	Armboyd Welding Co., 751 Pacific Highway., Gordon	42383	1950	Premise Match	118m	South East
	WELDERS-ELECTRIC &/OR OXY	Armboyd Welding Co., 751 Pacific Highway., Gordon	112628	1950	Premise Match	118m	South East
	FUEL MERCHANTS-COAL, COKE & WOOD	Backhouse, W. T. (The Estate of), 751 Pacific Highway., Gordon	51630	1950	Premise Match	118m	South East
22	Motor Car Dealers New &/or Used	Sundell Motors, 836 Pacific H'way, Gordon 2072	52644	1991	Premise Match	119m	North West
	MOTOR CAR &/OR TRUCK DEALERS-NEW &/OR USED.	Sundell Motors Chatswood Pty. Ltd., 836 Pacific H'way., Gordon. 2072	62332	1986	Premise Match	119m	North West
	MOTOR ACCESSORIES DEALERS.(M4690)	Pierce, C. R. (Sales) Pty. Ltd., 836 Pacific H'way, Gordon. 2072.	53903	1982	Premise Match	119m	North West
	MOTOR CAR &/OR TRUCK DEALERS - NEW &/OR USED. (M5840)	Pierce, C. R. (Sales) Pty. Ltd., 836 Pacific H'way, Gordon. 2072.	54972	1982	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Pierce, C. R. (Sales) Pty. Ltd., 836 Pacific H'way, Gordon. 2072.	57384	1982	Premise Match	119m	North West
	MOTOR SPARE PARTS DEALERS -RETAIL. (M7840)	Pierce. C. R. (Sales) Pty. Ltd., 836 Pacific H'way, Gordon. 2072.	59225	1982	Premise Match	119m	North West
	MOTOR SPARE PARTS DEALERS-RETAIL.	Pierce, C R (Sales) Pty Ltd, 836 Pacific H'way, Gordon 2072	52796	1978	Premise Match	119m	North West
	MOTOR ACCESSORIES DEALERS.	Pierce, C. R. (Sales) Pty. Ltd., 836 Pacific H'way, Gordon. 2072	47466	1978	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce, C. R. (Sales) Pty. Ltd., 836 Pacific H'way. Gordon. 2072	50672	1978	Premise Match	119m	North West
	MOTOR CAR &/OR TRUCK DEALERS-NEW &/OR USED.	Pierce. C. R. (Sales) Pty. Ltd., 836 Pacific H'way, Gordon. 2072	48453	1978	Premise Match	119m	North West
	MOTOR CAR &/OR TRUCK DEALERS- NEW &/OR USED.	Pierce, C. R. (Sales) Pty. Ltd., 840 Pacific H'way., Gordon. 2072.	57357	1975	Premise Match	119m	North West
	MOTOR CAR/TRUCK DEALERS-NEW/USED (M520)	Pierce, Cecil R. (Sales) Pty. Ltd., 836 Pacific Hghwy., Gordon	336201	1970	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS(M6S6)	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway., GORDON	338426	1970	Premise Match	119m	North West
	Welders - Electric &/or Oxy	Pierce, C. R, Pty. Ltd, 836 Pacific Hghwy, Gordon	156742	1965	Premise Match	119m	North West
	Motor Garages & Engineers	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway ., Gordon	122708	1965	Premise Match	119m	North West
	Motor Car/Truck Dealers - New/Used	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway., Gordon	120873	1965	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS	Pierce Cecil R Pty Ltd 836 Pacific Highway., GORDON	347918	1961	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway. GORDON	347919	1961	Premise Match	119m	North West
	MOTOR CAR/TRUCK DEALERS—NEW/USED	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway., Gordon	345306	1961	Premise Match	119m	North West
23	FUEL MERCHANTS-COAL, COKE & WOOD	Gordon Produce Store, Cnr. Pacific Highway. and Moree St., Gordon	51727	1950	Road Intersection	126m	South East
24	CARPET &/OR FLOOR COVERING PLANNERS &/OR LAYERS. (C1815)	Ronalds Pty. Ltd., 780 Pacific H'way., Gordon. 2072.	13367	1982	Premise Match	133m	South East
	CARPET &/OR FLOOR COVERING PLANNERS &/OR LAYERS.	Ronalds Pty. Ltd., 780 Pacific H'way., Gordon. 2072	11515	1978	Premise Match	133m	South East
	CARPET &/OR FLOOR COVERING PLANNERS &/OR LAYERS.	Ronalds Pty. Ltd., 780 Pacific H'way., Gordon. 2072	13439	1975	Premise Match	133m	South East
	CAKE SHOPS & PASTRYCOOKS (C045)	Fiesta Exclusive Cakes and Cafe., 780 Pacific Highway., Gordon	276515	1970	Premise Match	133m	South East
	BUILDERS & CONTRACTORS (B800)	Stuart Holdings Pty. Ltd., 780 Pacific Hghwy., Gordon	270404	1970	Premise Match	133m	South East
	Cake Shops & Pastrycooks	Fiesta Exclusive Cakes and Cafe, 780 Pacific Highway., Gordon	61221	1965	Premise Match	133m	South East
	Newspapers/Periodicals	Kuringal Courier (The), 780 Pacific Highway., Gordon	128815	1965	Premise Match	133m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
24	Builders & Contractors	Pettit & Sevitt & Partners., 780 Pacific Highway., Gordon	55545	1965	Premise Match	133m	South East
25	PIPE &/OR PIPE FITTINGS MFRS. &/OR DISTS.	Vinidex Tubemakers, 14 Merriwa St., Gordon. 2072	73989	1986	Premise Match	140m	North West
	FLOOR SANDING/POLISHING CONTRACTORS	HI-Glo Floor Treatment Supply Co., 14 Merriwa St., Gordon	311640	1961	Premise Match	140m	North West
	FENCING CONTRACTORS	Hatch Bros., 3 McIntyre St., Gordon	43698	1950	Premise Match	140m	North West
26	CHEMISTS - PHARMACEUTICAL.(C4110)	Jacksons Pharmacy, 778 Pacific H'way., Gordon. 2072.	15186	1982	Premise Match	141m	South East
	CHEMISTS-PHARMACEUTICAL.	Jacksons Pharmacy, 778 Pacific H'way. Gordon. 2072	13358	1978	Premise Match	141m	South East
	CHEMISTS-PHARMACEUTICAL	Jackson's Pharmacy, 778 Pacific H'way., Gordon. 2072	15436	1975	Premise Match	141m	South East
	AERIAL SURVEYORS (A192)	Australian Aerial Mapping Pty. Ltd., Rear 778 Pacific Hghwy, Gordon	260419	1970	Premise Match	141m	South East
	PHOTOGRAPHERS-AERIAL (P264)	Australian Aerial Mapping Pty. Ltd., Rear 778 Pacific Highway., Gordon	347794	1970	Premise Match	141m	South East
	PHOTOGRAPHIC SUPPLIES (P300)	Jackson's Kuringai Pharmacy & Camera Centre., 778 Pacific Hghwy., Gordon	348359	1970	Premise Match	141m	South East
	CHEMISTS-PHARMACEUTICAL	Jackson's Kuring-gai Pharmacy and Camera Centre, 778 Pacific Hghwy., Gordon.	280587	1970	Premise Match	141m	South East
	Photographers - Aerial	Australian Aerial Mapping Proprietary Limited, 778 Pacific Highway., Gordon	132251	1965	Premise Match	141m	South East
	Photographic Supplies	Jackson's Kuringai Pharmacy & Camera Centre, 778 Pacific Highway., Gordon	132751	1965	Premise Match	141m	South East
	Chemists - Pharmaceutical	Jackson's Kuring-gai Pharmacy and Camera Centre, 778 Pacific Highway., Gordon	65164	1965	Premise Match	141m	South East
27	MOTOR GARAGES &/OR ENGINEERS.	Pierce, C. R. (Sales) Pty. Ltd., 840 Pacific H'way., Gordon. 2072	59396	1975	Premise Match	145m	North West
28	HIRING SERVICES.	Hovey.M., 776 Pacific H'way., Gordon. 2072	42078	1975	Premise Match	146m	South East

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Business Directory Records 1950-1991
Road or Area Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
29	ELECTRIC LIGHT FITTINGS (SHADES, BRACKETS, ETC) MFRS. &/OR DISTS.	Brodie Lighthouse, 354 Pacific H'way., Gordon. 2072	21765	1978	Road Match	0m
	Schools/Colleges - Private/Public	Ravenswood Methodist Ladies' College., Pacific Highway., Grdn	142883	1965	Road Match	0m
	WELDERS-ELECTRIC &/OR OXY	Pierce, Cecil R., 94d Pacific Highway., Gordon	262380	1961	Road Match	0m
	CAKE SHOPS & PASTRYCOOKS	Ambur (The), 173 Pacific Highway., Gordon	16285	1950	Road Match	0m
	PHOTOGRAPHERS-PORTRAIT	Barrett, Elizabeth Studios, Pacific Highway., Gordon	91779	1950	Road Match	0m
	CHEMISTS-PHARMACEUTICAL	Belcher, P. D., Pacific Highway., Gordon	21312	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Burnett's Service Station., Pacific Highway., Gordon	85836	1950	Road Match	0m
	MOTOR PAINTERS	Leves, A., 366 Pacific Highway., Gordon	84894	1950	Road Match	0m
	MOTOR PANEL BEATERS	Leves, A., 366 Pacific Highway., Gordon	85358	1950	Road Match	0m
	WELDERS-ELECTRIC &/OR OXY	Leves, A., 366 Pacific Highway., Gordon	112897	1950	Road Match	0m
	HARDWARE DEALERS &/OR IRONMONGERS	Murrays Pty. Ltd., Pacific Hghwy., Gordon	61250	1950	Road Match	0m
	BUILDERS' SUPPLIERS	Murrays Pty. Ltd., Pacific Highway., Gordon	11852	1950	Road Match	0m
	CAKE SHOPS & PASTRYCOOKS	Wattle, Gordon, Pacific Highway., Gordon	17348	1950	Road Match	0m
30	CARRIERS & CARTAGE CONTRACTORS	Hellies, M. F., Park Ave., Gordon	19013	1950	Road Match	25m
31	DENTISTS	Webb, B. C., Werona Ave., Killara	296533	1961	Road Match	150m

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Dry Cleaners, Motor Garages & Service Stations

810 Pacific Highway, Gordon, NSW 2072



Legend

- Site Boundary
- Buffer 500m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 80 160 240 320 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 21 March 2025

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2025

Historical Business Directories

810 Pacific Highway, Gordon, NSW 2072

Dry Cleaners, Motor Garages & Service Stations 1948-1993 Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Radford Motors Pty. Ltd., 810 Pacific H'way., Gordon 2072	21448	1983	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072.	57435	1982	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Radford Motors Pty Ltd., 810 Pacific H'way., Gordon 2072	3978	1981	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Radford Motors Pty. Ltd., 810 Pacific H'way., Gordon. 2072	58714	1980	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon. 2072.	46210	1979	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072	50713	1978	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Radford Motors Pty. Ltd., 810 Pacific H'way., Gordon 2072	34780	1976	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific H'way, Gordon. 2072	59437	1975	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific Hghwy., Gordon	12234	1972	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific Hghwy., Gordon	56846	1971	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS(M6S6)	Radford Motors Pty. Ltd., 810 Pacific Highway., GORDON	338472	1970	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific Hghwy, Gordon	42261	1969	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS	Radford Motors Pty. Ltd., 810 Pacific Hghwy., Gordon	25782	1968	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific Hghwy., Gordon	10285	1967	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific Hghway., Gordon	56176	1966	Premise Match	0m	On-site
	Motor Garages & Engineers	Radford Motors Pty. Ltd., 810 Pacific Highway. Gordon	122709	1965	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS	Radford Motors Pty. Ltd., 810 Pacific Highway Gordon	47974	1964	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS.	Radford Motors Pty. Ltd., 810 Pacific Hghwy., Gordon	29495	1962	Premise Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR GARAGES & ENGINEERS	Radford Motors Pty. Ltd., 810 Pacific Highway., Gordon	347971	1961	Premise Match	0m	On-site
	MOTOR GARAGES & ENGINEERS.	Radford & Sons., 810 Pacific Hghwy, Gordon	14156	1959	Premise Match	0m	On-site
	MOTOR GARAGE/ENGINEERS.	Radford And Sons., 810 Pacific Hghwy., Gordon	4810	1958	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford And Sons., 810 Pacific Hghwy., Gordon	61338	1956	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford And Sons., 810 Pacific Hghwy., Gordon	49896	1954	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford And Sons., 810 Pacific Hghwy., Gordon	40547	1953	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford And Sons., 810 Pacific Hghwy., Gordon	32121	1952	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS	Radford and Sons, 810 Pacific Highway., Gordon	84251	1950	Premise Match	0m	On-site
	MOTOR SERVICE STATIONS-PETROL, Etc.	Radford and Sons, 810 Pacific Highway., Gordon	86314	1950	Premise Match	0m	On-site
	MOTOR GARAGES &/OR ENGINEERS.	Radford And Sons., 810 Pacific Hghwy., Gordon	22772	1948-49	Premise Match	0m	On-site
	MOTOR SERVICE STATIONS-PETROL, ETC.	Radford and Sons., 810 Pacific Hghwy., Gordon	26718	1948-49	Premise Match	0m	On-site
2	MOTOR GARAGES & SERVICE STATIONS.	Pierce Cecil R. (Sales) Pty. Ltd., 836 Pacific Hghwy, Gordon. 2072	45377	1985	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce Cecil R. (Sales) Pty. Ltd., 836 Pacific Hghwy, Gordon. 2072	33950	1984	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce Cecil R. (Sales) Pty. Ltd., 836 Pacific H'way., Gordon 2072	21398	1983	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Pierce, C. R. (Sales) Pty. Ltd., 836 Pacific H'way, Gordon. 2072.	57384	1982	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce C. R (Sales) Pty Ltd., 836 Pacific H'way., Gordon 2072	3930	1981	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce C. R. (Sales) Pty. Ltd., 836 Pacific H'way., Gordon. 2072	58671	1980	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce C. R. (Sales) Pty. Ltd., 836 Pacific Highway., Gordon. 2072.	46168	1979	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce, C. R. (Sales) Pty. Ltd., 836 Pacific H'way. Gordon. 2072	50672	1978	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Pierce C. R. (Sales) Pty. Ltd., 836 Pacific H'way., Gordon 2072	34733	1976	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Pierce Cecil R. Pty. Ltd., 836 Pacific Hghwy., Gordon	12233	1972	Premise Match	119m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Pierce Cecil R. Pty. Ltd., 836 Pacific Hghwy., Gordon	56845	1971	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS(M6S6)	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway., GORDON	338426	1970	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS.	Pierce Cecil R. Pty. Ltd., 836 Pacific Hghwy., Gordon	42260	1969	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS	Pierce Cecil R. Pty. Ltd., 836 Pacific Hghwy., Gordon	25781	1968	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS.	Pierce Cecil R. Pty. Ltd., 836 Pacific Hghwy., Gordon	10284	1967	Premise Match	119m	North West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
2	MOTOR GARAGES & ENGINEERS.	Pierce Cecil R. Pty. Ltd., 836 Pacific Hghway., Gordon	56175	1966	Premise Match	119m	North West
	Motor Garages & Engineers	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway ., Gordon	122708	1965	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway., Gordon	47973	1964	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS.	Pierce Cecil R. Pty. Ltd., 836 Pacific Hghwy., Gordon	29494	1962	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS	Pierce Cecil R Pty Ltd 836 Pacific Highway., GORDON	347918	1961	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS	Pierce, Cecil R. Pty. Ltd., 836 Pacific Highway. GORDON	347919	1961	Premise Match	119m	North West
	MOTOR GARAGES & ENGINEERS.	Pierce, Cecil R. Pty. Ltd., 836 Pacific Hghwy, Gordon	14155	1959	Premise Match	119m	North West
3	MOTOR GARAGES &/OR ENGINEERS.	Pierce, C. R. (Sales) Pty. Ltd., 840 Pacific H'way., Gordon. 2072	59396	1975	Premise Match	145m	North West
4	DRY CLEANERS & PRESSERS.	Gordon Valet Service, 770 Pacific Hghwy, Gordon. 2072	53096	1988	Premise Match	162m	South East
	DRY CLEANERS & PRESSERS.	Gordon Valet Service, 770 Pacific H'way., Gordon. 2072	25322	1986	Premise Match	162m	South East
	DRY CLEANERS & PRESSERS.	Gordon Valet Service, 770 Pacific Hghwy, Gordon. 2072	34540	1985	Premise Match	162m	South East
	DRY CLEANERS & PRESSERS.	Gordon Valet Service, 770 Pacific Hghwy, Gordon. 2072	21988	1984	Premise Match	162m	South East
	DRY CLEANERS & PRESSERS.	Gordon Valet Service., 770 Pacific H'way Gordon 2072	8579	1983	Premise Match	162m	South East
	DRY CLEANERS & PRESSERS.(D8500)	Gordon Valet Service, 770 Pacific H'way., Gordon. 2072.	23856	1982	Premise Match	162m	South East
	DRY CLEANERS & PRESSERS.	Gordon Valet Service., 770 Pacific H'way., Gordon. 2072	63340	1981	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Gordon Valet Service., 770 Pacific Highway., Gordon. 2072	46770	1980	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Gordon Valet Service., 770 Pacific Highway., Gordon. 2072.	35368	1979	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS	Gordon Valet Service, 770 Pacific H'way., Gordon. 2072	20793	1978	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Gordon Valet Service., 768 Pacific H'way., Gordon 2072	23532	1976	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Gordon Valet Service, 768 Pacific H'way, Gordon. 2072	24057	1975	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Gordon Valet Service., 770 Pacific Hghwy., Gordon	2919	1972	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS	Gordon Valet Service., 770 Pacific Hghwy., Gordon	51070	1971	Premise Match	162m	South East
	DRY CLEANERS,PRESSERS /DYERS (D710)	Gordon Valet Service., 770 Pacific Highway., Gordon	292321	1970	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS/ DYERS	Gordon Valet Service., 770 Pacific Hghwy., Gordon	37126	1969	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS/DYERS	Gordon Valet Service., 770 Pacific Hghwy., Gordon	20586	1968	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS/ DYERS	Gordon Valet Service., 770 Pacific Hghwy Gordon	6142	1967	Premise Match	162m	South East
	DRY CLEANERS, PRESSERS/ DYERS	Gordon Valet Service., 770 Pacific Hghwy., Gordon	52670	1966	Premise Match	162m	South East
	Dry Cleaners, Pressers/Dyers	Gordon Valet Service, 770 Pacific Highway., Gordon	76176	1965	Premise Match	162m	South East
5	DRY CLEANERS, PRESSERS &/OR DYERS.	Lindfield Laundry., 764 Pacific H'way., Gordon 2072	23655	1976	Premise Match	177m	South East

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5	DRY CLEANERS, PRESSERS &/OR DYERS.	Lindfield Laundry, 764 Pacific H'way., Gordon. 2072	24180	1975	Premise Match	177m	South East
	DRY CLEANERS, PRESSERS & DYERS	Lindfield Laundry and Dry Cleaners Pty. Ltd. 764 Pacific Highway., Gordon	35415	1950	Premise Match	177m	South East
	DRY CLEANERS, PRESSERS & DYERS.	Lindfield Laundry And Dry Cleaners Pty. Ltd., 764 Pacific Hghwy., Gordon	17278	1948-49	Premise Match	177m	South East
6	DRY CLEANERS & PRESSERS.	Mark Mayne, 733 Pacific Hghwy, Gordon. 2072	53200	1988	Premise Match	185m	South East
	DRY CLEANERS & PRESSERS.	Mark Mayne, 733 Pacific H'way., Gordon. 2072	25426	1986	Premise Match	185m	South East
	DRY CLEANERS & PRESSERS.	Mark Mayne., 733 Pacific Hghwy, Gordon. 2072	34646	1985	Premise Match	185m	South East
	DRY CLEANERS & PRESSERS.	Mark Mayne, 733 Pacific Hghwy, Gordon. 2072	22093	1984	Premise Match	185m	South East
	DRY CLEANERS & PRESSERS.	Mark Mayne., 733 Pacific H'way., Gordon 2072	8689	1983	Premise Match	185m	South East
	DRY CLEANERS & PRESSERS.(D8500)	Mark Mayne, 733 Pacific H'way., Gordon. 2072.	23957	1982	Premise Match	185m	South East
	DRY CLEANERS & PRESSERS.	Mark Mayne., 733 Pacific H'way., Gordon. 2072	63446	1981	Premise Match	185m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Mayne Mark., 733 Pacific H'way., Gordon 2072	23695	1976	Premise Match	185m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Mayne, Mark, 733 Pacific H'way, Gordon. 2072	24220	1975	Premise Match	185m	South East
7	DRY CLEANERS, PRESSERS/DYERS.	Washington Dry Cleaners., 14 St. Johns Ave., Gordon	24958	1962	Premise Match	236m	South East
	DRY CLEANERS, PRESSERS / DYERS	Washington Dry Cleaners, 14 St. Johns Ave., Gordon	299314	1961	Premise Match	236m	South East
	DRY CLEANERS, PRESSERS/DYERS	Washington Dry Cleaners., 14 St Johns Ave Gordon	13302	1959	Premise Match	236m	South East
	DRY CLEANERS, PRESSERS & DYERS	Washington Dry Cleaners., 14 St Johns Ave Gordon	424	1958	Premise Match	236m	South East
8	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Esso Servicecenter., 811 Pacific H'way., Gordon 2072	29930	1976	Premise Match	255m	North West
	MOTOR SERVICE STATIONS - PETROL, OIL	Esso Servicecenter., 811 Pacific H'way., Gordon. 2072	61703	1975	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Friendly Service Station (The)., 811 Pacific Hghwy., Gordon	12231	1972	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Esso Service Station., 811 Pacific Hghwy., Gordon	56842	1971	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS(M6S6)	Esso Service Station., 811 Pacific Highway., GORDON	337753	1970	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS.	Esso Service Station., 811 Pacific Hghwy Gordon	42257	1969	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS	Esso Service Station., 811 Pacific Hghwy., Gordon	25778	1968	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS.	Esso Service Station., 811 Pacific Hghwy., Gordon	10281	1967	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS.	Esso Service Station., 811 Pacific Highway., Gordon	56172	1966	Premise Match	255m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Esso Servicenter., 811 Pacific Hghwy., Gordon	1315	1966	Premise Match	255m	North West
	Motor Garages & Engineers	Esso Service Station, 811 Pacific Highway. Gordon	122705	1965	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS	Esso Service Station., 811 Pacific Highway Gordon	47970	1964	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS.	Atlantic Friendly Service Station., 811 Pacific Hghwy., Gordon	29489	1962	Premise Match	255m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Lind E. E. (Bunny)., 811 Pacific Hghwy., Gordon	38220	1962	Premise Match	255m	North West

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8	MOTOR GARAGES & ENGINEERS.	Milne W. R., 811 Pacific Hghwy., Gordon	29493	1962	Premise Match	255m	North West
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Atlantic Friendly Service Station, 811 Pacific Hghwy., GORDON	350316	1961	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS	Atlantic Friendly Service Station, 811 Pacific Highway., GORDON	346534	1961	Premise Match	255m	North West
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Lind, E. E. (Bunny), 811 Pacific Hghwy., GORDON	350791	1961	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS	Milne, W. R., 811 Pacific Highway. GORDON	347726	1961	Premise Match	255m	North West
	MOTOR SERVICE STATIONS-PETROL,. OIL, ETC.	Lind E E. (Bunny)., 811 Pacific Hghwy., Gordon	24203	1959	Premise Match	255m	North West
	MOTOR GARAGES & ENGINEERS.	Milne, W. R., 811 Pacific Hghwy, Gordon	14154	1959	Premise Match	255m	North West
	MOTOR GARAGE/ENGINEERS.	Milne W. R., 811 Pacific Hghwy., Gordon	4597	1958	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Friendly Service Station (The)., 811 Pacific Hghwy., Grdn	57671	1956	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Friendly Service Station., 811 Pacific Hghwy., Grdn	49282	1954	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Dawson R. H., 811 Pacific Hghwy., Gordon	39906	1953	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Friendly Service Station., 811 Pacific Hghwy., Grdn	40016	1953	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Dawson R. H., 811 Pacific Hghwy., Gordon	31559	1952	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Friendly Service Station (The)., 811 Pacific Hghwy., Grdn	31660	1952	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS	Dawson, R. H., 811 Pacific Highway., Gordon	83673	1950	Premise Match	255m	North West
	MOTOR SERVICE STATIONS-PETROL, Etc.	Dawson, R. H., 811 Pacific Highway., Gordon	85918	1950	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS	Friendly Service Station (The), 811 Pacific Highway., Gordon	83775	1950	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS	Friendly Service Station (The), 811 Pacific Highway., Gordon	83776	1950	Premise Match	255m	North West
	MOTOR SERVICE STATIONS-PETROL, Etc.	Friendly Service Station, 811 Pacific Highway., Gordon	85977	1950	Premise Match	255m	North West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Dawson R. H., 811 Pacific Hghwy., Gordon	23214	1948-49	Premise Match	255m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Dawson, R. H., 811 Pacific Hghwy., Gordon	17970	1948-49	Premise Match	255m	North West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Friendly Service Station., 811 Pacific Hghwy., Gordon	23270	1948-49	Premise Match	255m	North West
9	MOTOR GARAGE & SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific Hghwy, Gordon. 2072	64269	1989	Premise Match	301m	North West
	MOTOR GARAGES & SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific H'Way., Gordon. 2072	53370	1988	Premise Match	301m	North West
	MOTOR GARAGES & SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific H'way., Gordon. 2072	63880	1986	Premise Match	301m	North West
	MOTOR GARAGES & SERVICE STATIONS.	Alto Ford Pty Ltd., 880 Pacific Hghwy, Gordon. 2072	38891	1985	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	AltoFord Pty. Ltd., 880 Pacific Hghwy, Gordon. 2072	22271	1984	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Alto Ford Pty Ltd., 880 Pacific H'way., Gordon 2072	8865	1983	Premise Match	301m	North West

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9	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Alto Ford Pty. Ltd., 880 Pacific H'way, Gordon. 2072.	55950	1982	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific H'way., Gordon. 2072	63619	1981	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific Highway., Gordon. 2072	50093	1980	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific Highway., Gordon. 2072.	35627	1979	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific H'way, Gordon. 2072	49232	1978	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Alto Ford Pty. Ltd., 880 Pacific H'way., Gordon 2072	23934	1976	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Alto Ford Pty. Ltd., 880 Pacific H'way., Gordon. 2072	58324	1975	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Alto Ford Pty. Ltd., 880 Pacific Hghwy., Gordon	12230	1972	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Alto Ford Pty. Ltd., 880 Pacific Hghwy., Gordon	56841	1971	Premise Match	301m	North West
	MOTOR GARAGES & ENGINEERS(M6S6)	Alto Ford Pty. Ltd., 880 Pacific Highway., GORDON	337184	1970	Premise Match	301m	North West
	MOTOR GARAGES & ENGINEERS.	Alto Ford Pty. Ltd., 880 Pacific Hghwy Gordon	42255	1969	Premise Match	301m	North West
	MOTOR GARAGES & ENGINEERS.	Lockley's Garage., 880 Pacific Highway., Gordon	56173	1966	Premise Match	301m	North West
	Motor Garages & Engineers	Lockley's Garage, 880 Pacific Highway. Gordon	122706	1965	Premise Match	301m	North West
	MOTOR GARAGES & ENGINEERS	Lockley's Garage., 880 Pacific Highway Gordon	47971	1964	Premise Match	301m	North West
	MOTOR GARAGES & ENGINEERS.	Lockley's Garage., 880 Pacific Hghwy., Gordon	29491	1962	Premise Match	301m	North West
	MOTOR GARAGES & ENGINEERS	Lockley's Garage, 880 Pacific Highway., Gordon	347584	1961	Premise Match	301m	North West
	MOTOR GARAGES & ENGINEERS.	Lockley's Garage., 880 Pacific Hghwy, Gordon	14152	1959	Premise Match	301m	North West
	MOTOR GARAGE/ENGINEERS.	Lockley's Garage., 880 Pacific Hghwy., Gordon	4468	1958	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lockley's Garage., 880 Pacific Hghwy., Gordon	57978	1956	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lockley's Garage., 880 Pacific Hghwy., Gordon	49591	1954	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Locksleys Garage., 880 Pacific Hghwy., Gordon	40283	1953	Premise Match	301m	North West
	MOTOR SERVICE STATIONS–PETROL, ETC.	Lockley's Garage., 880 Pacific Hghwy., Gordon	35901	1952	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Locksleys Garage., 880 Pacific Hghwy., Gordon	31885	1952	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS	Locksleys Garage, 880 Pacific Highway., Gordon	84014	1950	Premise Match	301m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Locksleys Garage., 880 Pacific Hghwy., Gordon	22565	1948-49	Premise Match	301m	North West
10	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Lance Shaw Rentamower., 821 Pacific H'way., Gordon 2073	3632	1981	Premise Match	439m	North West

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10	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Lance Shaw Rentamower., 821 Pacific Highway., Gordon. 2073	58366	1980	Premise Match	439m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Golden Fleece Service Station., 821 Pacific Highway., Gordon. 2073.	41609	1979	Premise Match	439m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Golden Fleece Service Station. 821 Pacific H'way., Gordon. 2073	50142	1978	Premise Match	439m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Golden Fleece Service Station., 821 Pacific H'way., Gordon 2073	30123	1976	Premise Match	439m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Golden Fleece Service Station., 821 Pacific H'way., Gordon. 2073	58952	1975	Premise Match	439m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Golden Fleece Service Station., 819 Pacific Hghwy., Gordon	12232	1972	Premise Match	439m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Golden Fleece Service Station., 819 Pacific Hghwy., Gordon	56843	1971	Premise Match	439m	North West
	MOTOR GARAGES & ENGINEERS(M6S6)	Golden Fleece Service Station., 819 Pacific Highway., GORDON	337902	1970	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Wirth, M. L. & C. E. (Golden Fleece)., Cnr. Pacific Highway & Mona Vale Rd., GORDON	341637	1970	Premise Match	439m	North West
	MOTOR GARAGES & ENGINEERS.	Golden Fleece Service Station., 819 Pacific Hghwy Gordon	42258	1969	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wirth, M. L. & C. E. (Golden Fleece)., Cnr Pacific Hghwy & Mona Vale Rd., Gordon	47837	1969	Premise Match	439m	North West
	MOTOR GARAGES & ENGINEERS	Golden Fleece Service Station., 819 Pacific Hghwy., Gordon	25779	1968	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wirth M. L. & C. E. (Golden Fleece)., Cnr Pacific Hghwy & Mona Vale Rd., Gordon	31271	1968	Premise Match	439m	North West
	MOTOR GARAGES & ENGINEERS.	Golden Fleece Service Station., 819 Pacific Hghwy., Gordon	10282	1967	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wirth M. L. & C. E. (Golden Fleece)., Cnr Pacific Hghwy & Mona Vale Rd., Gordon	15745	1967	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Golden Fleece Service Station., 819 Pacific Hghwy., Gordon	1316	1966	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wirth M. L. & C. E. (Golden Fleece)., Cnr Pacific Hghwy & Mona Vale Rd., Gordon	1318	1966	Premise Match	439m	North West
	Motor Service Stations - Petrol, Oil, Etc.	Golden Fleece Service Station, 819 Pacific Highway. Gordon	125725	1965	Premise Match	439m	North West
	Motor Service Stations - Petrol, Oil, Etc.	Wirth, M. L. & C. E. (Golden Fleece), Cnr. Pacific Highway. & Mona Vale Rd. Gordon	125727	1965	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Golden Fleece Service Station., 819 Pacific Hghwy., Gordon	52013	1964	Premise Match	439m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Golden Fleece Service Station., 819 Pacific Hghwy., Gordon	38219	1962	Premise Match	439m	North West
	MOTOR GARAGES & ENGINEERS	Golden Fleece Service Station, 819 Pacific Highway., GORDON	347254	1961	Premise Match	439m	North West
11	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Flice C. N. & Noonan, L., 924 Pacific Highway., Gordon. 2072.	45890	1979	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Lykke, C. N. & Noonan, L., 924 Pacific H'way, Gordon. 2072	50401	1978	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	56844	1971	Premise Match	474m	North West

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11	MOTOR GARAGES & ENGINEERS(M6S6)	Lorimer, D. Pty. Ltd., 924 Pacific Highway., GORDON	338170	1970	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy Gordon	42259	1969	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	25780	1968	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	10283	1967	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghway., Gordon	56174	1966	Premise Match	474m	North West
	Motor Garages & Engineers	Lorimer, D. Pty. Ltd., 924 Pacific Highway. Gordon	122707	1965	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS	Lorimer D. Pty. Ltd., 924 Pacific Highway Gordon	47972	1964	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS.	Lorimer D. Pity. Ltd., 924 Pacific Hghwy., Gordon	29492	1962	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS	Lorimer, D. Pty. Ltd., 924 Pacific Highway. GORDON	347590	1961	Premise Match	474m	North West
	MOTOR GARAGES & ENGINEERS.	Lorimer, D. Pty. Ltd., 924 Pacific Hghwy, Gordon	14153	1959	Premise Match	474m	North West
	MOTOR GARAGE/ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	4475	1958	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	57982	1956	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	49596	1954	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	40286	1953	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lorimer D. Pty. Ltd., 924 Pacific Hghwy., Gordon	31888	1952	Premise Match	474m	North West
	MOTOR SERVICE STATIONS-PETROL, Etc.	Lorimer, D. Pty. Ltd., 924 Pacific Highway., Gordon	86159	1950	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS	Lorlmer, D. Pty. Ltd., 924 Pacific Highway., Gordon	84017	1950	Premise Match	474m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Lorimer, D. Pty. Ltd., 924 Pacific Hghwy., Gordon	22569	1948-49	Premise Match	474m	North West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Lorimer, D. Pty. Ltd., 924 Pacific Hghwy., Gordon	26592	1948-49	Premise Match	474m	North West

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Dry Cleaners, Motor Garages & Service Stations 1948-1993 Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
12	MOTOR GARAGES &/OR ENGINEERS.	Bradford & Sons., Pacific Hghwy., Gordon	57309	1956	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Burnett's Service Station., Pacific Hghwy Gordon	62114	1956	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Burnett's Service Station., Pacific Hghwy., Gordon	61821	1956	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Burnett's Service Station., Pacific Hghwy., Gordon	54412	1954	Road Match	0m
	MOTOR SERVICE STATIONS–PETROL, ETC.	Burnett's Service Station., Pacific Hghwy., Gordon	44028	1953	Road Match	0m
	MOTOR SERVICE STATIONS–PETROL, ETC.	Burnett's Service Station., Pacific Hghwy., Gordon	35797	1952	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Burnett's Service Station., Pacific Highway., Gordon	85836	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Burnett's Service Station., Pacific Hghwy., Gordon	23160	1948-49	Road Match	0m
13	MOTOR GARAGES &/OR ENGINEERS.	Pymble Service Centre., 947 Pacific Hghwy., Pymble	12897	1972	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Ku-ring-gai Service Station, Pacific Hghwy., Pymble	65593	1971	Road Match	427m
	MOTOR GARAGES &/OR ENGINEERS.	Pymble Hill Service Station., Pacific Hghwy., Pymble	62557	1971	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Ku-ring-gai Service Station., Pacific Hghwy., PYMBLE	341263	1970	Road Match	427m
	MOTOR GARAGES & ENGINEERS(M6S6)	Pymble Hill Service Station., Pacific Highway., PYMBLE	338457	1970	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Ku-ring-gai Service Station., Pacific Hghwy Pymble	50650	1969	Road Match	427m
	MOTOR GARAGES & ENGINEERS.	Pymble Hill Service Station., Pacific Hghwy Pymble	46993	1969	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Ku-Ring-Gai Service Station., Pacific Hghwy., Pymble	36737	1968	Road Match	427m
	MOTOR GARAGES & ENGINEERS	Pymble Hill Service Station., Pacific Hghwy., Pymble	26384	1968	Road Match	427m
	MOTOR GARAGES & ENGINEERS.	Pymble Hill Service Station., Pacific Hghwy., Pymble	10876	1967	Road Match	427m
	MOTOR GARAGES & ENGINEERS.	Pymble Hill Service Station., Pacific Hghwy., Pymble	60609	1966	Road Match	427m
	MOTOR GARAGES & ENGINEERS.	Pymble Hill Service Station., Pacific Hghwy., Pymble	60607	1966	Road Match	427m
	Motor Garages & Engineers	Pymble Hill Service Station, Pacific Highway. Pymble	123246	1965	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	38589	1962	Road Match	427m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Pymble Hire Service, 1114 Pacific Hghwy., PYMBLE	350986	1961	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL,. OIL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	24483	1959	Road Match	427m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
13	MOTOR SERVICE STATIONS-PETROL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	9761	1958	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy Pymble	62116	1956	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	54628	1954	Road Match	427m
	MOTOR SERVICE STATIONS–PETROL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	44181	1953	Road Match	427m
	MOTOR GARAGES &/OR ENGINEERS.	Newmans Service Station., Pacific Hghwy., Pymble	31997	1952	Road Match	427m
	MOTOR SERVICE STATIONS–PETROL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	35965	1952	Road Match	427m
	MOTOR GARAGES &/OR ENGINEERS	Newmans Service Station, Pacific Highway., Pymble	84129	1950	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Newmans Service Station, Pacific Highway., Pymble	86234	1950	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	86308	1950	Road Match	427m
	MOTOR GARAGES &/OR ENGINEERS.	Newmans Service Station., Pacific Hghwy., Pymble	22669	1948-49	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Newmans Service Station., Pacific Hghwy., Pymble	26665	1948-49	Road Match	427m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Pymble Hire Service., 1114 Pacific Hghwy., Pymble	26714	1948-49	Road Match	427m

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Aerial Imagery 2025

810 Pacific Highway, Gordon, NSW 2072



Scale:
0 25 50 75 100
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 20 March 2025

Aerial Imagery 2014

810 Pacific Highway, Gordon, NSW 2072



Scale:
0 25 50 75 100
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 20 March 2025

Aerial Imagery 2003

810 Pacific Highway, Gordon, NSW 2072



Scale:
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Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 20 March 2025

Aerial Imagery 1994

810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
0 25 50 75 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1991

810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
0 25 50 75 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1986

810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
0 25 50 75 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1982

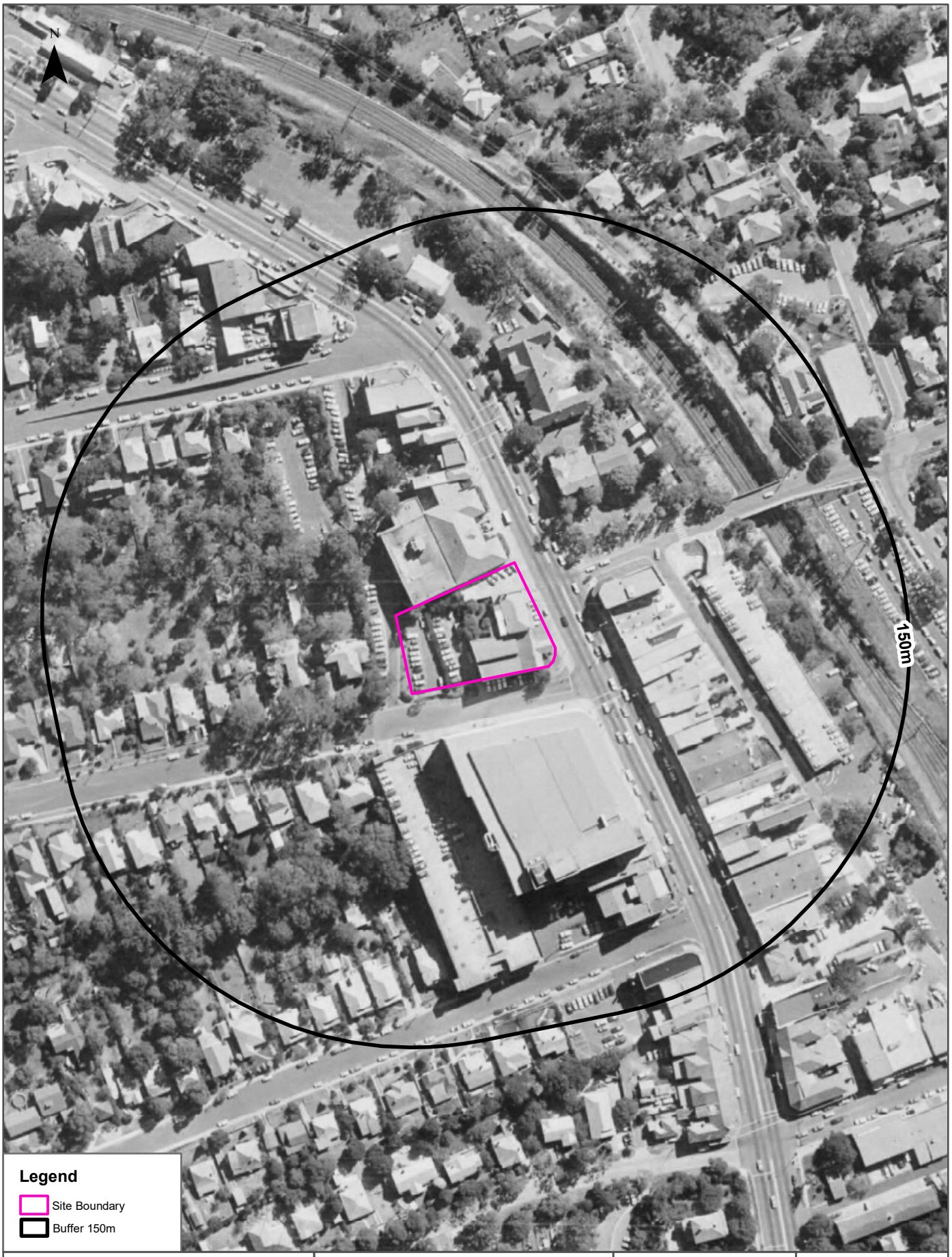
810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
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Aerial Imagery 1978

810 Pacific Highway, Gordon, NSW 2072



Scale:
0 25 50 75 100
Meters

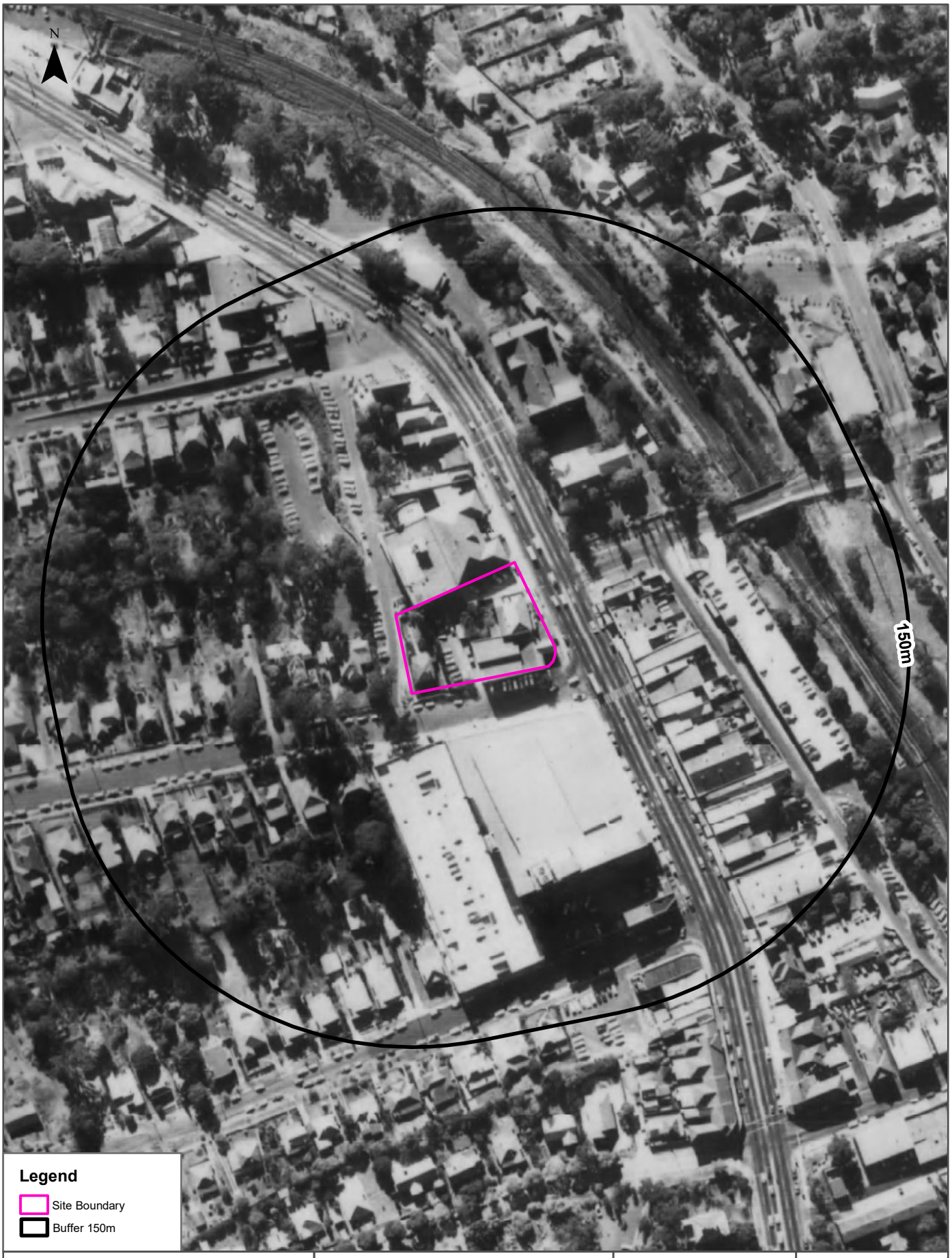
Data Sources: Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 20 March 2025

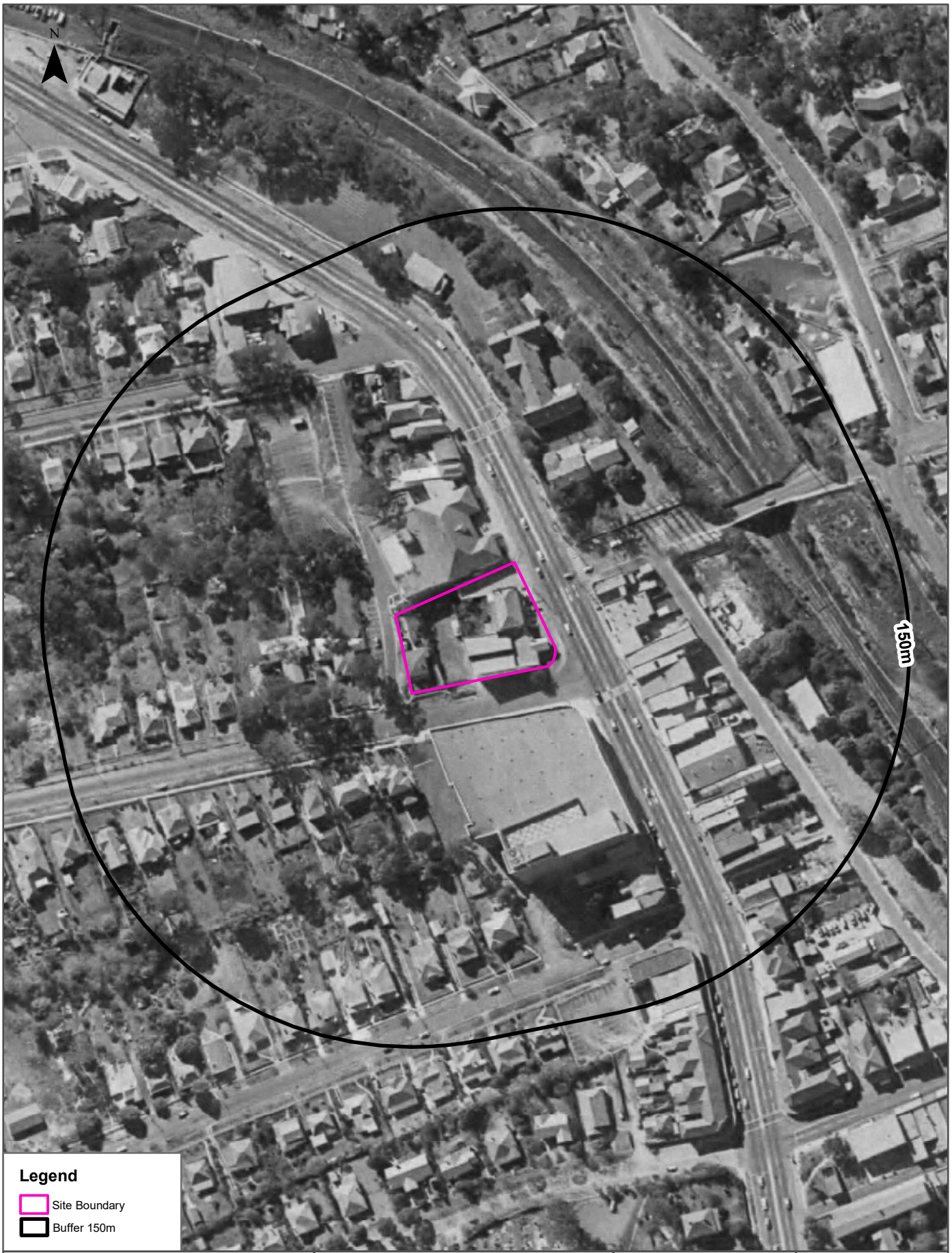
Aerial Imagery 1970

810 Pacific Highway, Gordon, NSW 2072



Aerial Imagery 1965

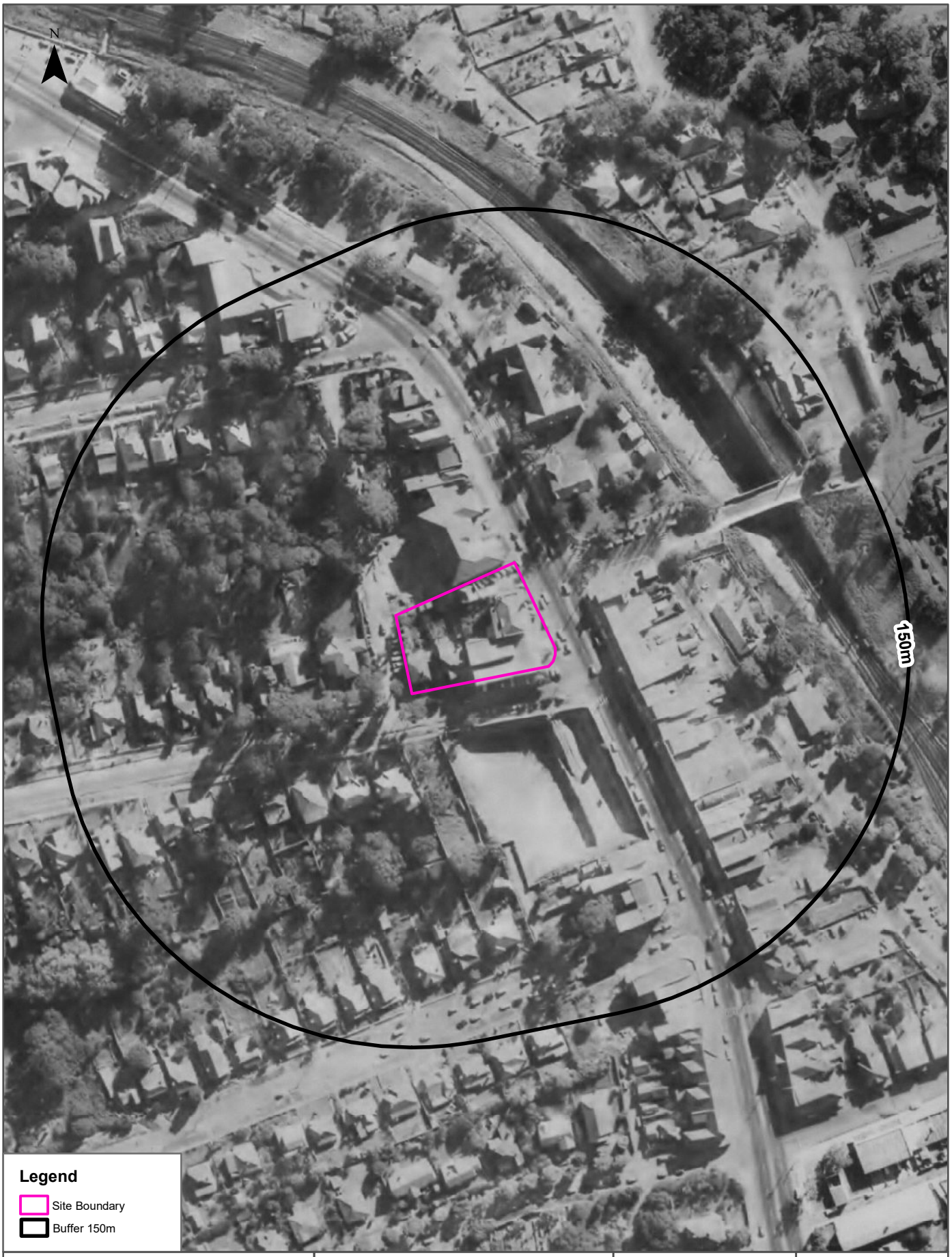
810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
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Aerial Imagery 1961

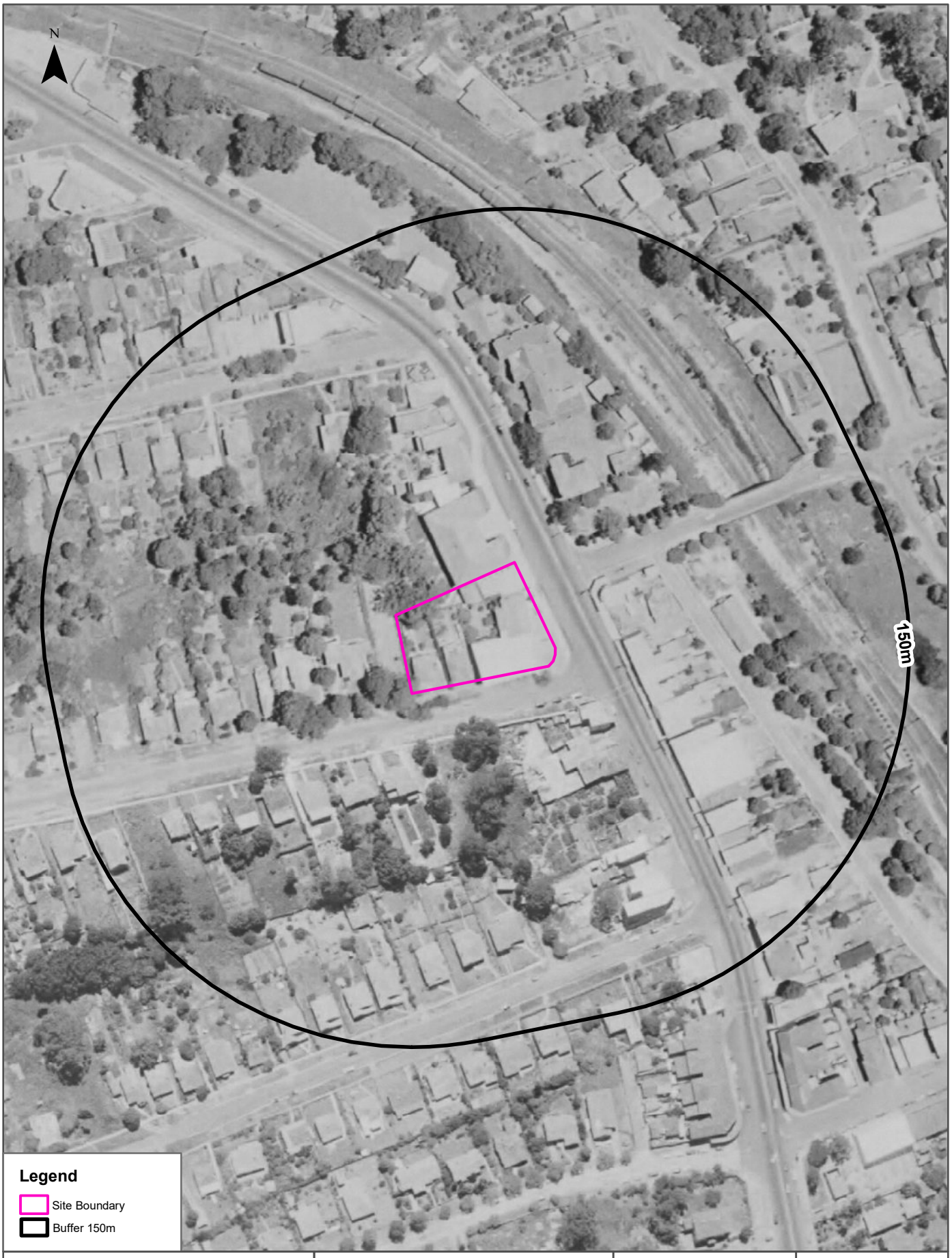
810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
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Aerial Imagery 1955, 1956

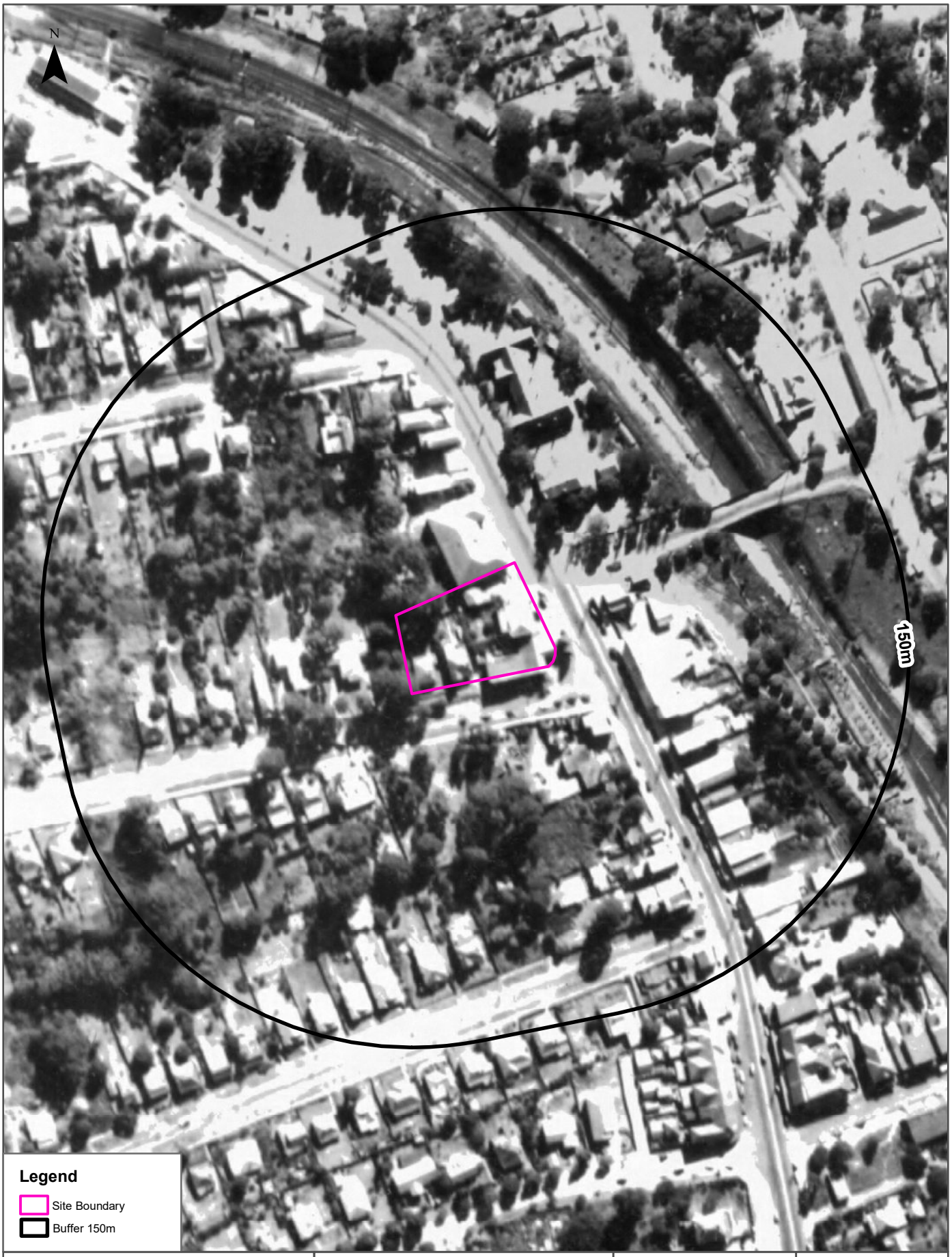
810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
0 25 50 75 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1951

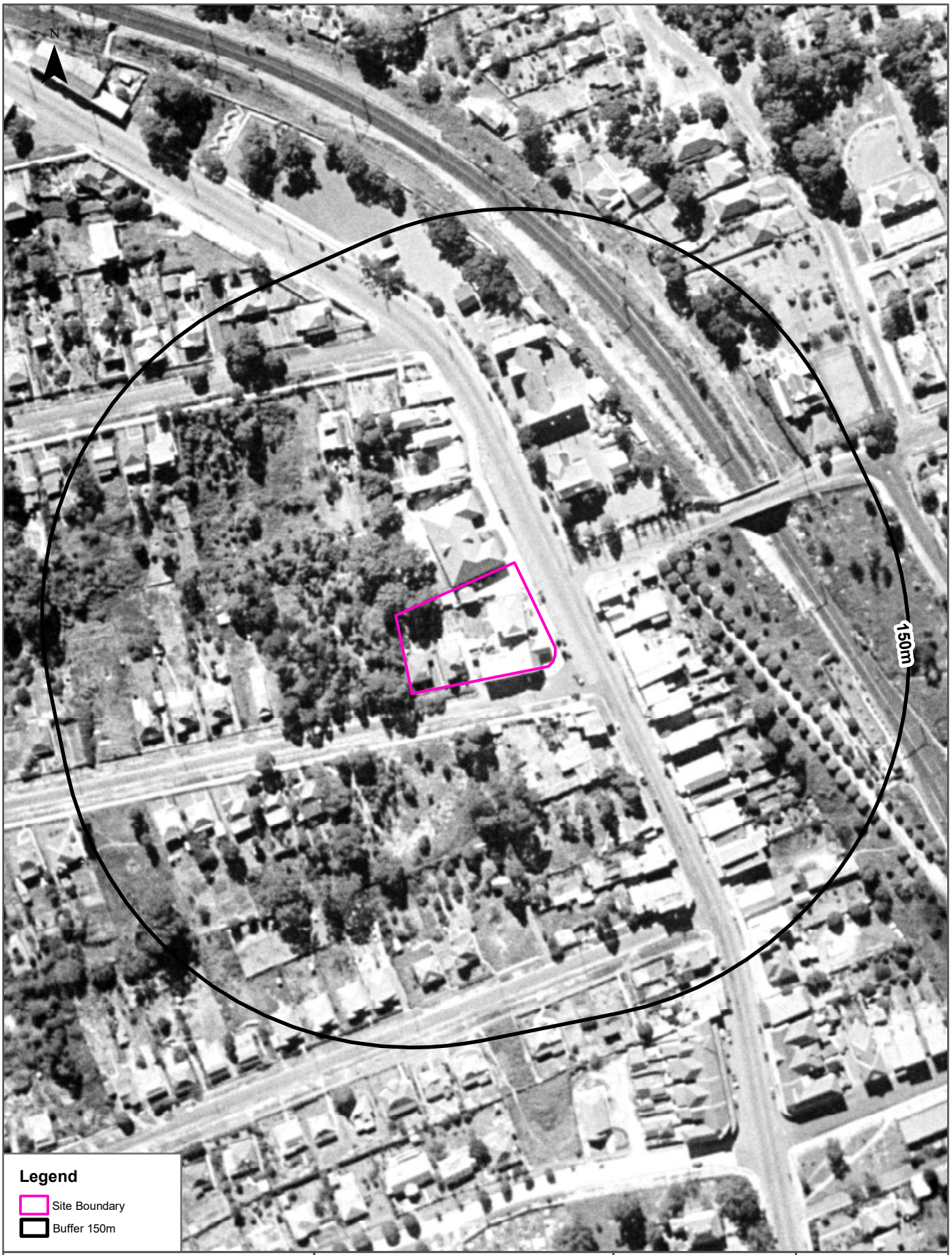
810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 20 March 2025
0 25 50 75 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1943

810 Pacific Highway, Gordon, NSW 2072



Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 20 March 2025
0 25 50 75 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1930

810 Pacific Highway, Gordon, NSW 2072

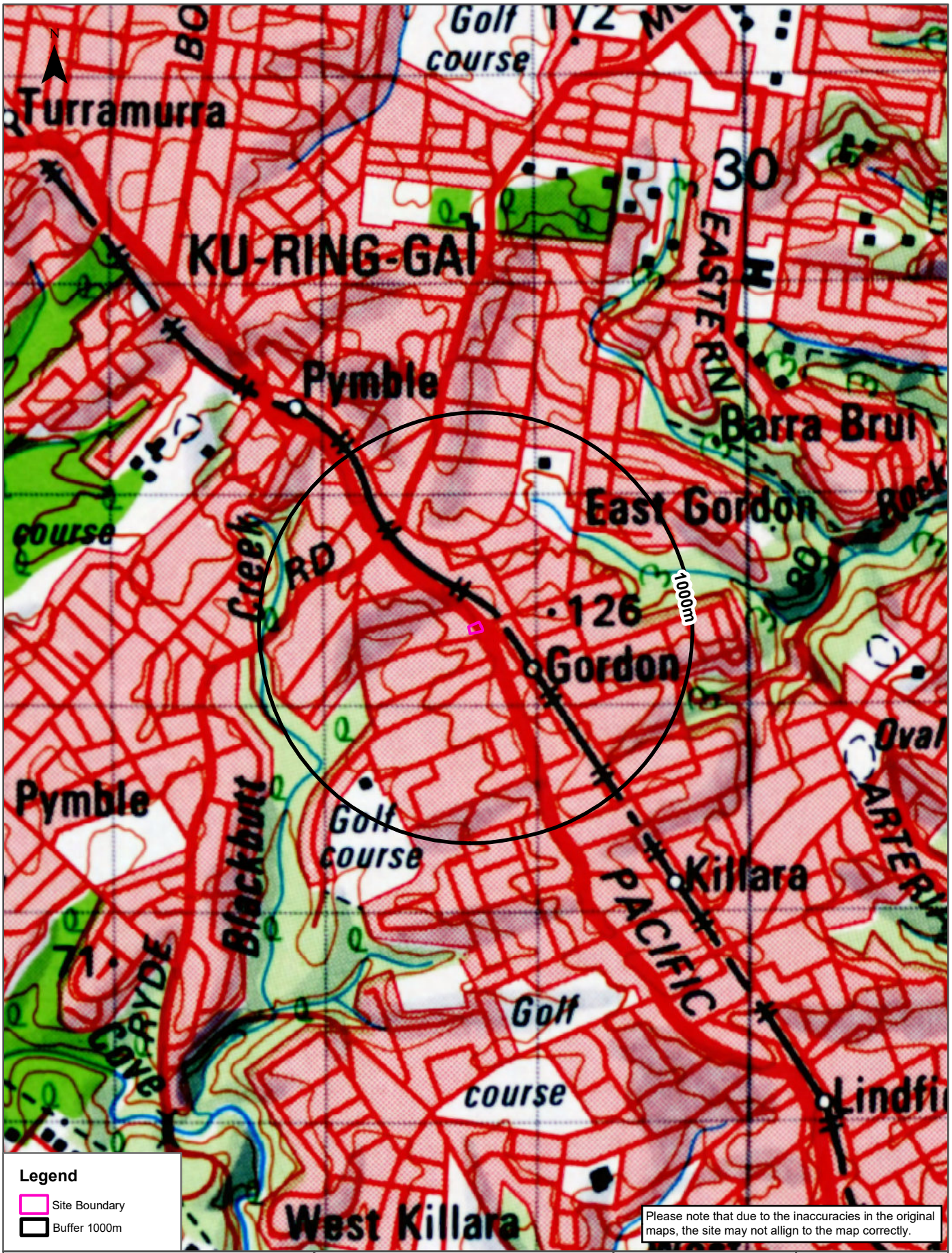


Scale:	Data Sources: Aerial Imagery: © Geoscience Australia	Coordinate System: GDA 1994 MGA Zone 56	Date: 20 March 2025

Scale: 0 25 50 75 100 Meters

Historical Map 1975

810 Pacific Highway, Gordon, NSW 2072



Scale: 0 290 580 870 1,160 Meters

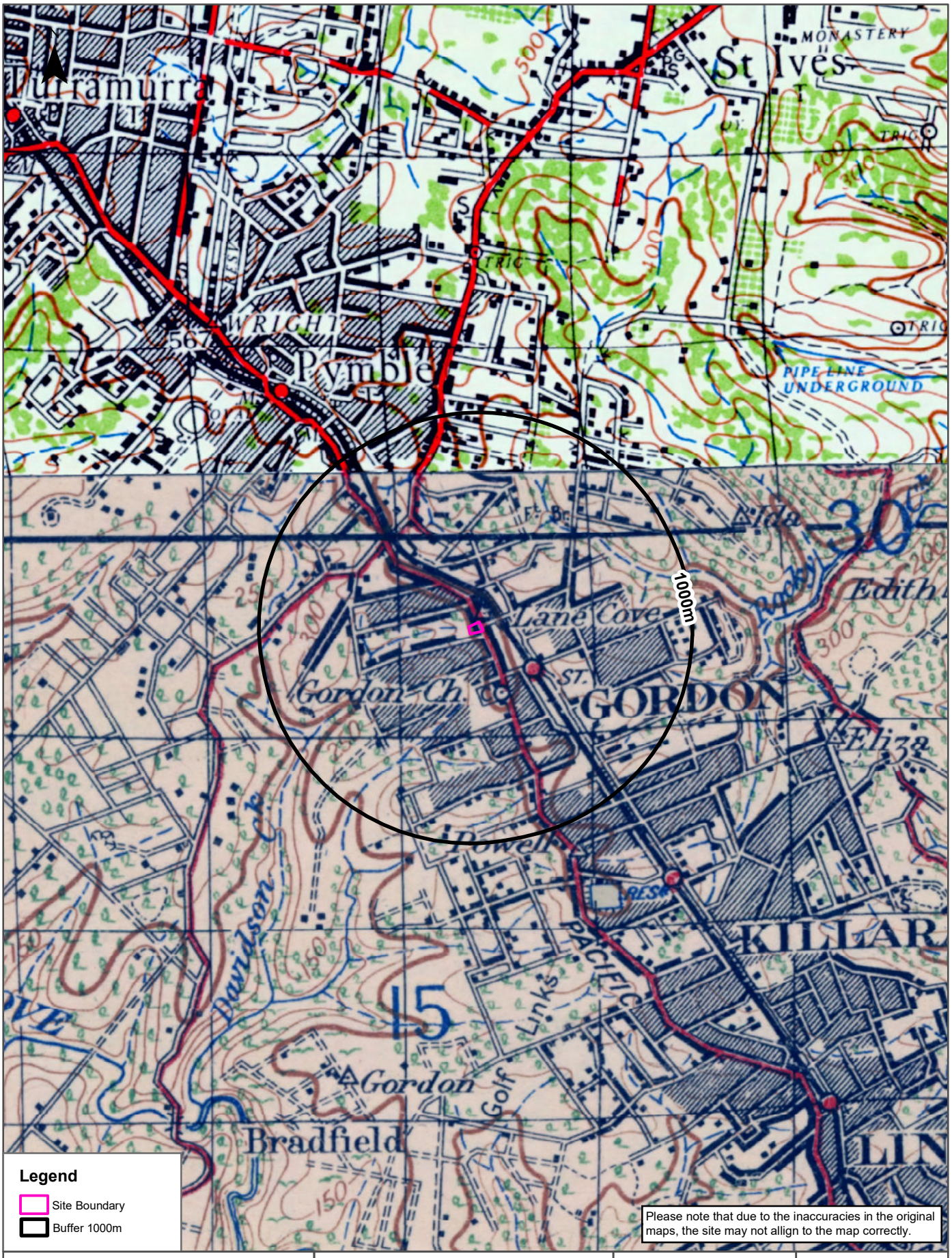
Data Sources: NATMAP 1:100,000
Topographic Maps Geoscience Australia

Coordinate System:
GDA 1994 MGA Zone 56

Date: 20 March 2025

Historical Map 1936 - 1942

810 Pacific Highway, Gordon, NSW 2072



Scale: 0 290 580 870 1,160 Meters

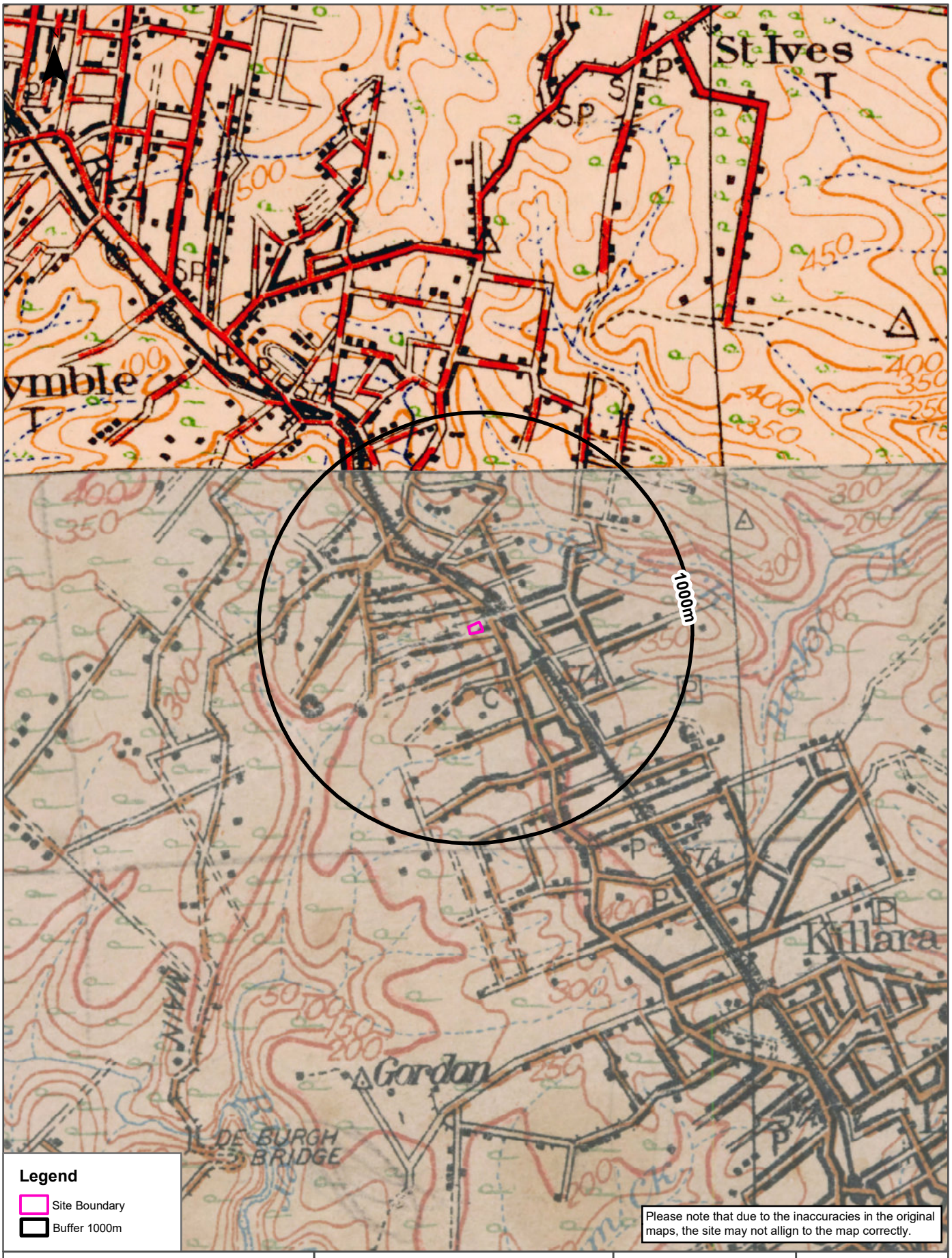
Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 20 March 2025

Historical Map 1917 - 1920

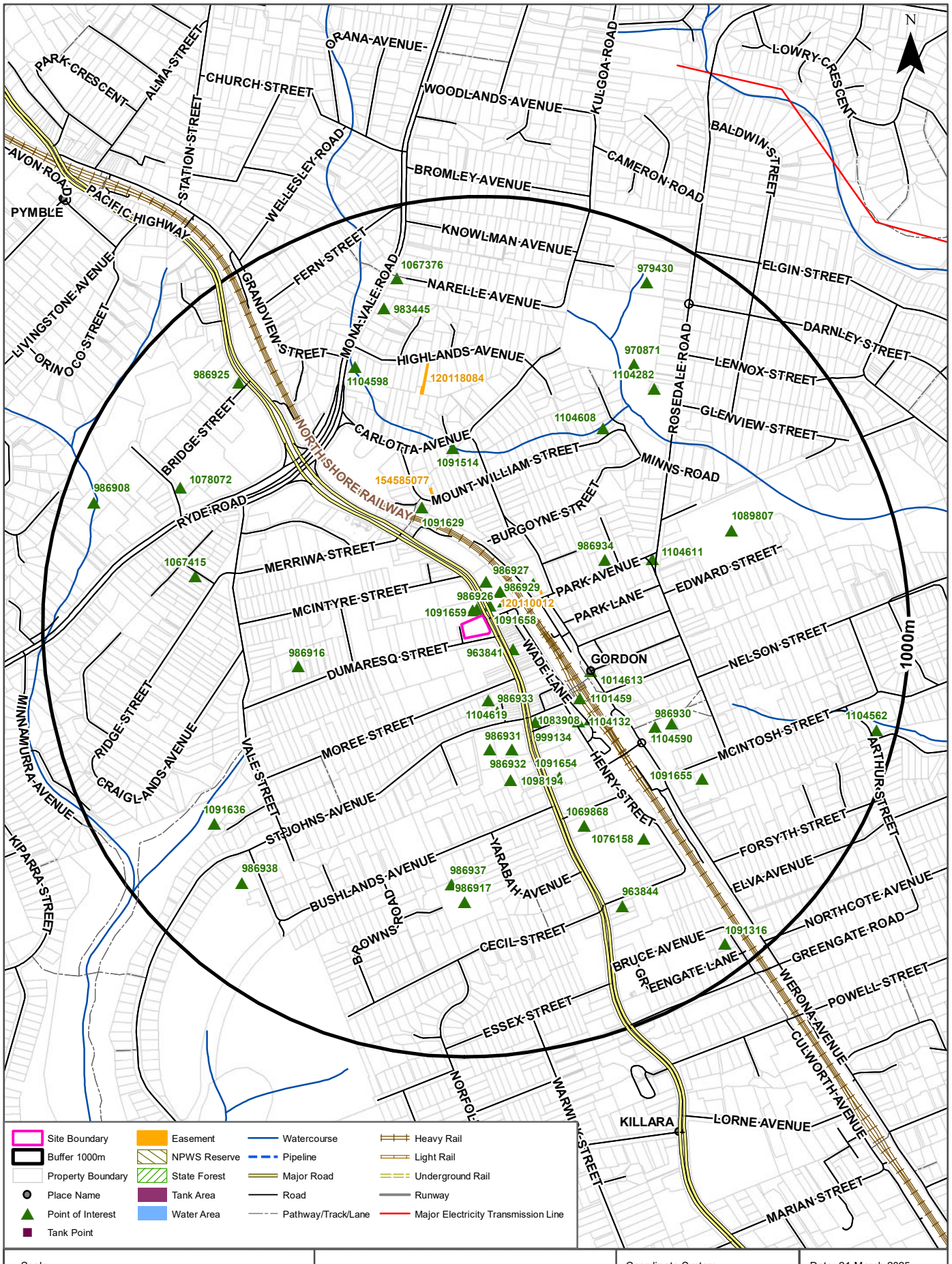
810 Pacific Highway, Gordon, NSW 2072



Scale: 0 290 580 Meters 870 1,160	Data Sources: Australia 1:63360 Produced by Australian Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 56	Date: 20 March 2025

Topographic Features

810 Pacific Highway, Gordon, NSW 2072



Topographic Features

810 Pacific Highway, Gordon, NSW 2072

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1091659	Monument	KU-RING-GAI WAR MEMORIAL	18m	North
986926	Local Government Chambers	KU-RING-GAI COUNCIL	21m	North
1091658	Monument	GORDON REMEMBRANCE CLOCK	29m	North East
986929	Police Station	GORDON POLICE STATION	60m	North East
963841	Post Office	GORDON POST OFFICE	68m	South East
986928	Library	KU-RING-GAI GORDON LIBRARY	69m	North East
1091591	Community Facility	AWOL YOUTH HUB	69m	North East
1091515	Community Facility	GORDON LIBRARY MEETING ROOM 2	69m	North East
1091653	Historic Site	GORDON PUBLIC SCHOOL	80m	North
986927	Child Care Centre	GORDON PRE-SCHOOL	142m	North East
1104619	Park	CAR PARK PLACE	156m	South
986933	Place Of Worship	CATHOLIC CHURCH	188m	South
999134	Park	HERITAGE SQUARE	240m	South East
1014613	Suburb	GORDON	259m	East
1101459	Railway Station	GORDON RAILWAY STATION	266m	South East
986932	Cemetery	GORDON CEMETERY	271m	South
986931	Place Of Worship	ST JOHN THE EVANGELIST CHURCH	283m	South
1091629	Community Facility	KU-RING-GAI GUIDE HALL	294m	North West
1104132	Park	ANNIE FORSYTH WYATT GARDEN	300m	South East
1083908	Transport Interchange	GORDON BUS INTERCHANGE	318m	South East
986934	Place Of Worship	BAPTIST CHURCH	320m	North East
1098194	Psychiatric Hospital	GORDON PRIVATE HOSPITAL	354m	South
1091654	Historic Site	TULKIYAN	383m	South East
986916	Park	GORDON GLEN	402m	West
1091514	Park	CARLOTTA RESERVE	406m	North
1104611	Monument	JOHN JOB CREW BRADFIELD MEMORIAL	423m	East
986930	Park	GORDON RECREATION GROUNDS	455m	South East
1104590	Sports Court	GORDON TENNIS COURTS	486m	South East
1069868	Community Home	HORTON HOUSE	512m	South East
1104608	Park	ASHLEY GROVE RESERVE	531m	North East
986937	Club	GORDON BOWLING CLUB	588m	South
1076158	Combined Primary-Secondary School	RAVENSWOOD SCHOOL FOR GIRLS	613m	South East

Map Id	Feature Type	Label	Distance	Direction
1091655	Historic Site	ERYLDENE	616m	South East
1089807	Retirement Village	GOWRIE VILLAGE	624m	East
986917	Sports Field	BOWLING GREENS	630m	South
1067415	Park	NAR-RANG PARK	646m	West
1104598	Park	KIRBY PARK	666m	North West
1104282	Community Facility	2ND GORDON SCOUT HALL	678m	North East
970871	Park	RICHMOND PARK	700m	North East
963844	Place Of Worship	UNITING CHURCH	724m	South East
1091636	Community Facility	1ST GORDON SCOUT HALL	743m	South West
1078072	Post Office	PYMBLE POST BUSINESS CENTRE	747m	North West
983445	Park	BOWES THISTLETHWAYTE PARK	770m	North
986925	Fire Station	GORDON FIRE STATION	786m	North West
986938	Club	GORDON GOLF CLUB	789m	South West
1067376	Park	DONALD COMMONS RESERVE	830m	North
979430	Sports Court	RICHMOND PARK TENNIS COURTS	887m	North East
986908	Park	HAMMOND RESERVE	925m	West
1091316	Park	GREENGATE PARK	932m	South East
1104562	Park	TERRUM-BINE RESERVE	952m	East

Topographic Data Source: © Land and Property Information (2015)
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Topographic Features

810 Pacific Highway, Gordon, NSW 2072

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Tanks Data Source: © Land and Property Information (2015)
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Major Easements

What Major Easements exist within the dataset buffer?
Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120110012	Primary	Undefined		147m	North East
154585077	Primary	Right of way	variable	307m	North
120118084	Primary	Undefined		547m	North

Easements Data Source: © Land and Property Information (2015)
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Topographic Features

810 Pacific Highway, Gordon, NSW 2072

State Forest

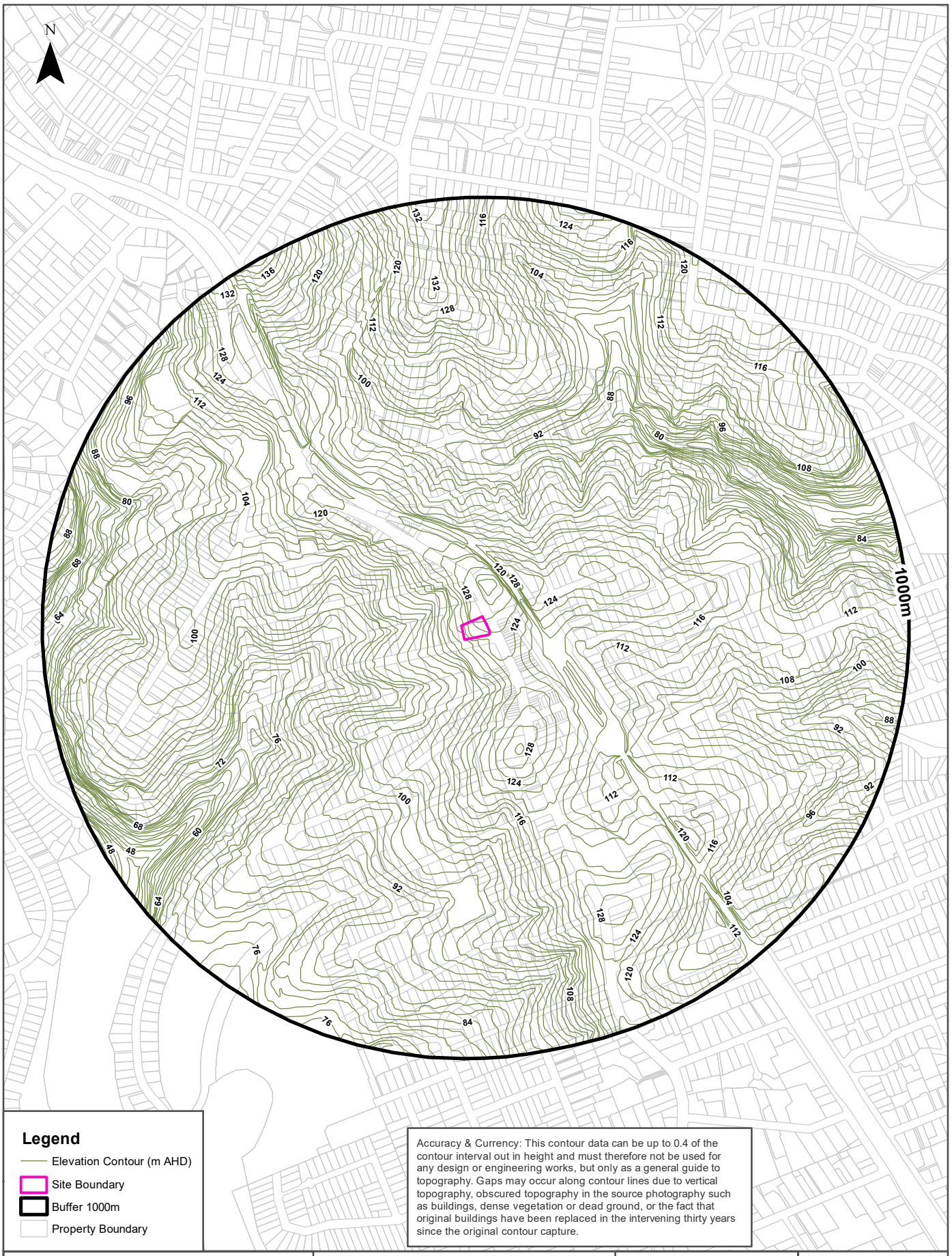
What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)
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Elevation Contours (m AHD)

810 Pacific Highway, Gordon, NSW 2072



Hydrogeology & Groundwater

810 Pacific Highway, Gordon, NSW 2072

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive aquifers of low to moderate productivity	0m	On-site

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
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Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024

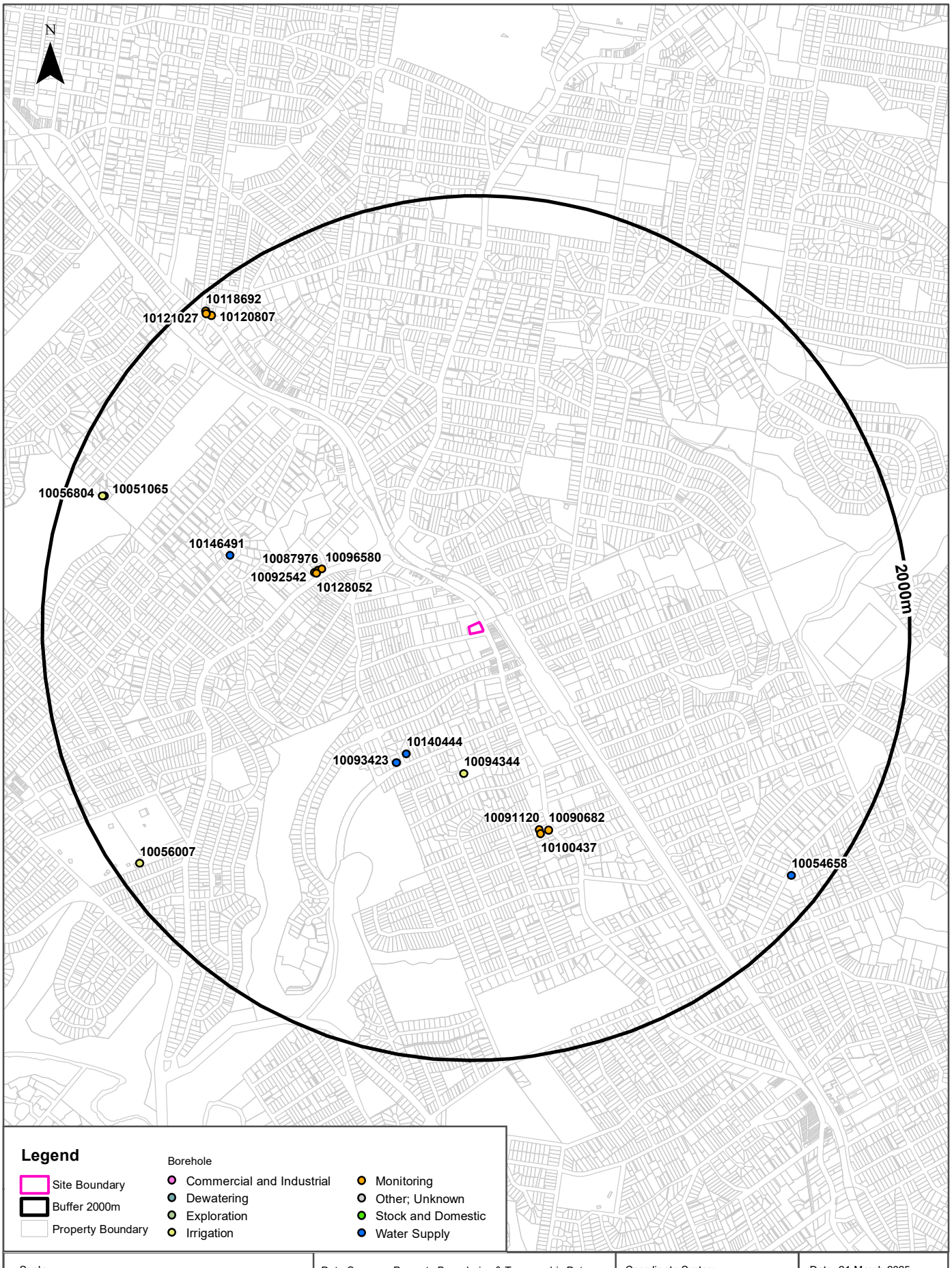
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

Prohibition Area No.	Prohibition	Distance	Direction
N/A	No records in buffer		

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024 Data Source : NSW Department of Primary Industries

Groundwater Boreholes

810 Pacific Highway, Gordon, NSW 2072



Hydrogeology & Groundwater

810 Pacific Highway, Gordon, NSW 2072

Groundwater Boreholes

Boreholes within the dataset buffer:

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10140444	GW023699	Water Supply	Unknown	01/12/1965	4.80		AHD				638m	South West
10094344	GW024606	Irrigation	Unknown	01/09/1966	76.50		AHD				657m	South
10093423	GW107984	Water Supply	Unknown	01/01/1980	10.00		AHD				696m	South West
10096580	GW110263	Monitoring	Unknown	22/05/2009	10.00		AHD			7.50	739m	West
10087976	GW110264	Monitoring	Unknown	22/05/2009	10.00		AHD			8.20	753m	West
10128052	GW110266	Monitoring	Unknown	22/05/2009	10.00		AHD			7.80	755m	West
10092542	GW110265	Monitoring	Unknown	22/05/2009	10.00		AHD				766m	West
10091120	GW104670	Monitoring	Unknown	16/02/2001	8.50		AHD				967m	South
10090682	GW104668	Monitoring	Functioning	16/02/2001	16.20		AHD				982m	South
10100437	GW104669	Monitoring	Functioning	16/02/2001	7.00		AHD				988m	South
10146491	GW029666	Water Supply	Functioning	01/09/1966	25.90		AHD		0.710	4.50	1166m	West
10051065	GW025567	Irrigation	Unknown	01/07/1965	61.50		AHD				1814m	West
10056804	GW025568	Irrigation	Unknown	01/09/1965	67.00		AHD	Fresh			1822m	West
10054658	GW106029	Water Supply	Functioning	11/05/2004	180.00		AHD	1140	0.900	63.00	1847m	South East
10056007	GW024597	Irrigation	Unknown	01/11/1966	91.70		AHD	Fresh			1887m	South West
10120807	GW109512	Monitoring	Unknown	05/07/2005	14.00		AHD				1893m	North West
10121027	GW109510	Monitoring	Unknown	04/07/2005	13.00		AHD				1914m	North West
10118692	GW109511	Monitoring	Unknown	04/07/2005	13.00		AHD				1926m	North West

Borehole Data Source: Bureau of Meteorology; Water NSW. Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Hydrogeology & Groundwater

810 Pacific Highway, Gordon, NSW 2072

Driller's Logs

Drill log data relevant to the boreholes within the dataset buffer:

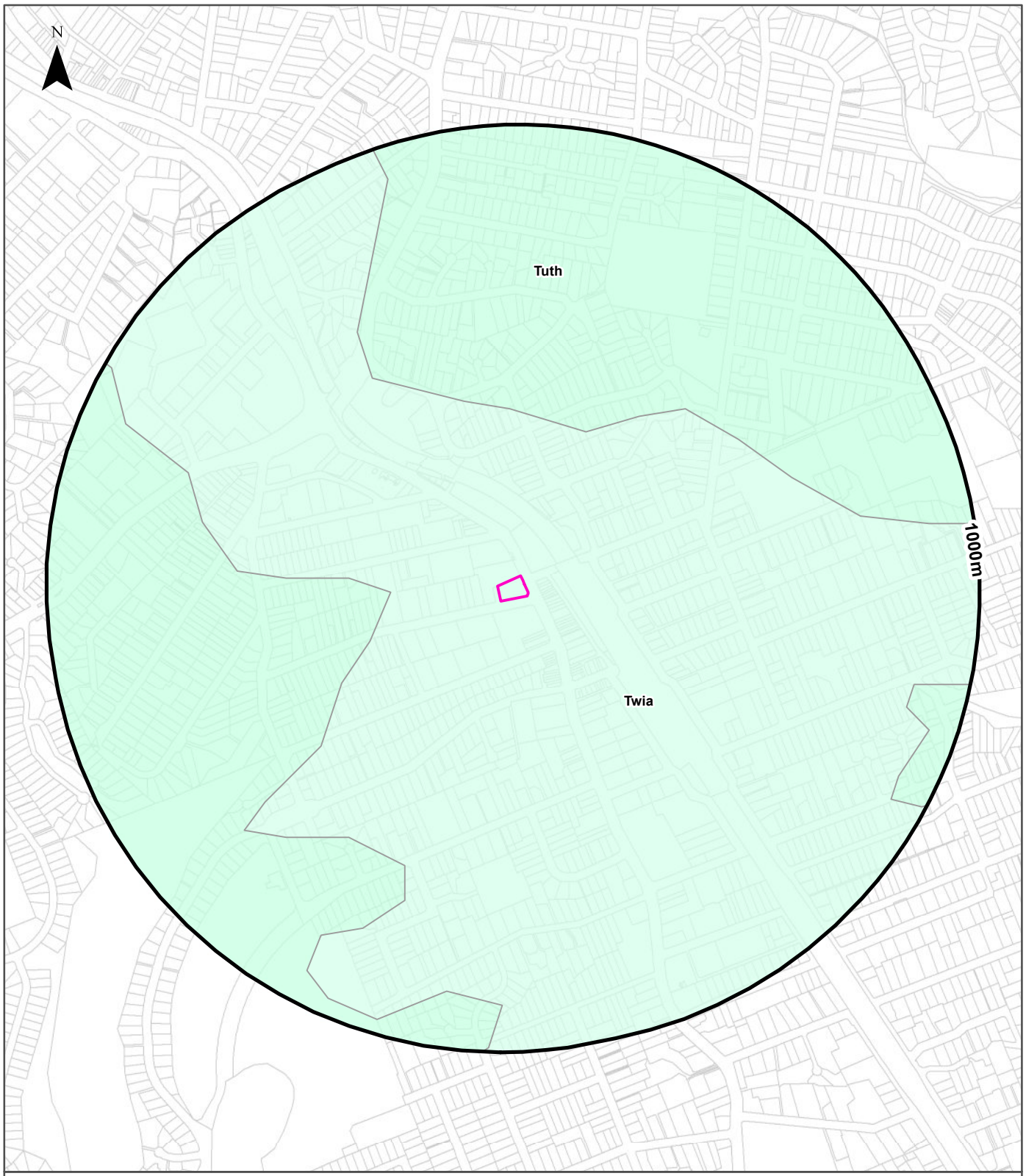
NGIS Bore ID	Drillers Log	Distance	Direction
10140444	0.00m-4.57m Clay Sand 4.57m-4.87m Sand Water Supply	638m	South West
10094344	0.00m-2.43m Topsoil 0.00m-2.43m Clay Dark Brown 2.43m-2.74m Sandstone Soft 2.43m-2.74m Clay White 2.74m-3.65m Sandstone Soft 3.65m-5.18m Clay White 3.65m-5.18m Sandstone Soft 5.18m-5.79m Sandstone Soft 5.79m-7.31m Clay Grey Sandstone 7.31m-9.75m Clay White 7.31m-9.75m Sandstone Interlayere 9.75m-39.92m Sandstone White Grey 39.92m-49.37m Sandstone White 39.92m-49.37m Shale Traces 49.37m-63.09m Sandstone White Soft 63.09m-66.29m Sandstone White 66.29m-76.50m Sandstone White Bands Ironstone	657m	South
10096580	0.00m-1.50m FILL, BROWN AND GREY CLAYEY SAND WITH GRAVEL 1.50m-2.50m SANDY CLAY, BROWN,FINE TO MEDIUM 2.50m-10.00m SANDSTONE BROWN,VERY WEATHERED	739m	West
10087976	0.00m-2.80m FILL,BROWN TO BLACK,SAND AND CLAY 2.80m-3.20m SANDY CLAY,DARK GREY TO BLACK,FINE TO MED.GRAINED 3.20m-10.00m SANDSTONE, BROWN,GREY AND RED,FINE TO MED GRAINED	753m	West
10128052	0.00m-1.90m FILL, BROWN SAND,GRAVEL, RUBBLE AND CLAY 1.90m-2.40m SANDY CLAY BROWN,FINE TO MED. GRAINED 2.40m-10.00m SANDSTONE,BROWN,FINE TO MED GRAINED	755m	West
10092542	0.00m-2.50m FILL. BROWN,SANDY CLAY,CLAYEY SAND WITH GRAVEL 2.50m-3.50m SANDSTONE BROWN,WHITE,YELLOW,BROWN CLAY BANDS 3.50m-10.00m SANDSTONE BROWN AND WHITE,FINE TO MED. GRAINED	766m	West
10091120	0.00m-0.50m BITUMEN,FILL,SILTY CLAY 0.50m-4.00m SILTY CLAY/ORANGE BROWN 4.00m-8.50m SILTY CLAY,HIGH PLASTICITY,GREY	967m	South
10090682	0.00m-1.00m FILL, SILTY CLAY/BROWN 1.00m-3.70m FILL,SILTY CLAY RED-BROWN 3.70m-5.70m FILL,SILTY CLAY RED-BROWN/IRONS.GRAV 5.70m-11.00m SHALEY CLAY/IRONSTONE/GRAVELS 11.00m-16.20m SHALE GREY WITH SILTY CLAY	982m	South
10100437	0.00m-1.50m FILL, SILTY CLAY 1.50m-7.00m SILTY CLAY, ORANGE BROWN	988m	South
10146491	0.00m-1.52m Loam 1.52m-4.57m Sandstone 4.57m-10.66m Water Supply 10.66m-25.90m Sandstone	1166m	West
10051065	0.00m-0.60m Topsoil 0.60m-45.11m Sandstone 45.11m-46.32m Shale Gravel Water Supply 46.32m-54.86m Sandstone Water Supply 54.86m-55.77m Shale Sandy Water Supply 55.77m-61.56m Sandstone	1814m	West
10056804	0.00m-0.30m Topsoil 0.30m-10.97m Sandstone Interlayere 10.97m-38.10m Sandstone 38.10m-41.45m Shale Gravel Water Supply 41.45m-49.68m Sandstone Water Supply 49.68m-59.43m Shale Black Sandstone Interlayere Water Supply 59.43m-67.05m Shale Sandy	1822m	West

NGIS Bore ID	Drillers Log	Distance	Direction
10054658	0.00m-1.50m topsoil 1.50m-9.00m shale 9.00m-54.00m sandstone, grey 54.00m-56.10m sandstone, grey 56.10m-69.50m sandstone, grey & siltstone 69.50m-70.00m sandstone, grey with 0.1 70.00m-86.50m siltstone 86.50m-86.90m sandstone, grey light grey 86.90m-104.40m sandstone, light grey 104.40m-124.00m sandstone, grey dark grey 124.00m-151.50m sandstone, light grey 151.50m-158.00m sandstone, light grey - grey 158.00m-175.50m sandstone, light grey & quartz 175.50m-180.00m sandstone grey	1847m	South East
10056007	0.00m-2.13m Soil 2.13m-24.38m Sandstone Water Supply 24.38m-25.90m Shale 25.90m-28.04m Sandstone White 28.04m-29.56m Shale 29.56m-91.74m Sandstone White	1887m	South West

Drill Log Data Source: Bureau of Meteorology; Water NSW. Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Geology

810 Pacific Highway, Gordon, NSW 2072



Legend

Linear Geological Structures and Boundaries

Site Boundary	Trendline	Marker Bed	Miscellaneous Boundary
Report Buffer	Fold Axis	Faulted Boundary	Water/Coastline Boundary
Property Boundary	Geological Boundary	Shear Zone or Schist Zone Boundary	State/Territory Border

Scale: 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025	Coordinate System: GDA 1994 MGA Zone 56	Date: 21 March 2025

Geology

810 Pacific Highway, Gordon, NSW 2072

Geological Units

Geological units within the dataset buffer:

Code	Unit Name	Description	Stratigraphy	Age Range	Dominant Lithology	Dist	Dir
Twia	Ashfield Shale	Black to light grey shale and laminite.	/Wianamatta Group//Ashfield Shale//	Middle Triassic (base) to Middle Triassic (top)	Shale	0m	On-site
Tuth	Hawkesbury Sandstone	Medium- to coarse-grained quartz sandstone displaying small- to large-scale, high-angle cross-bedding; minor shale and laminite lenses.	/Ungrouped Triassic units//Hawkesbury Sandstone//	Anisian (base) to Anisian (top)	Sandstone	237m	North

Geology

810 Pacific Highway, Gordon, NSW 2072

Linear Geological Structures

Fault and shear or schist zone boundaries within the dataset buffer:

Map ID	Boundary Type	Feature Description	Fault Dip Angle	Fault Dip Direction	Dist	Dir
NA	No records in buffer					

Trendlines within the dataset buffer:

Map ID	Feature Description	Observation Method	Structure Name	Dist	Dir
NA	No records in buffer				

Fold axes within the dataset buffer:

Map ID	Feature Description	Observation Method	Structure Name	Dist	Dir
NA	No records in buffer				

Marker beds within the dataset buffer:

Map ID	Feature Description	Rock Unit Description	Dist	Dir
NA	No records in buffer			

Geological Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development
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Naturally Occurring Asbestos Potential

810 Pacific Highway, Gordon, NSW 2072

Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

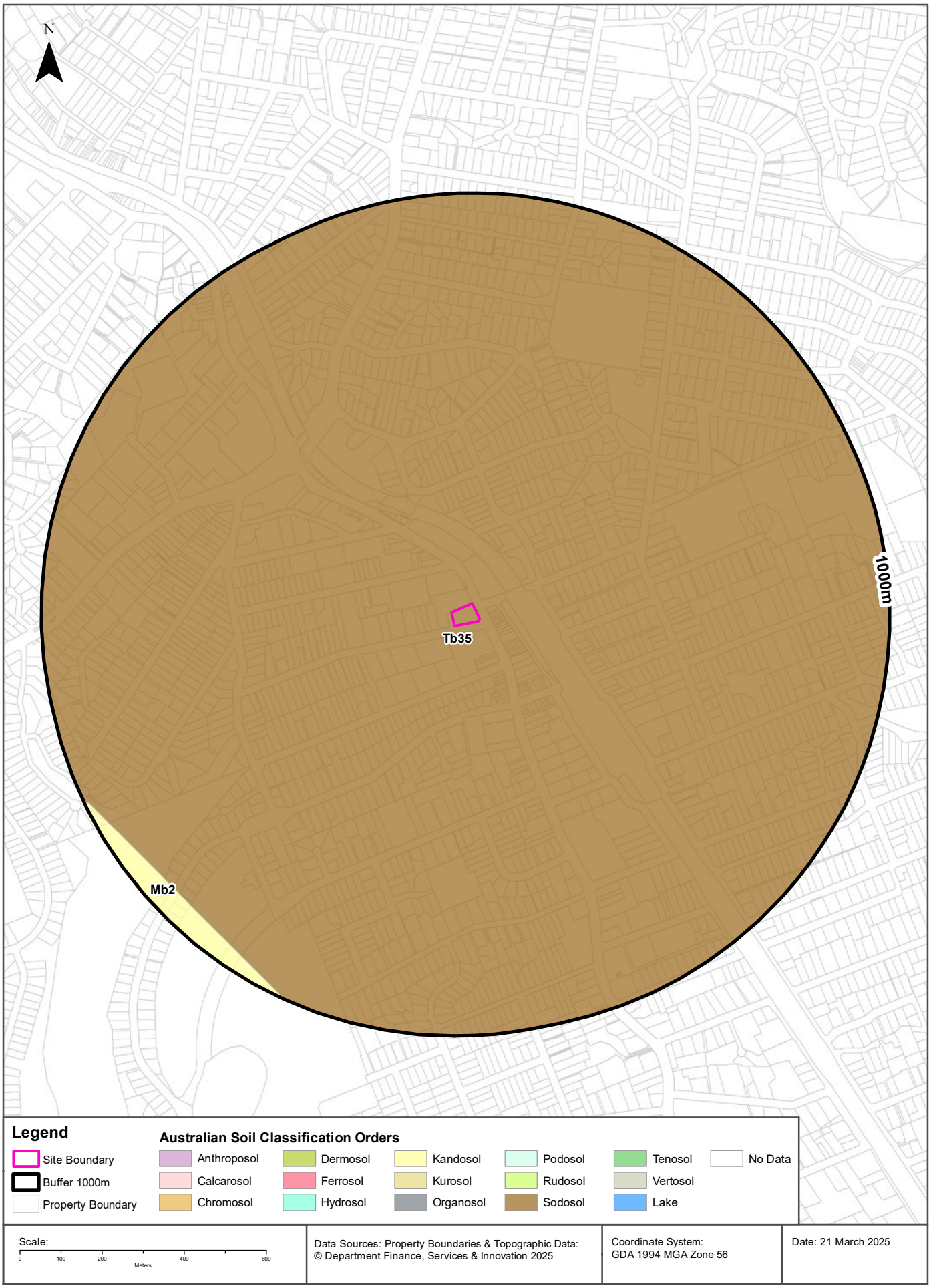
Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Naturally Occurring Asbestos Potential Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

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Atlas of Australian Soils

810 Pacific Highway, Gordon, NSW 2072



Soils

810 Pacific Highway, Gordon, NSW 2072

Atlas of Australian Soils

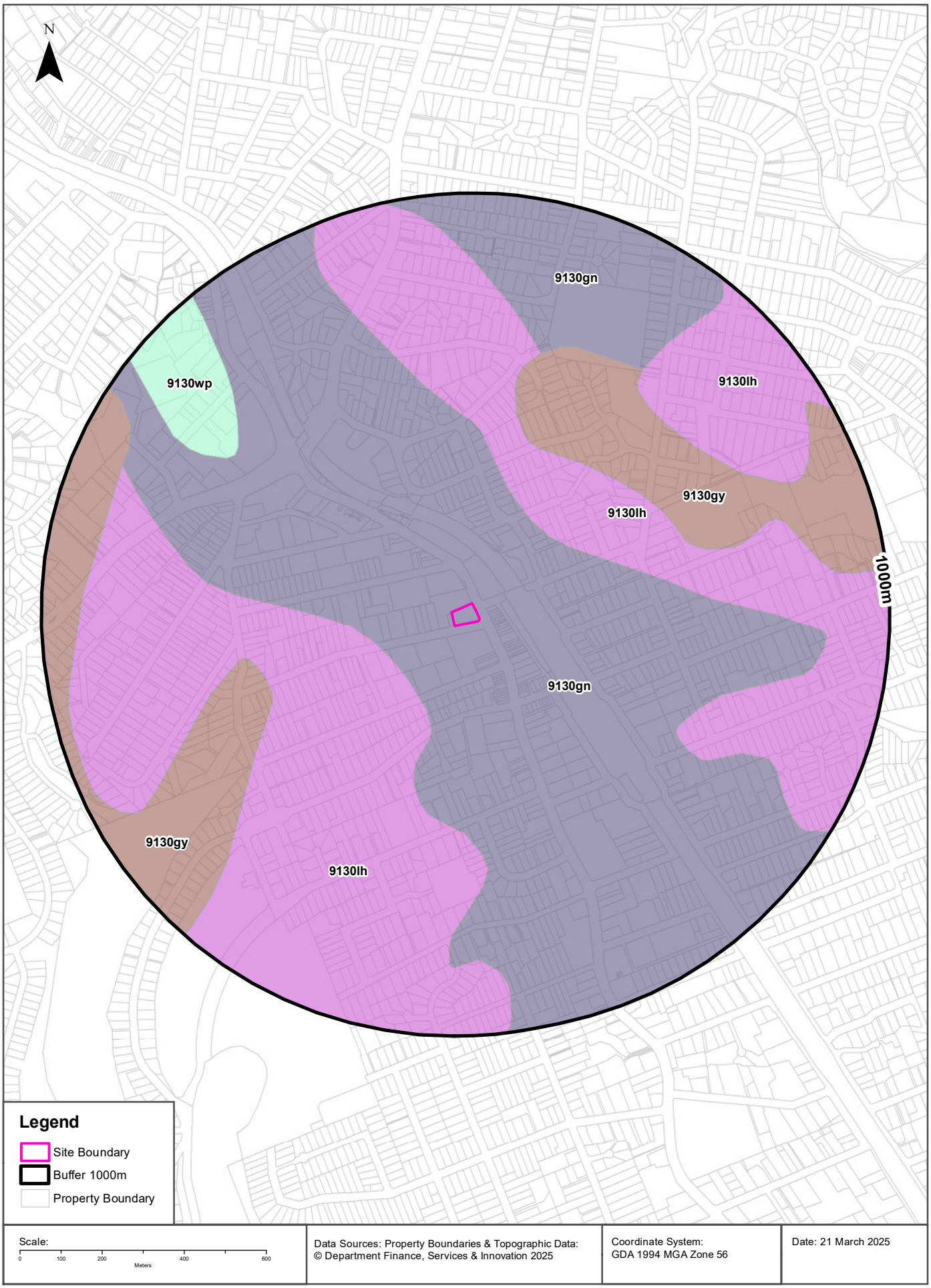
Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Tb35	Sodosol	Dissected plateau remnants--flat to undulating ridge tops with moderate to steep side slopes: chief soils are hard acidic yellow and yellow mottled soils (Dy3.41), (Dy2.21), and (Dy2.41) and hard acidic red soils (Dr2.21); many shallow profiles occur and profile thickness varies considerably over short distances. Associated are: (Gn3.54), (Gn3.14), and possibly other (Gn3) soils; (Db1.2) soils on some ridges; (Dy5.81) soils in areas transitional to unit Mb2; soils common to unit Mb2; and eroded lateritic remnants. Small areas of other soils are likely. Flat ferruginous shale or sandstone fragments are common on and/or in and/or below the soils of this unit.	0m	On-site
Mb2	Kandosol	Dissected sandstone plateau of moderate to strong relief with sandstone pillars, ledges, and slabs-- level to undulating ridges, irregularly benched slopes, steep ridges, cliffs, canyons, narrow sandy valleys: chief soils are (i) on areas of gentle to moderate relief, acid yellow leached earths (Gn2.74) and (Gn2.34) and acid leached yellow earths (Gn2.24)-sometimes these soils contain ironstone gravel; and (ii) on, or adjacent to, areas of strong relief, siliceous sands (Uc1.2), leached sands (Uc2.12) and (Uc2.2), and shallow forms of the above (Gn2) soils. Associated are: (i) on flat to gently undulating remnants of the original plateau surface, leached sands (Uc2.3), siliceous sands (Uc1.2), sandy earths (Uc5.22), and (Gn2) soils as for (i) above (these areas are in part comparable with unit Cb29); (ii) on flat ironstone gravelly remnants of the original plateau surface, (Gn2) soils as for unit Mb5(i); (iii) on gently undulating ridges where interbedded shales are exposed, shallow, often stony (Dy3.41), (Dr2.21), and related soils similar to unit Tb35; (iv) narrow valleys of (Uc2.3) soils flanked by moderate slopes of (Dy3.41) soils; (v) escarpments of steep hills with shallow (Dy) and (Dr) soils between sandstone pillars; and (vi) shallow (Um) soils, such as (Um6.21) on steep hills of basic rocks. As mapped, minor areas of units Mg20, Mm1, and Mw8 are included. Data are limited.	935m	South West

Atlas of Australian Soils Data Source: CSIRO
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Soil Landscapes of Central and Eastern NSW

810 Pacific Highway, Gordon, NSW 2072



Soils

810 Pacific Highway, Gordon, NSW 2072

Soil Landscapes of Central and Eastern NSW

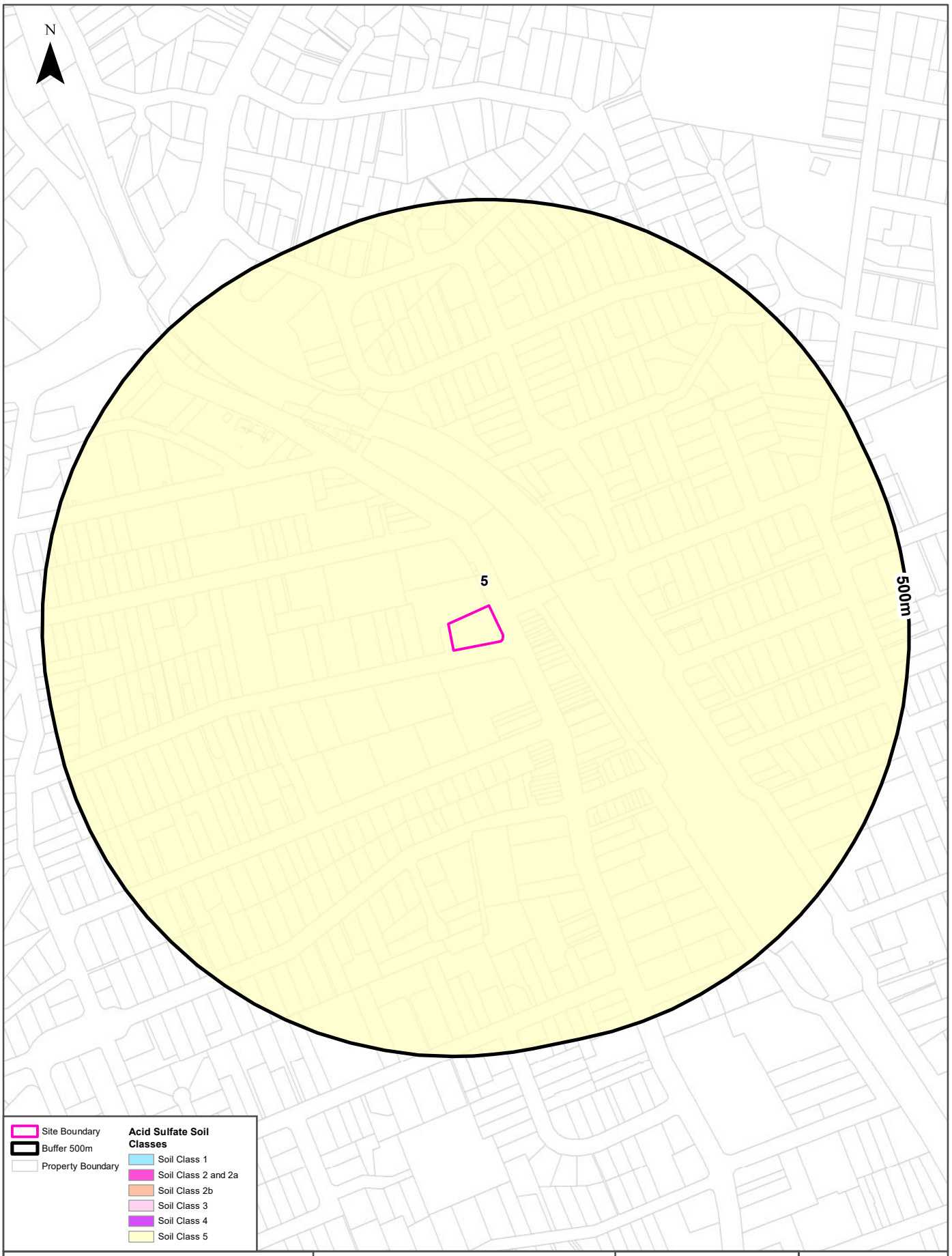
Soil Landscapes of Central and Eastern NSW within the dataset buffer:

Soil Code	Name	Distance	Direction
9130gn	Glenorie	0m	On-site
9130lh	Lucas Heights	170m	South West
9130gy	Gymea	412m	North East
9130wp	West Pennant Hills	652m	North West

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment
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Acid Sulfate Soils

810 Pacific Highway, Gordon, NSW 2072



Acid Sulfate Soils

810 Pacific Highway, Gordon, NSW 2072

Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	EPI Name
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Ku-ring-gai Local Environmental Plan 2015

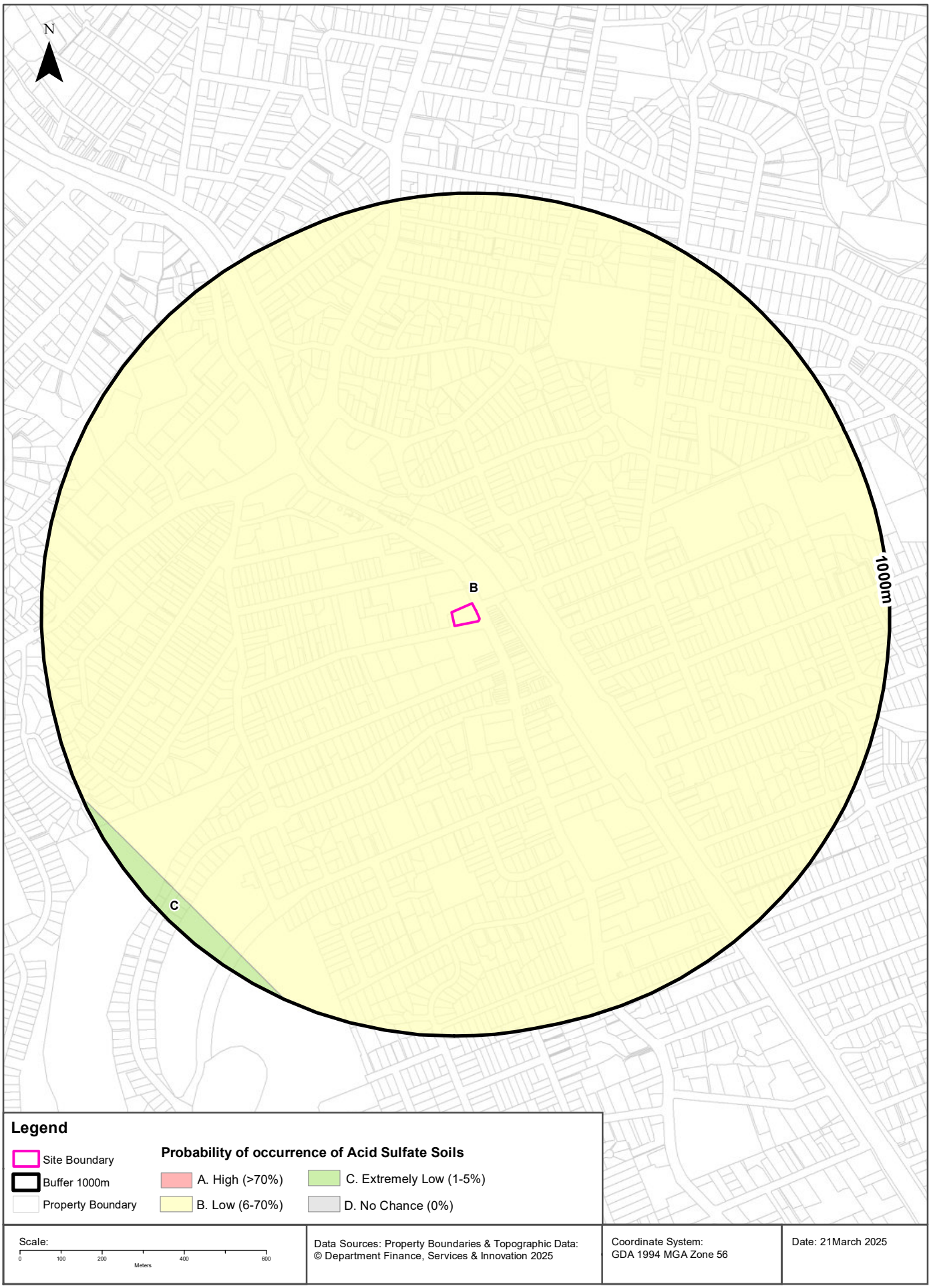
If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	EPI Name	Distance	Direction
None				

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Atlas of Australian Acid Sulfate Soils

810 Pacific Highway, Gordon, NSW 2072



Acid Sulfate Soils

810 Pacific Highway, Gordon, NSW 2072

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance	Direction
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m	On-site
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	936m	South West

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
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Dryland Salinity

810 Pacific Highway, Gordon, NSW 2072

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A		

Dryland Salinity Data Source : National Land and Water Resources Audit
The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.
In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Mining

810 Pacific Highway, Gordon, NSW 2072

Mining Subsidence Districts

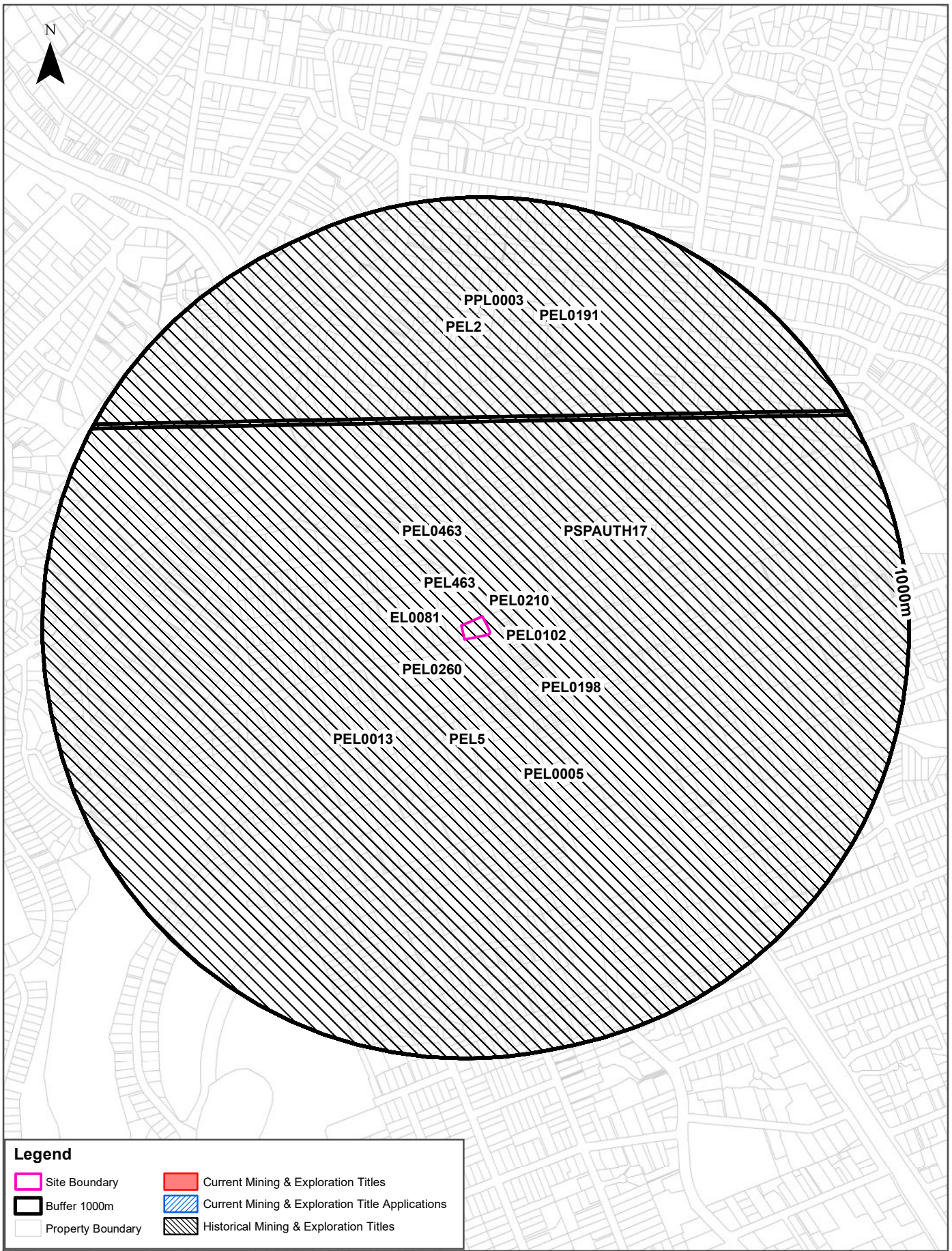
Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

Mining Subsidence District Data Source: © Land and Property Information (2016)
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Mining & Exploration Titles

810 Pacific Highway, Gordon, NSW 2072



Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 21 March 2025

Mining

810 Pacific Highway, Gordon, NSW 2072

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Grant Date	Expiry Date	Last Renewed	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer								

Current Mining & Exploration Titles Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development
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Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

Application Ref	Applicant	Application Date	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer						

Current Mining & Exploration Title Applications Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development
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Mining

810 Pacific Highway, Gordon, NSW 2072

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL0013	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL0005	AGL UPSTREAM INVESTMENTS PTY LIMITED	19931111	20150403	PETROLEUM	Petroleum	0m	On-site
PEL0102	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
EL0081	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	19670201	19680201	MINERALS		0m	On-site
PEL463	DART ENERGY (APOLLO) PTY LTD	20081022	20130227	MINERALS		0m	On-site
PEL5	AGL UPSTREAM INVESTMENTS PTY LIMITED	19931111	20011210	MINERALS		0m	On-site
PSPAUTH17	MACQUARIE ENERGY PTY LTD	20070803	20080703	PETROLEUM	Petroleum	0m	On-site
PEL0463	DART ENERGY (APOLLO) PTY LTD	20091010	20150603	PETROLEUM	Petroleum	0m	On-site
PEL0198	JOHN STREVENS (TERRIGAL) NL			PETROLEUM	Petroleum	0m	On-site
PEL0210	THE AUSTRALIAN GAS LIGHT COMPANY (AGL), NORTH BULLI COLLIERIES PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0260	NORTH BULLI COLLIERIES PTY LTD, AGL PETROLEUM OPERATIONS PTY LTD, THE AUSTRALIAN GAS LIGHT CO.	19810909	19930803	PETROLEUM	Petroleum	0m	On-site
PPL0003	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	465m	North
PEL0191	NORTHWEST OIL AND MINERALS CO NL			PETROLEUM	Petroleum	465m	North
PEL2	AGL UPSTREAM INVESTMENTS PTY LIMITED	20000120	20001108	MINERALS		475m	North

Historical Mining & Exploration Titles Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

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State Environmental Planning Policy

810 Pacific Highway, Gordon, NSW 2072

State Significant Precincts

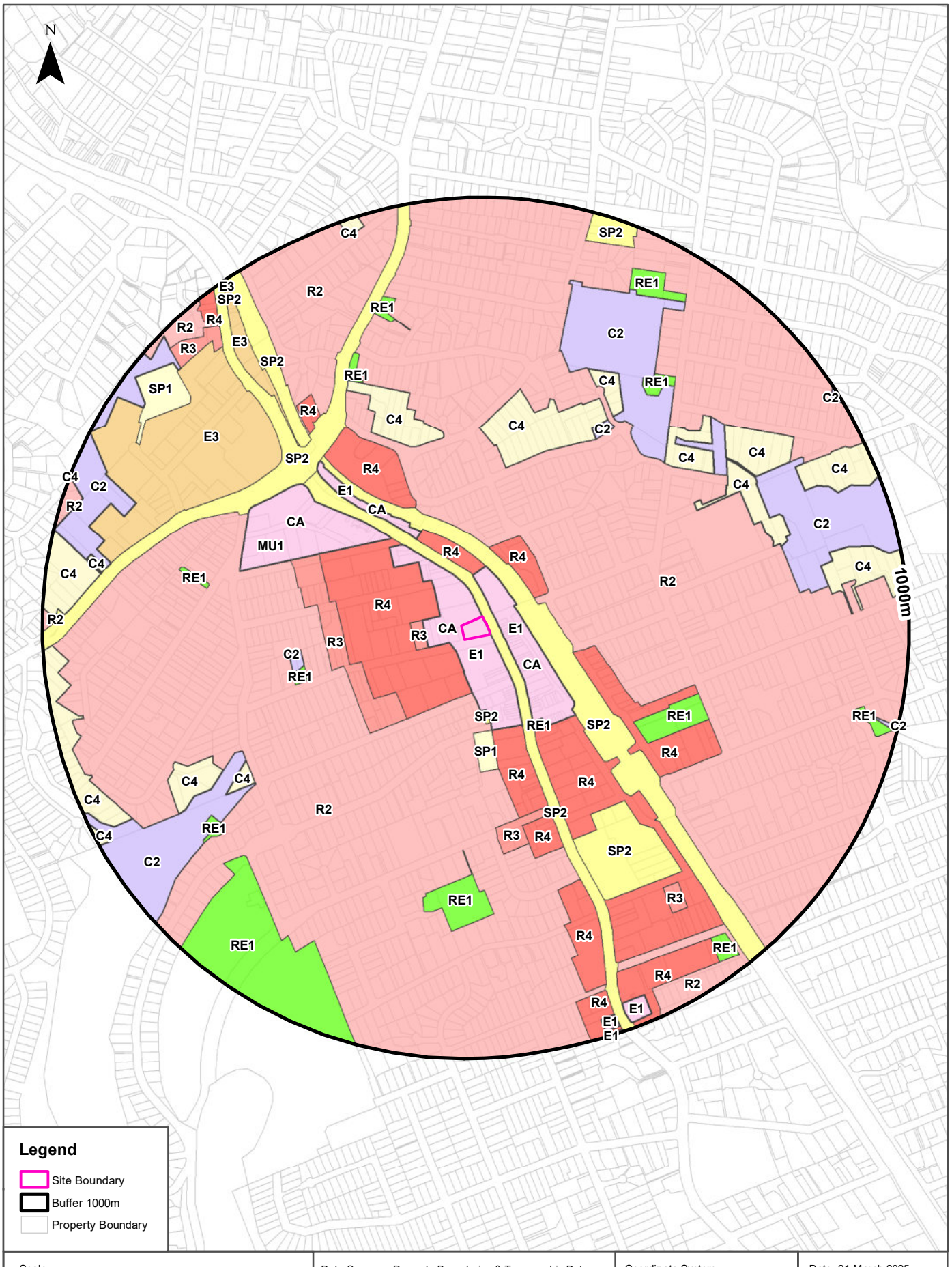
What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No records in buffer							

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment
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EPI Planning Zones

810 Pacific Highway, Gordon, NSW 2072



Environmental Planning Instrument

810 Pacific Highway, Gordon, NSW 2072

Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
E1	Local Centre		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	0m	On-site
CA	Complex Area		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	0m	On-site
SP2	Infrastructure	Classified Road	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	0m	South East
E1	Local Centre		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	25m	South East
CA	Complex Area		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	25m	South East
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	33m	West
SP2	Infrastructure	Railway Infrastructure	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	78m	South East
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	88m	West
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	102m	North
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	127m	North East
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	128m	South West
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	130m	North East
SP2	Infrastructure	Local Road	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	173m	South
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	202m	South East
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	205m	West
SP1	Special Activities	Cemetery	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	223m	South
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	224m	South
E1	Local Centre		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	233m	North West
CA	Complex Area		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	233m	North West
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	233m	South East
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	254m	South East

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
CA	Complex Area		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	268m	North West
MU1	Mixed Use		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	268m	North West
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	304m	North West
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	358m	North
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	386m	West
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	387m	West
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	402m	South East
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	429m	South
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	434m	North
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	452m	South
SP2	Infrastructure	Educational Establishment	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	492m	South East
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	502m	South
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	502m	North East
SP2	Infrastructure	Classified Road	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	506m	North West
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	542m	North East
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	567m	North East
SP2	Infrastructure	Railway Infrastructure	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	568m	North West
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	569m	North East
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	571m	North East
E3	Productivity Support		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	575m	North West
E3	Productivity Support		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	582m	North West
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	583m	North West
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	583m	North West
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	592m	South West

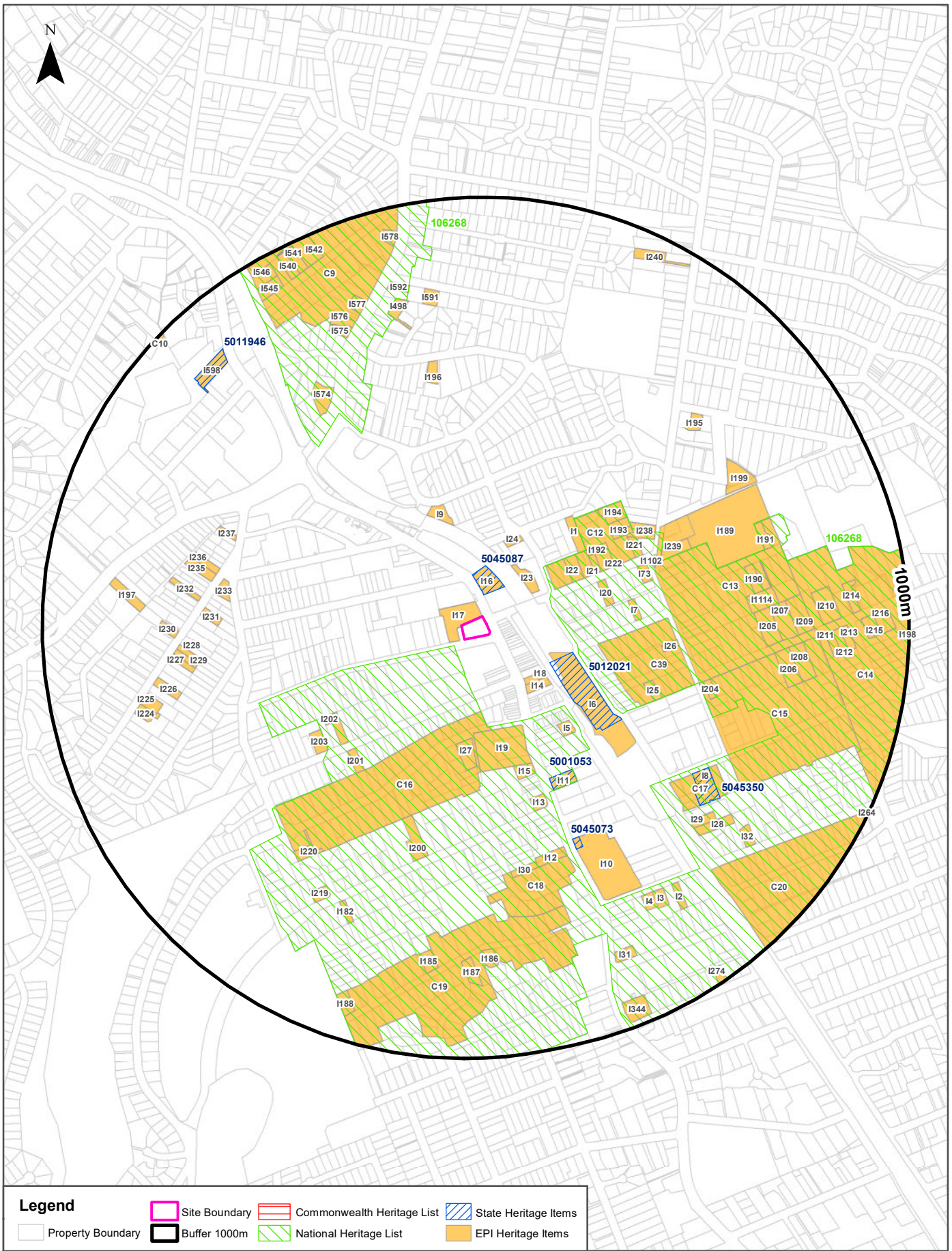
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	594m	South West
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	611m	West
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	617m	East
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	622m	South
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	626m	North West
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	654m	South West
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	659m	North East
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	694m	North East
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	704m	North
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	724m	South West
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	732m	South East
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	734m	South West
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	804m	East
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	823m	North East
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	830m	North West
SP1	Special Activities	Defence	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	838m	North West
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	840m	South East
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	852m	North East
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	859m	West
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	861m	South East
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	869m	West
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	877m	North West
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	891m	East
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	892m	South

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	896m	South East
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	898m	West
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	916m	North West
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	918m	East
SP2	Infrastructure	Educational Establishment	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	929m	North
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	932m	North West
E1	Local Centre		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	934m	South East
CA	Complex Area		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	934m	South East
SP2	Infrastructure	Water Supply System	Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	952m	North West
CA	Complex Area		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	953m	South
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	953m	West
E1	Local Centre		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	953m	South
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	959m	North
E3	Productivity Support		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	961m	North West
C2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	978m	North East
E1	Local Centre		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	993m	South
CA	Complex Area		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	993m	South
C4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	14/04/2023	26/04/2023	06/09/2024	Map Amendment No 4	998m	West

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Heritage Items

810 Pacific Highway, Gordon, NSW 2072



Legend

Property Boundary	Site Boundary	Commonwealth Heritage List	State Heritage Items
	Buffer 1000m	National Heritage List	EPI Heritage Items

Scale: 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025 Heritage - NSW Crown Copyright - Planning & Environment	Coordinate System: GDA 1994 MGA Zone 56	Date: 21 March 2025

Heritage

810 Pacific Highway, Gordon, NSW 2072

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
106268	National Trust Urban Conservation Areas of Kur-ring-gai	Pacific Hwy Wahroonga NSW	1/13/020/0060	Historic	Nominated place		28m	South East

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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State Heritage Register - Curtilages

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5045087	Gordon Public School	799 Pacific Highway Gordon	KU-RING-GAI	02/04/1999	00757	1819	51m	North
5012021	Gordon Railway Station group	Middlemiss Street, Gordon	KU-RING-GAI	02/04/1999	01150	2407	160m	South East
5001053	Tulkiyan	707 Pacific Highway Gordon	KU-RING-GAI	27/05/2005	01733	2004	372m	South East
5045073	Iolanthe	691 Pacific Highway Gordon	KU-RING-GAI	02/04/1999	00227	606	527m	South East
5045350	Eryldene	17 McIntosh Street Gordon	KU-RING-GAI	02/04/1999	00019	188	588m	South East
5011946	Substation	982-984 Pacific Highway Pymble	KU-RING-GAI	02/04/1999	00940	3082	822m	North West

Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage
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Environmental Planning Instrument - Heritage

What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I17	Ku-ring-gai Council Chamber	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	0m	North West
I16	Old Gordon Primary School	Item - General	State	Ku-ring-gai Local Environmental Plan 2015	03/03/2023	03/03/2023	21/06/2024	53m	North
I23	Gordon Pre-School building	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	127m	North East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I18	Commonwealth Bank	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	134m	South East
I14	Former Gordon Post Office	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	148m	South East
I6	Gordon Station Railway Group	Item - General	State	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	149m	South East
C16	St Johns Avenue Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/08/2023	18/08/2023	21/06/2024	175m	South West
I24	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	175m	North East
C12	Gordondale Estate Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/08/2023	18/08/2023	21/06/2024	183m	North East
I19	St John's Church and Cemetery	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	223m	South
I9	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	228m	North
I22	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	229m	North East
I27	“Oberon”, dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	235m	South
I21	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	259m	North East
C39	Robert Street/Khartoum Avenue Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	259m	East
I5	“Westward-Ho”, residential flat building	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	269m	South East
I1	“Eudesmia”, dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	274m	North East
I20	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	281m	East
I192	Baptist Church & Manse	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	290m	North East
I222	Baptist Church & Manse	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	302m	North East
I15	“Windsor House”, dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	319m	South
I7	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	337m	East
I202	Moree Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	350m	South West
I193	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	362m	North East
I201	Moree Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	367m	South West
I194	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	369m	North East
I11	“Tulkiyan”, dwelling house	Item - General	State	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	372m	South East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I73	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	383m	East
I25	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	385m	East
I221	Dwelling house “Annie Wyatt House”	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	389m	North East
I238	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	03/03/2023	03/03/2023	21/06/2024	393m	North East
I13	Seventh Day Adventist Office	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	400m	South
I203	Moree Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	405m	South West
I26	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	410m	East
I1102	Bradfield Memorial Gardens	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	410m	East
C13	Roberts Grant Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	419m	East
I200	"Birralee" Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	15/07/2022	15/07/2022	21/06/2024	437m	South
I239	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	440m	East
C15	Gordon Park Estate, Mcintosh and Ansell Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	514m	East
I189	Lady Gowrie Retirement Village (formerly known as Burnham Thorpe)	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	520m	East
I204	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	522m	East
I10	“Iolanthe”, dwelling house	Item - General	State	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	527m	South East
C18	Yarabah Avenue Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	536m	South
I12	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	03/03/2023	03/03/2023	21/06/2024	536m	South
I30	“Nebraska”, dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	552m	South
I233	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	554m	West
C17	Gordon Park Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	557m	South East
I196	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	564m	North
I231	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	570m	West
I237	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	576m	West
I8	“Eryldene”, dwelling house	Item - General	State	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	588m	South East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I220	Buildings, interiors and grounds	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/04/2023	21/04/2023	21/06/2024	591m	South West
I236	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	592m	West
I235	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	598m	West
I574	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	602m	North West
I1114	“Denholm”, dwelling house and interior	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/06/2024	21/06/2024	21/06/2024	616m	East
I229	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	625m	West
I232	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	625m	West
I190	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	626m	East
I205	Dwelling House "Gowanlea"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	631m	East
I228	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	634m	West
I227	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	643m	West
I199	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	649m	North East
I29	“Rochester”, dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	654m	South East
C19	Smith Grant Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/08/2023	18/08/2023	21/06/2024	657m	South
I195	Dwelling house "Killarney Castle"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	659m	North East
I207	Dwelling House "Theace"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	669m	East
I219	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	671m	South West
I28	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	672m	South East
I230	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	675m	West
I191	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	680m	East
I206	Dwelling House "Aberdour"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	680m	East
I182	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/10/2016	21/10/2016	21/06/2024	682m	South West
I226	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	686m	West
I498	Dwelling house "Glengariff"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/10/2016	21/10/2016	21/06/2024	705m	North

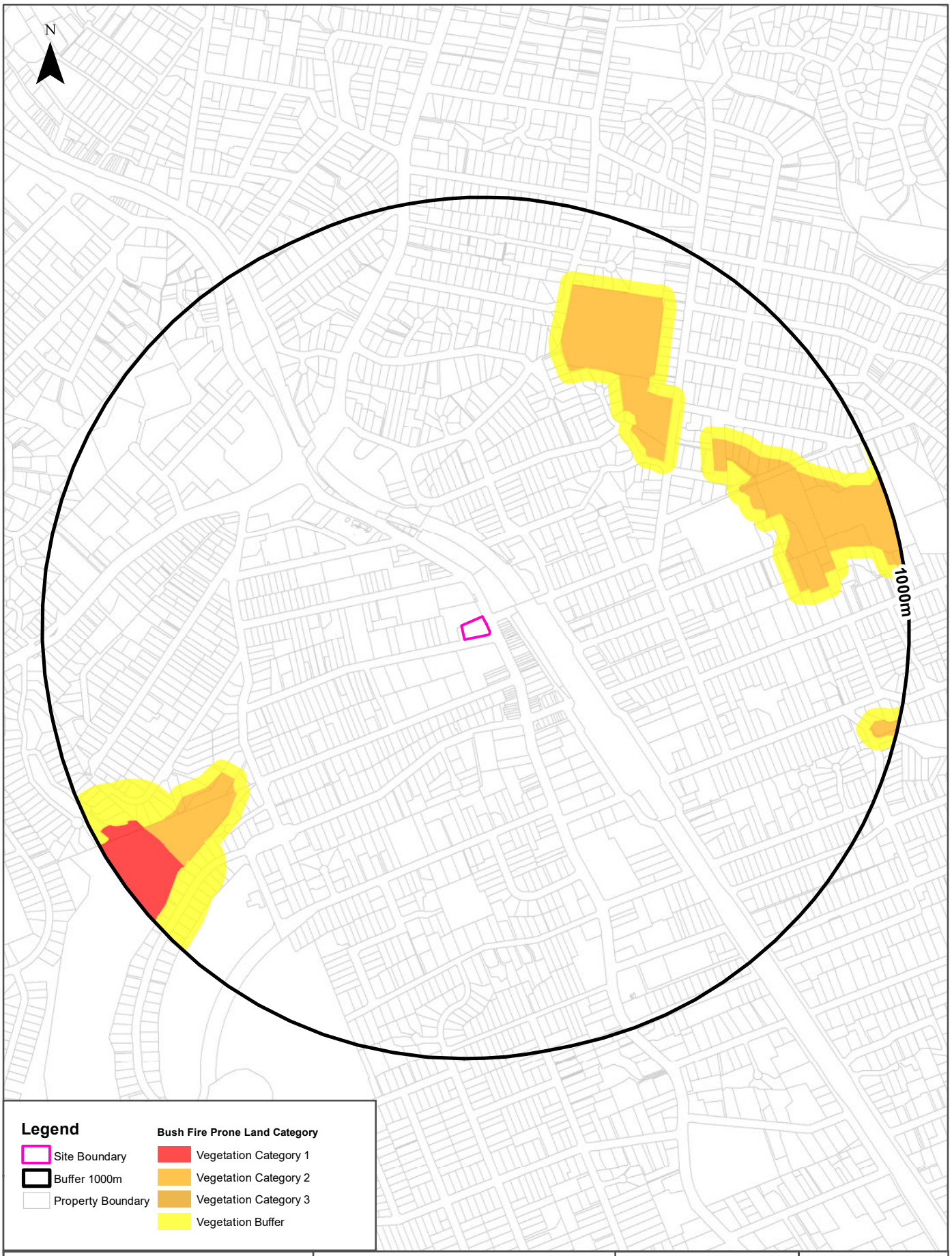
Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I209	Dwelling House "Trewayr"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	708m	East
I208	Dwelling house "Carinya"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	714m	East
I4	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	03/03/2023	03/03/2023	21/06/2024	722m	South East
I3	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	03/03/2023	03/03/2023	21/06/2024	726m	South East
C14	Love Estate, Thorne Grant Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	729m	East
I225	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	735m	West
I2	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	738m	South East
C9	Fernwalk Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	738m	North
I575	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	738m	North West
I186	“Cedar Bank”, dwelling house—former 7 Stuart Street	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	03/03/2023	03/03/2023	21/06/2024	740m	South
I185	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	742m	South
I224	Ridge Street Cottage Group	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	747m	West
I591	"Narrelle" Weatherboard cottage	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	749m	North
I197	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	755m	West
I576	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	755m	North West
I187	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	757m	South
I32	Dwelliing house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	758m	South East
I210	Dwelling House "Mandalay"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	771m	East
C20	Greengate Estate Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	771m	South East
I577	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	780m	North
I592	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	794m	North
I211	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	799m	East
I31	“Fane Edge”, dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/06/2021	28/06/2021	21/06/2024	814m	South East
I212	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	816m	East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I598	Substation	Item - General	State	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	822m	North West
I213	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	834m	East
I214	Dwelling House "Millthorn"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	847m	East
I188	Dwelling house "Holly Lodge"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	882m	South
I215	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	03/03/2023	03/03/2023	21/06/2024	885m	East
I578	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	906m	North
I545	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	909m	North West
I216	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	915m	East
I540	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	920m	North West
I541	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	925m	North West
I240	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	928m	North East
I542	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	930m	North West
I344	Greengate Hotel	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	934m	South East
I546	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	939m	North West
I274	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	958m	South East
C10	Orinoco Street Conservation Area	Conservation Area - General	Local	Ku-ring-gai Local Environmental Plan 2015	18/08/2023	18/08/2023	21/06/2024	985m	North West
I198	Dwelling house "Matong"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	991m	East
I264	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	21/06/2024	992m	South East

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Natural Hazards - Bush Fire Prone Land

810 Pacific Highway, Gordon, NSW 2072



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2025. Property Boundaries: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 21 March 2025

Natural Hazards

810 Pacific Highway, Gordon, NSW 2072

Bush Fire Prone Land

What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	519m	North East
Vegetation Category 2	549m	North East
Vegetation Category 1	860m	South West

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence

Ecological Constraints - Vegetation & Ramsar Wetlands

810 Pacific Highway, Gordon, NSW 2072



- Site Boundary
- ReportBuffer
- Property Boundary
- Ramsar Wetland

Native Vegetation

- Alpine Complex
- Arid Shrublands (Acacia sub-formation)
- Arid Shrublands (Chenopod sub-formation)
- Dry Sclerophyll Forests (Shrub/grass sub-formation)
- Dry Sclerophyll Forests (Shrubby sub-formation)
- Forested Wetlands
- Freshwater Wetlands
- Grasslands
- Grassy Woodlands
- Heathlands
- Rainforests
- Saline Wetlands
- Semi-arid Woodlands (Grassy sub-formation)
- Semi-arid Woodlands (Shrubby sub-formation)
- Wet Sclerophyll Forests (Grassy sub-formation)
- Wet Sclerophyll Forests (Shrubby sub-formation)
- Non vegetated
- Unattributed
- Not classified
- Other

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 21 March 2025

Ecological Constraints

810 Pacific Highway, Gordon, NSW 2072

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
7073158	Not classified	(Not classified) Not classified	Not classified	0m	On-site
7072666	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Blue Gum High Forest	North Coast Wet Sclerophyll Forests	21m	North West
7073160	Not classified	(Not classified) Not classified	Not classified	54m	West
7073010	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	80m	North East
7073157	Not classified	(Not classified) Not classified	Not classified	137m	North
7073014	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	157m	South East
7072469	Not classified	(Not classified) Not classified	Not classified	251m	South West
7073011	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	254m	South West
7073016	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	274m	South
7073009	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	297m	West
7073008	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Blue Gum High Forest	North Coast Wet Sclerophyll Forests	360m	South
7073161	Not classified	(Not classified) Not classified	Not classified	397m	West
7073015	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	497m	South East
7073032	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	539m	North East
7073013	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	544m	West
7073006	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Blue Gum High Forest	North Coast Wet Sclerophyll Forests	563m	South
7073012	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	564m	North West
7071547	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	603m	South West
7072962	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	612m	North West
7072961	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	655m	North East
7073059	Not classified	(Not classified) Not classified	Not classified	674m	East
7072539	Not classified	(Not classified) Not classified	Not classified	678m	South West
7073007	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Blue Gum High Forest	North Coast Wet Sclerophyll Forests	680m	South
7072964	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	686m	North East
7073017	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	707m	East

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
7073019	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	708m	East
7072541	Not classified	(Not classified) Not classified	Not classified	709m	South West
7072543	Not classified	(Not classified) Not classified	Not classified	716m	South West
7071723	Not classified	(Not classified) Not classified	Not classified	746m	South West
7073060	Not classified	(Not classified) Not classified	Not classified	785m	North East
7073018	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	802m	North East
7072957	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Blue Gum High Forest	North Coast Wet Sclerophyll Forests	819m	North
7072279	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	825m	North West
7073020	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	860m	East
7072307	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Sydney Turpentine Ironbark Forest	Northern Hinterland Wet Sclerophyll Forests	918m	West
7073155	Not classified	(Not classified) Not classified	Not classified	927m	North
7072278	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Blue Gum High Forest	North Coast Wet Sclerophyll Forests	928m	North West
7072303	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Blue Gum High Forest	North Coast Wet Sclerophyll Forests	936m	West
7072537	Not classified	(Not classified) Not classified	Not classified	960m	West
7072470	Not classified	(Not classified) Not classified	Not classified	968m	West

Native Vegetation Type Map : NSW Department of Planning and Environment 2022

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Ecological Constraints

810 Pacific Highway, Gordon, NSW 2072

Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

Map ID	Ramsar Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Agriculture, Water and the Environment

Ecological Constraints

810 Pacific Highway, Gordon, NSW 2072

Collaborative Australian Protected Areas Database - Terrestrial

Protected areas in terrestrial environments identified by the CAPAD within the dataset buffer:

Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Collaborative Australian Protected Areas Database - Marine

Protected areas in marine environments identified by the CAPAD within the dataset buffer:

Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Source: Collaborative Australian Protected Areas Database (CAPAD) 2022
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Ecological Constraints

810 Pacific Highway, Gordon, NSW 2072

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
N/A	No records in buffer					

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
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Ecological Constraints

810 Pacific Highway, Gordon, NSW 2072

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
N/A	No records in buffer					

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology
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Ecological Constraints

810 Pacific Highway, Gordon, NSW 2072

NSW BioNet Species Sightings

Species sightings from the NSW BioNet Repository that have either a state or federal conservation status, or a sensitivity status, and are within 10 km of the site:
Note: This data does not include NSW Category 1 sensitive species.

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Heleioporus australiacus	Giant Burrowing Frog	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Not Sensitive	Endangered	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Amaurornis moluccana	Pale-vented Bush-hen	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Category 2	Critically Endangered	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Not Sensitive	Vulnerable	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna pacifica	Wedge-tailed Shearwater	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Not Sensitive	Critically Endangered	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Category 3	Endangered	Endangered	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Category 2	Vulnerable	Not Listed	
Animalia	Aves	Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	Category 2	Vulnerable	Vulnerable	
Animalia	Aves	Cecropis daurica	Red-rumped Swallow	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Certhionyx variegatus	Pied Honeyeater	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Cuculus optatus	Oriental Cuckoo	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Esacus magnirostris	Beach Stone-curlew	Not Sensitive	Critically Endangered	Not Listed	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Falco hypoleucos	Grey Falcon	Category 2	Vulnerable	Vulnerable	
Animalia	Aves	Falco subniger	Black Falcon	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Grantiella picta	Painted Honeyeater	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Not Sensitive	Endangered	Critically Endangered	
Animalia	Aves	Limicola falcinellus	Broad-billed Sandpiper	Not Sensitive	Vulnerable	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Not Sensitive	Vulnerable	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Menura alberti	Albert's Lyrebird	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Nettapus coromandelianus	Cotton Pygmy-Goose	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Numenius minutus	Little Curlew	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pachycephala olivacea	Olive Whistler	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	Category 3	Endangered	Vulnerable	
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Category 3	Vulnerable	Vulnerable	
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Sterna hirundo	Common Tern	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Thalasseus bergii	Crested Tern	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Thinornis cucullatus cucullatus	Eastern Hooded Dotterel	Not Sensitive	Critically Endangered	Vulnerable	
Animalia	Aves	Todiramphus chloris	Collared Kingfisher	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Category 3	Vulnerable	Not Listed	
Animalia	Gastropoda	Pommerhelix duralensis	Dural Land Snail	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Arctocephalus forsteri	New Zealand Fur-seal	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Arctocephalus pusillus doriferus	Australian Fur-seal	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Not Sensitive	Vulnerable	Endangered	
Animalia	Mammalia	Eubalaena australis	Southern Right Whale	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Macrotis lagotis	Bilby	Not Sensitive	Extinct	Vulnerable	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Notamacropus parma	Parma Wallaby	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Petauroides volans	Southern Greater Glider	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Petaurus australis	Yellow-bellied Glider	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Phoniscus papuensis	Golden-tipped Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Sensitive	Not Listed	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Not Sensitive	Vulnerable	Not Listed	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Reptilia	Cyclodomorphus melanops elongatus	Mallee Slender Blue-tongue Lizard	Not Sensitive	Endangered	Not Listed	
Animalia	Reptilia	Dermochelys coriacea	Leatherback Turtle	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Diplodactylus platyurus	Eastern Fat-tailed Gecko	Not Sensitive	Endangered	Not Listed	
Animalia	Reptilia	Hemiaspis damelii	Grey Snake	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Myuchelys bellii	Western Sawshelled Turtle, Bell's Turtle	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Pseudonaja modesta	Ringed Brown Snake	Not Sensitive	Endangered	Not Listed	
Animalia	Reptilia	Suta flagellum	Little Whip Snake	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Tiliqua multifasciata	Centralian Blue-tongued Lizard	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue-tongued Lizard	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Uvidicolus sphyrurus	Border Thick-tailed Gecko	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Reptilia	Varanus rosenbergi	Rosenberg's Goanna	Not Sensitive	Vulnerable	Not Listed	
Fungi	Flora	Camarophyllopsis kearneyi		Not Sensitive	Endangered	Not Listed	
Fungi	Flora	Hygrocybe anomala var. ianthinomarginata		Not Sensitive	Vulnerable	Not Listed	
Fungi	Flora	Hygrocybe aurantipes		Not Sensitive	Vulnerable	Not Listed	
Fungi	Flora	Hygrocybe austropratensis		Not Sensitive	Endangered	Not Listed	
Fungi	Flora	Hygrocybe collucera		Not Sensitive	Endangered	Not Listed	
Fungi	Flora	Hygrocybe griseoramosa		Not Sensitive	Endangered	Not Listed	
Fungi	Flora	Hygrocybe lanecovensis		Not Sensitive	Endangered	Not Listed	
Fungi	Flora	Hygrocybe reesiae		Not Sensitive	Vulnerable	Not Listed	
Fungi	Flora	Hygrocybe rubronivea		Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Acacia cluniesrossiae	Kanangra Wattle	Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Acacia pubescens	Downy Wattle	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Acacia terminalis subsp. Eastern Sydney	Sunshine wattle	Not Sensitive	Endangered	Endangered	
Plantae	Flora	Caladenia tessellata	Thick Lip Spider Orchid	Category 2	Vulnerable	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Category 3	Vulnerable	Not Listed	
Plantae	Flora	Cryptostylis hunteriana	Leafless Tongue Orchid	Category 2	Vulnerable	Vulnerable	
Plantae	Flora	Darwinia biflora		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Darwinia peduncularis		Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Davidsonia jerseyana	Davidson's Plum	Category 2	Endangered	Endangered	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Deyeuxia appressa		Not Sensitive	Endangered	Endangered	
Plantae	Flora	Diuris bracteata		Category 2	Endangered	Extinct	
Plantae	Flora	Epacris purpurascens var. purpurascens		Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Epacris sparsa	Sparse Heath	Not Sensitive	Vulnerable	Endangered	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Galium australe	Tangled Bedstraw	Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Genoplesium baueri	Bauer's Midge Orchid	Category 2	Endangered	Endangered	
Plantae	Flora	Genoplesium plumosum	Tallong Midge Orchid	Category 2	Critically Endangered	Endangered	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Category 3	Endangered	Not Listed	
Plantae	Flora	Grevillea caleyi	Caley's Grevillea	Category 3	Critically Endangered	Critically Endangered	
Plantae	Flora	Grevillea hilliana	White Yiel Yiel	Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Haloragodendron lucasii		Not Sensitive	Endangered	Endangered	
Plantae	Flora	Hibbertia puberula		Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Hibbertia spanantha	Julian's Hibbertia	Category 2	Critically Endangered	Critically Endangered	
Plantae	Flora	Hibbertia superans		Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Category 3	Not Listed	Extinct	
Plantae	Flora	Lasiopetalum joyceae		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Leptospermum deanei		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Sensitive	Not Listed	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Microtis angusii	Angus's Onion Orchid	Category 2	Endangered	Endangered	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Category 3	Endangered	Endangered	
Plantae	Flora	Persoonia mollis subsp. maxima		Not Sensitive	Endangered	Endangered	
Plantae	Flora	Persoonia pauciflora	North Rothbury Persoonia	Category 3	Critically Endangered	Critically Endangered	
Plantae	Flora	Pimelea curviflora var. curviflora		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Prostanthera marifolia	Seaforth Mintbush	Category 3	Critically Endangered	Critically Endangered	
Plantae	Flora	Pterostylis nigricans	Dark Greenhood	Category 2	Vulnerable	Not Listed	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Rhizanthella slateri	Eastern Australian Underground Orchid	Category 2	Vulnerable	Endangered	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Not Sensitive	Critically Endangered	Critically Endangered	
Plantae	Flora	Sarcochilus hartmannii	Hartman's Sarcochilus	Category 2	Vulnerable	Vulnerable	
Plantae	Flora	Senecio behrianus		Not Sensitive	Extinct	Endangered	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Tetratheca juncea	Black-eyed Susan	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Wilsonia backhousei	Narrow-leafed Wilsonia	Not Sensitive	Vulnerable	Not Listed	

Source: NSW BioNet Species Sightings

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Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
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Buffered Point	A point feature buffered to x metres
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Appendix D: Borehole Logs

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BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										CONCRETE: 150mm.t CONCRETE: 380mm.t				7mm DIA. REINFORCEMENT, 55mm TOP COVER
					N = 23 3,5,18	118	1		-	FILL: Gravelly sandy clay, low plasticity, grey brown, fine to coarse grained ironstone and siltstone gravel.	w<PL			APPEARS MODERATELY COMPACTED BANDED 'TC' BIT RESISTANCE
					N=SPT 4/ 10mm REFUSAL	117	2		-	Extremely Weathered siltstone: silty CLAY, medium to high plasticity, grey brown, fine to coarse grained ironstone and siltstone gravel.	XW	Hd		ASHFIELD SHALE
										SILTSTONE: grey, with iron indurated bands.	DW	VL - L		LOW TO MODERATE RESISTANCE
						116 115 114 113 112	3 4 5 6			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 16.9m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 16.9m TO 10.9m. CASING 0.1m TO 10.9m. 2mm SAND FILTER PACK 16.9m TO 10.0m. BENTONITE SEAL 10.0m TO 6.0m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.

JK 9.02.4 LIB:GLB Log JK AUGERHOLE - MASTER 37403Y GORDON.GPJ <<DrawingFile>> 19/03/2025 10:39 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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CORED BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 2.50m						
					NO CORE 0.13m						
60% RETURN		116	3		LAMINITE: Siltstone, grey and orange brown, and Sandstone, fine to medium grained, light grey, with laminae, bedded at 0-5° .	MW	VL - L	0.10		(2.78m) Be, 0°, Ir, R, Fe Sn (2.86m) Be, 0°, Ir, R, Fe Sn (2.91m) Be, 0°, Ir, R, Fe Sn (2.99m) Be, 0°, Ir, R, Fe Sn (3.01m) Be, 0°, Ir, R, Fe Sn (3.16m) Be, 0°, Ir, R, Fe Sn (3.21m) Be, 0°, Ir, R, Fe Sn (3.22m) Be, 0°, Ir, R, Fe Sn (3.31m) Be, 0°, Ir, R, Fe Sn (3.41m) CS, 0°, 3 mm.t	
								0.30			
						SW	L - M	0.50		(3.56m) Be, 0°, Ir, R, Fe Sn (3.62m) Be, 0°, Ir, R, Fe Sn	
		115	4					0.20		(3.80m) Be, 0°, Ir, R, Fe Sn (3.86m) Be, 0°, Ir, R, Fe Sn (3.93m) Be, 0°, Ir, R, Fe Sn (4.05m) Be, 0°, Ir, R, Fe Sn (4.15m) Be, 0°, Ir, R, Fe Sn	
										(4.38m) Jh, 50°, Ir, R, Fe Sn (4.40m) J, 60°, Ir, R, Fe Sn	
										(4.61m) Ji, 45°, Ir, R, Fe Sn (4.65m) Ji, 50°, Ir, R, Fe Sn (4.69m) Ji, 50°, Ir, R, Fe Sn	
		114	5					0.40		(5.00m) J, 55°, Ir, R, Fe Sn	
								0.30		(5.11m) XWS, 0°, 5 mm.t (5.13m) J, 75°, Ir, R, Cn	
										(5.28m) Jh, 50°, Ir, R, Fe Sn (5.34m) Be, 0°, Ir, R, Fe Sn	
75% RETURN										(5.51m) J, 50 - 70°, Ir, R, Fe Sn	
								0.80		(5.63m) XWS, 0°, 3 mm.t	
		113	6							(5.88m) J, 75°, Ir, R, Fe Sn	
										(6.05m) J, 30°, Ir, R, Fe Sn	
								0.40		(6.24m) J, 50°, Ir, R, Fe Sn (6.30m) J, 70°, P, R, Fe Sn	
							H	1.0		(6.50m) Be, 0°, Ir, R, Fe Sn (6.56m) J, 65°, Ir, R, Fe Sn (6.60m) Ji, 80 - 50°, Ir, R, Fe Sn (6.70m) J, 60°, Ir, R, Fe Sn (6.77m) J, 60°, Ir, R, Fe Sn (6.82m) J, 40°, Ir, R, Fe Sn (6.87m) J, 45°, Ir, R, Fe Sn (6.95m) J, 20°, Ir, R, Fe Sn	
		112	7		SILTSTONE: grey, with light grey laminae, bedded at 0-5°.	FR		1.1			Ashfield Shale
								1.1			
								1.5		(7.92m) Be, 5°, Ir, R, Fe Sn	
		111	8							(8.04m) J, 30°, Ir, R, Cn (8.14m) J, 50°, Ir, R, Cn	
								1.4			
										(8.52m) J, 60°, Ir, R, Cn	
										(8.65m) J, 55°, Ir, R, Fe Sn (8.73m) J, 15°, Ir, R, Fe Sn (8.82m) J, 45°, Ir, R, Fe Sn	
		110						1.0			

JK 9.02.4 LIB:GLB Log JK CORED BOREHOLE - MASTER 37403Y GORDON.GPJ <<DrawingFile>> 19/03/2025 10:40 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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CORED BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y | **Core Size:** HQ | **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
AFTER 15 DAYS		109	10		SILTSTONE: grey, with light grey laminae, bedded at 0-5°. *(continued)*	FR	M	0.50			Ashfield Shale
								0.50			
							H	1.6		(10.32m) Be, 3°, Ir, R, Cn	
										(10.47m) J, 50°, Ir, R, Cn	
										(10.70m) J, 50°, Ir, R, Cn	
		108	11					1.8			
								1.1			
75% RETURN								1.6		(11.58m) J, 75°, Ir, R, Cn	
										(11.68-12.00m) ROCK IS FRACTURED	
		107	12					0.80			
										(12.48m) J, 50°, Ir, R, Cn	
								1.5		(12.60m) J, 40°, Ir, R, Cn	
										(12.79m) J, 75°, Ir, R, Cn	
		106	13							(13.05m) J, 60 - 70°, Ir, R, Cn	
										(13.20m) J, 50°, Ir, R, Cn	
								1.3			
										(13.50m) J, 60°, Ir, R, Cn	
								1.5			
		105	14							(13.90m) J, 50 - 85°, Ir, R, Cn	
								1.5			
										(14.42m) J, 70°, Ir, R, Cn	
										(14.62m) J, 70°, Ir, R, Cn	
60% RETURN		104	15					0.70			
								0.90			
										(15.68m) Be, 0°, Ir, R, Cn	
		103			SANDSTONE: as below			2.1			

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CORED BOREHOLE LOG

Borehole No. 201

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.9 m

Date: 26/2/25 TO 28/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness) Specific / General	Formation
60% RETURN		102	17		SANDSTONE: fine grained, light grey, with occasional grey laminae, bedded at 0-5°. *(continued)*	FR	M - H	0.60, 1.0, 0.50, 0.60, 3.0		(16.33m) XWS, 0°, Ir, R, Fe Sn, 35 mm.t	Hawkesbury Sandstone
					SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-5°.						
					END OF BOREHOLE AT 16.90 m						
		101	18								
		100	19								
		99	20								
		98	21								
		97	22								
		96									

POINT LOAD STRENGTH INDEX $I_s(50)$: VL -0.1, L -0.3, M -1, H -3, VH -10, EH

SPACING (mm): 600, 200, 60, 20

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BOREHOLE LOG

Borehole No. 202

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										CONCRETE: 185mm.t				7mm DIA. REINFORCEMENT, 20mm TOP COVER
				■	N = 26 4,17,9	118	1		-	FILL: Gravelly silty clay, low plasticity, grey, fine to coarse grained igneous gravel.	w<PL			APPEARS POORLY COMPACTED
				■						FILL: Gravelly silty clay, low plasticity, grey brown, fine to coarse grained ironstone gravel.				
				■	N = 5 4,1,4	117	2		-	SILTSTONE: grey, dark grey, with iron indurated bands.	DW	VL - L		ASHFIELD SHALE
						116	3			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 16.8m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 16.8m TO 10.8m. CASING 0.1m TO 10.8m. 2mm SAND FILTER PACK 16.8m TO 10.5m. BENTONITE SEAL 10.5m TO 7.0m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER. BACKFILLED SAND FROM 29.0m TO 19.0m. BENTONITE FROM 19.0m TO 16.8m.
						115	4							
						114	5							
						113	6							
						112								

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CORED BOREHOLE LOG

Borehole No. 202

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 2.33m						
					NO CORE 0.13m						Ashfield Shale
		116			SILTSTONE: grey, with iron indurated bands, bedded at 0-5°.	SW	L - M			(2.60m) XWS, 0°, Ir, R, Fe Sn, 50 mm.t	
					NO CORE 0.17m						
			3		LAMINITE: Siltstone, grey, and Sandstone, fine to medium grained, light grey, bedded at 30-40°.	SW	VL - L	0.30		(2.95m) J, 75°, Ir, R, Cn (3.18m) Be, 0°, Ir, R, Fe Sn	
					as above, but bedded at 0-5°.			0.10		(3.36m) Be, 0°, Ir, R, Fe Sn (3.41m) XWS, 6°, 6 mm.t (3.46m) Be, 0°, Ir, R, Fe Sn (3.55m) XWS, 0°, 13 mm.t (3.61m) XWS, 0°, 15 mm.t (3.67m) Be, 0°, Ir, R, Fe Sn	
		115						0.090		(3.88m) J, 50 - 60°, Ir, R, Fe Sn	
			4				L	0.10		(4.12m) Be, 0°, P, R, Fe Sn (4.20m) Be, 0°, P, R, Fe Sn (4.21m) Be, 0°, P, R, Fe Sn (4.34m) CS, 0°, 5 mm.t (4.39m) XWS, 0°, 10 mm.t	
		114						0.40		(4.52m) XWS, 0°, 3 mm.t (4.59m) XWS, 0°, 5 mm.t (4.61m) XWS, 0°, 5 mm.t	
0% RETURN			5		SILTSTONE: grey, with light grey laminae, bedded at 0-5°.	FR	M	0.60		(4.97m) Be, 0°, P, R, Fe Sn (5.05m) Be, 0°, P, R, Fe Sn	
		113						0.80		(5.49m) J, 50°, P, R, Fe Sn	
			6					0.70		(5.63m) Be, 0°, P, R, Fe Sn (5.64m) Be, 0°, P, R, Fe Sn (5.84m) Be, 0°, P, R, Fe Sn (5.93m) Be, 0°, P, R, Fe Sn (5.97m) J, 50°, Ir, R, Fe Sn (6.07m) Be, 5°, Ir, R, Fe Sn	Ashfield Shale
		112						0.60		(6.39m) J, 45°, Ir, R, Fe Sn (6.57m) J, 55°, Ir, R, Fe Sn	
			7					0.60 0.20		(6.81m) J, 50°, Ir, R, Fe Sn (6.94m) Be, 0°, Ir, R, Fe Sn	
		111						0.60		(7.00-7.17m) ROCK IS FRACTURED BY, J, 60-80°, Ir, R, Fe, Sn (7.22m) Be, 3°, Ir, R, Fe Sn (7.32m) J, 40°, Ir, R, Fe Sn (7.42m) J, 50°, Ir, R, Fe Sn	
			8				H	0.80 1.6		(7.58m) J, 60 - 70°, Ir, R, Fe Sn (7.61m) J, 50°, Ir, Fe Cn (7.69m) J, 35°, Ir, R, Fe Sn (7.79m) J, 45°, Ir, R, Fe Sn (7.86m) Be, Ir, R, Fe Sn (7.92m) Be, 5°, Ir, R, Fe Sn (7.96m) Be, 2°, Ir, R, Fe Sn	
		110						1.5		(8.04-8.20m) ROCK IS FRACTURED BY, J, 85°, Ir, R, Fe, Cn (8.25m) J, 85°, Ir, R, Fe Sn (8.32m) J, 30°, Ir, R, Fe Sn (8.39m) J, 70°, Ir, R, Fe Sn (8.41m) Be, 5°, Ir, R, Fe Sn (8.57m) J, 60°, Ir, R, Fe Sn (8.71m) J, 60°, Ir, R, Fe Sn (8.90m) J, 85°, Ir, R, Fe Sn	

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CORED BOREHOLE LOG

Borehole No. 202 **3 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness) Specific / General	Formation
AFTER 15 DAYS		109	10		SILTSTONE: grey, with light grey laminae, bedded at 0-5°. *(continued)*	FR	M - H	0.50		(9.10m) J, 85°, Ir, R, Fe Sn	
										(9.32m) J, 25°, Ir, R, Cn	
										(9.50m) J, 60°, Ir, R, Cn	
										(9.65m) J, 60°, Ir, R, Cn	
								1.5			
								0.90			
		108					H			(10.09-10.80m) ROCK IS FRACTURED BY, J, 85°, Ir, R, Fe, Cn	
			11					1.7		(10.93m) J, 60°, Ir, R, Cn	
										(11.05m) Cr, 0°, 10 mm.t	
								1.0		(11.13m) J, 40°, Ir, R, Cn	
		107								(11.35m) J, 80°, Ir, R, Cn	
										(11.40m) Cr, 0°, 25 mm.t	
										(11.56m) J, 90°, Ir, R, Cn	
										(11.72m) Cr, 0°, 35 mm.t	
										(11.78m) Be, 0°, P, R, Clay Vn	
			12		SILTSTONE: dark grey, with occasional light grey laminae, bedded at 0-5°.			1.1			
								1.7		(12.16m) J, 55°, Ir, R, Cn	
0% RETURN		106						1.3			
								1.1			
			13							(13.05m) J, 85°, Ir, R, Cn	
								1.1			
		105					M - H	0.90			
			14					1.0		(14.30m) J, 85°, Ir, R, Cn	
		104						1.1		(14.77m) J, 75 - 85°, C, R, Cn	
			15								
								0.50		(15.50m) Be, 0°, P, R, Clay Vn	
		103			SANDSTONE: fine grained, grey, interbedded with siltstone, dark grey, bedded at 0-5°.			1.5			

Ashfield Shale

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CORED BOREHOLE LOG

Borehole No. 202 **4 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
0% RETURN		102	17		SANDSTONE: fine grained, grey, interbedded with siltstone, dark grey, bedded at 0-5°. *(continued)*	FR	M - H	0.80		(16.20m) Be, 0°, P, R, Clay Vn (16.29m) Be, 0°, P, R, Cn (16.35m) Be, 0°, P, R, Cn	Hawkesbury Sandstone
							H	2.4			
								1.2		(16.72m) J, 40°, Ir, R, Cn	
		101			SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-10°.			2.5			
								1.0			
			18				M - H	0.90		(17.98m) J, 40°, Ir, R, Cn	
		100						1.2			
			19					0.80			
								0.90			
		99						1.1			
			20					1.0			
		98						1.0			
			21					1.1			
		97						1.1			
			22					1.2			
		96						0.90			
								2.7			

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CORED BOREHOLE LOG

Borehole No. 202 **5 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~118.5 m

Date: 24/2/25 TO 26/2/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
0% RETURN		95	24		SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-10°. *(continued)*	FR	M - H	1.0			Hawkesbury Sandstone
		94						0.90			
		93	25					0.80			
		92	26				H	1.7			
		91	27					1.1			
		90	28					0.90			
		89	29		END OF BOREHOLE AT 29.00 m			1.4			
								1.0			
								2.6			
								1.6			
								1.4			
								1.3			

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BOREHOLE LOG

Borehole No. 203

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING				■		126				FILL: Gravelly sand, fine to medium grained, grey and brown, fine to coarse grained igneous and sandstone gravel, with brick and concrete fragments.	M			
				■	N=SPT 7/ 120mm REFUSAL				-	CONCRETE: 280mm.t				NO OBSERVED REINFORCEMENT
						125	1		-	FILL: Silty clay, medium to high plasticity, orange brown, with fine to coarse grained igneous and ironstone gravel.	w>PL			
				■	N > 12 11,12/ 150mm REFUSAL				CI-CH	Silty CLAY: medium to high plasticity, light grey, trace of fine to coarse grained ironstone gravel.	w<PL	Hd	>600 >600 >600	RESIDUAL
						124	2		-	Extremely Weathered siltstone: silty CLAY, medium to high plasticity, orange brown, with fine to coarse grained igneous and ironstone gravel.	XW	Hd		ASHFIELD SHALE VERY LOW 'TC' BIT RESISTANCE WITH LOW BANDS
						123	3							
						122	4			as above, but with very low to low strength siltstone bands and iron indurated bands.				
				■		121	5							
						120	6							

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BOREHOLE LOG

Borehole No. 203

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Method:** SPIRAL AUGER **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** T.F./M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						119			-	Extremely Weathered siltstone: as above	XW	Hd		
										SILTSTONE: grey.	DW	L - M		
										REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 24.8m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 24.8m TO 18.8m. CASING 0.1m TO 18.8m. 2mm SAND FILTER PACK 24.8m TO 18.4m. BENTONITE SEAL 18.4m TO 12.0m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						118	8							
						117	9							
						116	10							
						115	11							
						114	12							
						113	13							

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CORED BOREHOLE LOG

Borehole No. 203

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		119			START CORING AT 7.53m						
75% RETURN		118	8		NO CORE 0.09m LAMINITE: Siltstone, grey, and Sandstone, fine to medium grained, light grey, bedded at 0-5°.	SW	VL - L	0.50		(7.80m) J, 85°, Ir, R, Fe Sn (8.16m) XWS, 0°, 10 mm.t (8.30m) XWS, 0°, 10 mm.t	
						FR		0.20		(8.58m) XWS, 0°, 3 mm.t (8.64m) XWS, 0°, 5 mm.t	
		117	9				L	0.20			
								0.60		(9.71m) Cr, 0°, 45 mm.t	
							VL				
		116	10				M	0.90		(10.20m) Be, 0°, Ir, R, Fe Sn	
95% RETURN								0.20		(10.46m) XWS, 0°, 10 mm.t (10.58m) XWS, 0°, 10 mm.t (10.69m) CS, 0°, 12 mm.t (10.83m) Ji, 85°, Ir, R, Cn	Ashfield Shale
		115	11					0.40		(11.20m) Ji, 85°, Ir, R, Cn	
								0.30		(11.66m) XWS, 0°, 8 mm.t (11.74m) XWS, 0°, 10 mm.t	
								0.30		(11.87m) XWS, 0°, 6 mm.t	
		114	12					0.20		(12.16m) XWS, 0°, 6 mm.t (12.18m) XWS, 0°, 4 mm.t (12.22m) XWS, 0°, 5 mm.t	
										(12.45m) XWS, 0°, 10 mm.t (12.58m) XWS, 0°, 15 mm.t	
					SILTSTONE: grey, with occasional light grey laminae, bedded at 0-5°.			0.40			
		113	13					0.40			
								0.20			

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JKGeotechnics

CORED BOREHOLE LOG

Borehole No. 203 **4 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
95% RETURN		112	15		SILTSTONE: grey, with occasional light grey laminae, bedded at 0-5°. *(continued)*	FR	M	0.30		(14.11m) J, 60°, Ir, R, Cn	Ashfield Shale
		111						0.20		(14.57m) Be, 0°, Ir, R, Cn (14.66m) CS, 0°, 4 mm.t	
								0.40		(14.85m) CS, 0°, 10 mm.t (14.92m) J, 60°, Ir, R, Cn	
			16					0.40		(15.35m) J, 50°, Ir, R, Cn	
		110						0.10		(15.67m) XWS, 0°, 10 mm.t (15.73m) XWS, 0°, 4 mm.t	
								0.40		(15.90m) XWS, 7°, 8 mm.t (15.91m) XWS, 0°, 4 mm.t	
		109	17					0.30		(16.12m) J, 70°, Ir, R, Cn (16.17m) Cr, 0°, 20 mm.t	
								0.90		(16.39m) XWS, 0°, 4 mm.t	
								0.90		(16.52m) J, 60°, Ir, R, Cn	
		108	18				H	1.0		(16.70m) CS, 0°, 16 mm.t (16.75m) J, 30°, Ir, R, Cn (16.83m) J, 30°, Ir, R, Cn (16.86m) XWS, 0°, 8 mm.t (16.89m) CS, 0°, 10 mm.t (16.98m) XWS, 0°, 4 mm.t (17.15m) XWS, 0°, 20 mm.t	
								1.5		(17.38m) XWS, 0°, 4 mm.t	
		107	19					1.9		(17.65m) J, 75°, Ir, R, Cn	
								1.9		(18.18m) J, 35°, Ir, R, Cn (18.27m) J, 45°, Ir, R, Cn (18.37m) J, 40°, Ir, R, Cn	
		106	20					2.0		(18.54m) J, 80°, Ir, R, Cn	
								1.9		(18.81m) J, 40°, Ir, R, Cn (18.87m) J, 40°, Ir, R, Cn	
AFTER 11 DAYS										(20.27m) J, 50°, Ir, R, Cn	
										(20.92m) J, 50°, Ir, R, Cn	

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CORED BOREHOLE LOG

Borehole No. 203 **5 / 5**

Client: SITE 3 GROUP PTY LTD

Project: PROPOSED MIXED USE DEVELOPMENT

Location: 810 PACIFIC HIGHWAY, GORDON, NSW

Job No.: 37403Y **Core Size:** HQ **R.L. Surface:** ~126.2 m

Date: 28/2/25 TO 3/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** T.F./M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
95% RETURN		105	22		SILTSTONE: grey, with occasional light grey laminae, bedded at 0-5°. *(continued)*	FR	H	1.6			Ashfield Shale
		104						1.3			
							M - H	0.90			
			23					0.80			
		103						0.60			
					SANDSTONE: fine grained, grey, with occasional grey laminae, bedded at 0-5°.						Hawkesbury Sandstone
			24		SANDSTONE: fine to medium grained, light grey, with occasional grey laminae, bedded at 0-5°.			1.8			
		102						0.80			
								1.1			
					END OF BOREHOLE AT 24.80 m						
		101	25								
			26								
		100									
			27								
		99									

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ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 *'Geotechnical Site Investigations'*. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

  N = 13
  4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

  N > 30
  15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'N_c' on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL


FILL


TOPSOIL


CLAY (CL, CI, CH)


SILT (ML, MH)


SAND (SP, SW)


GRAVEL (GP, GW)


SANDY CLAY (CL, CI, CH)


SILTY CLAY (CL, CI, CH)


CLAYEY SAND (SC)


SILTY SAND (SM)


GRAVELLY CLAY (CL, CI, CH)


CLAYEY GRAVEL (GC)


SANDY SILT (ML, MH)


PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK


CONGLOMERATE


SANDSTONE


SHALE/MUDSTONE


SILTSTONE


CLAYSTONE


COAL


LAMINITE


LIMESTONE


PHYLLITE, SCHIST


TUFF


GRANITE, GABBRO


DOLERITE, DIORITE


BASALT, ANDESITE


QUARTZITE

OTHER MATERIALS


BRICKS OR PAVERS


CONCRETE


ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $Cu > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_U = \frac{D_{60}}{D_{10}} \qquad and \qquad C_C = \frac{(D_{30})^2}{D_{10}\, D_{60}}$$

Where D_{10}, D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

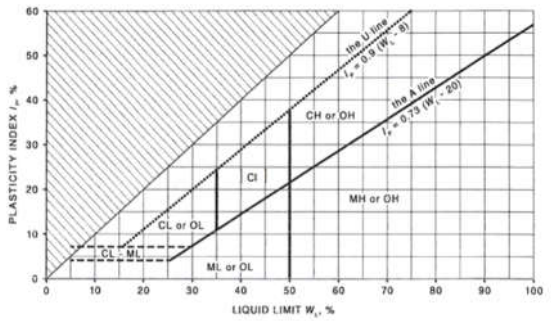
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.
		Extent of borehole/test pit collapse shortly after drilling/excavation.
		Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	w > PL $w \approx$ PL w < PL $w \approx$ LL w > LL	Moisture content estimated to be greater than plastic limit. Moisture content estimated to be approximately equal to plastic limit. Moisture content estimated to be less than plastic limit. Moisture content estimated to be near liquid limit. Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D M W	DRY – runs freely through fingers. MOIST – does not run freely but no free water visible on soil surface. WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS S F St VSt Hd Fr ( )	VERY SOFT – unconfined compressive strength ≤ 25kPa. SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa. FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa. STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa. VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa. HARD – unconfined compressive strength > 400kPa. FRIABLE – strength not attainable, soil crumbles. Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)	VL L MD D VD ( )	**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)** VERY LOOSE ≤ 15 / 0 – 4 LOOSE > 15 and ≤ 35 / 4 – 10 MEDIUM DENSE > 35 and ≤ 65 / 10 – 30 DENSE > 65 and ≤ 85 / 30 – 50 VERY DENSE > 85 / > 50 Bracketed symbol indicates estimated density based on ease of drilling or other assessment.

Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: *'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'*. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Appendix E: Laboratory Report & COC Documents

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CERTIFICATE OF ANALYSIS 377127

Client Details

Client	JK Environments
Attention	Todd Hore
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E37465PH Gordon**
Number of Samples	6 Water
Date samples received	01/04/2025
Date completed instructions received	01/04/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	08/04/2025
Date of Issue	08/04/2025

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Priya Samarawickrama, Senior Chemist
Stuart Chen, Asbestos Approved Identifier/Report coordinator

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water				
Our Reference		377127-1	377127-2	377127-3
Your Reference	UNITS	MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Date Extracted	-	04/04/2025	04/04/2025	04/04/2025
Date Analysed	-	04/04/2025	04/04/2025	04/04/2025
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	1	<1	1
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	3
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	5
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	3

VOCs in water				
Our Reference	UNITS	377127-1	377127-2	377127-3
Your Reference		MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Bromoform	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	2
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	3
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	4
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	100	101	100
Surrogate Toluene-d8	%	102	103	102
Surrogate 4-Bromofluorobenzene	%	93	84	93

vTRH(C6-C10)/BTEXN in Water					
Our Reference	UNITS	377127-1	377127-2	377127-3	377127-5
Your Reference		MW201	MW202	MW203	TS1
Date Sampled		31/03/2025	31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	04/04/2025	04/04/2025	04/04/2025	07/04/2025
Date analysed	-	04/04/2025	04/04/2025	04/04/2025	08/04/2025
TRH C_6 - C_9	µg/L	<10	<10	110	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	160	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	150	[NA]
Benzene	µg/L	<1	<1	<1	84%
Toluene	µg/L	<1	<1	<1	85%
Ethylbenzene	µg/L	<1	<1	3	88%
m+p-xylene	µg/L	<2	<2	<2	86%
o-xylene	µg/L	<1	<1	2	88%
Naphthalene	µg/L	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	100	101	100	99
Surrogate Toluene-d8	%	102	103	102	100
Surrogate 4-Bromofluorobenzene	%	93	84	93	97

svTRH (C10-C40) in Water				
Our Reference		377127-1	377127-2	377127-3
Your Reference	UNITS	MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Date extracted	-	02/04/2025	02/04/2025	02/04/2025
Date analysed	-	03/04/2025	03/04/2025	03/04/2025
TRH C_{10} - C_{14}	µg/L	<50	<50	310
TRH C_{15} - C_{28}	µg/L	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	310
TRH >C_{10} - C_{16}	µg/L	<50	<50	170
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	170
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	170
Surrogate o-Terphenyl	%	86	87	86

PAHs in Water				
Our Reference	UNITS	377127-1	377127-2	377127-3
Your Reference		MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Date extracted	-	02/04/2025	02/04/2025	02/04/2025
Date analysed	-	04/04/2025	04/04/2025	04/04/2025
Naphthalene	µg/L	<0.1	<0.1	0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	0.23
Surrogate p-Terphenyl-d14	%	79	79	72

All metals in water-dissolved					
Our Reference	UNITS	377127-1	377127-2	377127-3	377127-4
Your Reference		MW201	MW202	MW203	GWDUP1
Date Sampled		31/03/2025	31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	04/04/2025	04/04/2025	04/04/2025	04/04/2025
Date analysed	-	04/04/2025	04/04/2025	04/04/2025	04/04/2025
Aluminium-Dissolved	µg/L	50	20	60	[NA]
Silver-Dissolved	µg/L	<1	<1	<1	[NA]
Antimony-Dissolved	µg/L	<1	<1	<1	[NA]
Barium-Dissolved	µg/L	40	31	71	[NA]
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	[NA]
Boron-Dissolved	µg/L	<20	30	<20	[NA]
Cobalt-Dissolved	µg/L	3	7	26	[NA]
Iron-Dissolved	µg/L	7,400	180	9,000	[NA]
Lithium-Dissolved	µg/L	31	5	31	[NA]
Manganese-Dissolved	µg/L	640	220	470	[NA]
Molybdenum-Dissolved	µg/L	1	5	<1	[NA]
Selenium-Dissolved	µg/L	<1	<1	<1	[NA]
Strontium-Dissolved	µg/L	21	250	36	[NA]
Uranium-Dissolved	µg/L	<0.5	1.5	<0.5	[NA]
Vanadium-Dissolved	µg/L	1	<1	<1	[NA]
Arsenic-Dissolved	µg/L	11	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	9	<1	9
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	17	14	36	14
Lead-Dissolved	µg/L	<1	<1	<1	<1
Zinc-Dissolved	µg/L	73	78	130	78

Metals in Waters - Acid extractable				
Our Reference		377127-1	377127-2	377127-3
Your Reference	UNITS	MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Date prepared	-	03/04/2025	03/04/2025	03/04/2025
Date analysed	-	03/04/2025	03/04/2025	03/04/2025
Phosphorus - Total	mg/L	1.8	0.2	2.6

Miscellaneous Inorganics				
Our Reference	UNITS	377127-1	377127-2	377127-3
Your Reference		MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Date prepared	-	02/04/2025	02/04/2025	02/04/2025
Date analysed	-	02/04/2025	02/04/2025	02/04/2025
Electrical Conductivity	µS/cm	930	500	1,000
pH	pH Units	6.2	6.5	5.9
Redox Potential*	mV	54	73	96
Dissolved Oxygen*	mg/L	6.8	7.2	7.0
Turbidity	NTU	NT	240	NT
Total Dissolved Solids (grav)	mg/L	500	310	540
Total Suspended Solids	mg/L	1,600	220	17,000
Total Organic Carbon	mg/L	13	9	25
Sodium Adsorption Ratio	-	8.1	1.3	7.3
Silica (Reactive - SiO_2)	mg/L	11	20	25
Ammonia as N in water	mg/L	0.033	0.014	0.025
Nitrate as N in water	mg/L	0.051	3.2	<0.005
Nitrite as N in water	mg/L	<0.005	0.017	<0.005
NOx as N in water	mg/L	0.05	3.2	<0.005
Total Nitrogen in water	mg/L	3.1	3.6	1.9
TKN in water	mg/L	3.1	0.3	1.9
Phosphate as P in water	mg/L	<0.005	<0.005	<0.005
Organic Nitrogen as N	mg/L	3.0	0.3	1.8

Ion Balance				
Our Reference	UNITS	377127-1	377127-2	377127-3
Your Reference		MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Date prepared	-	02/04/2025	02/04/2025	02/04/2025
Date analysed	-	02/04/2025	02/04/2025	02/04/2025
Calcium - Dissolved	mg/L	7.7	48	14
Potassium - Dissolved	mg/L	6.2	7.2	5.4
Sodium - Dissolved	mg/L	160	39	170
Magnesium - Dissolved	mg/L	12	11	17
Hardness (calc) equivalent $CaCO_3$	mg/L	70	170	100
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	140	140	140
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	140	140	140
Sulphate, SO4	mg/L	72	50	70
Chloride, Cl	mg/L	130	34	160
Ionic Balance	%	3.0	4.0	6.0

Microbiologocal Testing				
Our Reference		377127-1	377127-2	377127-3
Your Reference	UNITS	MW201	MW202	MW203
Date Sampled		31/03/2025	31/03/2025	31/03/2025
Type of sample		Water	Water	Water
Date of testing	-	02/04/2025	02/04/2025	02/04/2025
E. coli	cfu/100mL	20	330	230
Thermotolerant Coliforms	cfu/100mL	46	330	230

Method ID	Methodology Summary
Ext-008	Subcontracted to Sonic Food & Water Testing. NATA Accreditation No. 4034.
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-035	Analysed using an electrode. Please note that the results for water analyses are indicative only, samples are ideally analysed on collection.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-079	TOC determined using a TOC analyser using the combustion method. Dissolved requires filtering prior to determination. Analysis using APHA latest edition 5310B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Inorg-112	Dissolved Oxygen using membrane electrode. Note this analysis should ideally be carried out immediately after sampling.
INORG-120	Reactive Silica (SiO2) determined colorimetrically. Waters samples are filtered on receipt prior to analysis.

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Metals-020	Calcium and Magnesium analysed by ICP-AES and SAR calculated.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			04/04/2025	1	04/04/2025	07/04/2025		04/04/2025	[NT]
Date Analysed	-			04/04/2025	1	04/04/2025	08/04/2025		04/04/2025	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	115	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	1	1	0	116	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	121	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	108	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	122	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	119	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	125	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	102	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	97	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	101	1	100	96	4	101	[NT]
Surrogate Toluene-d8	%		Org-023	103	1	102	102	0	104	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	1	93	74	23	96	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			04/04/2025	1	04/04/2025	07/04/2025		04/04/2025	[NT]
Date analysed	-			04/04/2025	1	04/04/2025	08/04/2025		04/04/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	108	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	108	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	119	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	102	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	97	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	101	1	100	96	4	101	[NT]
Surrogate Toluene-d8	%		Org-023	103	1	102	102	0	104	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	1	93	74	23	96	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			03/04/2025	[NT]	[NT]	[NT]	[NT]	02/04/2025	[NT]
Date analysed	-			03/04/2025	[NT]	[NT]	[NT]	[NT]	03/04/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	126	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	126	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	95	[NT]	[NT]	[NT]	[NT]	117	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			02/04/2025	[NT]	[NT]	[NT]	[NT]	02/04/2025	[NT]
Date analysed	-			04/04/2025	[NT]	[NT]	[NT]	[NT]	04/04/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	83	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	83	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	67	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	71	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	81	[NT]	[NT]	[NT]	[NT]	110	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	377127-2
Date prepared	-			04/04/2025	1	04/04/2025	04/04/2025		04/04/2025	04/04/2025
Date analysed	-			04/04/2025	1	04/04/2025	04/04/2025		04/04/2025	04/04/2025
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	50	50	0	98	102
Silver-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	96	74
Antimony-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	81	73
Barium-Dissolved	µg/L	1	Metals-022	<1	1	40	41	2	96	101
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	98	116
Boron-Dissolved	µg/L	20	Metals-022	<20	1	<20	<20	0	90	115
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	94	103
Iron-Dissolved	µg/L	10	Metals-022	<10	1	7400	8000	8	97	#
Lithium-Dissolved	µg/L	1	Metals-022	<1	1	31	32	3	100	113
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	640	650	2	93	#
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	92	94
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	90	96
Strontium-Dissolved	µg/L	1	Metals-022	<1	1	21	21	0	92	#
Uranium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	98	98
Vanadium-Dissolved	µg/L	1	Metals-022	<1	1	1	<1	0	94	103
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	11	11	0	91	104
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	92	104
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	94	104
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	95	104
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	102	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	17	17	0	95	102
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	101
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	73	73	0	94	94

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			03/04/2025	2	03/04/2025	03/04/2025		03/04/2025	[NT]
Date analysed	-			03/04/2025	2	03/04/2025	03/04/2025		03/04/2025	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	2	0.2	0.2	0	116	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	377127-2
Date prepared	-			02/04/2025	1	02/04/2025	02/04/2025		02/04/2025	02/04/2025
Date analysed	-			02/04/2025	1	02/04/2025	02/04/2025		02/04/2025	02/04/2025
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	930	[NT]		99	[NT]
pH	pH Units		Inorg-001	[NT]	1	6.2	[NT]		101	[NT]
Redox Potential*	mV		Inorg-035	[NT]	1	54	[NT]		81	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	<0.1	1	6.8	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	NT	[NT]		94	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	500	[NT]		82	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	1600	[NT]		110	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	<1	1	13	[NT]		92	[NT]
Sodium Adsorption Ratio	-	0.01	Metals-020	<0.01	1	8.1	8.3	2	93	[NT]
Silica (Reactive - SiO_2)	mg/L	0.1	INORG-120	<0.1	1	11	11	0	110	#
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.033	[NT]		101	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.051	[NT]		99	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		100	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.05	[NT]		99	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	3.1	[NT]		81	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	3.1	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	[NT]		88	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	3.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			02/04/2025	1	02/04/2025	02/04/2025		02/04/2025	[NT]
Date analysed	-			02/04/2025	1	02/04/2025	02/04/2025		02/04/2025	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	7.7	8.5	10	92	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	6.2	6.9	11	98	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	160	170	6	90	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	12	14	15	95	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	70	77	10	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	140	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	140	[NT]		101	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	72	[NT]		99	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	1	130	[NT]		97	[NT]
Ionic Balance	%		Inorg-040	[NT]	1	3.0	[NT]		[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Turbidity: Samples #1, 4 could not be analysed due to the high concentration of solid matter.

MISC_INORG: Reactive Silica # Percent recovery not reported due to the high concentration of the analyte/s in the sample/s. However, an acceptable recovery was obtained for the LCS.

All metals in water-dissolved - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Microbiology analysed by Sonic Food & Water Testing. Report no. W2507535.

The time between collection and the commencement of testing should not exceed 24 hours. Samples tested outside this time may have their results compromised.

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SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Todd Hore

Sample Login Details

Your reference	E37465PH Gordon
Envirolab Reference	377127
Date Sample Received	01/04/2025
Date Instructions Received	01/04/2025
Date Results Expected to be Reported	08/04/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Extra TB sample received - assumed to be tested

Please direct any queries to:

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Analysis Underway, details on the following page:

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Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	All metals in water-dissolved	Metals in Waters -Acid extractable	Electrical Conductivity	pH	Redox Potential*	Dissolved Oxygen*	Turbidity	Total Dissolved Solids(grav)	Total Suspended Solids	Total Organic Carbon	Sodium Adsorption Ratio	Silica (Reactive - SiO2)	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Total Nitrogen in water	TKN in water	Phosphate as P in water	Organic Nitrogen as N	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	Microbiologocal Testing
MW201	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW202	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW203	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GWDUP1					✓																																
TS1		✓																																			
TB		✓																																			

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD	JKE Job Number: E37465PH	JKEnvironments
12 ASHLEY STREET		
CHATSWOOD NSW 2067		
P: (02) 99106200	Date Results Required: STANDARD	REAR OF 115 WICKS ROAD
F: (02) 99106201		MACQUARIE PARK, NSW 2113
		P: 02-9888 5000 F: 02-9888 5001
Attention: Aileen	Page: 1 of 1	Attention: Thore@jkenvironments.com.au

Location: Gordon

Sampler: OB

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Alkalinity suite	EC, pH, reddox, DO	Turbidity	TDS, TSS, TOC, SAR	Ionic balance, including hardness	#3	Additional metals: Al, Ag, Sb, Ba, Be, B, Co, Fe, Li, Mn, Mo, Se, Sr, U, V	Silica (reactive) - dissolved silica	Nutrient suite	Faecal coliforms + Escherichia (E) coli	8 Metals	BTEX	VOCs
31/03/2025	1	MW201	##	0	Water	X	X	X	X	X	X	X	X	X	X			X
31/03/2025	2	MW202	##	0.5	Water	X	X	X	X	X	X	X	X	X	X			X
31/03/2025	3	MW203	##	7.7	Water	X	X	X	X	X	X	X	X	X	X			X
31/03/2025	4	GWDUP1	H	-	Water											X		
31/03/2025	5	TS1	V	-	Trip Spike												X	
31/03	6	TB																

Extra TTr

Remarks (comments/detection limits required):

Sample Containers:
Each sample includes: x2 amber bottles, x2 HCl preserved glass vials, x2 unpreserved plastic bottles, x2 nitric acid preserved bottles (1 is field filtered), x1 sulphuric acid preserved bottle and x1 sterile container
H - HNO3
Wash PVC
V - BTEX Vial

Relinquished By:	Date: 1/4/25	Time: 13:15	Received By:	Date:
Butler				

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 377127

Date Received: 1/04/25
Time Received: 1550
Received By: TTr
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Appendix F: Groundwater Field Sheets

JKEnvironments

Client:	Sterling Project Solutions Pty Limited	**Job No.:**	E37465PH
Project:	Groundwater Analysis	**Well No.:**	MW201
Location:	810 Pacific Highway, Gordon, NSW	**Depth (m):**	16.9m

WELL FINISH DETAILS

	Gatic Cover ☒	**Standpipe** ☐	**Other (describe)** ☐

WELL DEVELOPMENT DETAILS

Method:	Development pump	**SWL – Before (m):**	11.44m
Date:	26/03/25	**Time – Before:**	8.45am
Undertaken By:	VR	**SWL – After (m):**	11.78m
Total Vol. Removed:	Approx. 60L	**Time – After:**	9.21am
PID Reading (ppm):	0.0		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
1L	11.40m	19.5	2.1	909	5.88	156.2
5L	″	19.1	0.4	992	6.19	143.6
10L	11.75m	18.9	0.2	909	5.95	134.6
15L	″	18.9	0.3	890	5.87	132.4
→ 20L	11.46m	19.0	0.4	890	5.95	105.9
25L	″	18.9	0.5	887	5.93	106.5
30L	11.74m	18.8	0.3	882	5.92	107.5
35L	″	18.8	0.2	880	5.93	108.2
→ 40L	11.49m	18.8	0.2	878	5.94	108.5
45L	″	19.0	0.4	875	5.99	100.5
50L	11.76m	18.9	0.3	871	5.97	101.6
55L	″	18.8	0.2	869	5.97	103.0
60L	11.78m	18.8	0.2	867	5.97	103.3

Comments: Odours (YES) / ~~NO~~), NAPL/PSH (~~YES~~ / (NO)), Sheen (~~YES~~ / (NO)), Steady State Achieved (YES) / ~~NO~~)

YSI Used:

YSI 4 Dark Brown/Grey Water. Sulfuric odour

Tested By:	VR
Date Tested:	26/03/25
Checked By:	TH
Date:	10/4/25

Remarks:
- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

16.9 − 11.44 = 5.46m

× 3 = 16.38m

× 3 = 49.14L

JKEnvironments

Client:	Sterling Project Solutions Pty Limited	**Job No.:**	E37465PH
Project:	Groundwater Analysis	**Well No.:**	MW202
Location:	810 Pacific Highway, Gordon, NSW	**Depth (m):**	16.2m

WELL FINISH DETAILS

	Gatic Cover ☑	**Standpipe** ☐	**Other (describe)** ☐

WELL DEVELOPMENT DETAILS

Method:	Development Pump	**SWL – Before (m):**	11.11
Date:	26/03/25	**Time – Before:**	9.36am
Undertaken By:	VR	**SWL – After (m):**	11.42m
Total Vol. Removed:	Approx 60L	**Time – After:**	10.23am
PID Reading (ppm):	0.1		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
1L	/	19.9	1.8	869	5.93	116.8
5L	/	19.4	0.2	900	5.96	113.9
10L	/	19.1	0.1	872	5.85	112.5
15L	11.51	19.1	0.1	865	5.85	111.5
→ 20L	/	19.1	0.1	861	5.85	110.7
25L		19.2	0.2	705	5.83	100.3
30L		19.2	0.2	693	5.84	101.1
35L	11.50	19.2	0.2	687	5.85	101.4
→ 40L		19.2	0.2	691	5.85	101.5
45L		19.3	0.4	718	5.88	101.2
50L	11.50	19.2	0.2	733	5.87	101.1
55L		19.2	0.1	734	5.87	100.7
60L		19.2	0.1	743	5.88	100.1

Comments:Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used:

YSI 4 Brown / Medium Silt loam. Slight Sulfuric Odour.

Tested By:	VR
Date Tested:	26/03/25
Checked By:	TH
Date:	10/4/25

Remarks:

- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

16.80 − 11.11 = 5.69

× 3 = 17.07

× 3 = 51.21 L

JKEnvironments

Client:	Sterling Project Solutions Pty Limited	Job No.:	E37465PH
Project:	Groundwater Analysis	Well No.:	MW203
Location:	810 Pacific Highway, Gordon, NSW	Depth (m):	24.8m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Bermuda Triangle	SWL – Before (m):	18.90m
Date:	26/03/25	Time – Before:	10.40am
Undertaken By:	VR	SWL – After (m):	18.88m
Total Vol. Removed:	Approx 55L	Time – After:	12.06pm
PID Reading (ppm):	2.1		
Comments:			

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
1L		20.6	5.0	1238	4.55	123.3
5L		20.8	8.0	1060	5.10	152.8
10L		20.1	2.5	1052	5.11	152.1
15L		19.4	0.4	1026	5.15	150.0
20L	18.79m	19.9	0.4	1022	5.17	149.6
25L		20.0	0.3	1052	5.29	146.2
30L		20.7	0.6	1026	5.43	142.1
35L		20.6	0.3	1029	5.41	141.7
40L	18.84	21.1	0.2	1025	5.41	141.0
45		21.1	0.3	1025	5.41	140.4
50		21.6	2.0	1026	5.45	140.9
55		21.8	1.0	1028	5.45	140.8

Comments: Odours (YES) / NO), NAPL/PSH (YES / (NO)), Sheen (~~YES~~ / NO), Steady State Achieved (YES) / ~~NO~~)

YSI Used: YSI → slight Sulfuric smell

Dark Brown - High Silt load

low flow with development pump (due to well depth).

Tested By:	VR
Date Tested:	26/03/25
Checked By:	TH
Date:	10/4/25

Remarks:
- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

24.8 - 18.9 = 5.9

× 3 = 17.70

×3 = 53.1L

JKEnvironments

WATER QUALITY METER CALIBRATION FORM

Client:	Sterling Project Solutions Pty Limited		
Project:	Groundwater Analysis		
Location:	810 Pacific Highway, Gordon, NSW		
Job Number:	E37465PH		
DISSOLVED OXYGEN			
Make: YSI 4		Model: /	
Date of calibration: 31/03/25		Name of Calibrator: CB	
Span value: 70% to 130%			
Measured value: 98 %			
Measured reading Acceptable (Yes/No):			
pH			
Make: YSI 4		Model: —	
Date of calibration: 31/03/25		Name of Calibrator: CB	
Buffer 1: Theoretical pH = 7.01± 0.01		Expiry date: 9/25	Lot No: DH130924
Buffer 2: Theoretical pH = 4.01± 0.01		Expiry date: 8/25	Lot No: CP250624
Measured reading of Buffer 1: 6.93			
Measured reading of Buffer 2: 4.02			
Slope: —		Measured reading Acceptable (Yes/No):	
EC			
Make: YSI 4		Model: —	
Date: 31/03/25	Name of Calibrator: CB		Temperature: 21.6 °C
Calibration solution: AR - Cond. Solution		Expiry date: 08/25	Lot No: CB130824
Theoretical conductivity at temperature (see solution container): 1.332 µS/cm			
Measured conductivity: 1313 µS/cm		Measured reading Acceptable (Yes/No):	
REDOX			
Make: YSI 4		Model: —	
Date of calibration: 31/03/25		Name of Calibrator: CB	
Calibration solution: Hanna Instruments		Expiry date: 9/25	Lot No: 0675
Theoretical redox value: 240mV			
Measured redox reading: 262.7 mV		Measured reading Acceptable (Yes/No):	

JKEnvironments

Client:	Sterling Project Solutions Pty Limited	Job No.:	E37465PH
Project:	Groundwater Analysis	Well No.:	201
Location:	810 Pacific Highway, Gordon, NSW	Depth (m):	16.9

WELL FINISH

x	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	MicroPurge	SWL – Before:	11.42
Date:	31/3/25	Time – Before:	11:30
Undertaken By:	OB	Total Vol Removed:	~ 6.5L
Pump Program No:	CPM 6 7:3	PID (ppm):	6.0

PL out 11.27 in 12:57

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
12:12 (0)	11.44	0.8		20.1	2.7	440.2	5.97	-36.3
12.15 (3)	11.44	1.6		19.3	1.3	866	5.67	-30.3
12:18 (6)	11.44	2.4		19.1	1.2	850	5.64	-26.8
12.21 (9)	11.44	3.2		19.1	0.8	843	5.60	-27.8
12.24 (12)	11.44	4.0		19.1	0.7	837	5.60	-27.6
12.27 (15)	11.44	4.8		19.1	0.6	833	5.60	-27.2
	steady state achieved start sampling							

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)
Sampling Containers Used: 1 x glass amber, 4 x BTEX vials, 2 x HNO3 plastic, 1 x H2SO4 plastic, 1 x unpreserved plastic x1 Microbial
YSI used: 4

M-U silt load, dark brown, m-H recharge

Tested By:	OB
Date Tested:	31/3/25
Checked By:	TH
Date:	10/4/25

Remarks:
- Steady state conditions
- difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown

JKEnvironments

Client:	Sterling Project Solutions Pty Limited	Job No.:	E37465PH
Project:	Groundwater Analysis	Well No.:	202
Location:	810 Pacific Highway, Gordon, NSW	Depth (m):	16.8

WELL FINISH

X	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	* Micropurge	SWL – Before:	11.07
Date:	31/3/25	Time – Before:	09:40
Undertaken By:	OB	Total Vol Removed:	~6L
Pump Program No:	CPM 6 7:3	PID (ppm):	0.5

DL OUT 9:38 IN 11:00

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
10:37 (0)	11.07	0.5		21.3	7.2	506	6.83	6.3
10.40 (3)	11.07	0.9		21.3	6.3	511	6.41	-1.6
10.43 (6)	11.07	1.3		20.6	5.7	504	6.20	-2.2
10:46 (9)	11.07	1.7		20.2	5.6	501	6.07	-3.1
10:49 (12)	11.07	2.1		20.1	5.3	498	6.06	-4.6
10.52 (15)	11.07	2.5		20.2	5.2	496	6.06	-5.0
			steady state achieved - start sampling					
Removed: approx 1-2L with Bailer before Micropurge								

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)
Sampling Containers Used: 2x glass amber, 4x BTEX vials, 4x HNO3 plastic, 1 x H2SO4 plastic, 1 x unpreserved plastic x 1 micro
YSI used: 4

m-H silt load, m-H recharge, light brown, GWPUP 1

Tested By:	OB
Date Tested:	31/3/25
Checked By:	TH
Date:	10/4/25

Remarks:
- Steady state conditions
- difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown

JKEnvironments

Client:	Sterling Project Solutions Pty Limited	Job No.:	E37465PH
Project:	Groundwater Analysis	Well No.:	203
Location:	810 Pacific Highway, Gordon, NSW	Depth (m):	24.8

WELL FINISH

X	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Micropurge	SWL – Before:	18.62
Date:	31/3/25	Time – Before:	13:15
Undertaken By:	OB	Total Vol Removed:	~ 6.5L
Pump Program No:	CPM6 7:3	PID (ppm):	7.7

DL OUT 13.10 IN 15:30

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
14.37 (0)	18.77	0.9		20.1	3.4	980	5.56	-50.1
14.40 (3)	18.77	1.6		20.1	3.3	975	5.40	-60.9
14.43 (6)	18.77	2.4		19.7	2.9	949	5.42	-59.9
14.46 (9)	18.77	3.2		19.6	2.6	942	5.43	-58.3
14:49 (12)	18.77	4.0		19.6	2.4	941	5.45	-57.4
14.52 (15)	18.77	1.8		19.6	2.2	943	5.46	-56.6
		Standby	stable achieved - start sampling					

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)
Sampling Containers Used: 2 x glass amber, 4 x BTEX vials, 2 x HNO3 plastic, 1 x H2SO4 plastic, 1 x unpreserved plastic X 1 microbial
YSI used: 4

H silt load, dark brown, H recharge

Tested By:	OB
Date Tested:	31/3/25
Checked By:	TH
Date:	10/4/25

Remarks:
- Steady state conditions
- difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown

Appendix G: Report Explanatory Notes

STANDARD SAMPLING PROCEDURE (SSP)

These protocols specify the basic procedures to be used when sampling soils or groundwater for environmental site assessments undertaken by JKE.

The purpose of these protocols is to provide standard methods for: sampling, decontamination procedures for sampling equipment, sample preservation, sample storage and sample handling. Deviations from these procedures must be recorded.

A. Groundwater Sampling

Groundwater samples are more sensitive to contamination than soil samples and therefore adhesion to this protocol is particularly important to obtain reliable, reproducible results. The recommendations detailed in AS/NZS 5667.1:1998 are considered to form a minimum standard.

The basis of this protocol is to maintain the security of the borehole and obtain accurate and representative groundwater samples. The following procedure should be used for collection of groundwater samples from previously installed groundwater monitoring wells.

- After monitoring well installation, at least three bore volumes should be pumped from the monitoring wells (well development) to remove any water introduced during the drilling process and/or the water that is disturbed during installation of the monitoring well. This should be completed prior to purging and sampling.
- Groundwater monitoring wells should then be left to recharge for at least three days before purging and sampling. Prior to purging or sampling, the condition of each well should observed and any anomalies recorded on the field data sheets. The following information should be noted: the condition of the well, noting any signs of damage, tampering or complete destruction; the condition and operation of the well lock; the condition of the protective casing and the cement footing (raised or cracked); and, the presence of water between protective casing and well.
- Take the groundwater level from the collar of the piezometer/monitoring well using an electronic dip meter. The collar level should be taken (if required) during the site visit using a dumpy level and staff.
- Purging and sampling of piezometers/monitoring wells is done on the same site visit when using micro-purge (or other low flow) techniques.
- Layout and organize all equipment associated with groundwater sampling in a location where they will not interfere with the sampling procedure and will not pose a risk of contaminating samples. Equipment generally required includes:
  - Micropore filtration system or Stericup single-use filters (for heavy metals samples);
  - Filter paper for Micropore filtration system; Bucket with volume increments;
  - Sample containers: teflon bottles with 1 ml nitric acid, 75mL glass vials with 1 mL hydrochloric acid, 1 L amber glass bottles;
  - Bucket with volume increments;
  - Flow cell;
  - pH/EC/Eh/T meters;
  - Plastic drums used for transportation of purged water;
  - Esky and ice;
  - Nitrile gloves;
  - Distilled water (for cleaning);
  - Electronic dip meter;
  - Low flow pump pack and associated tubing; and

- Groundwater sampling forms.

- If single-use stericup filtration is not used, clean the Micropore filtration system thoroughly with distilled water prior to use and between each sample. Filter paper should be changed between samples. 0.45um filter paper should be placed below the glass fibre filter paper in the filtration system.
- Ensure all non-disposable sampling equipment is decontaminated or that new disposable equipment is available prior to any work commencing at a new location. The procedure for decontamination of groundwater equipment is outlined at the end of this section.
- Disposable gloves should be used whenever samples are taken to protect the sampler and to assist in avoidance of contamination.
- Groundwater samples are obtained from the monitoring wells using low flow/micro-purge sampling equipment to reduce the disturbance of the water column and loss of volatiles.
- During pumping to purge the well, the pH, temperature, conductivity, dissolved oxygen, redox potential and groundwater levels are monitored (where possible) using calibrated field instruments to assess the development of steady state conditions. Steady state conditions are generally considered to have been achieved when the difference in the pH measurements was less than 0.2 units and the difference in conductivity was less than 10%.
- All measurements are recorded on specific data sheets.
- Once steady state conditions are considered to have been achieved, groundwater samples are obtained directly from the pump tubing and placed in appropriate glass bottles, BTEX vials or plastic bottles.
- All samples are preserved in accordance with water sampling requirements detailed in the NEPM 2013 and placed in an insulated container with ice. Groundwater samples are preserved by immediate storage in an insulated sample container with ice as outlined in the report text.
- Record the sample on the appropriate log in accordance with AS1726:1993. At the end of each water sampling complete a chain of custody form.

B. <u>Decontamination Procedures for Groundwater Sampling Equipment</u>

- All equipment associated with the groundwater sampling procedure (other than single-use items) should be decontaminated between every sampling location.
- The following equipment and materials are required for the decontamination procedure:
  - Phosphate free detergent;
  - Potable water;
  - Distilled water; and
  - Plastic Sheets or bulk bags (plastic bags).
- Fill one bucket with clean potable water and phosphate free detergent, and one bucket with distilled water.
- Flush potable water and detergent through pump head. Wash sampling equipment and pump head using brushes in the bucket containing detergent until all materials attached to the equipment are removed.
- Flush pump head with distilled water.
- Change water and detergent solution after each sampling location.
- Rinse sampling equipment in the bucket containing distilled water.
- Place cleaned equipment on clean plastic sheets.
- If all materials are not removed by this procedure that equipment should not be used until it has been thoroughly cleaned

QA/QC DEFINITIONS

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)[7] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (H. Keith 1991)[8].

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection limit (MDL) for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations.

"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit" Keith 1991.

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD). Acceptable targets for precision in this report will be less than 50% RPD for concentrations greater than ten times the PQL, less than 75% RPD for concentrations between five and ten times the PQL and less than 100% RPD for concentrations that are less than five times the PQL.

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured. The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes.

The proximity of an averaged result to the true value, where all random errors have been statistically removed. Accuracy is measured by percent recovery. Acceptable limits for accuracy generally lie between 70% to 130% recoveries. Certain laboratory methods may allow for values that lie outside these limits.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handing and analysis protocols and use of proper chain-of-custody and documentation procedures.

[7] US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)

[8] Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms; Sample receipt form;
- All sample results reported; All blank data reported;
- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (eg. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{\text{(Spike Sample Result – Sample Result) x 100}}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$