PHASE 1 PRELIMINARY SITE CONTAMINATION INVESTIGATION

25-27 Warriewood Road
WARRIEWOOD NSW 2102

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CLIENT:	**J & G Knowles and Associates Pty Ltd** **T/As The Knowles Group**
SITE:	**25-27 Warriewood Road,** **WARRIEWOOD NSW 2102**
REPORT NUMBER:	**11356.01a.PSCA**
DATE OF REPORT:	**29 May 2020**
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1. EXECUTIVE SUMMARY

Getex Pty Ltd (Getex) was engaged by J & G Knowles and Associates Pty Ltd (The Knowles Group) to undertake a Preliminary Site Contamination Investigation for 25-27 Warriewood Road, WARRIEWOOD NSW 2102 (the Site). The purpose of this investigation was to provide a preliminary investigation of the current belowground conditions of the Site, with respect to potential belowground contamination, for the construction of a mixed residential development, comprising residential flat buildings, semi-detached dwellings and dwelling houses, with associated internal road, site works, landscaping and community title subdivision.

The scope of the investigation was limited to:

- A review of site history documentation including:
  - Section 10.7 (Parts 2 and 5) certificate;
  - Land title ownership records;
  - Local geology, hydrology and hydrogeology records;
  - Aerial photographs;
  - Below ground utilities search;
  - Local council property files;
  - Historical business directory records; and
  - EPA public registers.

- A site surface walkover inspection;

- A review of investigations completed previously by Getex within the wider area that includes the Site;

- Preparation of a Conceptual Site Model (CSM);

- A limited subsurface soil sampling and analysis regime on the Site that included:
  - The collection of samples from the topsoil across 20 locations.
  - The following analysis regime:

    i. 20 Samples analysed for Metals (As, Cd, Cr, Cu, Hg, Pb, Ni & Zn);
    ii. 20 Samples analysed for Total Recoverable Hydrocarbons (TRH);
    iii. 20 Samples analysed for Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX);
    iv. 20 Samples analysed for Polycyclic Aromatic Hydrocarbons (PAHs);
    v. 10 Samples analysed for Organochloride Pesticides (OCP);
    vi. 10 Samples analysed for Polychlorinated Biphenyls (PCBs); and
    vii. 10 Samples analysed for Asbestos.

- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC); and

- Prepare a report outlining the findings of the investigation including a preliminary assessment of the suitability of the Site for the development with respect to below ground contamination based on the results of the investigation.

Based on the findings from the site historical review, previous investigations review and walkover inspection, potential contamination from the current site activity as a construction site compound and vehicle carpark was unknown. Therefore, an assessment of the surface soil across the Site was required to determine if contamination was present from the Site's current activity as a construction site compound and vehicle carpark that would affect the suitability of the Site for the proposed development.

Soil samples taken from locations across the Site were analysed for a broad range of identified potential contaminants including TRH, BTEX, Metals, PAHs, OCP, PCBs and Asbestos. Concentrations of TRH, BTEX, PAHs, OCP, PCBs were within the adopted criteria.

No asbestos containing material was visually identified on the ground surfaces across the Site. However, Chrysotile Asbestos in the form of fibre cement was detected in one (1) soil sample (Sample 11356/AS2). This location is highlighted at Location S2 on the Site Map in Appendix I. Based on the limited information, asbestos contamination within the Site may represent a human health risk with respect to the proposed development.

In addition, the amount of foreign material in the form of crushed building and rock aggregate is considered to be a likely trigger for remediation/management with regards to aesthetic soil considerations based on the proposed future Site use as residential developments.

It is the opinion of the consultant that the Site would be suitable for the proposed development provided the following is undertaken:

1. The foreign material in the form of crushed building and rock aggregate on the soil surface is removed.
2. A detailed asbestos investigation to determine the human health risk for the proposed development with regards to asbestos.
3. Where a detailed asbestos investigation identifies an asbestos human health risk so that remediation is required, then the remediation is to be undertaken in accordance with a Remedial Action Plan (RAP) developed and implemented in accordance with the relevant regulatory requirements.
4. Once remediation works are completed a validation assessment is to be undertaken in accordance with the relevant regulatory requirements to confirm if the Site is suitable for the proposed development application with regards to the asbestos contamination identified in the detailed asbestos investigation.

It is possible that all remediation works could be undertaken during redevelopment works.

This Executive Summary should be read in conjunction with all sections of this report.

2. SCOPE

Getex Pty Ltd (Getex) was engaged by J & G Knowles and Associates Pty Ltd (The Knowles Group) to undertake a Preliminary Site Contamination Investigation for 25-27 Warriewood Road, WARRIEWOOD NSW 2102 (the Site). The purpose of this investigation was to provide a preliminary investigation of the current belowground conditions of the Site, with respect to potential belowground contamination, for the construction of a mixed residential development, comprising residential flat buildings, semi-detached dwellings and dwelling houses, with associated internal road, site works, landscaping and community title subdivision.

The scope of the investigation was limited to:

- A review of site history documentation including:
  - Section 10.7 (Parts 2 and 5) certificate;
  - Land title ownership records;
  - Local geology, hydrology and hydrogeology records;
  - Aerial photographs;
  - Below ground utilities search;
  - Local council property files;
  - Historical business directory records; and
  - EPA public registers.

- A site surface walkover inspection;

- A review of investigations completed previously by Getex within the wider area that includes the Site;

- Preparation of a Conceptual Site Model (CSM);

- A limited subsurface soil sampling and analysis regime on the Site that included:
  - The collection of samples from the topsoil across 20 locations.
  - The following analysis regime:

    i. 20 Samples analysed for Metals (As, Cd, Cr, Cu, Hg, Pb, Ni & Zn);
    ii. 20 Samples analysed for Total Recoverable Hydrocarbons (TRH);
    iii. 20 Samples analysed for Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX);
    iv. 20 Samples analysed for Polycyclic Aromatic Hydrocarbons (PAHs);
    v. 10 Samples analysed for Organochloride Pesticides (OCP);
    vi. 10 Samples analysed for Polychlorinated Biphenyls (PCBs); and
    vii. 10 Samples analysed for Asbestos.

- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC); and

- Prepare a report outlining the findings of the investigation including a preliminary assessment of the suitability of the Site for the development with respect to below ground contamination based on the results of the investigation.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure (2013), NSW EPA Consultants Reporting on Contaminated Land: Contaminated Land Guidelines (2020) and State Environmental Planning Policy No.55 – Remediation of Land (1998).

3. LIMITATIONS

The investigation conducted was limited in scope. The area considered in the investigation was limited to 25-27 Warriewood Road, WARRIEWOOD NSW 2102 (the Site).

This investigation included the collection of limited soil samples to a depth of 0.15m. The investigation did not include the analysis of ground water samples or the assessment of ground water quality on site. The investigation involved the inspection/sampling of a selected number of locations/materials at the time of inspection which may or may not be representative of conditions between the locations/materials assessed. Furthermore, conditions on site may also change over time subsequent to the Getex assessment.

As such, although all work is performed to a professional and diligent standard, the potential variance between the practical limitations of the scope of work undertaken, the cost of our services, all possible issues of concern, and any loss or damages which may be associated with our work are such that we cannot warrant that all issues of concern/contamination or potential contamination have been identified. We therefore limit any potential liability associated with our work to the cost of our services.

All work conducted and/or reports/information produced by Getex are prepared for a specific objective and within a specified scope of work as agreed between the Client and Getex. As such this document is only for the use of the Client for the intended objective and may not be suitable for any other purpose. No parties other than the client may use this document without first conferring with Getex. Before passing this document onto a third party, the third party must be informed by the client of any relevant information relating to this document. It is the responsibility of any party using this report to fully check to their satisfaction if this report is suitable for their intended use.

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4. SITE IDENTIFICATION

The Site to be investigated is the proposed Warriewood Residential Development within 25-27 Warriewood Road, WARRIEWOOD NSW 2102. The Site is bordered by Lot 30 of DP5464 Section C to the north, Warriewood Road to the east and Lorikeet Grove (road) to the south and west. The Site is located within the Parish of Narrabeen, County of Cumberland. The local government authority is Northern Beaches Council. Northern Beaches Council zoned the Site as R3 Medium Density Residential within the Pittwater Local Environment Plan (2014).

The site identification details are summarised in the following table.

Site Address:	25-27 Warriewood Road, WARRIEWOOD NSW 2102
Lot & Deposited Plan:	Lots 28 and 29 DP5464 (Section C)
Current Land Use:	Site compound for adjoining residential aged care construction site
Proposed Land Use:	Subdivision with construction of 1 detached three storey dwelling house and 10 semidetached three storey dwellings (two storey fronting Warriewood Road) and a three storey residential flat building comprising of 32 apartments plus one basement level for carparking
Local Government Authority:	Northern Beaches Council
Geographical Location (MGA56):	Easting: 342474 Northing: 6271054 (approximately)
Site Investigation Area:	8,183m^2

Table 4-1: Site Identification Details

Refer to Figure 1 for the general location of the Site.

*Aerial image derived under license from Google Earth and is indicative of on-ground locations only.

Figure 1. Site Locality Map

5. DESCRIPTION OF SITE AND SURROUNDING ENVIRONMENT

A surface walkover inspection of the Site and surrounding area was conducted on the 13th of May 2020. The Site is also identified as the northern section of Lot 28 and Lot 29 both of DP5464 (Section C). The Site was vacant land used as a storage area compound for materials used in the aged care construction and construction vehicles car park.

Surrounding the Site was residential dwellings and Narrabeen Creek.

5.1 Northern Section of Lot 28 DP 5464 (Section C)

Identified as the southern section of the Site. It is bordered to the south and west by Lorikeet Grove and east by Warriewood Road. Located along the east boundary is a new single storey display home and driveway enclosed by large hording and a padlocked gate. The remainder of the Site in Lot 28 is part of the storage area compound. The compound was predominantly covered in crushed aggregate.

It appeared that cutting activities had been undertaken on the east side of the Site to reduce the gradient of the topography.

No underground storage tanks were identified onsite.

5.2 Lot 29 DP 5464 (Section C)

Identified as the northern section of the Site. It is bordered to the north by residential properties and east by Warriewood Road. The Site is part of the storage area compound. The compound was predominantly covered in crushed aggregate. Several shipping containers and construction materials were stored in the north-east section of the Site.

It appeared that cutting activities had been undertaken on the east side of the Site to reduce the gradient of the topography.

No underground storage tanks were identified onsite.

5.3 Surrounding Area

The Site is within a residential area.

North of the Site are newly constructed residential dwellings.

East of the Site is Warriewood Road followed by residential dwellings.

South of the Site is Lorikeet Grove followed by the aged care facility.

West of the Site is Narrabeen Creek followed by a partially completed residential development.

5.4 Proposed Development

The construction of a mixed residential development, comprising 1 detached three storey dwelling house and 10 semidetached three storey dwellings (two storey fronting Warriewood Road) and a three storey residential flat building comprising of 32 apartments plus one basement level for carparking, with associated internal road, site works, landscaping and community title subdivision.

6. TOPOGRAPHY, GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

6.1 Topography

The topography of the Site appears to slope down gently with slight undulations from east to west, with levels ranging from 14.5m AHD to 3.0m AHD. The Site and surrounding area was gently undulating with a downward slope to the west.

6.2 Geology

The NSW Office of Environment and Heritage eSPADE map shows the Site to be within the Erosional Erina, Colluvial Watagan and Swamp Warriewood Soil Landscapes.

The Erosional Erina Soil Landscape is characterised by undulating to rolling rises and low hills on fine-grained sandstones and claystones of the Narrabeen Group. Local relief is to 60 m, and slopes <20%. The landscape contains rounded narrow crests with moderately inclined slopes. Extensively cleared tall open-forest (wet sclerophyll forest) with open-heathland in exposed areas.

Soils are moderately deep to deep (100->200cm) Yellow Podzolic Soils on sandstone crests and slopes, moderately deep (100-15 cm) Red Podzolic Soils on shale crests and steeper slopes, deep (>200 cm) Yellow Podzolic Soils on shale lower slopes, some deep (>200 cm) Yellow Earths on colluvial foot slopes.

The Colluvial Watagan Soil Landscape is characterised by rolling to very steep hills on fine-grained Narrabeen Group sediments. Local relief is 60-120 m with slopes >25%. The landscape contains narrow, convex crests and ridges, steep colluvial side slopes, occasional sandstone boulders and benches. Tall eucalypt open-forest with closed-forest (rainforest) in sheltered positions.

Soils are shallow to deep (30-200cm) Lithosols/Siliceous Sands and Yellow Podzolic Soils on sandstones, moderately deep (100-200cm) Brown Podzolic Soils, Red Podzolic Soils and Gleyed Podzolic Soils on shales.

The Swamp Warriewood Soil Landscape is characterised by level to gently undulating swales, depressions and infilled lagoons on Quaternary sands. Local relief is <10m with slopes <3%. The water table is at <2m with mostly cleared of native vegetation. Limitations are localised flooding and run-on, high water tables and highly permeable soil.

Soils are deep (>150cm), well sorted, sandy Humus Podzols and dark, mottled Siliceous Sands overlying buried Acid Peats in depressions and deep (>200cm) Podzols and pale Siliceous Sands on sandy rises.

The Department of Finance, Services & Innovation 2019 shows the bedrock underlying the eastern section of the Site to be Quaternary Age silty to peaty quartz sand, silt, and clay with ferruginous and humic cementation in places and common shell layers. The bedrock underlying the western section of the Site to be Triassic Age interbedded laminate, shale and quartz, to lithic quartz sandstone: Clay pellet sandstone (Garie Fm) south of Hawkesbury River.

6.3 Hydrology

Within the site, precipitation is expected to infiltrate the surface soils where there is no hardstand cover. Infiltration is expected to be at a rate reflective of the soil. During heavy of prolonged rain periods, surface runoff is expected to run towards the west into Narrabeen Creek.

6.4 Hydrogeology

According to the Phase 2 Site Assessment Report prepared by Getex (Ref: 10022.01.TSCA, July 2017) for the wider area that includes the Site, four (4) monitoring bores were installed (including one (1) in the north-east corner and one (1) in the north-west corner of the Site).

Bore ID	Use	Approximate Distance from Site	Bore Depth	Standing Water Level
10022/BH01	Monitoring bore	North-east corner of the Site	7.5	1.86
10022/BH14	Monitoring bore	North-west corner of the Site	4.5	1.25
10022/BH23	Monitoring bore	100m south	9.0	1.82
10022/BH33	Monitoring bore	100m south	4.5	1.05

Table 6-1: Summary of Groundwater Bores

Based on the available geological and hydro-geological information it is anticipated that groundwater will be encountered at shallow depth <3m. Groundwater is anticipated to flow in a western direction to Narrabeen Creek.

6.5 Acid Sulfate Soil

According to Acid Sulfate Soil Planning Maps, the Site is within soil classes 4 and 5. Furthermore, the Atlas of Australian Acid Sulfate Soils categorises the Site as within an area of low Probability of occurrence (6-70% chance of occurrence). Therefore, acid sulfate soils may occur in this environment.

6.6 Local Sensitive Environments

According to SEED - The Central Resource for Sharing and Enabling Environmental Data in NSW, the Site does not contain environmentally sensitive land.

7. SITE HISTORY

7.1 Land Titles Search

A land titles search was conducted by Advanced Legal Search Pty Limited for 25-27 Warriewood Road, WARRIEWOOD NSW 21002. The search identified Lots 28 and 29 DP5464 (Section C). The land titles search for the above-mentioned Lots are summarised in the following tables.

Year	Proprietor
	(Lot 28 Section C DP 5464)
2013 – to date	J & G Knowles & Associates Pty Ltd
2008 – 2013	Meriton Property Management Pty Ltd
2002 – 2008	Mirvac Homes (NSW) Pty Ltd
1996 – 2002	Robert Peter Donato Ann Rita Dalese
1989 – 1996	Robert Kay Bassingthwaighte, florist
	(Lot 28 Section C DP 5464 – CTVol 13392 Fol 21)
1977 – 1989	Robert Kay Bassingthwaighte, florist
(1987 – 1989)	*(lease to David Blair Liddy & Christine Margaret Liddy)*
1977 – 1977	A.S.L. Developments Limited
	(Lots 27 to 30 Section C DP 5464 – Area 8 Acres 0 Roods 26 ½ Perches – CTVol 2734 Fol 114)
1973 – 1977	A.S.L. Developments Limited
1966 – 1973	Joyce Urlich, married woman Dominik Urlich, market gardener
1945 – 1966	Dominik Urlich, market gardener
1920 – 1945	Helena Catherine Merrick, wife of John Merrick, civil servant
1917 – 1920	Helena Quirk, spinster

Table 7-1: Summary of Land Titles Search Lot 28 DP5464 (Section C)

Year	Proprietor
	(Lot 29 Section C DP 5464)
2016 – to date	J & G Knowles & Associates Pty Ltd
2013 – 2016	Karimbla Properties (No.32) Pty Limited
2009 – 2013	Meriton Property Management Pty Ltd
2006 – 2009	Dorothy Sarzentich, widow
1989 – 2006	Alexander Samuel Sarzentich, farmer Dorothy Sarentich, his wife
	(Lot 29 Section C DP 5464 – CTVol 13392 Fol 22)
1979 – 1989	Alexander Samuel Sarzentich, farmer Dorothy Sarentich, his wife
1977 – 1979	A.S.L. Developments Limited
	(Lots 27 to 30 Section C DP 5464 – Area 8 Acres 0 Roods 26 ½ Perches – CTVol 2734 Fol 114)
1973 – 1977	A.S.L. Developments Limited
1966 – 1973	Joyce Urlich, married woman Dominik Urlich, market gardener
1945 – 1966	Dominik Urlich, market gardener
1920 – 1945	Helena Catherine Merrick, wife of John Merrick, civil servant

Year	Proprietor
1917 – 1920	Helena Quirk, spinster

Table 7-2: Summary of Land Titles Search Lot 29 DP5464 (Section C)

7.2 Aerial Photographs

Thirteen historical photographs have been provided for viewing. These photographs were for the years 1956, 1961, 1965, 1970, 1978, 1982, 1986, 1991, 1994, 2000, 2007, 2014 and 2019. The aerial photographs are presented in **Appendix III**. The inspection of the aerial photographs is summarised in Table 7-3.

Year	Summary
1956	The aerial photo is in black and white. Discernible details are clear. The Site appears to be used for market gardens with a building located centrally along the northern site boundary. Warriewood Road is present. Narrabeen creek is present adjacent west of the Site. Surrounding the Site is market gardens and low-density residential developments.
1961	The aerial photograph is in black and white. Discernible details are clear. The Site is still used for market gardens. The properties east of the Site have been further developed for low-density residential. The remaining surrounding area appears unchanged.
1965	The aerial photograph is in black and white. Discernible details are clear. The Site is still used for market gardens. The properties east of the Site have been further developed for low-density residential. The property west of the Site is now a market garden. The remaining surrounding area appears unchanged.
1970	The aerial photograph is in black and white. Discernible details are clear. The Site is still used for market gardens. The properties east of the Site have been further developed for low-density residential. The remaining surrounding area appears unchanged.
1978	The aerial photograph is in black and white. Discernible details are clear. The Site appears to no longer be used for market gardens. The surrounding area appears unchanged.
1982	The aerial photo is in colour. Discernible details of the Site are clear. The Site now contains a residential dwelling in the north-east corner of the Site. A large building and associated black structure (possibly bitumen carpark or black covering of some sort) located centrally in Lot 28. The property south of the Site contains several large glass houses. The remaining surrounding area appears unchanged.
1986	The aerial photo is in colour. Discernible details of the Site are clear. Additional structures (sheds) are present in the north-east corner of the Site. The black structure located centrally in Lot 28 appears to be a market garden with an additional large structure adjoining west of the garden. The surrounding area appears unchanged.
1991	The aerial photo is in colour. Discernible details of the Site are clear. No obvious changes to the Site or surrounding area.
1994	The aerial photo is in colour. Discernible details of the Site are slightly unclear. The Site appears to no longer contain market gardens. The surrounding area appears unchanged.
2000	The aerial photo is in colour. Discernible details of the Site are clear. Lot 28 appears to be undergoing land modification activities. No obvious changes to the surrounding area.

Year	Summary
2007	The aerial photo is in colour. Discernible details of the Site are clear. No obvious changes to the Site or surrounding area apart from the removal of all structures and gardens from the property south of the Site.
2014	The aerial photo is in colour. Discernible details of the Site are clear. No obvious changes to the Site or surrounding area.
2019	The aerial photo is in colour. Discernible details of the Site are clear. The Site appears to be part of the construction site for the newly constructed aged car facility located south of the Site. The footprint of Lorikeet Grove is present. The property north of the Site now contains road infrastructure for new residential developments. The property west of the Site is no longer a market garden.

Table 7-3: Summary of Aerial Photograph Inspection

7.3 EPA Records

A search of the EPA public register under the Protection of the Environment Operations Act 1997 was undertaken. The search results are presented in **Appendix III**. The search identified that, for the Site there were:

- No prevention, clean-up or prohibition notices; and
- No transfer, variation, suspension, surrender or revocation of an environment protection license (EPL).

However, the Warriewood Sewerage Treatment System is located <100m south of the Site.

A search was undertaken of the EPA public contaminated land registers. The search results are presented in **Appendix III**. The search did not identify any matters which apply for the Site or adjoining properties under the Contaminated Land Management Act (CLM Act) 1997.

7.4 Council Records

Northern Beaches Council was requested to make available for review property documentation held which may provide information pertinent to the ground contamination status of the Site.

Council provided the following files:

- IOC2019/0147;
- CC2019/0842;
- BD2019/00981;
- BD2019/00980;
- Mod2019/0171;
- CC2018/1422;
- DA2018/1826;
- DA2018/1195;
- CC2018/0852;
- NOC2018/1042;
- CC2018/0390;
- NOC2018/0487;
- N0460/17;

- N0611/16;
- PP0003/13;
- PP0002/13;
- N0525/00;
- N0570/99;

Identified in the council records was information related to the construction of the residential aged care facility and a refused application for the site to be used as storage of a site shed, toilet, vehicles and a small amount of landscape materials in 2000.

7.5 Historical Business Directories

A search of the historical business directories was undertaken. Records for the years 1950, 1961, 1965, 1970, 1975, 1978, 1982, 1986 and 1991 were reviewed. The search results are presented in **Appendix III**. The search identified that there were:

- Engineers (general, manufacturing or mechanical), poultry farmers, electrical contractors, motor garages & service stations and nurseries along Warriewood Road and MacPherson Street between 1950 and 1991. However, based on the historical aerial imagery, it is highly unlikely the Site was used for motor garages & service stations.

7.6 Section 10.7 Certificate

A review of the Section 10.7 (2 and 5) certificate issued by Northern Beaches Council indicates that the land is not declared to be significantly contaminated land or other matters under the Contaminated Land Management Act 1997 (Refer to **Appendix II**).

7.7 Underground Utilities Search

An online search for utilities located within the site was conducted and is summarised in Table 7-5, below. Asset owners Ausgrid, Jemena, NBN Co, Northern Beaches Council, Optus, Sydney Water and Telstra provided information on their utilities (refer to **Appendix VI** – Below Ground Utilities Search).

Asset Owner	Utility Type	Utility Location
Ausgrid	Conduits	Along Lorikeet Grove and enter site centrally along southern boundary from Lorikeet Grove
Jemena	32mm Nylon Main	Along Warriewood Road and Lorikeet Grove
NBN Co	Telstra's 50mm PVC Conduit	Enter Lot 28 along east boundary opposite Hill Street from Warriewood Road
	20mm PVC Conduit	Enter Lot 29 centrally along east boundary from Warriewood Road
Northern Beaches Council	Stormwater Conduit	Along Warriewood Road, Lorikeet Grove and Narrabeen Creek

Asset Owner	Utility Type	Utility Location
Optus	Conduit	Along Warriewood Road
Sydney Water	150mm Vitrified Clay Sewer Main	Along Warriewood Road
	1800mm Reinforced Concrete Sewer Main	Traversing north, north-west to south, south-east through the Site
	100mm Cast Iron Cement Lined Water Main	Along Warriewood Road
Telstra	50mm PVC and 100mm PVC/Asbestos Cement Conduits	Along Warriewood Road

Table 7-4: Below Ground Utilities Search

7.8 Assessment of Historical Information Integrity

The site history assessment has been obtained from a variety of resources including government records from the NSW land titles office, council records, historical aerial photographs, utilities providers, historical business directories, NSW Office of Water and NSW EPA. The veracity of the information from the obtained sources is considered to be high. The site history assessment is generally considered to be of high integrity with respect to the historical use of the Site.

8. CONCEPTUAL SITE MODEL

The following sections detail a conceptual site model which has been developed in relation to the potential origin, impact and migration of contaminants. This model has been developed for the Site based on the findings of the site history review and walkover inspection.

8.1 Sources of Potential Contaminants

The following table lists potential contaminants based on site activities and conditions identified during the site historical review and walkover inspection (refer to Sections 5 to 7). Refer to **Appendix I** for Site Map of the sources.

Source	Location	Potential Contaminants
Past activities on and adjacent site which include market gardens, florist, engineers, poultry farmers, electrical contractors	Entire Site	Total Recoverable Hydrocarbons (TRH), Benzene Toluene Ethyl-Benzene Xylenes (BTEX), Metals, Polycyclic Aromatic Hydrocarbons (PAHs), Organochloride Pesticides / Organophosphate Pesticides (OCP/OPP), Volatile Organic Compounds (VOC), Asbestos
Imported fill	Entire Site	Metals, TRH, BTEX, VOC, PAH, OCP/OPP, Asbestos
Weathering of previous on-site structures	Surrounding structures	Metals, Asbestos
Adjacent land uses (wastewater treatment works)	South of the Site	Metals, TRH, PCB, OCP/OPP
Current activity as a construction site compound and vehicle carpark	Entire Site	Metals, TRH, BTEX, PAHs, OCPs, PCBs, Asbestos

Table 8-1: Potential Contaminants

8.2 Potentially Contaminated Media

Potentially contaminated media present at the site included:

- Topsoil/fill material;
- Natural Soils and/or Bedrock; and
- Groundwater.

The desk top site history assessment has identified that historical Site use has included market gardens, florist, engineers, poultry farmers, electrical contractors. The site walkover inspection has identified the Site as a construction site compound and vehicle carpark. During such activities application, spillage and/or leakage of chemicals associated with these activities may have resulted in localised impacts at the ground surface. There is also the potential for potentially contaminated material to have been imported during amendments to

Site levels. Based on this, the topsoil and fill material has been identified as a potentially contaminated media.
The desk top site history assessment also identified a wastewater treatment works south of the Site. There is the potential for potentially contaminated material to have migrated onto the Site from the wastewater treatment works site.

Based on the potential mobility of contaminants and their associated potential leachability through the soil/fill profile, vertical migration of contaminants from the surface soils into the underlying natural soils/bedrock may have occurred. As a result, the natural soils and underlying bedrock are also considered to be potentially contaminated media.

It is anticipated that groundwater will be encountered at shallow depth <3m. Therefore, groundwater is considered to be potentially impacted by the current and former activities located within the Site.

8.3 Potential for Migration

Contaminants generally migrate from Site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth);
- The site topography, geology, hydrology and hydrogeology;
- The adjacent properties; and
- Underground utility corridors.

The potential contaminants identified as part of the site history and site inspections are generally in either a solid form (*e.g*. heavy metals, asbestos, *etc*) or liquid form (*e.g*. hydrocarbons, pesticides, *etc*).

There is the potential for contaminants to migrate along the underground utility corridors traversing through the Site.

There is the potential for erosion due to aeolian and water processes as erosion impact was evident during the walkover inspection.

The potential for rainwater infiltration to occur at the Site was relatively high given the permeable surface. If rainfall does penetrate the natural soil, this movement may result in vertical migration of contaminants through the natural soil profile however this is likely to be intermittent and dependent on rainfall.

Depth to groundwater is expected to be encountered within 3m from the ground surface. Due to the contaminants of concern it is considered that the groundwater has a potential to migrate contaminants.

8.4 Preliminary Conceptual Site Model Summary

The following table provides a summary of the preliminary conceptual site model detailed in the previous sections and includes potential contaminant origin, impact, migration and receptor's exposure pathways.

Source	Contaminants	Location	Affected Media	Migration Potential	Current Receptors	Current Exposure Pathway	Future Receptors	Future Exposure Pathway
Past activities on and adjacent site which include market gardens, florist, engineers, poultry farmers, electrical contractors	Total Recoverable Hydrocarbons (TRH), Benzene Toluene Ethyl-Benzene Xylenes (BTEX), Metals, Polycyclic Aromatic Hydrocarbons (PAHs), Organochloride Pesticides / Organophosphate Pesticides (OCP/OPP), Volatile Organic Compounds (VOC), Asbestos	Entire Site	Surface soil; Underlying natural soils and bedrock; Groundwater.	Surface water and dust; Vertical migration; Utility corridors; Groundwater.	Site Occupants; Neighbouring properties; Groundwater; Creek.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil; Leaching into groundwater; Leaching and runoff into creek.	Site Occupants; Neighbouring properties; Construction workers; Groundwater; Creek.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil; Leaching into groundwater; Leaching and runoff into creek.
Imported fill	Metals, TRH, BTEX, VOC, PAH, OCP/OPP, Asbestos	Entire Site	Surface soil; Underlying natural soils and bedrock.	Surface water and dust; Vertical migration; Utility corridors.	Site Occupants; Neighbouring properties; Groundwater; Creek.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil; Leaching into groundwater; Leaching and runoff into creek.	Site Occupants; Neighbouring properties; Construction workers; Groundwater; Creek.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil; Leaching into groundwater; Leaching and runoff into creek.

Source	Contaminants	Location	Affected Media	Migration Potential	Current Receptors	Current Exposure Pathway	Future Receptors	Future Exposure Pathway
Weathering of previous on-site structures	Metals, Asbestos	Surrounding structures	Surface soil.	Surface water and dust.	Site Occupants; Neighbouring properties.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil.	Site Occupants; Neighbouring properties; Construction Workers.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil.
Adjacent land uses (wastewater treatment works)	Metals, TRH, PCB, OCP/OPP	South of the Site	Groundwater.	Utility corridors; Groundwater.	Site Occupants; Groundwater.	Vapour inhalation from potentially contaminated groundwater; Skin contact with potentially contaminated groundwater; Ingestion of potentially contaminated groundwater.	Future residents; Workers during construction; Occupants of neighbouring properties.	Vapour inhalation from potentially contaminated groundwater; Skin contact with potentially contaminated groundwater; Ingestion of potentially contaminated groundwater.
Current activity as a construction site compound and vehicle carpark	Metals, TRH, BTEX, PAHs, OCPs, PCBs, Asbestos	Entire Site	Surface soil.	Surface water and dust Vertical migration.	Site Occupants; Neighbouring properties; Creek.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil.	Site Occupants; Neighbouring properties; Construction workers.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil.

Table 8-2: Preliminary Conceptual Site Model Summary

9. PREVIOUS CONTAMINATION INVESTIGATION FOR THE WIDER AREA THAT INCLUDED THE SITE

An investigation was completed previously by Getex within the wider area that includes the Site. This investigation was:

- Phase 2 Site Contamination Assessment Report prepared by Getex dated 4th of July 2017 (Ref: 10022.01.TSCA).

A summary of information from the investigation is presented in **Section 9.1**. Based on the information from this investigation, the CSM was updated.

9.1 Phase 2 Site Contamination Assessment Report

Getex was engaged by The Knowles Group to undertake a Phase 2 Site Contamination Assessment of Lots 28 and 29 DP5464 (Section C) and Lot 101 DP1229188 (hereby known as the Land). The objective of the investigation was to determine the type, extent and level of below ground contamination to determine the likelihood for the lots to be suitable for a subdivision with construction of an aged care facility with a basement carpark 1.5m below the existing ground level on the southern section of the Land and residential dwellings on the northern section of the Land.

Soil samples taken from 45 locations across the Land were analysed for a broad range of identified potential contaminants including TRH, BTEX, Metals, PAHs, OCP, PCBs, Asbestos, VOCs and acid sulfate soil / potential acid sulfate soil. Concentrations of TRH, BTEX, Metals (with the exemption of Zinc), PAHs (with the exemption of Benzo(a)Pyrene), OCP, PCBs, and VOCs were below the adopted criteria. PID and Landfill Gas analysis of soil headspace for VOCs and CH_4 & CO_2 respectively were within acceptable levels. No acid sulfate soil or potential acid sulfate soil was detected.

A soil sample taken from a depth of 0.1m at location BH34 was above the maximum ecological criteria level for Zinc. This location was at the south-west corner of Lot 101 DP1229188 within the proposed landscaped buffer zone. This location is outside the Site. The elevated level of Zinc was isolated to this location and is deemed not affect the proposed development for the Site.

Soil samples taken from depths of 0.1m and 0.2m at locations BH31 and BH41 respectively were above the maximum ecological criteria level for Benzo(a)Pyrene. These locations were located centrally along the central west boundary of Lot 28 Section C DP5464. This location is outside the Site. The elevated level of Benzo(a)Pyrene was isolated to this location and is deemed not affect the proposed development for the Site.

Two fragments of fibre cement sheeting visually identified to contain asbestos were observed on the surface of the driveway leading to the dwelling at Lot 29 Section C DP5464. Also, one fragment of fibre cement sheeting visually identified to contain asbestos was observed on the ground surface at the entryway between Lot 29 Section C DP5464 and Lot 28 Section C DP5464. No other occurrences of asbestos containing material was observed on the ground surfaces within the Site. Furthermore, no occurrences of asbestos containing material was observed throughout the fill material during the test pitting of twenty-two (22)

test pits. The three fragments had since been removed from the Site. Therefore, it was the opinion of the consultant that there was no unacceptable asbestos risk to human health with respect to the proposed future Site use.

With regards to groundwater the possible exposure routes to future receptors were: ingestion of groundwater; skin contact with groundwater; and vapour inhalation.

All chemical contaminant concentrations detected in groundwater were below the adopted criteria with the exception of Copper and Zinc. Although the concentrations of these metals were detected above the criteria, the levels detected were considered indicative of disturbed urban ecosystems such as the location of the Site which was known to be impacted by metals contamination. Furthermore, all PID and Landfill Gas levels from the soil headspace screening were considered well below the level that would require further investigation.

With regards to potential vapour inhalation, considering the PID and Landfill Gas levels and concentration of contaminants in groundwater below the adopted criteria, it was the opinion of the consultant that there was no meaningful risk.

9.2 Updated Conceptual Site Model

Source	Receptors	Exposure Pathway	Potential for Completeness
Contaminated soils from: - Past activities on and adjacent site which include market gardens, florist, engineers, poultry farmers, electrical contractors; - Historic imported fill; - Weathering of previous on-site structures;	Site Occupants; Neighbouring properties; Construction workers.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil; Leaching into groundwater.	**Pathway incomplete** – No CoPC detected above criteria levels within the Site. Zinc and Benzo(a)Pyrene levels above criteria isolated to locations away from the Site and a very low potential for migration onto the Site.
Contaminated groundwater from: - Past activities on and adjacent site which include market gardens, florist, engineers, poultry farmers, electrical contractors; - Adjacent wastewater treatment works	Site Occupants; Neighbouring properties; Construction workers.	Vapour inhalation from potentially contaminated groundwater; Skin contact with potentially contaminated groundwater; Ingestion of potentially contaminated groundwater.	**Pathway incomplete** – No CoPC detected above criteria levels within the Site.
Potentially **contaminated surface water** runoff	Site Occupants; Neighbouring properties; Construction Workers; Creek.	Skin contact with potentially contaminated water; Ingestion of potentially contaminated water; Runoff to impact creek.	**Pathway incomplete** – No CoPC detected above criteria levels within the Site.

Source	Receptors	Exposure Pathway	Potential for Completeness
Contaminated soils from: - Current activity as a construction site compound and vehicle carpark	Site Occupants; Neighbouring properties; Construction workers.	Skin contact with potentially contaminated soil; Inhalation of dust particles; Ingestion of potentially contaminated soil.	**Unknown** – sampling and analysis of the surface soils is required to determine if pathway is complete.

Table 9-1: Updated Conceptual Site Model

10. DATA GAP

Based on the information within the Updated CSM (Table 9-1), the following data gap exists on the Site:

- The soil concentrations of contaminants associated with the Site's current activity as a construction site compound and vehicle carpark.

Therefore, an assessment of the surface soil across the Site is required to determine if contamination is present from the Site's current activity as a construction site compound and vehicle carpark that will affect the suitability of the Site for the proposed development.

11. SAMPLING AND ANALYSIS PLAN

11.1 Data Quality Objectives

The methodology employed to design an appropriate sampling and analysis plan for this investigation involves firstly defining the Data Quality Objectives (DQOs) for the sampling (**Sections 11.1.1 to 11.1.6**), then selecting a sampling strategy (**Section 11.1.7**) and corresponding sampling points (**Section 11.2**) to best achieve the DQOs. This methodology is described in sequence in the following sections.

11.1.1 State the Problem

The Updated CSM has identified the potential for contaminated soils due to the Site's current activity as a construction site compound and vehicle carpark which may impact upon the suitability of the Site for the proposed development (**Sections 9.2 and 10**).

11.1.2 Identify the Decision

Based on the decision-making process for assessing urban redevelopment sites detailed in *Guidelines for the NSW Site Auditor Scheme (3rd edition),* Environmental Protection

Authority (EPA) (October 2017), and the recommendations within **Section 10**, the following decision was required to be made as part of the Site assessment:

- Is there any contamination within the Site surface soil that will pose a risk to future onsite and offsite receptors?

11.1.3 Identify Inputs into the Decision

Inputs identified to provide sufficient data to make the decisions nominated above include:

- The Site description and history as provided in **Sections 8 and 9** respectively;
- Potential contamination issues as described in **Section 10**;
- Visual and olfactory indications;
- Soil environmental data as collected by soil sampling and analysis in **Appendix VII**;
- Soil criteria to be achieved on the Site as based on a proposed future land-use as defined by assessment criteria prepared in **Section 12**; and
- Confirmation that data generated by sample analysis are of a sufficient quality to allow reliable comparison to assessment criteria as undertaken by assessment of quality assurance / quality control as per the data quality indicators established in **Sections 11.1.6 & 13 and Appendix IX**.

11.1.4 Define the Study Boundaries

The study area is defined as the proposed Warriewood Residential Development within 25-27 Warriewood Road, WARRIEWOOD NSW 2102 as shown in **Figure 1** and has an area of 8,183m^2. The Site is bordered by Lot 30 of DP5464 Section C to the north, Warriewood Road to the east and Lorikeet Grove (road) to the south and west.

The vertical extent of the soil investigation was limited to the surface soils.

Due to the nature of potential contaminants identified and project deadline requirements, seasonality and other temporal variables were not assessed as part of this investigation.

The temporal boundaries of this investigation are limited to the period of field investigation during May 2020 and reported during May 2020.

11.1.5 Develop a Decision Rule

Soil analytical data was assessed against NSW Environmental Protection Authority (EPA) endorsed criteria including:

- *National Environment Protection (Assessment of Site Contamination) Measure,* National Environment Protection Council, 2013.

The decision rules adopted to answer the decisions identified in **Section 11.1.2** are summarised in the following table.

Decision Required to be Made	Decision Rule
1. Is there any contamination within the Site surface soil that will pose a risk to future onsite and offsite receptors?	*Soil analytical data will be compared against EPA endorsed criteria.* *Statistical analyses of the data in accordance with relevant guidance documents will be undertaken, if appropriate, to facilitate the decisions.* *The following statistical criteria will be adopted with respect to soils:* *Either: the reported concentrations are all below the site criteria;* *Or: the average site concentration for each analyte must be below the adopted site criterion; no single analyte concentration exceeds 250% of the adopted site criterion; and the standard deviation of the results must be less than 50% of the site criteria.* *And: the 95% upper confidence limit (UCL) of the average concentration for each analyte must be below the adopted site criterion as per the NSW EPA Contaminated Sites - Sampling Design Guidelines, 1995.* *If the statistical criteria stated above are satisfied, the decision is No.* *If the statistical criteria are not satisfied, the decision is Yes.*

Table 11-1: Decision Rules

11.1.6 Specify Limits on Decision Errors

The DQOs for the assessment of the laboratory analytical data include the following conditions:

- Maximum sample holding times for organics were 14 days. Metals and metalliods holding times were 6 months. Mercury (Hg) holding time was 28 days;
- Sample preservation and handling were conducted in accordance with industry accepted standards;
- All sample analyses were conducted by NATA accredited laboratories;
- Laboratory blank analysis to be below PQLs; and
- The relative percentage difference (RPD) of duplicates/replicates and percent recoveries of control spikes to be calculated and compared to the following criteria:
    - Less than 30% for field replicates;
    - Less than 40% for internal duplicate samples and less than 44% on duplicates with 10 times the limit of reporting; and
    - 75-125% recovery for internal recovery samples.

Results Accuracy	
Adequate Sampling Density	Sampling locations were selected in accordance with procedures outlined within NSW EPA Contaminated Sites: Sampling Design Guidelines, 1995
Acceptable field and laboratory Relative Percentage Difference (RPD) for duplicate comparison	<30% inorganics and <50% for organics and low concentration analytes for field replicates <40% for internal duplicate samples and <44% on duplicates with 10 times the limit of reporting
Adequate laboratory performance	Based on acceptance criteria of laboratory as specified on certificate of analysis: includes: blank samples, matrix spikes, control samples, and surrogate spike samples

Results Suitability	
Sample type and analyte selection	Sample types and analytes selected to reflect all potential sources
Duplicate Samples	One duplicate and split replicate per 20 samples.
Laboratory selection	Laboratory internal quality control and quality assurance methods comply with appropriate standards.
Documentation	
Chain of Custody records	Laboratory sample receipt information received confirming receipt of samples intact and appropriate chain of custody
	NATA registered laboratory results certificates provided
Comparability	
	Use of NATA registered laboratories
	Test methods consistent for each sample in accordance with the Sampling and Analysis Plan
	Detailed records of all field work including borehole logs and groundwater monitoring data.
	Ensure test methods used between primary and secondary lab are equivalent
	Acceptable RPD's for all replicates and laboratory duplicates.

Table 11-2: Sampling and Analysis DQO Summary

11.1.7 Optimise the Design for Obtaining Data

Various strategies for developing a statistically based sampling plan are identified in NSW EPA Contaminated Sites - Sampling Design Guidelines, 1995, including judgemental, random, systematic and stratified sampling patterns.

Since the entire site was used as a construction site compound and vehicle carpark and hence the potential contaminants are potentially throughout the Site, systematic soil sampling by an orthogonal grid across the Site was considered to be the most appropriate for the current investigation.

Application, spillage and/or leakage of chemicals associated with the compound may have resulted in localised impacts at the ground surface. Therefore, soil samples were collected from the soil surface using hand implements to determine if activities from the compound use had impacted the Site.

Based upon the objectives of this investigation the density of the investigation to be undertaken as part of this investigation is considered appropriate.

11.2 Soil Sampling Program

Chris Chen BSc of Getex Pty Ltd attended the Site on the 23rd and 24th of September 2019.

Twenty (20) locations were sampled using hand implements.

The soil surface consisted of highly permeable fill material comprising of white, brown and red fine sands and crushed building/rock aggregate. Minor patches of vegetation were present.

The following table presents a summary of the locations for the twenty-two (20) samples collected within the Site. Please refer to **Appendix I** for the Site Map.

Sample Number	Sample Type	Location Collected	GPS Coordinates	Analysis Performed
11356/S1	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S1.	33°41'20.60"S 151°18'0.68"E	TRH, BTEX, PAHs, Metals
11356/S2 + AS2	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S2.	33°41'20.64"S 151°18'1.50"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S3	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S3.	33°41'20.67"S 151°18'1.96"E	TRH, BTEX, PAHs, Metals
11356/S4 + AS4	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S4.	33°41'20.39"S 151°18'2.98"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S5	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S5.	33°41'19.97"S 151°18'0.59"E	TRH, BTEX, PAHs, Metals
11356/S6 + AS6	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S6.	33°41'19.89"S 151°18'1.38"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S7	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S7.	33°41'19.89"S 151°18'2.21"E	TRH, BTEX, PAHs, Metals
11356/S8 + AS8	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S8.	33°41'19.60"S 151°18'3.40"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S9	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S9.	33°41'19.38"S 151°18'0.50"E	TRH, BTEX, PAHs, Metals
11356/S10 + AS10	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S10.	33°41'19.26"S 151°18'1.30"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S11	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S11.	33°41'19.17"S 151°18'2.37"E	TRH, BTEX, PAHs, Metals
11356/S12 + AS12	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S12.	33°41'18.97"S 151°18'3.45"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S13	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S13.	33°41'18.75"S 151°18'0.28"E	TRH, BTEX, PAHs, Metals

Sample Number	Sample Type	Location Collected	GPS Coordinates	Analysis Performed
11356/S14 + AS14	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S14.	33°41'18.62"S 151°18'1.04"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S15	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S15.	33°41'18.43"S 151°18'2.19"E	TRH, BTEX, PAHs, Metals
11356/S16 + AS16	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S16.	33°41'18.34"S 151°18'3.41"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S17	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S17.	33°41'18.31"S 151°18'0.28"E	TRH, BTEX, PAHs, Metals
11356/S18 + AS18	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S18.	33°41'18.04"S 151°18'1.14"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S19	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S19.	33°41'17.80"S 151°18'2.03"E	TRH, BTEX, PAHs, Metals
11356/S20 + AS20	Soil Sample	Sample taken at a depth of 0.0-0.2m at location S20.	33°41'17.57"S 151°18'3.27"E	TRH, BTEX, PAHs, Metals, OCP, PCBs, Asbestos (sample AS)
11356/S1a	Blind Replicate	Blind Replicate of 11356/S1		TRH, BTEX, PAHs, Metals
11356/S16	Split Replicate	Split Replicate of 11356/S1		TRH, BTEX, PAHs, Metals

Table 11-3: Sample Information

Primary and replicate soil samples that were to be analysed were sampled directly from the ground using a stainless-steel trowel and single use nitrile-gloved hands and placed directly into new 250mL clean glass jars with screw top plastic lids with inert plastic inserts. Samples of soil for analysis of asbestos content (sample AS) were collected and placed within zip-loc bags.

Between samples sampling equipment was decontaminated using a 5% Decon 90 solution, rinsed with Milli Q water and dried with Kimberly Clark Epic Wipes.

The glass jars and zip-loc bags were labelled using a waterproof permanent marker pen with the date, a Getex unique reference number that indicated the sampling location, and a sub sample number. The samples were then stored on ice in an insulated container until they were delivered to the laboratory within acceptable holding times.

The chain of custody process involved writing the Getex unique reference number on the sample jars at the time of sampling and on the chain of custody form. The chain of custody form remained with the samples until they were delivered to the laboratory. Once delivered to the laboratory the officer at sample receipt signed the chain of custody form taking responsibility for the samples. A copy of the chain of custody showing the time of delivery, condition of samples (cold etc) and the unique laboratory number was emailed to Getex by the laboratory. On receipt Getex checked that the laboratory details were correct.

12. ASSESSMENT CRITERIA

12.1 Regulatory Guidelines

The investigation was undertaken in general accordance with the following guidelines, as relevant:

- *Contaminated Sites: Sampling Design Guidelines,* NSW EPA, 1995;
- *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, NSW EPA, 2020;
- NSW EPA (2017), "*Contaminated Land Management: Guidelines for NSW Site Auditor Scheme*";
- *Contaminated Sites: Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*, NSW EPA, 2015;
- *National Environment Protection (Assessment of Site Contamination) Measure,* National Environment Protection Council, 2013;
- *National Water Quality Management Strategy, Paper No. 4, Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), October 2000; and
- *Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards,* Department of Health and Ageing and EnHealth Council, Commonwealth of Australia, June 2002.

12.2 Soil Aesthetic Considerations

The National Environment Protection (Assessment of Site Contamination) Measure, 2013 states, "aesthetic issues generally relate to the presence of low-concern or non-hazardous inert foreign material in soil or fill resulting from human activity". Caution is also recommended when assessing a site for potentially sensitive land uses (such as residential) when significant quantities of fill or demolition materials are present.

Soil or fill material tested to be within accepted human health and environmental guideline levels may still contain low-concern or non-hazardous inert foreign material. Examples of these foreign materials include bricks, tiles, metal piping, glass, concrete, bitumen and plastics.

The quantity, type and distribution of foreign materials identified within the soil profile will be considered in relation to the future land use. In assessing the sensitivity of future site users to aesthetic issues consideration will be given to the depth of the material in relation to the future site levels following any development, the practicality of management options and the ability of the foreign materials to cause concern.

12.3 Soil Analysis Criteria

Health-based soil Criteria Levels can be applied for a range of different exposure settings, which are based on the nature of the use(s) for which the land is currently used and/or its approved use(s).

Given that the proposed development is for a residential development, the assessment criteria are based on following exposure setting within the National Environment Protection (Assessment of Site Contamination) Measure, National Environmental Protection Council, 2013:

- Health investigation level setting A (residential with garden/accessible soil) from Table 1A(1);
- Health screening level setting A and soil classification sand or clay (dependent on the sample) for petroleum hydrocarbon compounds from Table 1A(3); and
- Health screening level setting A for Asbestos from Table 7.

For F3 and F4, health screening levels were used from Table B4 of HSLs for petroleum hydrocarbons in soil, part 1: technical development document, Technical report no. 10, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia (2011).

Ecological Screening/Investigation Levels are to be applied to soil within 2m below the proposed ground level.

Ecological Screening Levels for petroleum hydrocarbon compounds are based on Urban residential and public open space and soil texture Coarse from Table 1B(6) from the *National Environment Protection (Assessment of Site Contamination) Measure,* National Environment Protection Council, 1999, as amended 2013.

Ecological Investigation Levels (EILs) are based on Urban residential and public open space from the *National Environment Protection (Assessment of Site Contamination) Measure,* National Environment Protection Council, 2013. EILs have been derived for arsenic, copper, chromium (III), DDT, naphthalene, nickel, lead and zinc.

Values presented for arsenic, naphthalene and DDT are generic EILs based on total concentrations and aged contaminants.

The EIL for lead has been calculated using the most conservative SQG value based upon the reported pH and exchangeable cation values. All other EIL's have assumed that the majority of any contamination on site is greater than 2 years old. Where EIL values required input including CEC, pH and organic content, the values from the five samples collected within the fill material were used.

A summary of the EIL input values are:

Soil Property	Input
Cation Exchange Capacity cmolc/kg	24
pH	8.2
Organic Compound %	0.7

Soil Property	Input
Iron %	1.2
Clay Content %	10

Table 12-1: EIL Input Value Information

Acceptance criteria levels are given within **Appendix VII** alongside the sample analysis results.

13. QUALITY ASSURANCE / QUALITY CONTROL

All sampling and analysis were conducted by an appropriately trained and qualified Getex consultant. All sampling information was documented and where necessary collected utilising properly maintained equipment. Prior to use all equipment was assessed for appropriateness and inspected for defects.

The sampling and analysis program included, for Quality Assurance / Quality Control (QA/QC) purposes, the analysis of blind and split replicate samples. For soil sampling one blind and one split replicate was taken for TRH, BTEX, PAHs and Metals. The primary and blind replicate samples were sent to the same laboratory (Envirolab Services Pty Ltd) and the split replicate was to an independent laboratory (ALS Environmental).

Please Refer to **Appendix IX** for QA/QC Results and Assessment.

The QA/QC data is considered satisfactory and the quality of the sampling data considered suitable for the purposes of the sampling conducted.

14. DISCUSSION

14.1 Soil Aesthetic Discussion

Foreign materials in the form of crushed building and rock aggregate were identified on the ground surface across the Site. The amount of foreign material together with the planned future land use as residential development is considered to be a trigger with regards to aesthetic soil considerations.

14.2 Asbestos Discussion

No asbestos containing material was visually identified on the ground surfaces across the Site. However, Chrysotile Asbestos in the form of fibre cement was detected in soil sample 11356/AS2. No asbestos was detected in the remaining nine (9) soil samples.

14.3 Soil Analytical Discussion

The summaries of laboratory results are discussed in the following sections.

14.3.1 TRH

A total of 20 soil samples were analysed for TRH fractions. All results for F1 (C6-C10 minus BTEX), F2 (C10-C16 minus Napthalene), F3 (C16-C34) and F4 (C34-C40) were below the adopted Site assessment criteria.

14.3.2 BTEX

A total of 20 soil samples were analysed for BTEX. All concentrations were below the adopted Site assessment criteria.

14.3.3 Metals

A total of 20 soil samples were analysed for Metals. All concentrations were below the adopted Site assessment criteria.

14.3.4 PAHs

A total of 20 soil samples were analysed for PAHs. All concentrations were below the adopted Site assessment criteria.

14.3.5 Carcinogenic PAHs

A total of 20 soil samples were analysed for Carcinogenic PAHs (as Benzo(a)pyrene TEQ).

Elevated level for Benzo(a)Pyrene TEQ was identified within sample 11356/S10 (3.4mg/kg) greater than the adopted ecological assessment criteria level of 3mg/kg. Assessments using the Decision Rule in Section 10.1.5 were as follows:

- The average concentration was 0.68mg/kg. The 95% UCL for all samples within the Site using software *ProUCL* was 0.93mg/kg which is below the adopted human health assessment criteria and the standard deviation of the results was 22% of the assessment criteria. Therefore, the result is considered satisfactory.

All other concentrations were below the adopted Site assessment criteria.

14.3.6 OCP

A total of 10 soil samples were analysed for OCP. All concentrations were below the adopted Site assessment criteria.

14.3.7 PCBs

A total of 10 soil samples were analysed for PCBs. All concentrations were below the adopted Site assessment criteria.

14.4 Response to Identified Decisions

The results are discussed in the following sections in relation to the identified decisions developed as part of the DQO process (**Section 11.1.2**):

- Is there any contamination within the Site surface soil that will pose a risk to future onsite and offsite receptors?

14.4.1 Risks to Future Onsite and Offsite Receptors from Soil Contamination

The collected samples of the soil were analysed for a broad range of identified potential contaminants including TRH, BTEX, Metals, PAHs, OCP, PCBs and Asbestos. Concentrations of TRH, BTEX, PAHs, OCP, PCBs were within the adopted criteria.

No asbestos containing material was visually identified on the ground surfaces across the Site. However, Chrysotile Asbestos in the form of fibre cement was detected in one (1) soil sample (Sample 11356/AS2). Based on the limited information, asbestos contamination within the Site may represent a human health risk with respect to the proposed development.

14.5 Update of Conceptual Site Model

Based on the findings from the assessment, the updated CSM is provided in Table 14-1.

14.6 Updated Conceptual Site Model

Source	Receptors	Exposure Pathway	Potential for Completeness
Contaminated soils from: - Current activity as a construction site compound and vehicle carpark	Site Occupants; Neighbouring properties; Construction workers.	Skin contact with potentially contaminated soil; Ingestion of potentially contaminated soil.	**Pathway incomplete** – No CoPC detected above criteria levels within the Site.
		Inhalation of asbestos fibres.	**Possible** – Asbestos identified on site. However, the condition and extent of asbestos is unknown, hence human health risk is unknown.

Table 14-1: Updated Conceptual Site Model

15. CONCLUSIONS AND RECOMMENDATIONS

Based on the findings from the site historical review, previous investigations review and walkover inspection, potential contamination from the current site activity as a construction site compound and vehicle carpark was unknown. Therefore, an assessment of the surface soil across the Site was required to determine if contamination was present from the Site's current activity as a construction site compound and vehicle carpark that would affect the suitability of the Site for the proposed development.

Soil samples taken from locations across the Site were analysed for a broad range of identified potential contaminants including TRH, BTEX, Metals, PAHs, OCP, PCBs and Asbestos. Concentrations of TRH, BTEX, PAHs, OCP, PCBs were within the adopted criteria.

No asbestos containing material was visually identified on the ground surfaces across the Site. However, Chrysotile Asbestos in the form of fibre cement was detected in one (1) soil sample (Sample 11356/AS2). This location is highlighted at Location S2 on the Site Map in **Appendix I**. Based on the limited information, asbestos contamination within the Site may represent a human health risk with respect to the proposed development.

In addition, the amount of foreign material in the form of crushed building and rock aggregate is considered to be a likely trigger for remediation/management with regards to aesthetic soil considerations based on the proposed future Site use as residential developments.

It is the opinion of the consultant that the Site would be suitable for the proposed development provided the following is undertaken:

1. The foreign material in the form of crushed building and rock aggregate on the soil surface is removed.
2. A detailed asbestos investigation to determine the human health risk for the proposed development with regards to asbestos.
3. Where a detailed asbestos investigation identifies an asbestos human health risk so that remediation is required, then the remediation is to be undertaken in accordance with a Remedial Action Plan (RAP) developed and implemented in accordance with the relevant regulatory requirements.
4. Once remediation works are completed a validation assessment is to be undertaken in accordance with the relevant regulatory requirements to confirm if the Site is suitable for the proposed development application with regards to the asbestos contamination identified in the detailed asbestos investigation.

It is possible that all remediation works could be undertaken during redevelopment works.

APPENDIX I

SITE MAP

Figure 2: Site Map
25-27 Warriewood Road, WARRIEWOOD NSW 2102

Aerial image derived from Google Earth and is indicative of on-ground locations only

APPENDIX II

PLANNING CERTIFICATE

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Getex Pty Ltd
35 Waterloo Road
NORTH RYDE NSW 2113

Reference: 11356
Date: 05/05/2020
Certificate No. ePLC2020/2706

Address of Property: 25 Warriewood Road WARRIEWOOD NSW 2102
Description of Property: Lot 28 Sec C DP 5464

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

1.1 The name of each environmental planning instrument that applies to the carrying out of development on the land:

1.1a) Local Environmental Plan

Pittwater Local Environmental Plan 2014

1.1b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy 19 – Bushland in Urban Areas
State Environmental Planning Policy 21 – Caravan Parks
State Environmental Planning Policy 33 – Hazardous and Offensive Development
State Environmental Planning Policy 50 – Canal Estate Development
State Environmental Planning Policy 55 – Remediation of Land
State Environmental Planning Policy 64 – Advertising and Signage
State Environmental Planning Policy 65 – Design Quality of Residential Apartment Development
State Environmental Planning Policy No 70—Affordable Housing (Revised Schemes)
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (State Significant Precincts) 2005
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (Primary Production and Rural Development) 2019
State Environmental Planning Policy (Koala Habitat Protection) 2019
Partly Affected - State Environmental Planning Policy (Coastal Management) 2018
Sydney Regional Environmental Plan No 20-Hawkesbury-Nepean River (No 2-1997)

1.2 Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

1.2 a) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Environment)
Draft State Environmental Planning Policy (Short-term Rental Accommodation) 2019
Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
Draft Remediation of Land State Environmental Planning Policy (intended to replace State Environmental Planning Policy 55)

1.2 b) Draft Local Environmental Plans

1.3 Development Control Plans

The name of each development control plan that applies to the carrying out of development on the land:

Pittwater 21 Development Control Plan

2. Zoning and land use under relevant Local Environmental Plans

For each environmental planning instrument or proposed instrument referred to in Clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2.1 Zoning and land use under relevant Local Environmental Plans

2.1 (a), (b), (c) & (d)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

Zone R3 Medium Density Residential

2 Permitted without consent

Home businesses; Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Environmental protection works; Exhibition homes; Group homes; Health consulting rooms; Home-based child care; Home industries; Multi dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Serviced apartments; Veterinary hospitals

4 Prohibited

Pond-based aquaculture; Any other development not specified in item 2 or 3

Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(e) Minimum land dimensions

The *Pittwater Local Environmental Plan 2014* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(f) Critical habitat

The land does not include or comprise critical habitat.

(g) Conservation areas

The land is not in a heritage conservation area.

(h) Item of environmental heritage

The land does not contain an item of environmental heritage.

2.2 Draft Local Environmental Plan - if any

For any proposed changes to zoning and land use, see Part 1.2 b)
Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

2A. Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

The *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* does not apply to the land.

3. Complying Development

The extent to which the land is land on which complying development may or may not be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

a) Housing Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
3.1 Land to which code applies
This code applies to development that is specified in clauses 3.2-3.5 on any lot in Zone R1, R2, R3, R4 or RU5 that:
(a) has an area of at least 200m2, and
(b) has a width, measured at the building line fronting a primary road, of at least 6m.

b) Rural Housing Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
3A.1 Land to which code applies
This code applies to development that is specified in clauses 3A.2-3A.5 on lots in Zone RU1, RU2, RU3, RU4, RU6 and R5.

c) Low Rise Medium Density Code

Complying Development under the Low Rise Medium Density Code may not be carried out on all the land.

Note: Pursuant to clause 3B.63 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, all land in Northern Beaches Council is a 'deferred area' meaning that the Low Rise Medium Density Code does not apply until 1 July 2020.

d) Greenfield Housing Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

e) Housing Alterations Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

f) General Development Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

g) Commercial and Industrial Alterations Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

h) Commercial and Industrial (New Buildings and Additions) Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
5A.1 Land to which code applies
This code applies to development that is specified in clause 5A.2 on any lot in Zone B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3.

i) Container Recycling Facilities Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
5B.2 Development to which code applies
This code applies to development that is specified in clause 5B.3 on any lot in Zone B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3.

j) Subdivisions Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

k) Demolition Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

l) Fire Safety Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

m) Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

4, 4A (Repealed)

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The owner of the land (or any previous owner) has not consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

5. Mine Subsidence

The land has not been proclaimed to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961*.

6. Road widening and road realignment

(a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.

(b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.

(c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

7. Council and other public authority policies on hazard risk restriction

(a) Council has adopted a number of policies with regard to various hazards or risks which may restrict development on this land. The identified hazard or risk and the respective Council policies which affect the property, if any, are listed below (other than flooding – see 7A):

Nil

(b) The following information applies to any policy as adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Nil

7A. Flood related development control Information

(1) Development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

(2) Development on the land or part of the land for any other purpose is subject to flood related development controls.

8. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

9. Contribution plans

The following applies to the land:

Warriewood Valley Development Contributions Plan Amendment 16, Revision 3 - in force 1 Sept 2018
This Plan was approved by Council to levy contributions towards the provision, extension or augmentation of public amenities and public services that will, or are likely to be, required as a consequence of development in the Warriewood Valley Urban Release Area.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

10. Biodiversity Stewardship Sites

The Council has not been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

10A. Native vegetation clearing set asides

Council has not been notified by Local Land Services of the existence of a set aside area under section 60ZC of the *Local Land Services Act 2013*.

11. Bush fire prone land

Bush Fire Prone Land
The land is not bush fire prone land.

Draft Northern Beaches Bush Fire Prone Land Map 2018
The land is not bush fire prone land.

12. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

14. Directions under Part 3A

There is not a direction by the Minister in force under section 75P(2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(a) There is not a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

(b) No condition of consent applies to the property that limits the kind of people who may occupy the premises/ development. This refers only to consents granted after 11 October 2007 with conditions made in accordance with clause 18(2) of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

There is not a valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

17. Site compatibility certificate and conditions for affordable rental housing

(a) There is not a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

(b) There are not terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is no current site verification certificate, of which council is aware, in respect of the land according to Part 4AA of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

20. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

21 Affected building notices and building product rectification orders

(1) There is not an affected building notice of which the council is aware that is in force in respect of the land.
(2) There is not a building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and
(3) There is not a notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

In this clause:

affected building notice has the same meaning as in Part 4 of the *Building Products (Safety) Act 2017*.
building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

Additional matters under the Contaminated Land Management Act 1997

Note. The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

(a) the land to which the certificate relates is not significantly contaminated land within the meaning of that Act

(b) the land to which the certificate relates is not subject to a management order within the meaning of that Act

(c) the land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of that Act

(d) the land to which the certificate relates is not subject to an ongoing maintenance order within the meaning of that Act

(e) the land to which the certificate relates is not the subject of a site audit statement

If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

ePLC2020/2706

The following is information provided in good faith under the provisions of Section 10.7(5) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149) and lists relevant matters affecting the land of which Council is aware. The Council shall not incur any liability in respect of any such advice.

Persons relying on this certificate should read the environmental planning instruments referred to in this certificate.

Company Title Subdivision

Clause 4.1 of the *Pittwater Local Environmental Plan 2014*, *Warringah Local Environmental Plan 2011* or *Manly Local Environmental Plan 2013* provides that land may not be subdivided except with the consent of the Council. This includes subdivision by way of company title schemes. Persons considering purchasing property in the Northern Beaches local government area the subject of a company title scheme are advised to check that the land has been subdivided with the consent of the Council.

District Planning

Under the Greater Sydney Regional Plan – A Metropolis of Three Cities 2018, the Greater Sydney Commission sets a planning framework for a metropolis of three cities across Greater Sydney which reach across five Districts. Northern Beaches is located within the 'Eastern Harbour City' area and is in the North District which forms a large part of the Eastern Harbour City. The North District Plan sets out planning priorities and actions for the growth of the North District, including Northern Beaches. Northern Beaches Council is preparing a Local Strategic Planning Statement which will give effect to the District Plan based on local characteristics and opportunities and Council's own priorities in the community.

Council Resolution To Amend Environmental Planning Instrument

The following instrument or resolution of Council proposes to vary the provisions of an environmental planning instrument, other than as referred to in the Planning Certificate – Part 2:

Planning Proposal - Response to Low Rise Medium Density Code
Applies to land: Certain land in the Pittwater Local Environmental Plan 2014 (PLEP 2014) and Manly Local Environmental Plan 2013 (MLEP 2013)
Outline: Seeks to amend the PLEP 2014 and MLEP 2013 in response to issues arising from the future implementation of the NSW Governments' SEPP (Exempt and Complying Development) Amendment (Low Rise Medium Density Code). The intent of the Planning Proposal is to prohibit:

- manor houses and multi-dwelling housing (including terraces) in zone R2 Low Density Residential zone under the Manly LEP 2013
- dual occupancy in zone R2 Low Density Residential zone under the Manly LEP 2013 and Pittwater LEP 2014
- multi-dwelling housing and dual occupancies in the R3 Zone in the Warriewood Valley under Pittwater LEP 2014

Council resolution: 26 June 2018

Nil

Additional Information Applying To The Land

Additional information, if any, relating to the land the subject of this certificate:

Warriewood Valley Water Management Specification
Pittwater Council has adopted a Water Management Specification for the protection, restoration and maintenance of the chemical, physical and biological integrity of waterways within the Warriewood Valley Urban Land Release Area.

General Information

Tree Preservation and Management Order
Tree preservation and Management order applies to the subject land

Ray Brownlee PSM
Chief Executive Officer
05/05/2020

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Getex Pty Ltd
35 Waterloo Road
NORTH RYDE NSW 2113

Reference: 11356
Date: 05/05/2020
Certificate No. ePLC2020/2707

Address of Property: 27 Warriewood Road WARRIEWOOD NSW 2102
Description of Property: Lot 29 Sec C DP 5464

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

1.1 The name of each environmental planning instrument that applies to the carrying out of development on the land:

1.1a) Local Environmental Plan

Pittwater Local Environmental Plan 2014

1.1b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy 19 – Bushland in Urban Areas
State Environmental Planning Policy 21 – Caravan Parks
State Environmental Planning Policy 33 – Hazardous and Offensive Development
State Environmental Planning Policy 50 – Canal Estate Development
State Environmental Planning Policy 55 – Remediation of Land
State Environmental Planning Policy 64 – Advertising and Signage
State Environmental Planning Policy 65 – Design Quality of Residential Apartment Development
State Environmental Planning Policy No 70—Affordable Housing (Revised Schemes)
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (State Significant Precincts) 2005
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (Primary Production and Rural Development) 2019
State Environmental Planning Policy (Koala Habitat Protection) 2019
Partly Affected - State Environmental Planning Policy (Coastal Management) 2018
Sydney Regional Environmental Plan No 20-Hawkesbury-Nepean River (No 2-1997)

1.2 Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

1.2 a) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Environment)
Draft State Environmental Planning Policy (Short-term Rental Accommodation) 2019
Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
Draft Remediation of Land State Environmental Planning Policy (intended to replace State Environmental Planning Policy 55)

1.2 b) Draft Local Environmental Plans

1.3 Development Control Plans

The name of each development control plan that applies to the carrying out of development on the land:

Pittwater 21 Development Control Plan

2. Zoning and land use under relevant Local Environmental Plans

For each environmental planning instrument or proposed instrument referred to in Clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2.1 Zoning and land use under relevant Local Environmental Plans

2.1 (a), (b), (c) & (d)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

Zone R3 Medium Density Residential

2 Permitted without consent

Home businesses; Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Environmental protection works; Exhibition homes; Group homes; Health consulting rooms; Home-based child care; Home industries; Multi dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Serviced apartments; Veterinary hospitals

4 Prohibited

Pond-based aquaculture; Any other development not specified in item 2 or 3

Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(e) Minimum land dimensions

The *Pittwater Local Environmental Plan 2014* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(f) Critical habitat

The land does not include or comprise critical habitat.

(g) Conservation areas

The land is not in a heritage conservation area.

(h) Item of environmental heritage

The land does not contain an item of environmental heritage.

2.2 Draft Local Environmental Plan - if any

For any proposed changes to zoning and land use, see Part 1.2 b)
Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

2A. Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

The *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* does not apply to the land.

3. Complying Development

The extent to which the land is land on which complying development may or may not be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

a) Housing Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
3.1 Land to which code applies
This code applies to development that is specified in clauses 3.2-3.5 on any lot in Zone R1, R2, R3, R4 or RU5 that:
(a) has an area of at least 200m2, and
(b) has a width, measured at the building line fronting a primary road, of at least 6m.

b) Rural Housing Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
3A.1 Land to which code applies
This code applies to development that is specified in clauses 3A.2-3A.5 on lots in Zone RU1, RU2, RU3, RU4, RU6 and R5.

c) Low Rise Medium Density Code

Complying Development under the Low Rise Medium Density Code may not be carried out on all the land.

Note: Pursuant to clause 3B.63 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, all land in Northern Beaches Council is a 'deferred area' meaning that the Low Rise Medium Density Code does not apply until 1 July 2020.

d) Greenfield Housing Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

e) Housing Alterations Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

f) General Development Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

g) Commercial and Industrial Alterations Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

h) Commercial and Industrial (New Buildings and Additions) Code

Within a Buffer Area
For the purposes of clause 1.19 (1) (e) and (5) (f), complying development may not be carried out on that part of the land identified as being within a buffer area under *Pittwater Local Environmental Plan 2014* as identified on the Urban Release Area Map.
Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
5A.1 Land to which code applies
This code applies to development that is specified in clause 5A.2 on any lot in Zone B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3.

i) Container Recycling Facilities Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

Note: *Further zone based limitations may apply. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 clause:*
5B.2 Development to which code applies
This code applies to development that is specified in clause 5B.3 on any lot in Zone B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3.

j) Subdivisions Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

k) Demolition Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

l) Fire Safety Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Coastal Management) 2018*.

m) Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

4, 4A (Repealed)

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The owner of the land (or any previous owner) has not consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

5. Mine Subsidence

The land has not been proclaimed to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961*.

6. Road widening and road realignment

(a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.

(b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.

(c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

7. Council and other public authority policies on hazard risk restriction

(a) Council has adopted a number of policies with regard to various hazards or risks which may restrict development on this land. The identified hazard or risk and the respective Council policies which affect the property, if any, are listed below (other than flooding – see 7A):

Nil

(b) The following information applies to any policy as adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Nil

7A. Flood related development control Information

(1) Development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

(2) Development on the land or part of the land for any other purpose is subject to flood related development controls.

8. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

9. Contribution plans

The following applies to the land:

Warriewood Valley Development Contributions Plan Amendment 16, Revision 3 - in force 1 Sept 2018
This Plan was approved by Council to levy contributions towards the provision, extension or augmentation of public amenities and public services that will, or are likely to be, required as a consequence of development in the Warriewood Valley Urban Release Area.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

10. Biodiversity Stewardship Sites

The Council has not been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

10A. Native vegetation clearing set asides

Council has not been notified by Local Land Services of the existence of a set aside area under section 60ZC of the *Local Land Services Act 2013*.

11. Bush fire prone land

Bush Fire Prone Land
The land is not bush fire prone land.

Draft Northern Beaches Bush Fire Prone Land Map 2018
The land is not bush fire prone land.

12. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

14. Directions under Part 3A

There is not a direction by the Minister in force under section 75P(2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(a) There is not a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

(b) No condition of consent applies to the property that limits the kind of people who may occupy the premises/ development. This refers only to consents granted after 11 October 2007 with conditions made in accordance with clause 18(2) of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

There is not a valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

17. Site compatibility certificate and conditions for affordable rental housing

(a) There is not a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

(b) There are not terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is no current site verification certificate, of which council is aware, in respect of the land according to Part 4AA of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

20. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

21 Affected building notices and building product rectification orders

(1) There is not an affected building notice of which the council is aware that is in force in respect of the land.
(2) There is not a building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and
(3) There is not a notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

In this clause:

affected building notice has the same meaning as in Part 4 of the *Building Products (Safety) Act 2017*.
building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

Additional matters under the Contaminated Land Management Act 1997

Note. The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

(a) the land to which the certificate relates is not significantly contaminated land within the meaning of that Act

(b) the land to which the certificate relates is not subject to a management order within the meaning of that Act

(c) the land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of that Act

(d) the land to which the certificate relates is not subject to an ongoing maintenance order within the meaning of that Act

(e) the land to which the certificate relates is not the subject of a site audit statement

If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

ePLC2020/2707

The following is information provided in good faith under the provisions of Section 10.7(5) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149) and lists relevant matters affecting the land of which Council is aware. The Council shall not incur any liability in respect of any such advice.

Persons relying on this certificate should read the environmental planning instruments referred to in this certificate.

Company Title Subdivision

Clause 4.1 of the *Pittwater Local Environmental Plan 2014*, *Warringah Local Environmental Plan 2011* or *Manly Local Environmental Plan 2013* provides that land may not be subdivided except with the consent of the Council. This includes subdivision by way of company title schemes. Persons considering purchasing property in the Northern Beaches local government area the subject of a company title scheme are advised to check that the land has been subdivided with the consent of the Council.

District Planning

Under the Greater Sydney Regional Plan – A Metropolis of Three Cities 2018, the Greater Sydney Commission sets a planning framework for a metropolis of three cities across Greater Sydney which reach across five Districts. Northern Beaches is located within the 'Eastern Harbour City' area and is in the North District which forms a large part of the Eastern Harbour City. The North District Plan sets out planning priorities and actions for the growth of the North District, including Northern Beaches. Northern Beaches Council is preparing a Local Strategic Planning Statement which will give effect to the District Plan based on local characteristics and opportunities and Council's own priorities in the community.

Council Resolution To Amend Environmental Planning Instrument

The following instrument or resolution of Council proposes to vary the provisions of an environmental planning instrument, other than as referred to in the Planning Certificate – Part 2:

Planning Proposal - Response to Low Rise Medium Density Code
Applies to land: Certain land in the Pittwater Local Environmental Plan 2014 (PLEP 2014) and Manly Local Environmental Plan 2013 (MLEP 2013)
Outline: Seeks to amend the PLEP 2014 and MLEP 2013 in response to issues arising from the future implementation of the NSW Governments' SEPP (Exempt and Complying Development) Amendment (Low Rise Medium Density Code). The intent of the Planning Proposal is to prohibit:

- manor houses and multi-dwelling housing (including terraces) in zone R2 Low Density Residential zone under the Manly LEP 2013
- dual occupancy in zone R2 Low Density Residential zone under the Manly LEP 2013 and Pittwater LEP 2014
- multi-dwelling housing and dual occupancies in the R3 Zone in the Warriewood Valley under Pittwater LEP 2014

Council resolution: 26 June 2018

Nil

Additional Information Applying To The Land

Additional information, if any, relating to the land the subject of this certificate:

Warriewood Valley Water Management Specification
Pittwater Council has adopted a Water Management Specification for the protection, restoration and maintenance of the chemical, physical and biological integrity of waterways within the Warriewood Valley Urban Land Release Area.

General Information

Tree Preservation and Management Order
Tree preservation and Management order applies to the subject land

Ray Brownlee PSM
Chief Executive Officer
05/05/2020

APPENDIX III

LOTSEARCH ENVIRO REPORT

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 07 May 2020 10:14:47

Reference: LS012227 EP

Address: 25-27 Warriewood Road, Warriewood, NSW 2102

Dataset Listing

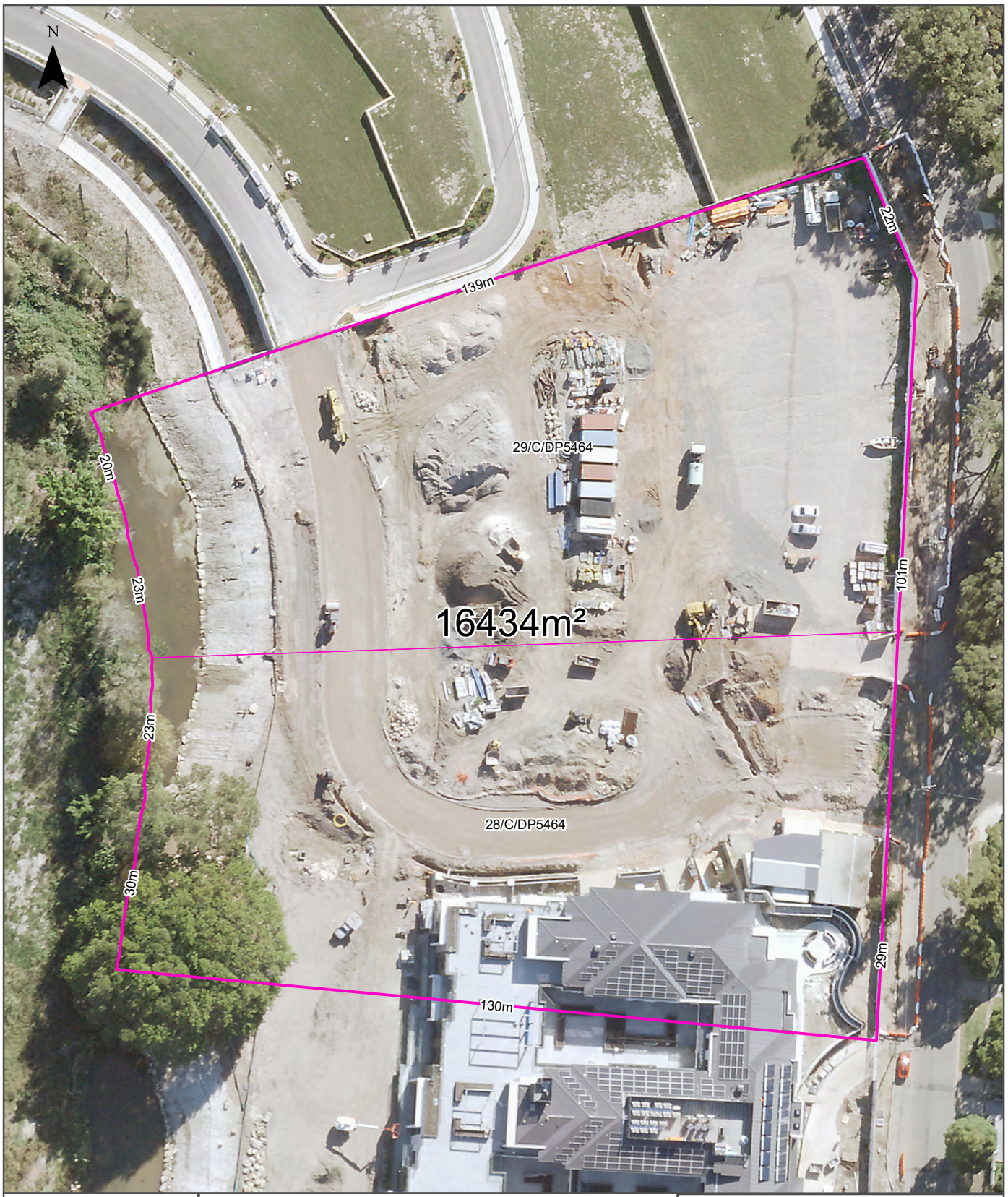
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	17/03/2020	17/03/2020	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	15/04/2020	15/04/2020	Monthly	1000	0	0	1
Contaminated Land Records of Notice	Environment Protection Authority	21/04/2020	21/04/2020	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	21/04/2020	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/02/2020	07/03/2017	Quarterly	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	05/02/2020	13/07/2012	Quarterly	1000	0	0	1
EPA PFAS Investigation Program	Environment Protection Authority	22/04/2020	22/04/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	12/02/2020	12/02/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	12/02/2020	12/02/2020	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	22/04/2020	22/04/2020	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	04/05/2020	04/05/2020	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	04/02/2020	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	09/04/2020	09/04/2020	Monthly	1000	0	1	1
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	09/04/2020	09/04/2020	Monthly	1000	0	0	1
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	09/04/2020	09/04/2020	Monthly	1000	3	3	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	1	1
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	20	20
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	2
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	14	24
Points of Interest	NSW Department of Finance, Services & Innovation	19/02/2020	19/02/2020	Quarterly	1000	0	0	39
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	19/02/2020	19/02/2020	Quarterly	1000	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	19/02/2020	19/02/2020	Quarterly	1000	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	19/02/2020	19/02/2020	Quarterly	1000	0	0	30
State Forest	Forestry Corporation of NSW	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	21/01/2020	30/09/2019	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1
Botany Groundwater Management Zones	NSW Department of Planning, Industry and Environment	15/03/2018	01/10/2005	As required	1000	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	65
Geological Units 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		None planned	1000	2	-	5
Geological Structures 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		None planned	1000	0	-	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000	1	1	1
Soil Landscapes	NSW Department of Planning, Industry and Environment	12/08/2014		None planned	1000	3	-	6
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	24/04/2020	28/02/2020	Monthly	500	2	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	2	3	3
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Department of Planning, Industry and Environment	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	19/02/2020	19/02/2020	Quarterly	1000	0	0	0
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	24/04/2020	07/12/2018	Monthly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	26/03/2020	26/03/2020	Monthly	1000	1	5	47
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	04/02/2020	31/07/2018	Quarterly	1000	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	04/02/2020	20/11/2019	Quarterly	1000	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	12/02/2020	09/11/2018	Quarterly	1000	0	0	0
Environmental Planning Instrument Heritage	NSW Department of Planning, Industry and Environment	24/04/2020	17/04/2020	Monthly	1000	0	0	8
Bush Fire Prone Land	NSW Rural Fire Service	04/02/2020	14/12/2019	Quarterly	1000	0	2	3
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment & Heritage	01/03/2017	16/12/2016	As required	1000	3	3	16
Ramsar Wetlands of Australia	Department of the Agriculture, Water and the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	1	1
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	1	1
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	06/05/2020	06/05/2020	Weekly	10000	-	-	-

Site Diagram

25-27 Warriewood Road, Warriewood, NSW 2102



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 16434m²

Total Perimeter: 521m

Scale: 0 25 50 Meters

Data Sources: Aerial Imagery: © Aerometrex Pty Ltd

Disclaimers:

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

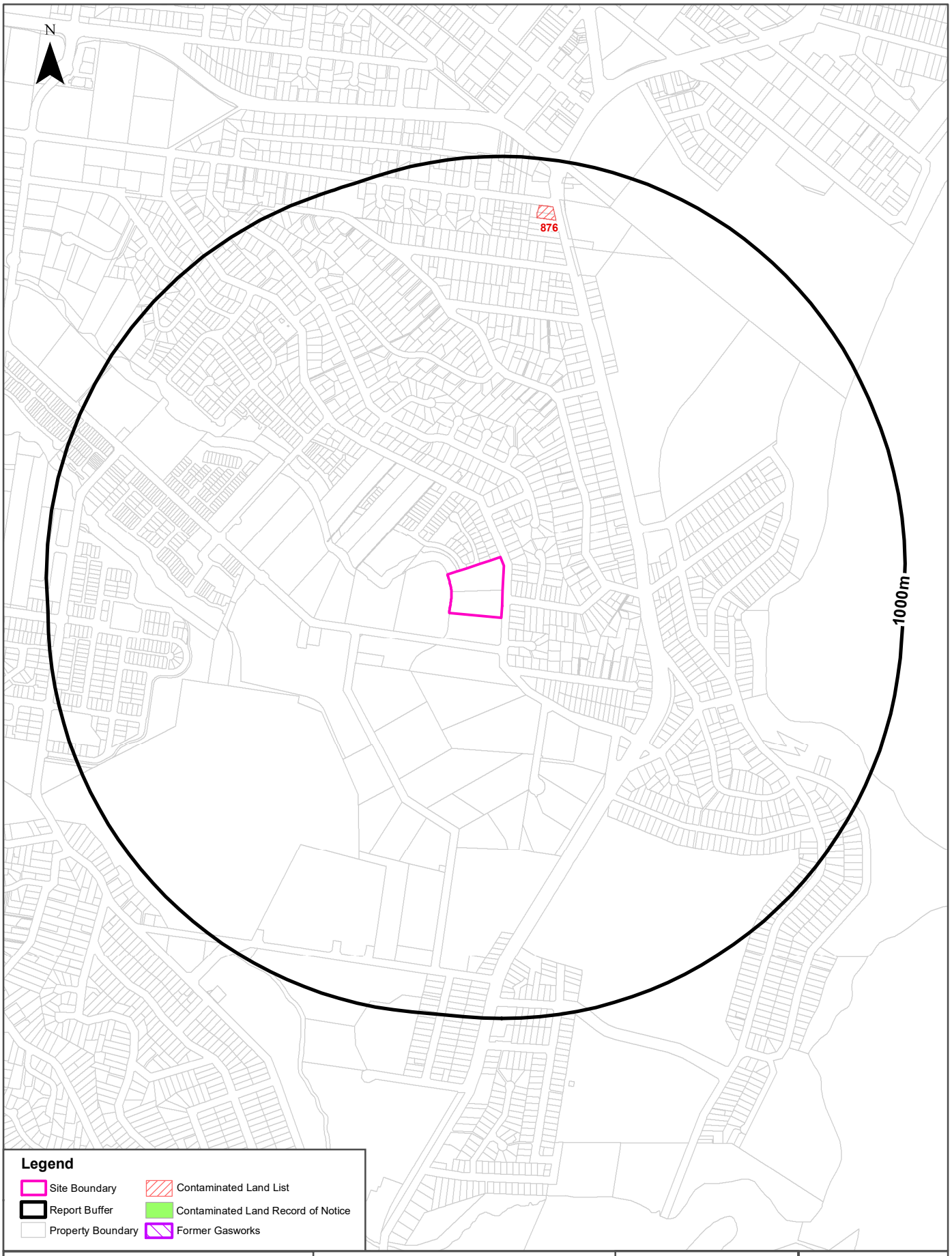
Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Contaminated Land

25-27 Warriewood Road, Warriewood, NSW 2102



Data Sources: Property Boundaries & Topographic Data:
© Department Finance, Services & Innovation 2020

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 May 2020

Contaminated Land

25-27 Warriewood Road, Warriewood, NSW 2102

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 (m)	Direction
876	BP Service Station Mona Vale	1721 Pittwater Road	Mona Vale	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	852m	North

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.
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

Contaminated Land

25-27 Warriewood Road, Warriewood, NSW 2102

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: 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

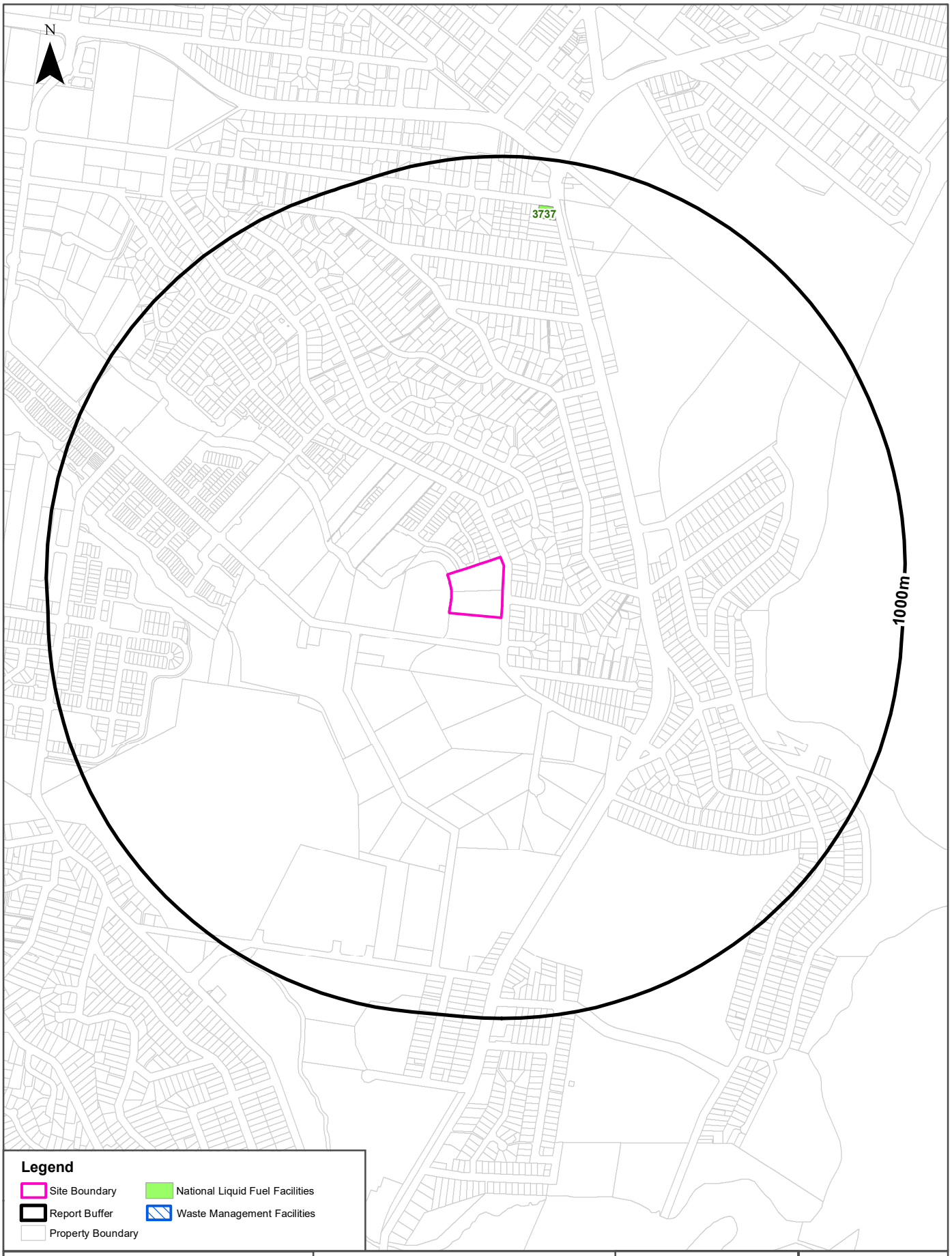
Former Gasworks within the dataset buffer:

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

Former Gasworks Data Source: Environment Protection Authority

Waste Management & Liquid Fuel Facilities

25-27 Warriewood Road, Warriewood, NSW 2102



Waste Management & Liquid Fuel Facilities

25-27 Warriewood Road, Warriewood, NSW 2102

National Waste Management Site Database

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

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist (m)	Direction
N/A	No records in buffer											

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 (m)	Direction
3737	BP	BP Express Mona Vale	1721-1723 Pittwater Road	Mona Vale	Petrol Station	Operational		25/07/2011	Premise Match	852m	North

PFAS Investigation & Management Programs

25-27 Warriewood Road, Warriewood, NSW 2102

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Id	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Investigation Program: 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

25-27 Warriewood Road, Warriewood, NSW 2102

Defence 3 Year Regional Contamination Investigation Program

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

EPA Other Sites with Contamination Issues

25-27 Warriewood Road, Warriewood, NSW 2102

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

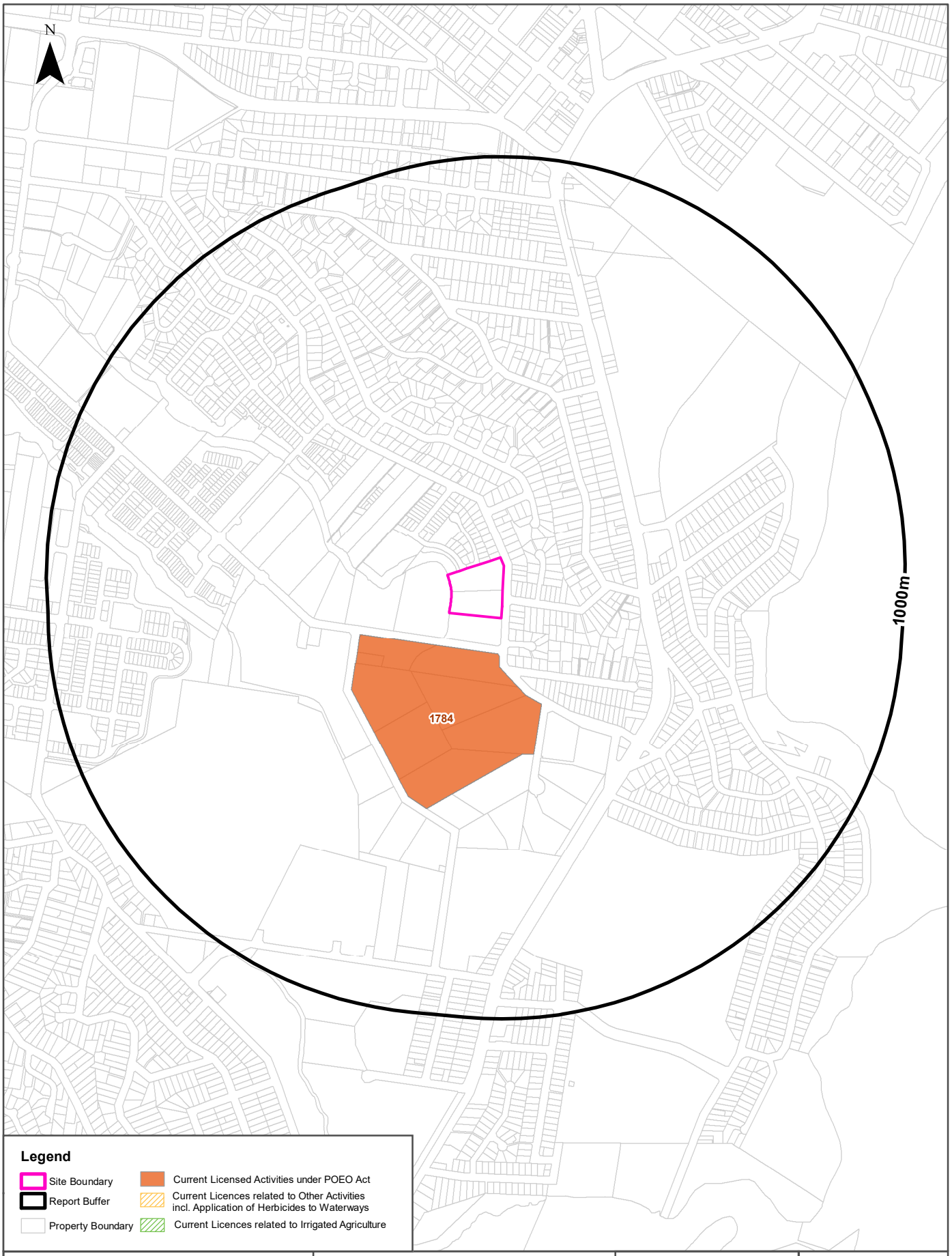
Sites within the dataset buffer:

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

Current EPA Licensed Activities

25-27 Warriewood Road, Warriewood, NSW 2102



EPA Activities

25-27 Warriewood Road, Warriewood, NSW 2102

Licensed Activities under the POEO Act 1997

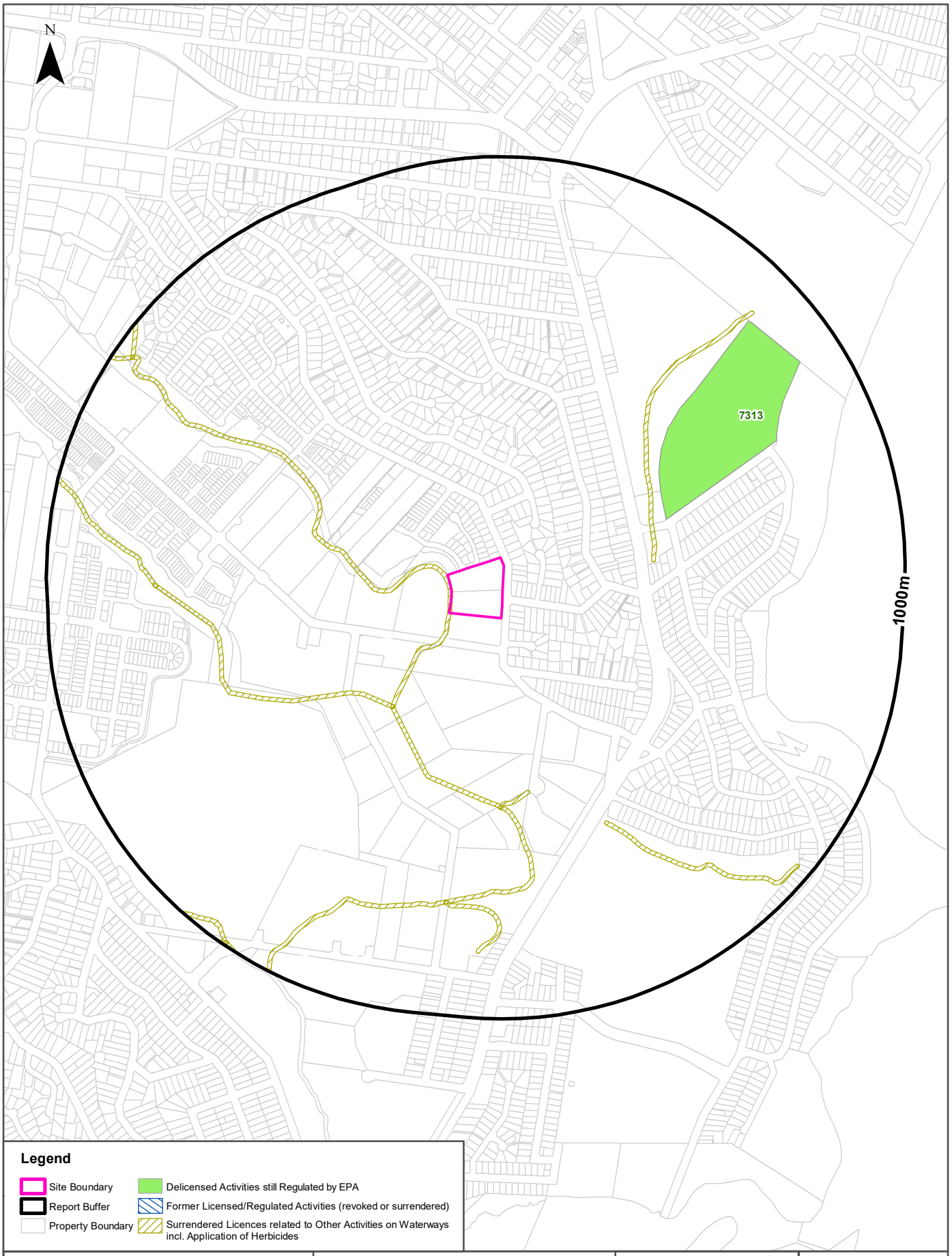
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
1784	SYDNEY WATER CORPORATION	WARRIEWOOD SEWAGE TREATMENT SYSTEM including the STP at	WARRIEWOOD ROAD	WARRIEWOOD	Sewage treatment processing by small plants	Premise Match	84m	South

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

25-27 Warriewood Road, Warriewood, NSW 2102



EPA Activities

25-27 Warriewood Road, Warriewood, NSW 2102

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
7313	NORTHERN SYDNEY AND CENTRAL COAST AREA HEALTH SERVICE	MONA VALE HOSPITAL	CORONATION ST	MONA VALE	Hazardous, Industrial or Group A Waste Generation or Storage	Premise Match	420m	North East

Delicensed Activities Data Source: Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

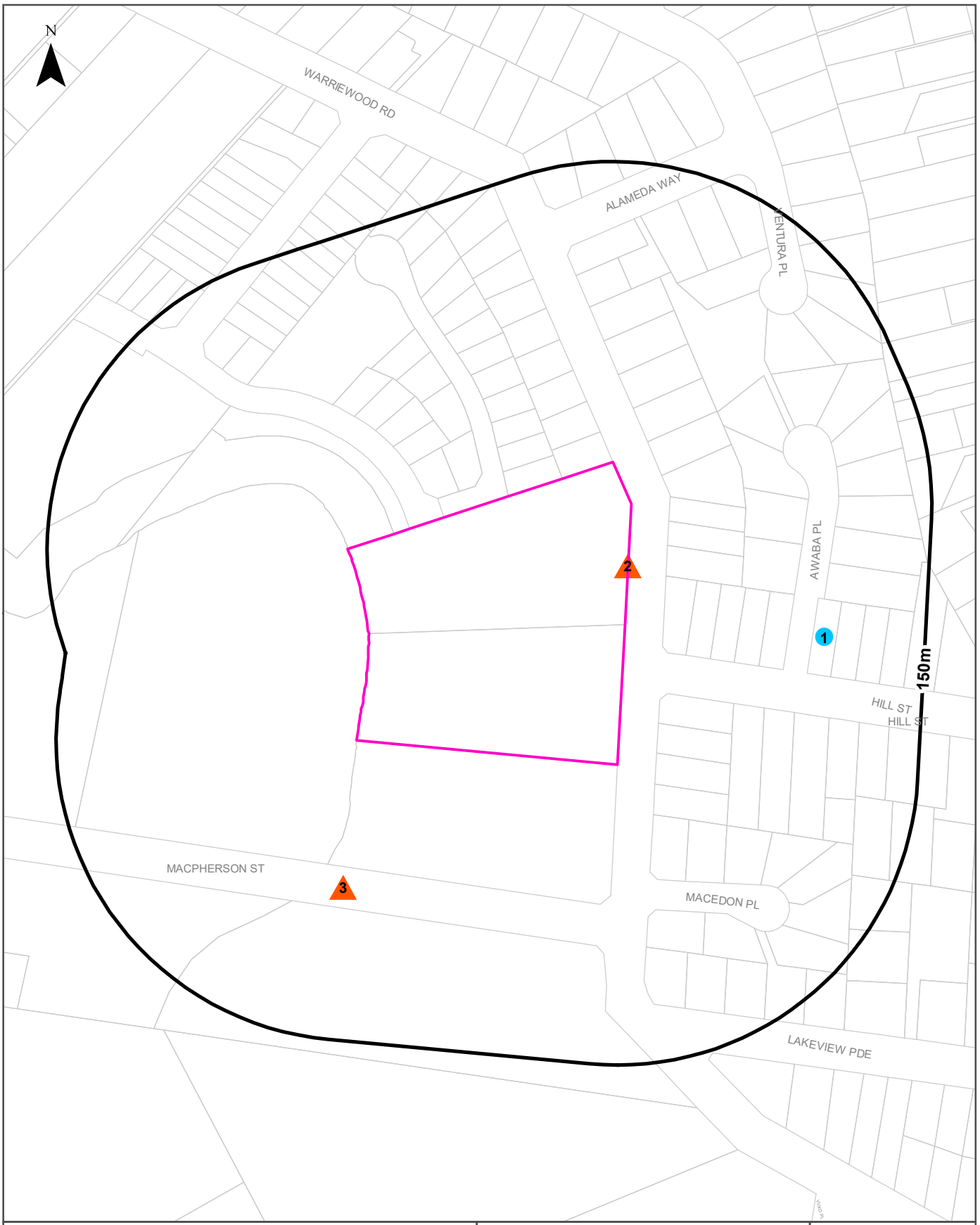
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

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	0m	Onsite
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	0m	Onsite
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	0m	Onsite

Former Licensed Activities Data Source: Environment Protection Authority

Historical Business Directories

25-27 Warriewood Road, Warriewood, NSW 2102



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: 07 May 2020

Historical Business Directories

25-27 Warriewood Road, Warriewood, NSW 2102

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Universal Business Directory records 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	FLOOR SANDING/POLISHING CONTRACTORS	Hines, R., 14 Hill St., Warriewood	311643	1961	Premise Match	92m	East

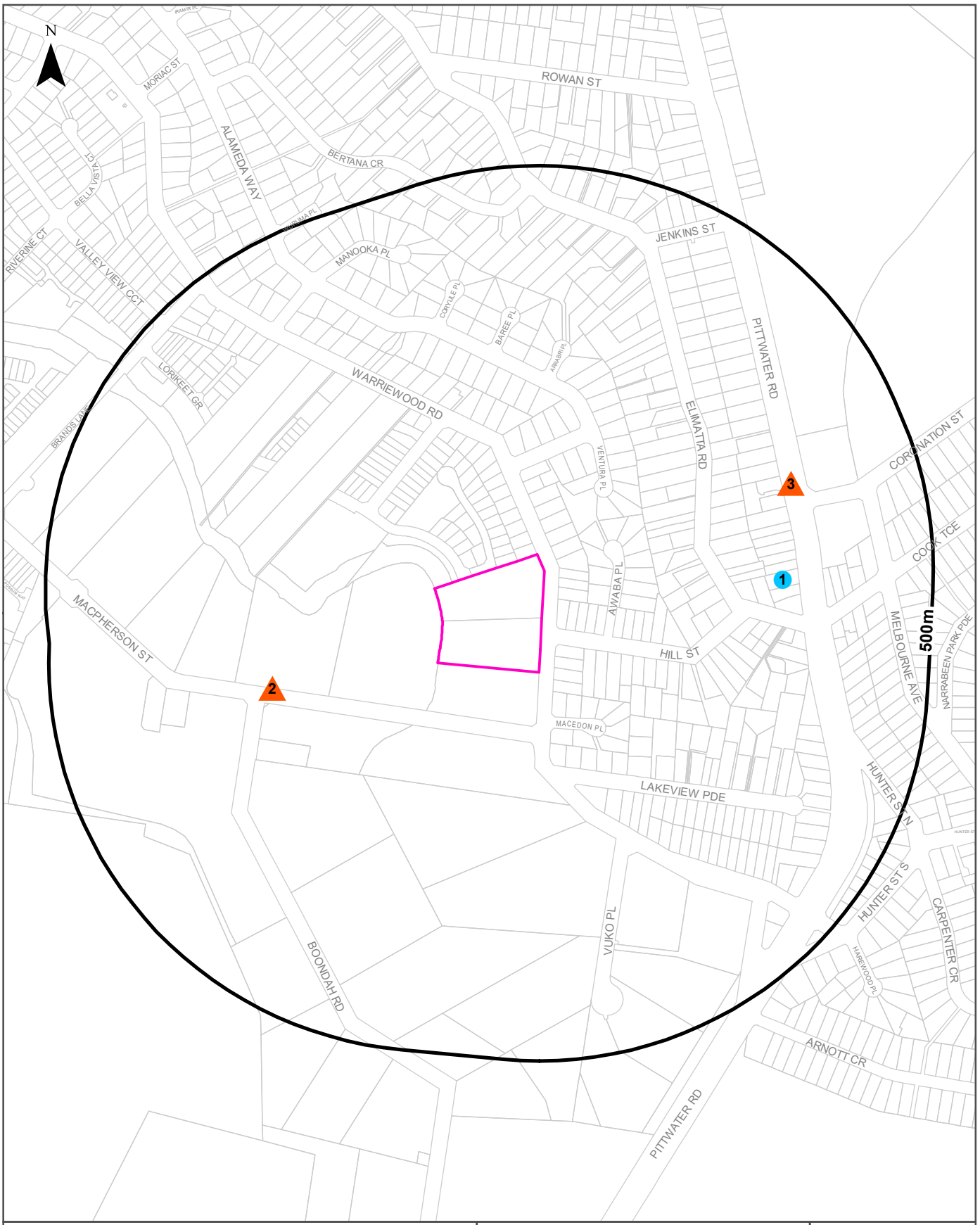
Business Directory Records 1950-1991
Road or Area Matches

Universal Business Directory records 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
2	GROCERS-RETAIL	Warriewood Super Save Stores., Warriewood Rd., Warriewood. 2102	39985	1975	Road Match	0m
	ENGINEERS-GENERAL &/OR MFRG.&/OR MECHANICAL (E615)	Renown Engineering Pty. Ltd., Warriewood Rd., Warriewood	299561	1970	Road Match	0m
	POULTRY FARMERS	Chessell, S. W., Warriewood Rd., Warriewood	93924	1950	Road Match	0m
	ELECTRICAL CONTRACTORS &/OR ELECTRICIANS	Coles, David D., Warriewood Rd., Warriewood	37442	1950	Road Match	0m
	ELECTRICAL CONTRACTORS &/OR ELECTRICIANS	Hunt, J. C., Warriewood Rd., Warriewood	37632	1950	Road Match	0m
3	Motor Garages & Service Stations	Grbic, D. Motors, 4 McPherson St., Warriewood 2102	97250	1991	Road Match	63m
	MOTOR GARAGES & SERVICE STATIONS.	Grbic, D. Motors, 4 McPherson St., Warriewood. 2102	64813	1986	Road Match	63m
	NURSERYMEN.	Pleasure Plants, MacPherson St., Warriewood. 2102	70070	1986	Road Match	63m
	THEATRES - DRIVE-IN.	Warriewood Skyline Drive-In Theatre, (G.U.O.), McPherson St., Warriewood. 2102	93121	1986	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Grbic, D. Motors, 4 McPherson St., Warriewood. 2102.	56899	1982	Road Match	63m
	THEATRES - DRIVE-IN. (T3600)	Warriewood Skyline Drive-In Theatre (G.U O), Macpherson St., Warriewood 2102.	79891	1982	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Grbic. D. Motors. McPherson St., Warriewood. 2102	50192	1978	Road Match	63m
	CARRIERS & CARTAGE CONTRACTORS (C150)	Rogley, N., McPherson St., Warriewood	278303	1970	Road Match	63m
	Carriers & Cartage Contractors	Rogley, N., MacPherson St., Warriewood	63288	1965	Road Match	63m
	CARRIERS & CARTAGE CONTRACTORS	Dickson, H., Macpherson St., Warriewood	284724	1961	Road Match	63m
	CARRIERS & CARTAGE CONTRACTORS	Rogley, N., MacPherson St., Warriewood	285276	1961	Road Match	63m
	CARRIERS & CARTAGE CONTRACTORS	Dickson and Dunn, MacPherson St., Warriewood	18728	1950	Road Match	63m
	CARRIERS & CARTAGE CONTRACTORS	Dickson, H., Macpherson St., Warriewood	18729	1950	Road Match	63m
	CARRIERS & CARTAGE CONTRACTORS	Rogley, N., McPherson St., Warriewood	19687	1950	Road Match	63m
	MIXED BUSINESSES & GENERAL STORES	Thompson, C., Macpherson St., Warriewood	81133	1950	Road Match	63m

Dry Cleaners, Motor Garages & Service Stations

25-27 Warriewood Road, Warriewood, NSW 2102



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 90 180 270 360 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 07 May 2020

Historical Business Directories

25-27 Warriewood Road, Warriewood, NSW 2102

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 GARAGE/ENGINEERS.	Mackay., 1623 Pittwater Rd Mona Vale	4509	1958	Premise Match	283m	East
	MOTOR GARAGES &/OR ENGINEERS.	Mackay & Dickens., 1623 Pittwater Rd Mona Vale	58012	1956	Premise Match	283m	East

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
2	MOTOR GARAGES & SERVICE STATIONS.	Grbic D Motors, 4 Mcpherson St., Warriewood. 2102	18991	1993	Road Match	63m
	Motor Garages & Service Stations	Grbic, D. Motors, 4 McPherson St., Warriewood 2102	97250	1991	Road Match	63m
	MOTOR GARAGES & SERVICE STATIONS.	Grbic, D. Motors, 4 McPherson St., Warriewood. 2102	11662	1990	Road Match	63m
	MOTOR GARAGE & SERVICE STATIONS.	Grbic, D. Motors, 4 McPherson St., Warriewood. 2102	65144	1989	Road Match	63m
	MOTOR GARAGES & SERVICE STATIONS.	Grbic. D Motors, 4 Mcpherson St., Warriewood. 2102	59383	1988	Road Match	63m
	MOTOR GARAGES & SERVICE STATIONS.	Grbic, D. Motors, 4 McPherson St., Warriewood. 2102	64813	1986	Road Match	63m
	MOTOR GARAGES & SERVICE STATIONS.	Grbic D. Motors, 4 McPherson St., Warriewood. 2102	44909	1985	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Grbic D. Motors, 4 Mcpherson St., Warriewood. 2102	28412	1984	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Grbic D. Motors., 4 McPherson St., Warriewood 2102	14835	1983	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Grbic, D. Motors, 4 McPherson St., Warriewood. 2102.	56899	1982	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Grbic D. Motors., 4 Mcpherson St., Warriewood 2102	65711	1981	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Grbic D. Motors., 4 Mcpherson St., Warriewood. 2102	58190	1980	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Grbic D. Motors., 4 Mcpherson St., Warriewood. 2102.	41652	1979	Road Match	63m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Grbic. D. Motors. McPherson St., Warriewood. 2102	50192	1978	Road Match	63m
3	MOTOR GARAGES &/OR ENGINEERS.	Pittwater Service Centre., Pittwater Rd., Mona Vale. 2103	59398	1975	Road Match	322m
	MOTOR GARAGE/ENGINEERS.	Mona Vale Motor & Engineering Co., Pittwater Rd Mona Vale	4606	1958	Road Match	322m
	MOTOR GARAGES &/OR ENGINEERS.	Mona Vale Motor & Engineering Co., Pittwater Rd., Mona Vale	61155	1956	Road Match	322m
	MOTOR GARAGES &/OR ENGINEERS.	Mona Vale Motors., Pittwater Rd Mona Vale	49715	1954	Road Match	322m
	MOTOR GARAGES &/OR ENGINEERS.	Mona Vale Motors., Pittwater Rd Mona Vale	40384	1953	Road Match	322m
	MOTOR GARAGES &/OR ENGINEERS.	Skerman M., Pittwater Rd Mona Vale	32244	1952	Road Match	322m
	MOTOR SERVICE STATIONS-PETROL, Etc.	La Corniche Motor Garage, Pittwater Rd., Mona Vale	86119	1950	Road Match	322m
	MOTOR GARAGES &/OR ENGINEERS	Skerman, F. W. and Sons, Pittwater Rd., Mona Vale	84373	1950	Road Match	322m
	MOTOR SERVICE STATIONS-PETROL, ETC.	La Corniche Motor Garage., Pittwater Rd Mona Vale	23367	1948-49	Road Match	322m

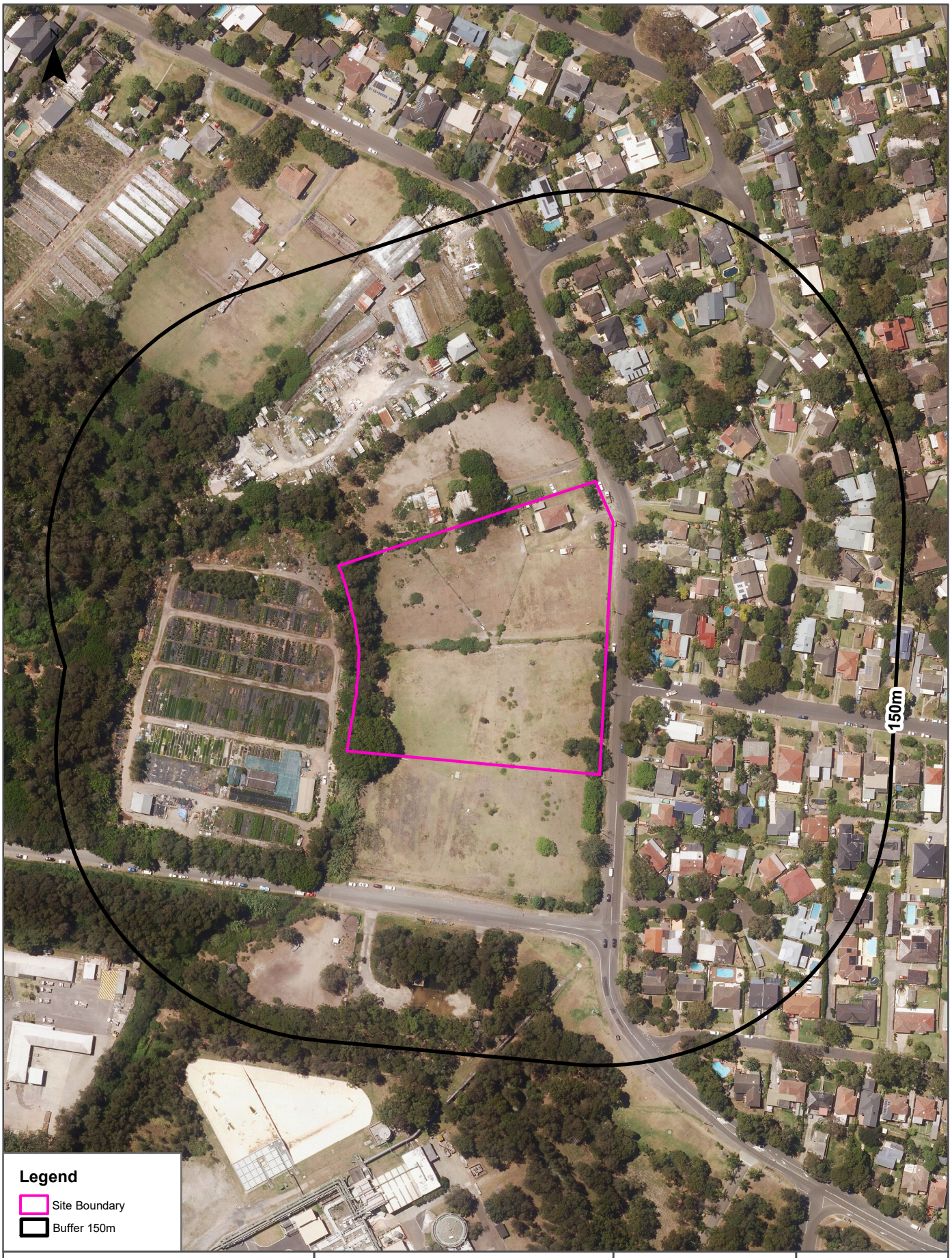
Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
3	MOTOR GARAGES &/OR ENGINEERS.	Skerman, F. W. And Sons., Pittwater Rd., Mona Vale	22869	1948-49	Road Match	322m

Aerial Imagery 2019

25-27 Warriewood Road, Warriewood, NSW 2102

Aerial Imagery 2014

25-27 Warriewood Road, Warriewood, NSW 2102

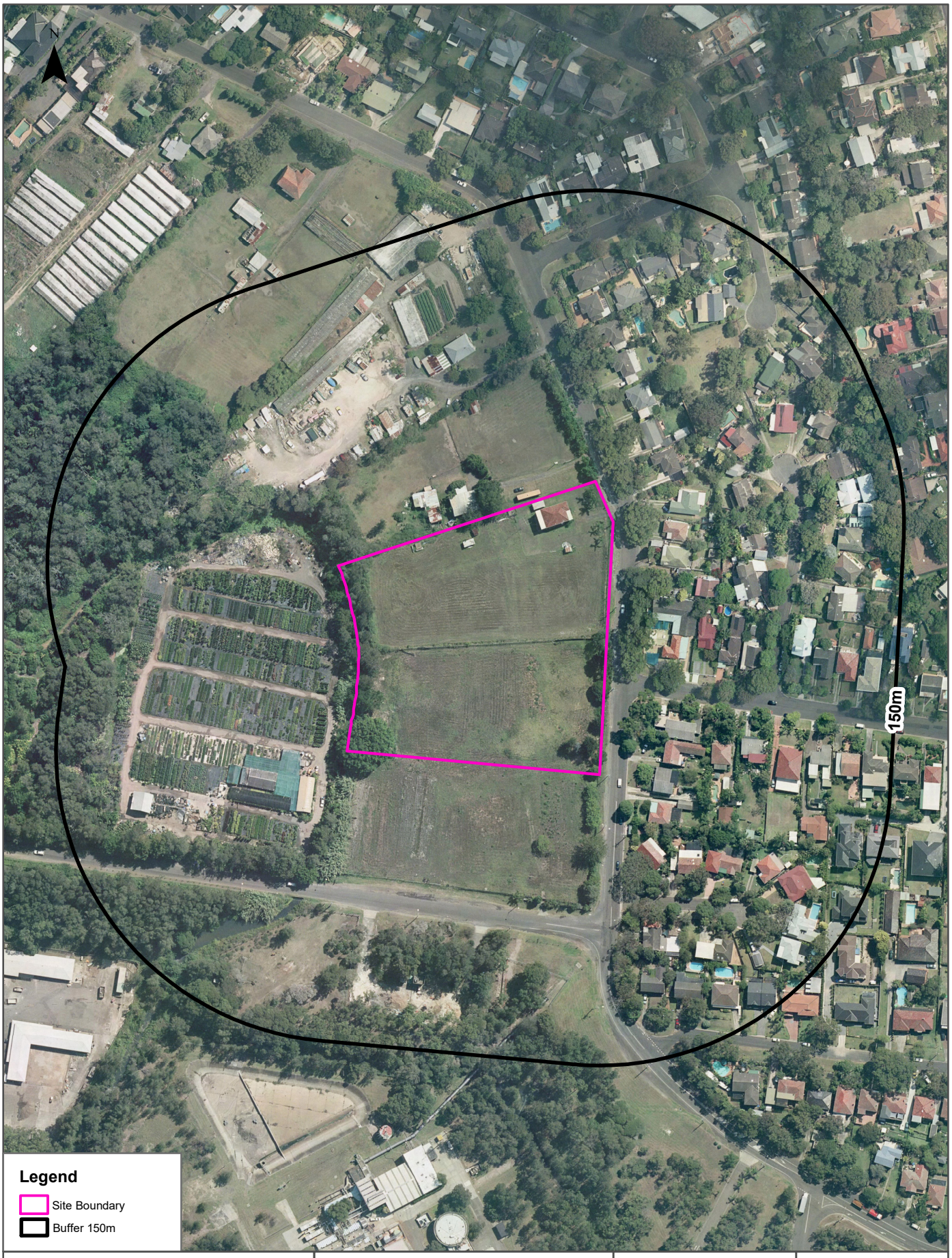


Scale:	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 May 2020

0 30 60 90 120 Meters

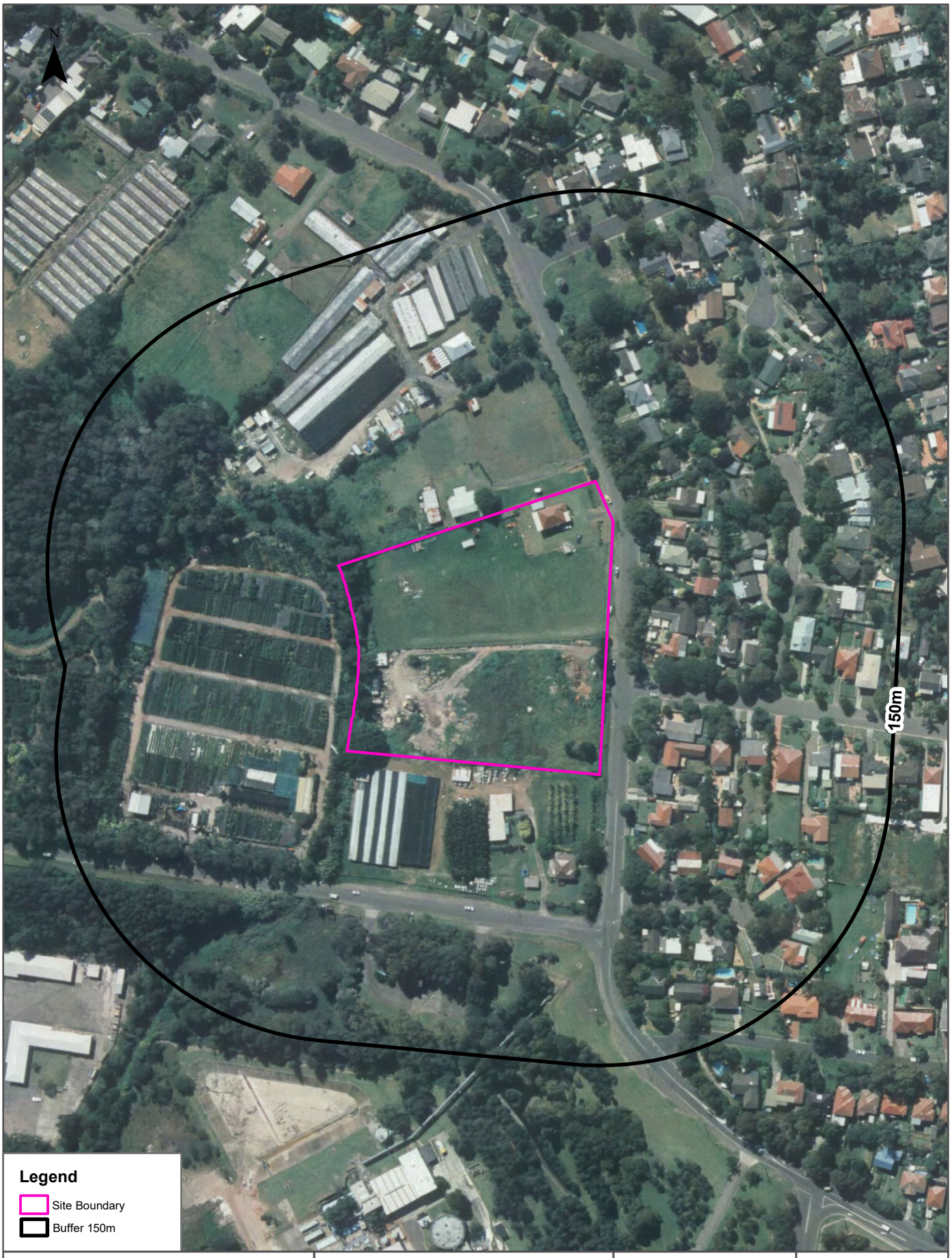
Aerial Imagery 2007

25-27 Warriewood Road, Warriewood, NSW 2102



Aerial Imagery 2000

25-27 Warriewood Road, Warriewood, NSW 2102



Aerial Imagery 1994

25-27 Warriewood Road, Warriewood, NSW 2102

Aerial Imagery 1991

25-27 Warriewood Road, Warriewood, NSW 2102

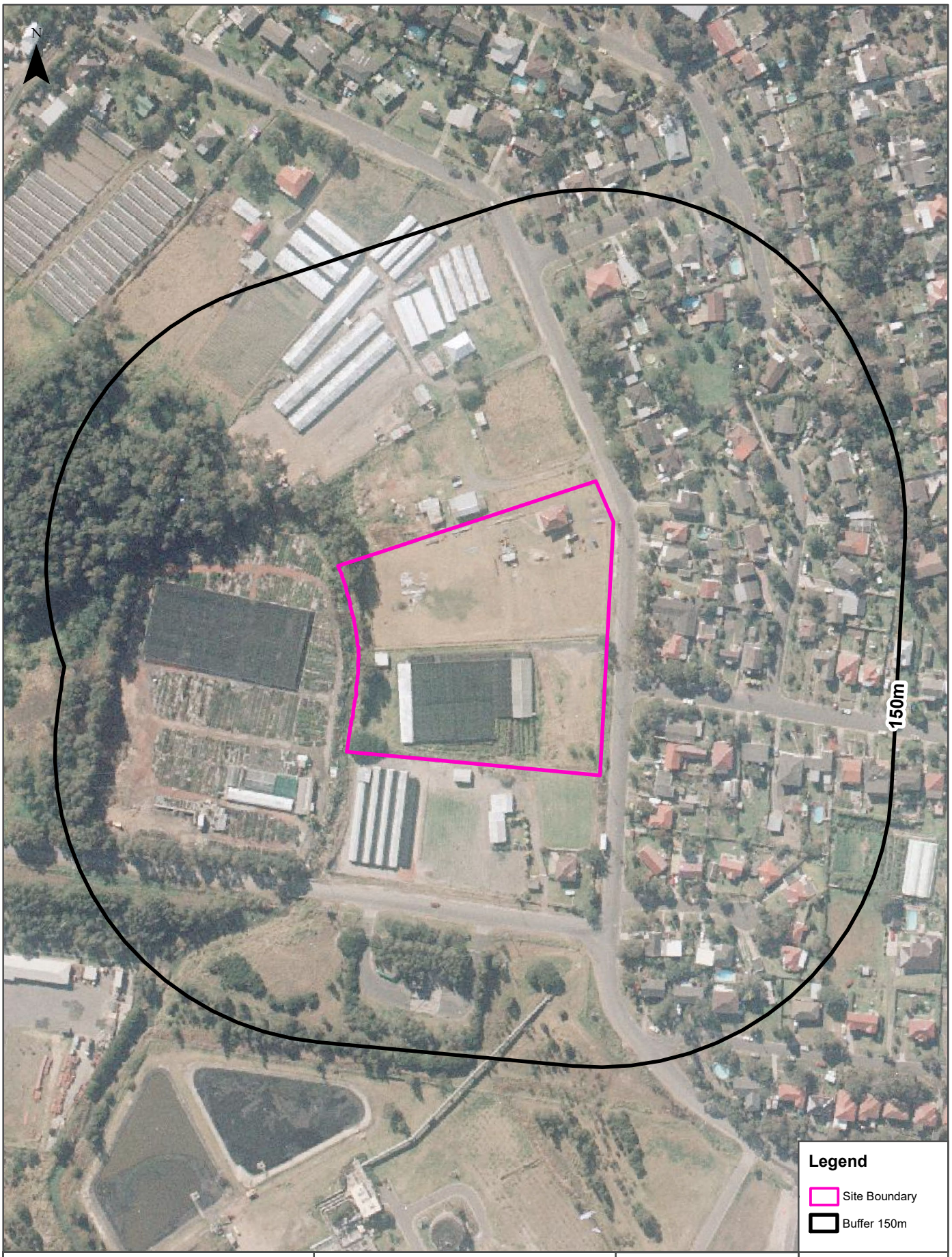
Data Sources: Aerial Imagery © Department of Finance, Services & Innovation

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Aerial Imagery 1986

25-27 Warriewood Road, Warriewood, NSW 2102



Scale:
0 30 60 90 120
Meters

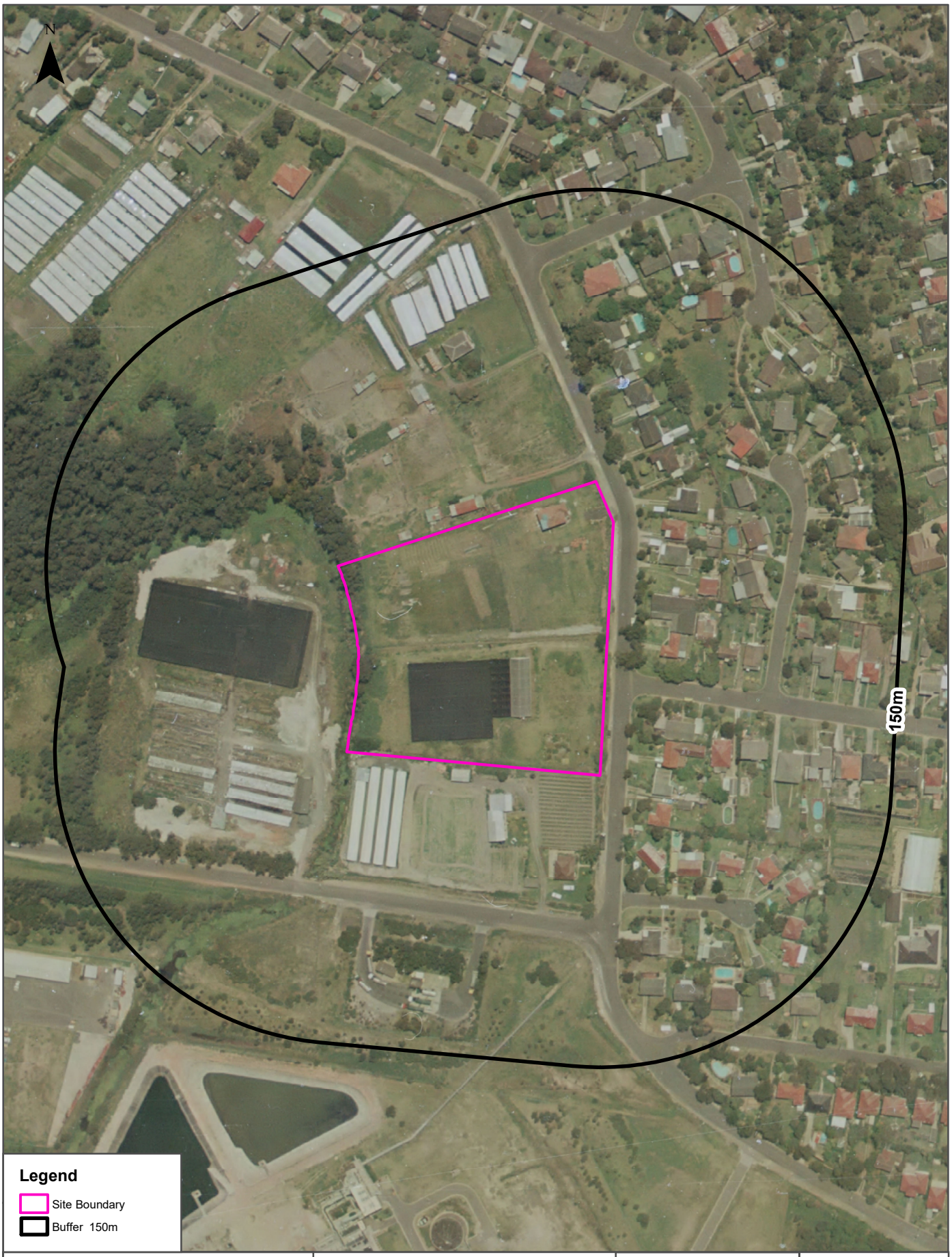
Data Source Aerial Imagery:
© NSW Department of Finance, Services & Innovation

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 May 2020

Aerial Imagery 1982

25-27 Warriewood Road, Warriewood, NSW 2102



Data Sources: Aerial Imagery © Department of Finance, Services & Innovation

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Aerial Imagery 1978

25-27 Warriewood Road, Warriewood, NSW 2102

Scale:
0 30 60 90 120
Meters

Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 May 2020

Aerial Imagery 1970

25-27 Warriewood Road, Warriewood, NSW 2102

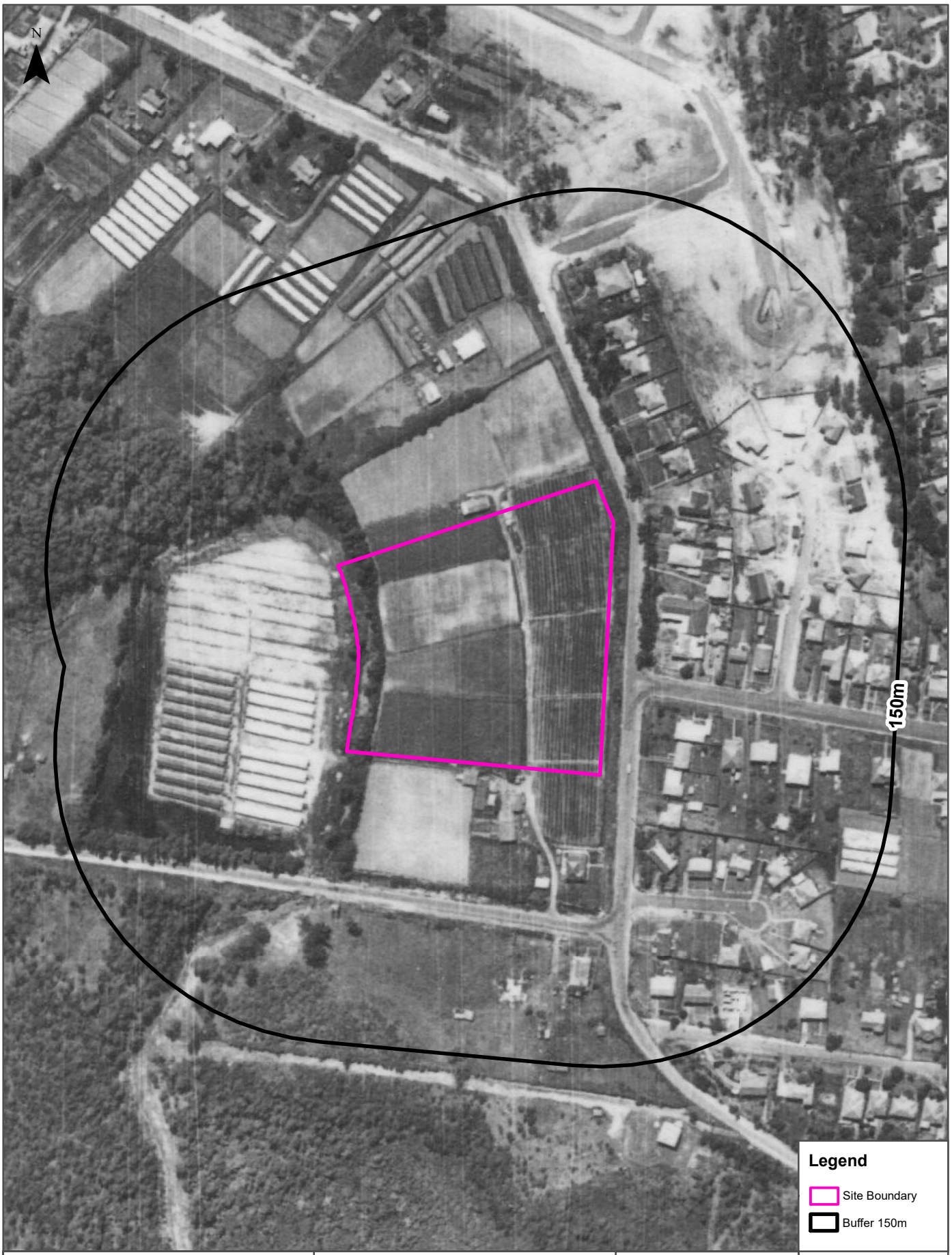
Data Sources: Aerial Imagery © Department of Finance, Services & Innovation

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

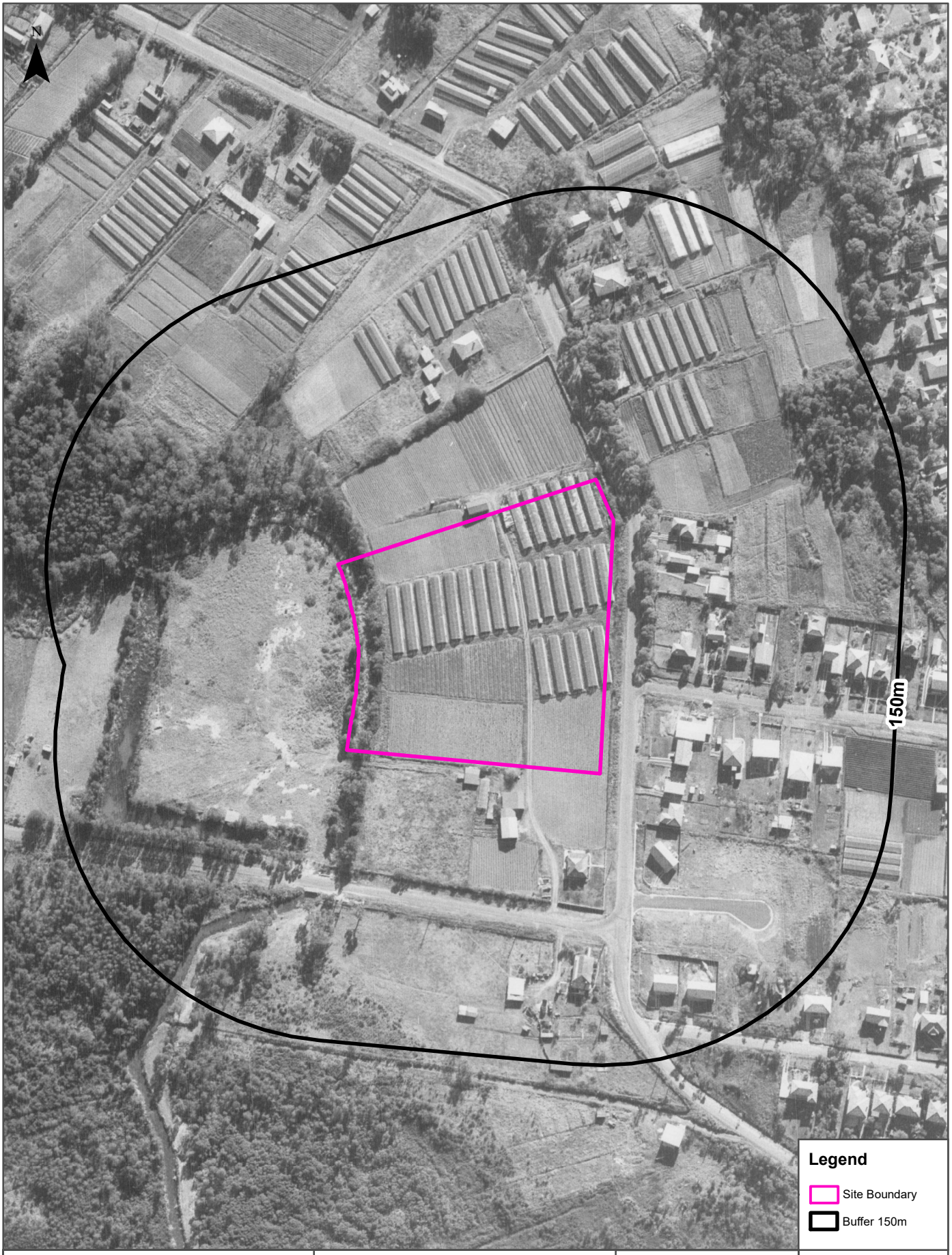
Aerial Imagery 1965

25-27 Warriewood Road, Warriewood, NSW 2102



Aerial Imagery 1961

25-27 Warriewood Road, Warriewood, NSW 2102



Scale: 0 30 60 90 120 Meters

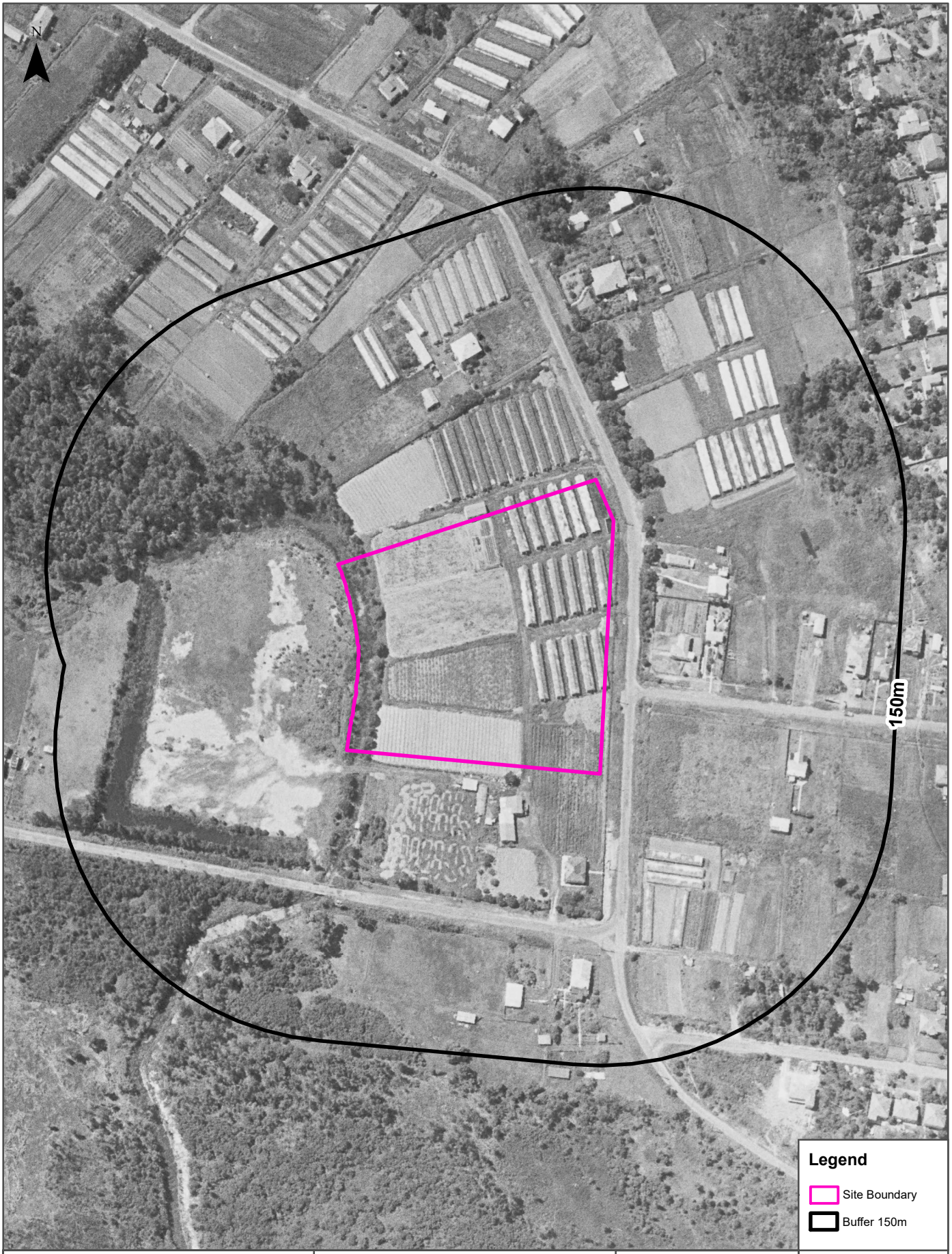
Data Source Aerial Imagery:
© NSW Department of Finance, Services & Innovation

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 May 2020

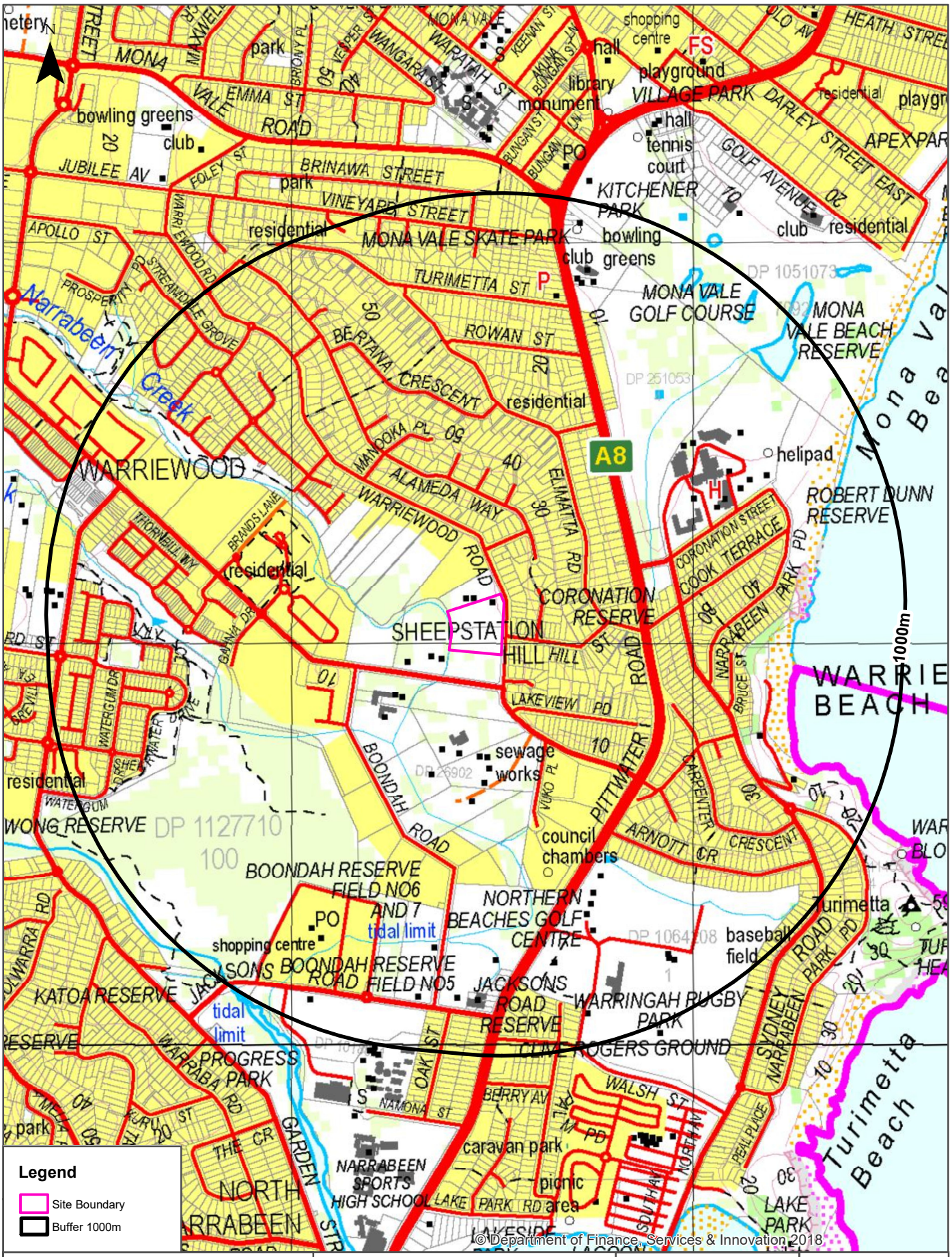
Aerial Imagery 1956

25-27 Warriewood Road, Warriewood, NSW 2102



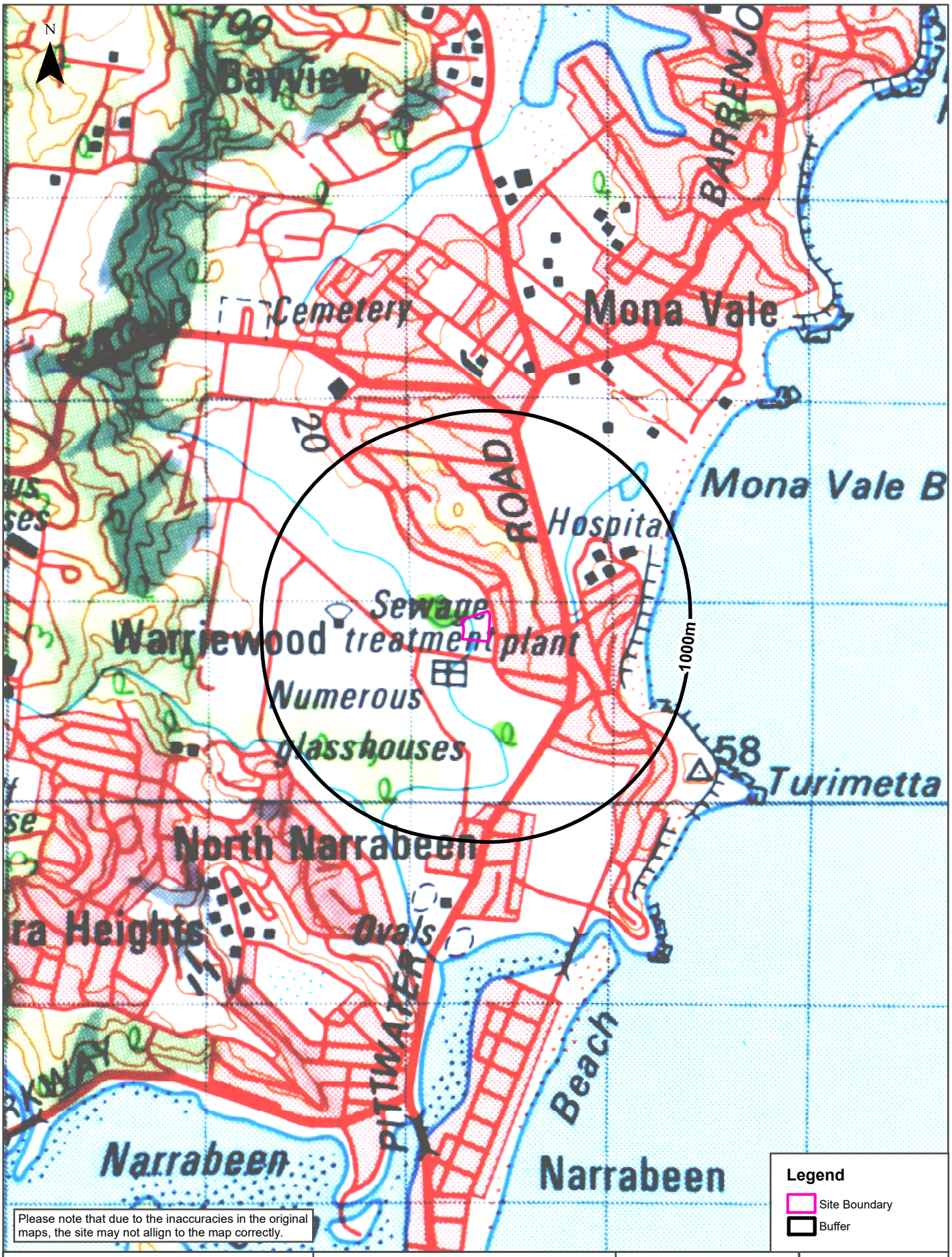
Topographic Map 2015

25-27 Warriewood Road, Warriewood, NSW 2102



Historical Map 1975

25-27 Warriewood Road, Warriewood, NSW 2102



Scale: 0 125 250 500 750 1,000 1,250 Meters

Data Sources: NATMAP 1:100,000 Topographic Maps Geoscience Australia

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Historical Map c.1942

25-27 Warriewood Road, Warriewood, NSW 2102

Please note that due to the inaccuracies in the original maps, the site may not allign to the map correctly.

Scale: 0 125 250 500 750 1,000 1,250 Meters

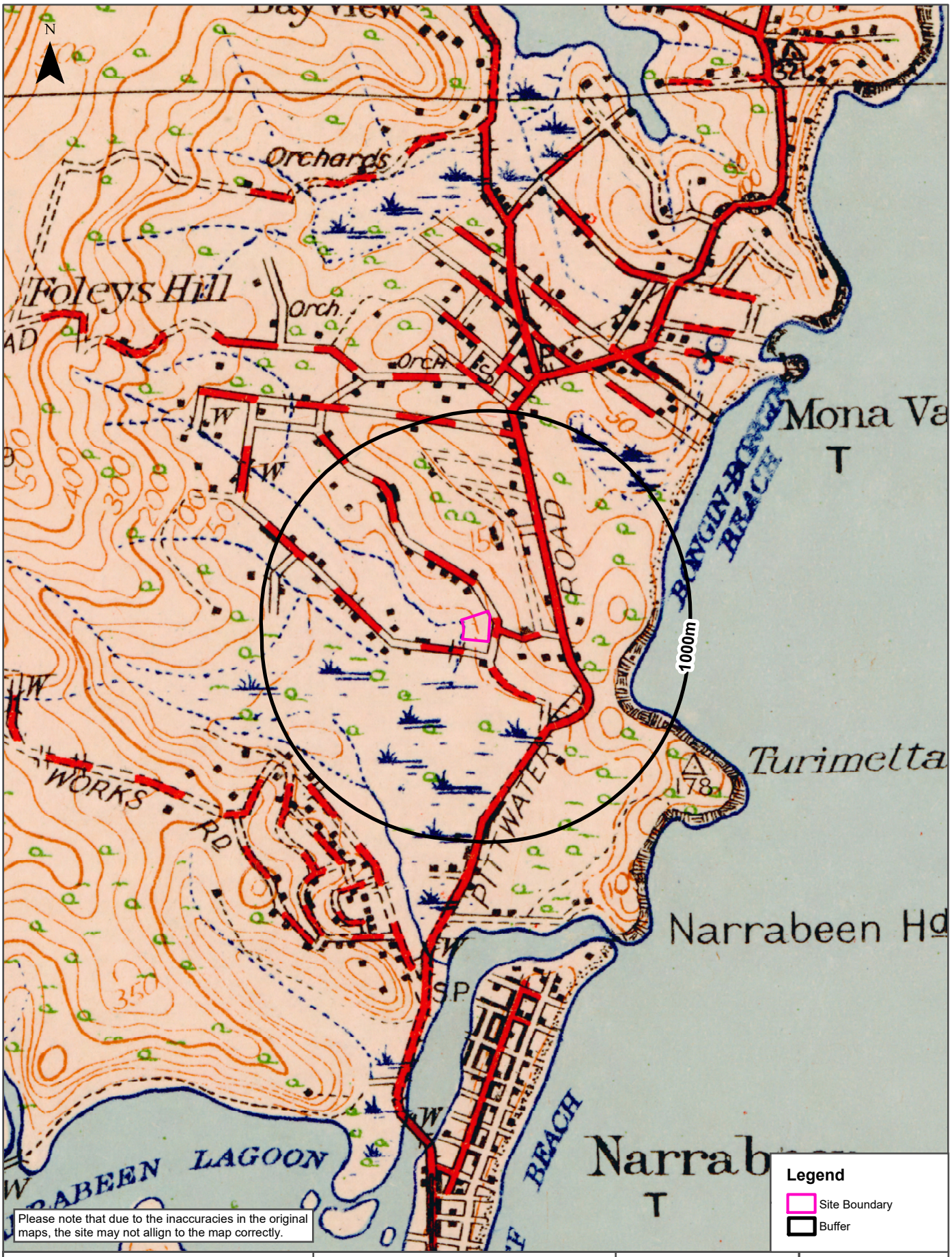
Data Sources: Australia 1:63360, Produced by Australian Section Imperial General Staff

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Historical Map c.1920

25-27 Warriewood Road, Warriewood, NSW 2102



Scale: 0 125 250 500 750 1,000 1,250 Meters

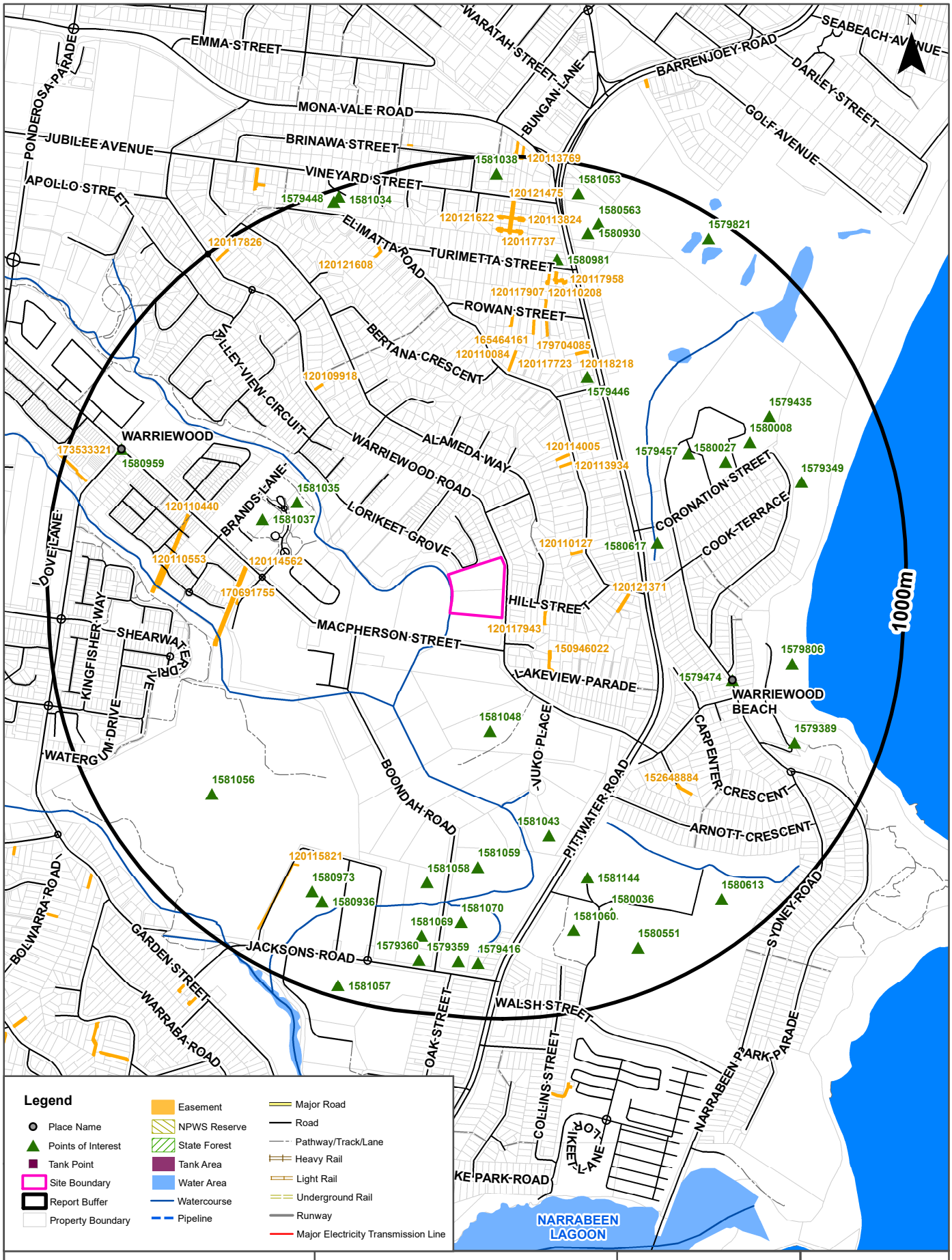
Data Sources: Australia 1:63360, Produced by Australian Section Imperial General Staff

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Topographic Features

25-27 Warriewood Road, Warriewood, NSW 2102



Topographic Features

25-27 Warriewood Road, Warriewood, NSW 2102

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1581048	Sewage Works	WARRIEWOOD WASTEWATER TREATMENT PLANT	284m	South
1580617	Park	CORONATION RESERVE	384m	East
1581035	Retirement Village	WARRIEWOOD BROOK	418m	North West
1581037	Community Home	MARCUS LOANE HOUSE	483m	West
1579446	Nursing Home	OPAL OCEANVIEW	499m	North East
1579457	Ambulance Station	MONA VALE AMBULANCE STATION	534m	North East
1581043	Local Government Chambers	PITTWATER COUNCIL	555m	South
1579474	Urban Place	WARRIEWOOD BEACH	594m	East
1580027	General Hospital	MONA VALE URGENT CARE AND REHABILITATION CENTRE	607m	North East
1581059	Sports Field	BOONDAH RESERVE FIELD NO1	624m	South
1581058	Sports Field	BOONDAH RESERVE FIELD NO6 AND 7	674m	South
1581144	Golf Course	NORTHERN BEACHES GOLF CENTRE	681m	South
1580008	Community Medical Centre	MONA VALE HOSPITAL COMMUNITY HEALTH SERVICES	683m	North East
1579806	Beach	WARRIEWOOD BEACH	732m	East
1581056	Park	WARRIEWOOD WETLANDS	745m	South West
1579435	Helipad	Helipad	755m	North East
1580981	Police Station	MONA VALE POLICE STATION	756m	North
1581070	Sports Field	BOONDAH RESERVE FIELD NO5	764m	South
1579349	Park	ROBERT DUNN RESERVE	768m	East
1580973	Post Office	WARRIEWOOD POST OFFICE	774m	South West
1580036	Park	NORTH NARRABEEN RESERVE	786m	South
1580936	Shopping Centre	WARRIEWOOD SQUARE	787m	South West
1579389	Community Facility	WARRIEWOOD SLSC	792m	South East
1581060	Sports Field	NORTH NARRABEEN RESERVE RUGBY PARK	799m	South
1581069	Sports Field	BOONDAH RESERVE FIELD NO2 3 4	807m	South
1580930	Club	MONA VALE BOWLING CLUB	837m	North
1579416	Community Facility	NELSON HEATHER CENTRE	862m	South
1579359	Community Facility	NARRABEEN SENIOR CITIZENS CLUB	862m	South
1580563	Sports Field	BOWLING GREENS	867m	North
1579360	Community Facility	TED BLACKWOOD NARRABEEN YOUTH AND COMMUNITY CENTRE	868m	South
1580959	Suburb	WARRIEWOOD	872m	West

Map Id	Feature Type	Label	Distance	Direction
1580613	Sports Field	BASEBALL FIELD	889m	South East
1580551	Park	WARRINGAH RUGBY PARK	889m	South East
1581053	Sports Court	MONA VALE SKATE PARK	928m	North
1579821	Golf Course	MONA VALE GOLF COURSE	948m	North East
1581038	Retirement Village	PITTWATER VILLAGE	957m	North
1581057	Showground	WARRIEWOOD VALLEY SPORTSGROUND	969m	South
1579448	Nursing Home	CATHOLIC HEALTHCARE GEORGE MOCKLER HOSTEL	973m	North
1581034	Retirement Village	CHARLES O'NEILL UNITS	981m	North

Topographic Features

25-27 Warriewood Road, Warriewood, NSW 2102

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
	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
	No records in buffer					

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
120117943	Primary	Undefined		104m	East
150946022	Primary	Right of way	VAR	143m	South East
120110127	Primary	Undefined		168m	East
120113934	Primary	Undefined		268m	North East
120114005	Primary	Undefined		277m	North East
120121371	Primary	Undefined		284m	East
120117723	Primary	Undefined		466m	North
120110084	Primary	Undefined		501m	North
120114562	Primary	Undefined		501m	West
170691755	Primary	Right of way	Var	528m	West
120118218	Primary	Undefined		538m	North East
165464161	Primary	Right of way	3.26	563m	North
179704085	Primary	Right of way		563m	North

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120109918	Primary	Undefined		567m	North West
120118162	Primary	Undefined		576m	North
152648884	Primary	Right of way	3.96m and VAR	602m	South East
120110208	Primary	Undefined		623m	North
120110440	Primary	Undefined		661m	West
120117907	Primary	Undefined		691m	North
120117958	Primary	Undefined		697m	North
120110553	Primary	Undefined		707m	West
120115821	Primary	Undefined		732m	South West
120113824	Primary	Undefined		807m	North
120121475	Primary	Undefined		807m	North
120121608	Primary	Undefined		809m	North
120117737	Primary	Undefined		810m	North
120121622	Primary	Undefined		843m	North
173533321	Primary	Right of way	Variable	930m	West
120117826	Primary	Undefined		972m	North West
120113769	Primary	Undefined		995m	North

Topographic Features

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State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

Elevation Contours (m AHD)

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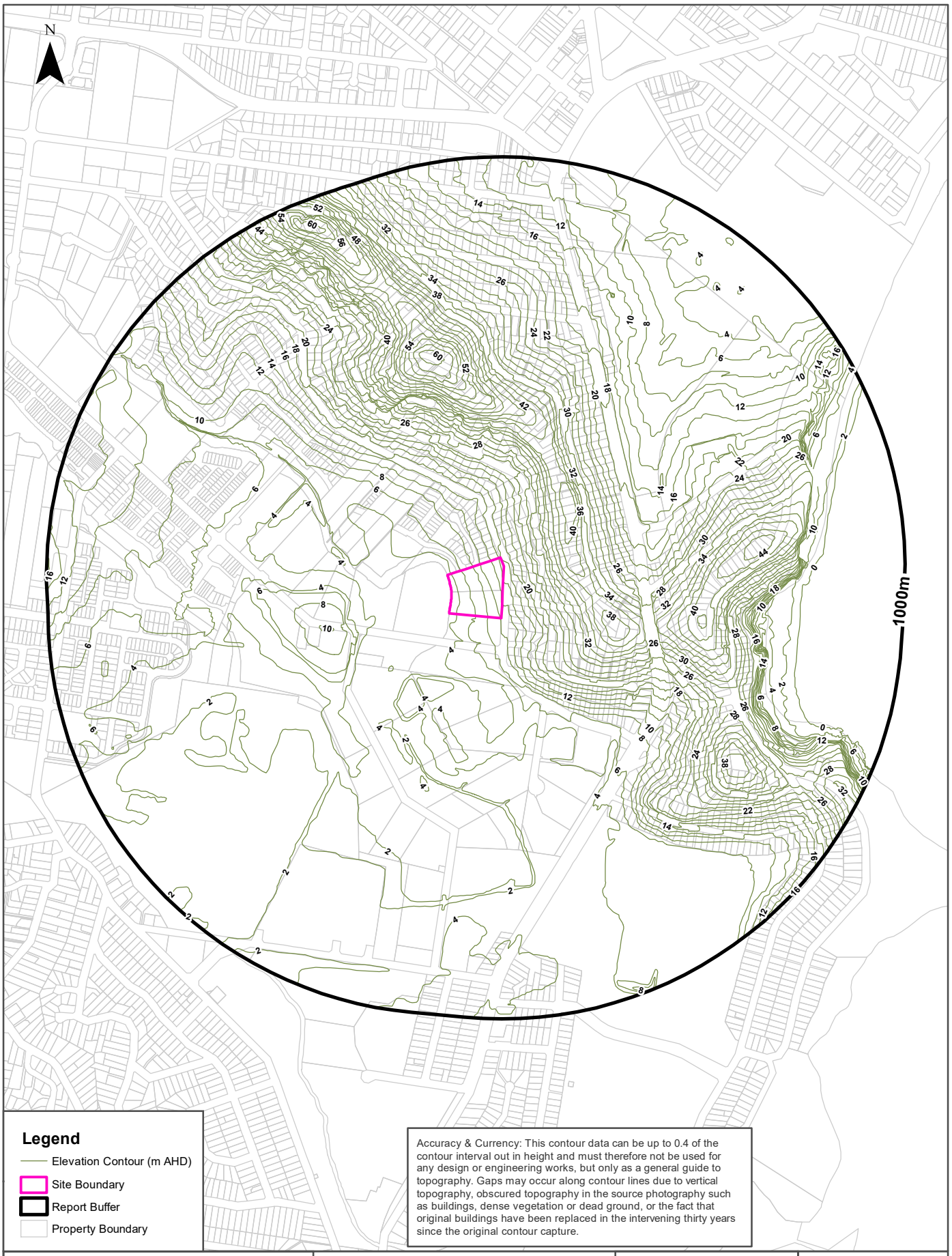

Hydrogeology & Groundwater

25-27 Warriewood Road, Warriewood, NSW 2102

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Porous, extensive aquifers of low to moderate productivity

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)

Botany Groundwater Management Zones

Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries

Groundwater Boreholes

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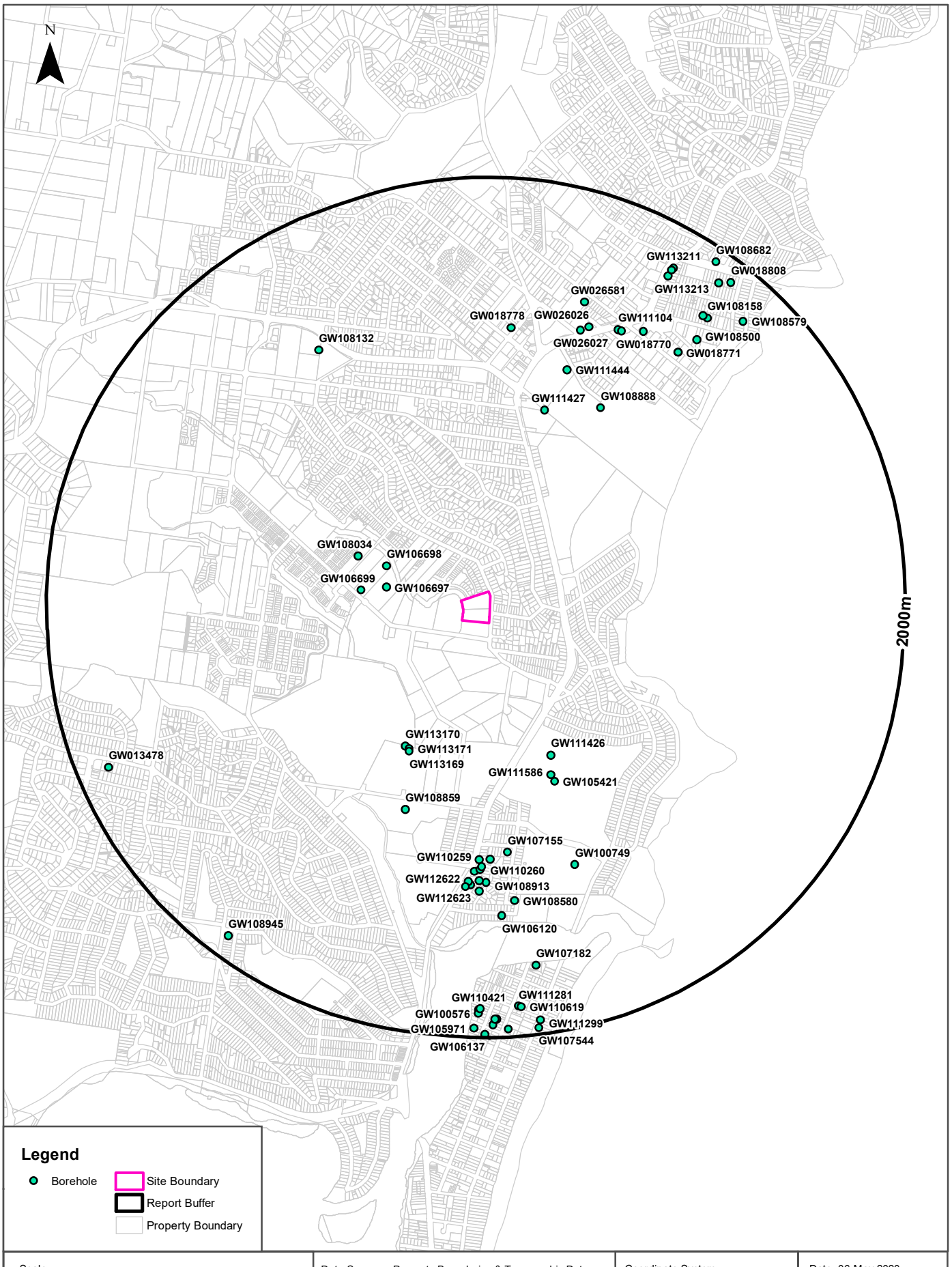

Hydrogeology & Groundwater

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Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW106697	10BL164182	Bore		Monitoring Bore	Monitoring Bore		10/10/2004	3.00	3.00					365m	West
GW106698	10BL164182	Bore		Monitoring Bore	Monitoring Bore		11/10/2004	3.00	3.00					396m	North West
GW106699	10BL164182	Bore		Monitoring Bore	Monitoring Bore		11/10/2004	3.00	3.00					483m	West
GW108034	10BL600129	Bore		Test Bore	Test Bore		26/05/2006	2.50	2.50		0.90			540m	North West
GW113170	10BL605402	Bore	Private	Monitoring Bore	Monitoring Bore	Centro - Warriewood	16/08/2013	5.50	5.50		1.20			665m	South West
GW113171	10BL605402	Bore	Private	Monitoring Bore	Monitoring Bore	Centro - Warriewood	19/08/2013	4.50	4.50		1.53			670m	South West
GW113169	10BL605402	Bore	Private	Monitoring Bore	Monitoring Bore	Centro - Warriewood	19/08/2013	4.80	4.80		1.52			682m	South West
GW111426	10BL604448	Bore	Local Govt	Recreation (groundwater)	Recreation (groundwater)		27/02/2008	90.00	90.00	5.2	4.00	2.300		706m	South East
GW111586	10BL602041, 10BL604448, 10WA117292	Bore	Local Govt	Recreation (groundwater), Test Bore	Recreation (groundwater)		27/02/2008	90.00	90.00	5.2	4.00	2.800		792m	South East
GW105421	10BL159769, 10WA107739	Bore		Recreation (groundwater)	Recreation (groundwater)		12/05/2000	8.00	8.00	Good	2.50	1.000		830m	South East
GW111427	10BL604448	Bore	Local Govt	Recreation (groundwater)	Recreation (groundwater)		25/02/2008	103.00	102.00	3.2	3.00	0.870		917m	North
GW108859	10BL601560, 10BL601891, 10WA107765	Spear	Local Govt	Recreation (groundwater), Test Bore	Recreation (groundwater)		05/05/2008	5.00	5.00	850	2.00	1.500		953m	South
GW108888	10BL600101, 10BL600431, 10CA107769	Bore	Private	Irrigation, Recreation (groundwater), Test Bore	Irrigation, Recreation (groundwater)		02/06/2008	73.00	73.00	1.58	7.00	14.060		1039m	North East
GW107155	10BL164897, 10WA107564	Bore	Private	Domestic	Domestic		15/05/2005	5.00	5.00					1110m	South
GW111444	10BL602048, 10BL604446, 10WA117290	Bore	Local Govt	Recreation (groundwater), Test Bore	Recreation (groundwater)		25/02/2008	103.00	103.00	3.2	3.00	0.870		1135m	North
GW107438	10BL165508, 10WA107578	Spear	Private	Domestic	Domestic		18/09/2005	4.50	4.50		1.00	0.500		1140m	South

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW110259	10BL603072	Well	Private	Monitoring Bore	Monitoring Bore		20/05/2009	5.00	5.00		1.90			1143m	South
GW110260	10BL603072	Well	Private	Monitoring Bore	Monitoring Bore		20/05/2009	4.00	4.00		1.90			1177m	South
GW110261	10BL603072	Well	Private	Monitoring Bore	Monitoring Bore		22/05/2009	5.00	5.00		2.00			1193m	South
GW110262	10BL603072	Well	Private	Monitoring Bore	Monitoring Bore		22/05/2009	4.00	4.00		1.90			1202m	South
GW100749	10BL156490, 10WA107735	Spear	Local Govt	Recreation (groundwater)	Recreation (groundwater)		06/02/1995	6.00	6.00		2.00	0.600		1239m	South
GW108692	10BL601521, 10WA107641	Spear	Private	Domestic	Domestic		01/04/2007	5.00	5.00	406	1.50	1.000		1246m	South
GW112622	10BL603215	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	14/08/2009	4.00	4.00					1252m	South
GW108913	10BL601655, 10WA107651	Spear	Private	Domestic	Domestic		12/06/2008	4.50		623	1.10	1.000		1253m	South
GW112623	10BL603215	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	14/08/2009	4.00	4.00					1269m	South
GW018778	10BL011400, 10WA108105	Bore open thru rock	Private	Waste Disposal	Waste Disposal		01/10/1960	124.90	125.00					1276m	North
GW112624	10BL603215	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	14/08/2009	4.00	4.00					1279m	South
GW108910	10BL601548, 10WA107645	Spear	Private	Domestic	Domestic		12/06/2008	4.50			1.60	1.000		1296m	South
GW026027	10BL019583, 10WA107459	Bore open thru rock	Private	Domestic	General Use		01/12/1966	61.50	61.70	Fresh				1338m	North
GW108580	10BL601502, 10WA107640	Spear	Private	Domestic	Domestic		24/03/2007	6.00	6.00	Good	1.80	1.000		1347m	South
GW026026	10BL019199, 10WA107458	Bore open thru rock	Private	Domestic	General Use		01/11/1966	51.80	51.80	Fresh				1365m	North
GW108132	10BL164231, 10BL600309, 10WA109479	Bore		Recreation (groundwater), Test Bore	Recreation (groundwater)		26/11/2004	210.00	210.00	348	17.50	0.200		1389m	North West
GW111104	10BL603983	Bore	Private	Monitoring Bore	Monitoring Bore		15/06/2010	4.00	4.20		2.00			1410m	North East
GW106120	10BL164805, 10BL165246, 10WA107753	Bore		Recreation (groundwater), Test Bore	Recreation (groundwater)		22/02/2005	4.00	4.00	360	1.00	1.500		1413m	South
GW111105	10BL603983	Bore	Private	Monitoring Bore	Monitoring Bore		15/06/2010	5.00	5.00		2.00			1413m	North East
GW018770	10BL011401, 10WA107451	Bore open thru rock	Private	Waste Disposal	Waste Disposal		01/08/1960	40.20	40.20					1461m	North East
GW018771	10BL011402, 10WA107452	Bore open thru rock	Private	Waste Disposal	Waste Disposal		01/11/1960	100.50	100.60					1472m	North East
GW026581	10BL019607, 10WA107460	Bore open thru rock	Private	Waste Disposal	Waste Disposal		01/01/1967	92.90	93.00					1472m	North

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW035 791		Bore open thru rock	Private		Waste Disposal		01/12/1960	59.40	59.40					1472m	North East
GW108 500	10BL163 187, 10WA10 7522	Spear	Private	Domestic	Domestic		10/11/2006	4.00	4.00		2.00	1.000		1577m	North East
GW107 182	10BL165 250, 10WA10 7569	Spear	Private	Domestic	Domestic		07/07/2005	7.00	7.00		3.00	0.500		1668m	South
GW105 936	10BL163 023, 10WA10 7516	Bore		Domestic			19/05/2005							1686m	North East
GW108 158	10BL164 851, 10WA10 7561	Spear	Private	Domestic	Domestic		07/05/2006	6.30	6.30		2.60	1.000		1689m	North East
GW113 213	10BL605 163	Bore	Local Govt	Monitoring Bore	Monitoring Bore	Pittwater Council - Caltex - Mona Vale	22/05/2012	2.50	2.50					1751m	North East
GW113 212	10BL605 163	Bore	Local Govt	Monitoring Bore	Monitoring Bore	Pittwater Council - Caltex - Mona Vale	22/05/2012	2.50	2.50					1784m	North East
GW108 579	10BL601 472, 10WA10 9184	Spear	Private	Domestic	Domestic		09/03/2007	6.60	6.60	Fair	4.00	0.500		1791m	North East
GW113 211	10BL605 163	Bore	Local Govt	Monitoring Bore	Monitoring Bore	Pittwater Council - Caltex - Mona Vale	22/05/2012	3.00	3.00					1799m	North East
GW013 478	10BL008 606	Bore open thru rock	Private	Not Known	Domestic		01/10/1958	47.80	47.90					1844m	South West
GW111 281	10BL600 478, 10WA10 7603	Spear	Private	Domestic	Domestic		14/08/2006	11.00	11.00	400	8.00	0.800		1856m	South
GW108 558	10BL601 256, 10WA10 9167	Spear	Private	Domestic	Domestic		05/02/2007	4.30	4.30		2.80	1.000		1858m	North East
GW110 619	10BL600 628, 10WA10 7610	Bore	Private	Domestic	Domestic		01/01/2006	11.00				0.800		1859m	South
GW108 566	10BL165 913, 10WA10 7594	Bore	Private	Domestic	Domestic		18/01/2007	6.00	6.00	Good	3.00	0.500		1862m	South
GW110 421	10BL602 994, 10WA10 7693	Spear	Private	Domestic	Domestic		14/04/2009	6.00	6.00	Good	3.00	0.500		1865m	South
GW100 576	10BL158 008, 10WA10 7473	Spear	Private	Domestic	Domestic		22/04/1997	7.00	7.00					1886m	South
GW108 945	10BL601 948, 10WA10 9214	Piezo meter	Private	Domestic	Domestic		19/06/2008	3.70		175	1.50	1.000		1893m	South West
GW018 808	10BL011 302, 10WA10 8102	Bore open thru rock	Private	Waste Disposal	Waste Disposal		01/12/1960	91.40	91.40					1897m	North East
GW106 135	10BL162 326, 10WA10 7500	Spear	Private	Domestic	Domestic		10/03/2004	6.00	6.00	Good	4.00	0.500		1911m	South

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW107061	10BL164745, 10WA107559	Bore		Domestic			09/05/2006							1913m	South
GW108682	10BL601551, 10WA109190	Spear	Private	Domestic	Domestic		23/03/2007	3.50	3.50	600	2.60	1.000		1933m	North East
GW111299	10BL600483, 10WA107604	Spear	Private	Domestic	Domestic		01/08/2006	15.00	15.00					1933m	South
GW106877	10BL164475, 10WA107553	Spear	Private	Domestic	Domestic		13/01/2005	6.00	6.00	Good		4.000		1939m	South
GW105971	10BL162284, 10WA107498	Spear	Private	Domestic	Domestic		10/03/2004	4.00	4.00	Good	1.00	0.500		1959m	South
GW110275	10BL165727, 10WA107586	Spear	Private	Domestic	Domestic		01/01/2005	15.00			2.00	2.500		1962m	South
GW107544	10BL165708, 10WA107584	Spear	Private	Domestic	Domestic		22/11/2005	12.00	12.00	500	9.50	1.000		1969m	South
GW106137	10BL162191, 10WA107497	Spear	Private	Domestic	Domestic		10/03/2004	4.00	4.00		1.50	0.500		1985m	South

Hydrogeology & Groundwater

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Driller's Logs

Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW106697	0.00m-0.20m FILL 0.20m-0.50m FILL, WEATHERED SANDSTONE 0.50m-1.20m FILL, WEATHERED SANDSTONE & CLAY 1.20m-2.00m CLAY GREY, FIRM 2.00m-3.00m CLAY GREY,SOFT SATURATED	365m	West
GW106698	0.00m-0.10m FILL,SANDY CLAY 0.10m-0.50m FILL WEATHERED SANDSTONE 0.50m-1.20m SANDY CLAY 1.20m-1.80m CLAYEY SAND 1.80m-3.00m SANDY CLAY,LIGHT GREY	396m	North West
GW106699	0.00m-0.20m FILL 0.20m-0.60m WEATHERED SANDSTONE 0.60m-1.00m CLAYEY SAND 1.00m-1.80m CLAY,GREY BLACK 1.80m-2.00m CLAY BROWN 2.00m-3.00m CLAYEY SAND	483m	West
GW108034	0.00m-0.50m TOPSOIL 0.50m-1.00m CLAY 1.00m-1.40m GREY SANDY CLAY 1.40m-1.70m GREY SAND 1.70m-2.50m STIFF GREY CLAY	540m	North West
GW111426	0.00m-1.00m CLAY 1.00m-30.00m SAND MARINE 30.00m-60.00m RED CLAYS TONE 60.00m-90.00m GREY SILTSTONE	706m	South East
GW111586	0.00m-1.00m CLAY 1.00m-30.00m SAND MARINE 30.00m-60.00m CLAYSTONE RED 60.00m-90.00m SILTSTONE GREY	792m	South East
GW105421	0.00m-0.30m TOPSOIL 0.30m-3.50m BROWN SAND 3.50m-8.00m BROWN SAND WITH ORANGE SILT	830m	South East
GW111427	0.00m-1.00m SANDY SOIL 1.00m-5.00m CLAY GREY 5.00m-8.00m CLAY RED 8.00m-24.00m SHALE GREY 24.00m-48.00m CLAYSTONE 48.00m-54.00m SHALE GREY 54.00m-60.00m CLAYSTONE 60.00m-102.00m SLATE	917m	North
GW108859	0.00m-0.30m TOPSOIL 0.30m-0.80m FILL ROCKS SAND 0.80m-3.80m LIGHT BROWN SAND 3.80m-5.00m GREY SAND	953m	South
GW108888	0.00m-1.00m TOPSOIL 1.00m-10.50m CLAY 10.50m-60.00m SANDSTONE 60.00m-73.00m SANDSTONE	1039m	North East
GW107155	0.00m-5.00m sand	1110m	South
GW111444	0.00m-1.00m SOIL SANDY 1.00m-5.00m CLAY GREY 5.00m-8.00m CLAY RED 8.00m-24.00m SHALE GREY 24.00m-48.00m BAULDHILL CLAYSTONE 48.00m-54.00m SHALE GREY 54.00m-60.00m BAULDHILL CLAYSTONE 60.00m-103.00m SLATE	1135m	North

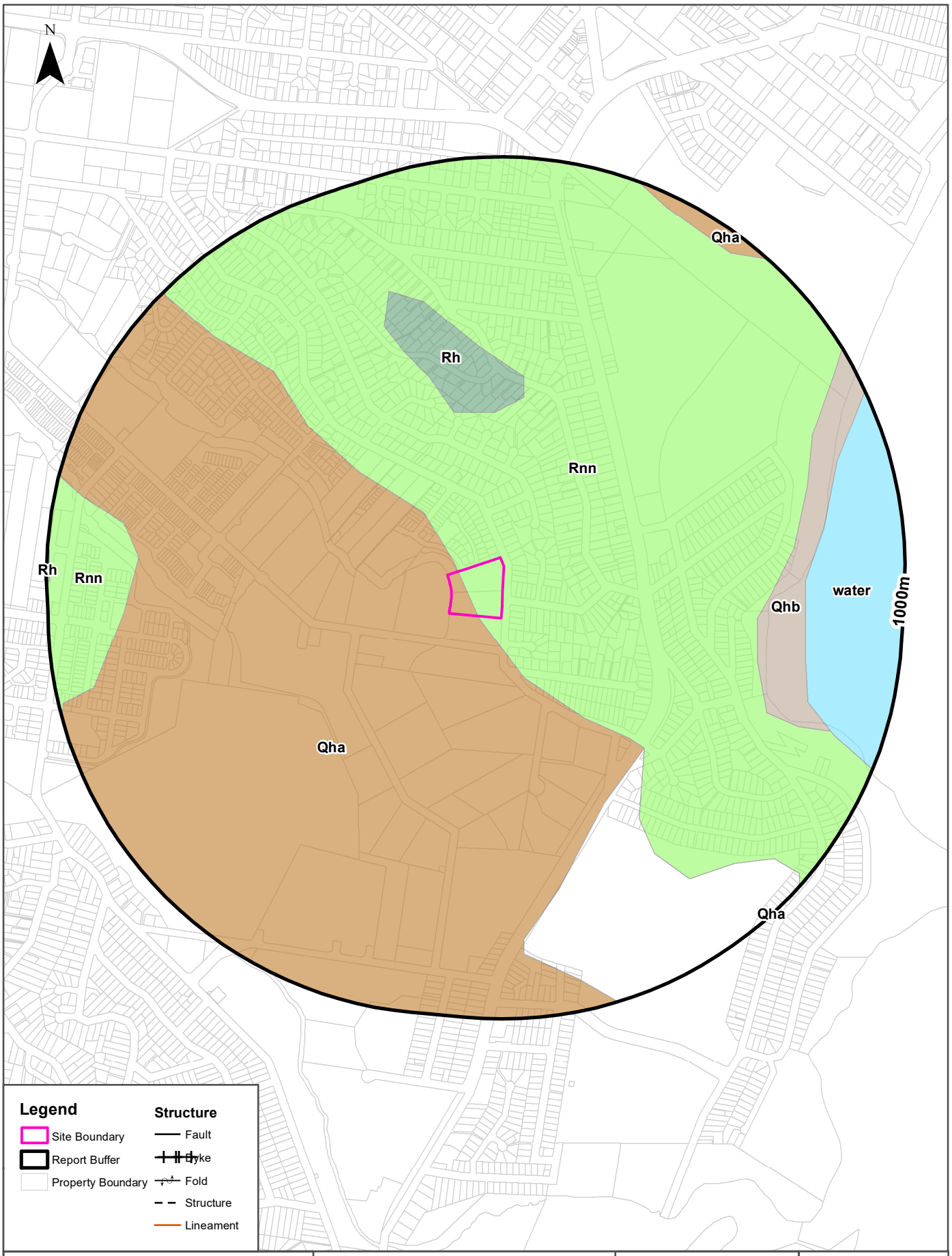
Groundwater No	Drillers Log	Distance	Direction
GW107438	0.00m-4.50m sand	1140m	South
GW110259	0.00m-1.50m FILL,DARK BROWN,FINE GRAINED 1.50m-1.90m SAND, BROWN,FINE TO MEDIUM 1.90m-5.00m SAND,DARK GREY TO BLACK,FINE TO MEDIUM	1143m	South
GW110260	0.00m-0.30m CONCRETE 0.30m-1.20m FILL,DARK BROWN,FINE TO MED. 1.20m-4.00m SAND,BROWN,FINE TO MEDIUM	1177m	South
GW110261	0.00m-0.80m FILL.GREY AND BROWN GRAVEL 0.80m-5.00m SAND, BROWN AND GREY	1193m	South
GW110262	0.00m-1.00m FILL,DARK GRAVEL AND SAND 1.00m-1.70m FILL,BROWN,SAND,SOME GRAVEL 1.70m-4.00m SAND BROWN FINE TO MEDIUM	1202m	South
GW100749	0.00m-0.20m BROWN TOPSOIL 0.20m-3.50m GREY SAND WITH SHELLS 3.50m-6.00m WHITE SAND	1239m	South
GW108692	0.00m-0.20m topsoil 0.20m-1.50m sand, yellow 1.50m-5.00m sand, grey	1246m	South
GW112622	0.00m-1.00m FILL 1.00m-4.00m SAND, MINOR CLAY	1252m	South
GW112623	0.00m-1.00m FILL 1.00m-4.00m SAND,MINOR CLAY	1269m	South
GW018778	0.00m-19.81m Clay Red 19.81m-44.19m Clay Yellow Sandy Water Supply 44.19m-47.24m Sandstone Yellow 47.24m-48.76m Clay Grey 48.76m-54.25m Shale Grey 54.25m-74.67m Shale Red Water Supply 74.67m-124.96m Shale Black	1276m	North
GW112624	0.00m-1.00m FILL 1.00m-4.00m SAND,MINOR CLAY	1279m	South
GW026027	0.00m-9.14m Clay 9.14m-10.36m Sandstone 10.36m-48.76m Sandstone Grey Water Supply 48.76m-56.38m Shale Water Supply 56.38m-59.58m Rock Hard 59.58m-61.72m Shale Grey	1338m	North
GW108580	0.00m-1.00m Topsoil 1.00m-1.80m Sand, grey 1.80m-6.00m Sand, white/grey	1347m	South
GW026026	0.00m-6.09m Clay 6.09m-7.62m Sandstone Hard 7.62m-9.14m Sandstone Weathered 9.14m-17.67m Shale Water Supply 17.67m-33.52m Shale Black 33.52m-35.05m Sandstone Hard Water Supply 35.05m-37.18m Shale 37.18m-37.49m Sandstone 37.49m-51.81m Shale Black Red	1365m	North

Groundwater No	Drillers Log	Distance	Direction
GW108132	0.00m-7.00m CLAY 7.00m-11.00m IRONSTONE/SANDSTONE/CLAY BANDS 11.00m-12.00m SANDSTONE,CLAY BANDS 12.00m-15.00m CLAYSTONE 15.00m-29.00m SHALE D/ GREY 29.00m-33.50m SANDSTONE BROWN 33.50m-54.50m SANDSTONE D/GREY 54.50m-57.50m SHALE D/ GREY 57.50m-58.00m SHALE RED 58.00m-70.00m SHALE D/ GREY 70.00m-77.00m SHALE RED 77.00m-82.00m SHALE GREY 82.00m-88.00m SHALE L/GREEN 88.00m-93.00m SHALE D/GREEN 93.00m-100.00m SHALE RED 100.00m-115.00m SHALE D/ GREY,RED BANDS 115.00m-121.00m SANDSTONE,F/GRAIN,GREY 121.00m-132.50m SHALE D/ GREY 132.50m-136.00m SANDSTONE,F/GRAIN,GREY 136.00m-141.00m SHALE D/ GREY 141.00m-152.00m SANDSTONE,F/GRAIN,GREY 152.00m-173.00m SHALE D/ GREY 173.00m-175.00m SANDSTONE GREY 175.00m-190.00m SHALE D/ GREY 190.00m-193.50m SANDSTONE GREY 193.50m-210.00m SHALE RED	1389m	North West
GW111104	0.00m-1.20m FILL 1.20m-2.00m CLAY YELLOW FIRM 2.00m-4.00m SAND L/BROWN CLAYEY	1410m	North East
GW106120	0.00m-0.30m TOPSOIL 0.30m-2.30m BROWN SAND 2.30m-4.00m GREY SAND	1413m	South
GW111105	0.00m-1.20m FILL 1.20m-2.00m CLAY FIRM/YELLOW 2.00m-5.00m SAND LIGHT BROWN CLAYEY	1413m	North East
GW018770	0.00m-2.74m Clay Red 2.74m-9.75m Clay White 9.75m-21.94m Shale Black 21.94m-40.23m Shale Red Sandy Water Supply	1461m	North East
GW018771	0.00m-1.52m Subsoil 1.52m-17.06m Clay 17.06m-36.57m Shale 36.57m-39.62m Shale Clay Seams 39.62m-64.00m Shale 64.00m-68.58m Shale Sandy Water Supply 68.58m-76.50m Shale Hard 76.50m-78.33m Slate 78.33m-92.04m Shale 92.04m-93.87m Shale Sandy Water Supply 93.87m-98.75m Shale 98.75m-99.97m Shale Gravel 99.97m-100.58m Shale	1472m	North East
GW026581	0.00m-12.19m Clay Sandy 12.19m-27.12m Shale Red Water Supply 27.12m-28.04m Rock Grey Hard 28.04m-51.81m Shale Black Water Supply 51.81m-56.38m Rock Grey Hard 56.38m-60.96m Sandstone Water Supply 60.96m-71.32m Rock 71.32m-76.80m Shale Hard Water Supply 76.80m-92.96m Rock Black Hard Water Supply	1472m	North
GW035791	0.00m-1.52m Soil 1.52m-25.90m Clay 25.90m-30.48m Shale 30.48m-45.72m Shale 45.72m-50.29m Shale Sandy Water Supply 50.29m-59.43m Shale	1472m	North East
GW108500	0.00m-0.10m Topsoil 0.10m-4.00m Sand, yellow	1577m	North East
GW107182	0.00m-7.00m sand	1668m	South
GW108158	0.00m-6.30m sand	1689m	North East

Groundwater No	Drillers Log	Distance	Direction
GW108579	0.00m-0.10m Tospoil 0.10m-3.50m Sand, yellow 3.50m-4.00m Soil & Sand 4.00m-6.60m Soil, dark & grey Sand	1791m	North East
GW013478	0.00m-7.62m Sandstone 0.00m-7.62m Clay Bands 7.62m-15.24m Sandstone Coloured 15.24m-30.48m Sandstone Water Supply 30.48m-45.72m Sandstone 30.48m-45.72m Clay Bands 45.72m-46.02m Sandstone 46.02m-47.85m Shale Dark Grey	1844m	South West
GW111281	0.00m-11.00m SAND	1856m	South
GW108558	0.00m-2.30m Sandstone, compacted 2.30m-4.30m Sand, fine 4.30m-4.30m Mud, grey	1858m	North East
GW108566	0.00m-0.30m Topsoil 0.00m-3.00m Sand, grey 3.00m-5.00m Sand, black 5.00m-6.00m Sand, yellow	1862m	South
GW110421	0.00m-0.30m TOPSOIL 0.30m-3.30m SAND,L/BROWN 3.30m-6.00m SAND YELLOW	1865m	South
GW100576	0.00m-7.00m SAND	1886m	South
GW018808	0.00m-11.88m Sand 11.88m-24.07m Clay 24.07m-91.44m Shale Grey	1897m	North East
GW106135	0.00m-4.00m sand, orange 4.00m-5.00m sand, black 5.00m-6.00m sand, brown course	1911m	South
GW108682	0.00m-0.20m dust, fine 0.20m-1.00m topsoil, black 1.00m-2.00m sand, grey 2.60m-3.50m sand, clay	1933m	North East
GW106877	0.00m-0.30m topsoil 0.30m-3.50m sand,yellow 3.50m-6.00m sand, silty brown	1939m	South
GW105971	0.00m-0.30m topsoil 0.30m-1.50m sand, brown 1.50m-2.50m mud 2.50m-4.00m sand, course	1959m	South
GW107544	0.00m-12.00m sand	1969m	South
GW106137	0.00m-0.30m topsoil 0.30m-1.50m sand, brown 1.50m-2.50m mud, black 2.50m-4.00m sand, brown course	1985m	South

Geology 1:100,000

25-27 Warriewood Road, Warriewood, NSW 2102



Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2020

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Geology

25-27 Warriewood Road, Warriewood, NSW 2102

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Qha	Silty to peaty quartz sand, silt, and clay. Ferruginous and humic cementation in places. Common shell layers				Quaternary		Sydney	1:100,000
Rnn	Interbedded laminate, shale and quartz, to lithic quartz sandstone: Minor red claystone north of Hawkesbury River. Clay pellet sandstone (Garie Fm) south of Hawkesbury River	Newport Formation and Garie Formation	Narrabeen Group		Triassic		Sydney	1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Qha	Silty to peaty quartz sand, silt, and clay. Ferruginous and humic cementation in places. Common shell layers				Quaternary		Sydney	1:100,000
Qhb	Coarse quartz sand, verying amounts of shell fragment				Quaternary		Sydney	1:100,000
Rh	Medium to coarse grained quartz sandstone, very minor shale and laminate lenses				Triassic		Sydney	1:100,000
Rnn	Interbedded laminate, shale and quartz, to lithic quartz sandstone: Minor red claystone north of Hawkesbury River. Clay pellet sandstone (Garie Fm) south of Hawkesbury River	Newport Formation and Garie Formation	Narrabeen Group		Triassic		Sydney	1:100,000
water							Sydney	1:100,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

Geological Data Source : NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

25-27 Warriewood Road, Warriewood, NSW 2102

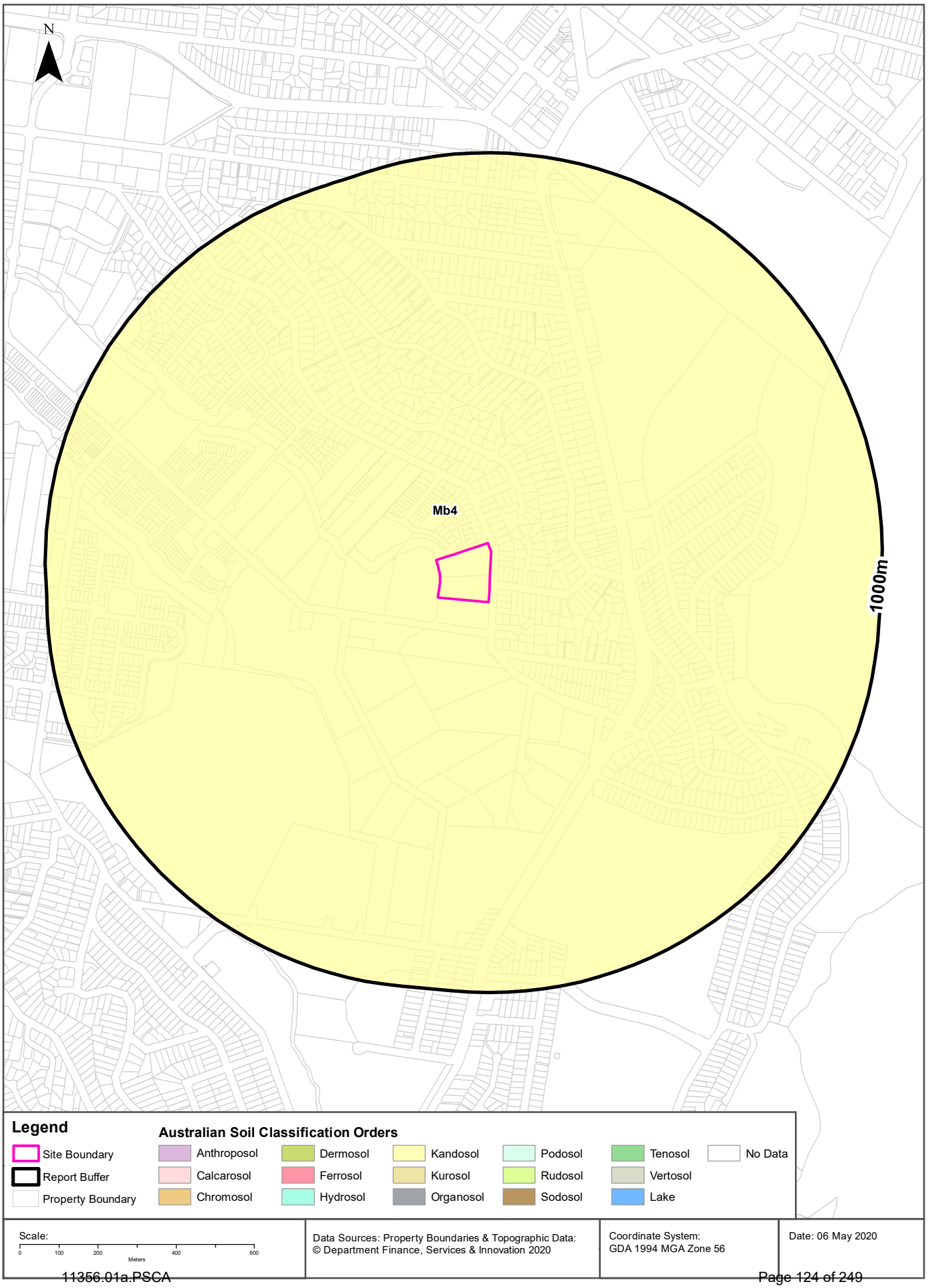
Naturally Occurring Asbestos Potential

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												

Atlas of Australian Soils

25-27 Warriewood Road, Warriewood, NSW 2102



Soils

25-27 Warriewood Road, Warriewood, NSW 2102

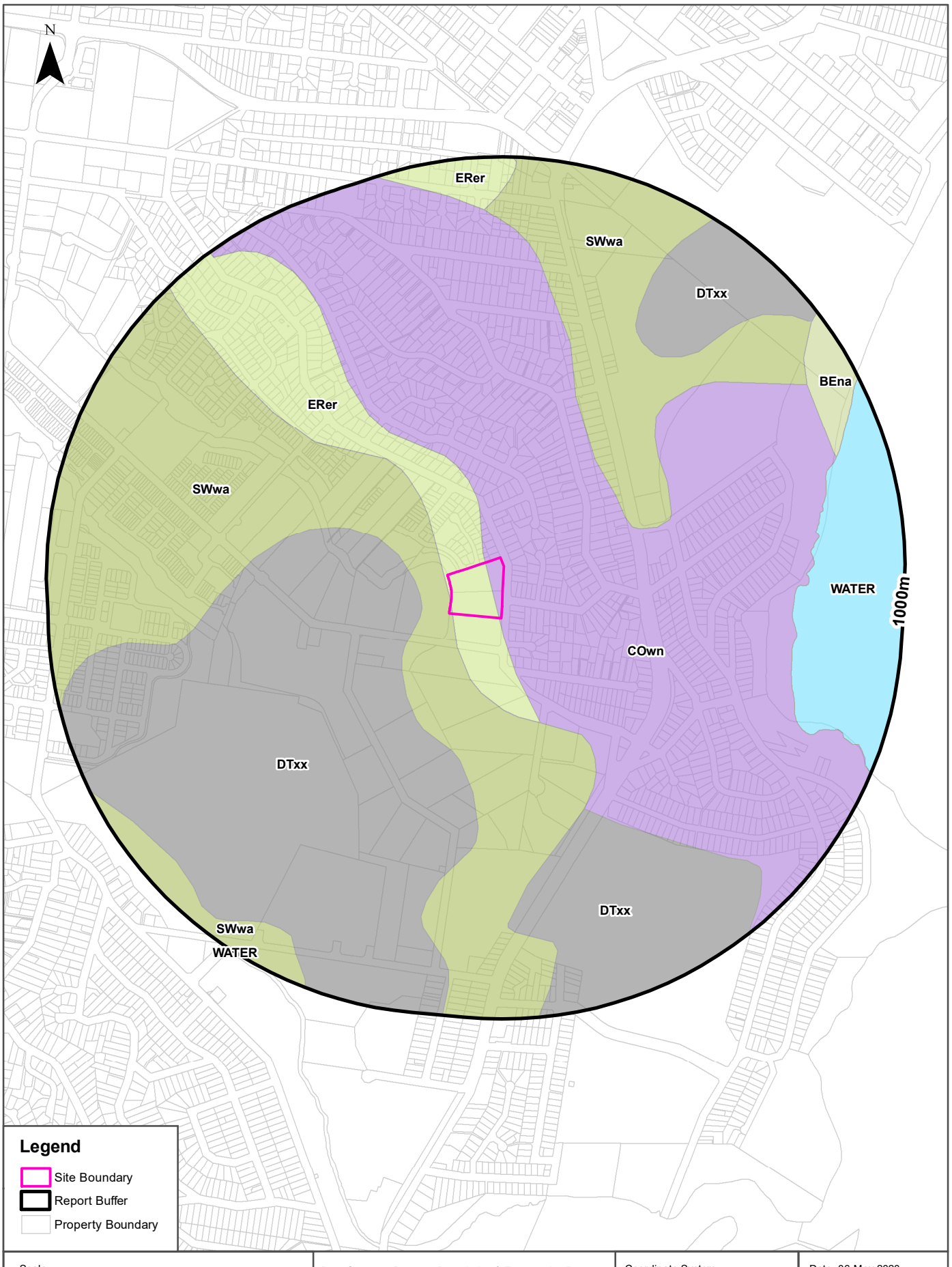
Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance
Mb4	Kandosol	Coastal complex: chief soils are acid yellow leached earths (Gn2.74) and (Gn2.34), hard acidic yellow mottled soils (Dy3.41), and hard acidic red soils (Dr2.21). This unit includes headlands and rugged coastal areas of unit Mb2; ridges and slopes of unit Tb35; low-lying coastal areas of unit Cb27; and some swampy areas.	0m

Soil Landscapes

25-27 Warriewood Road, Warriewood, NSW 2102



Soils

25-27 Warriewood Road, Warriewood, NSW 2102

Soil Landscapes

What are the onsite Soil Landscapes?

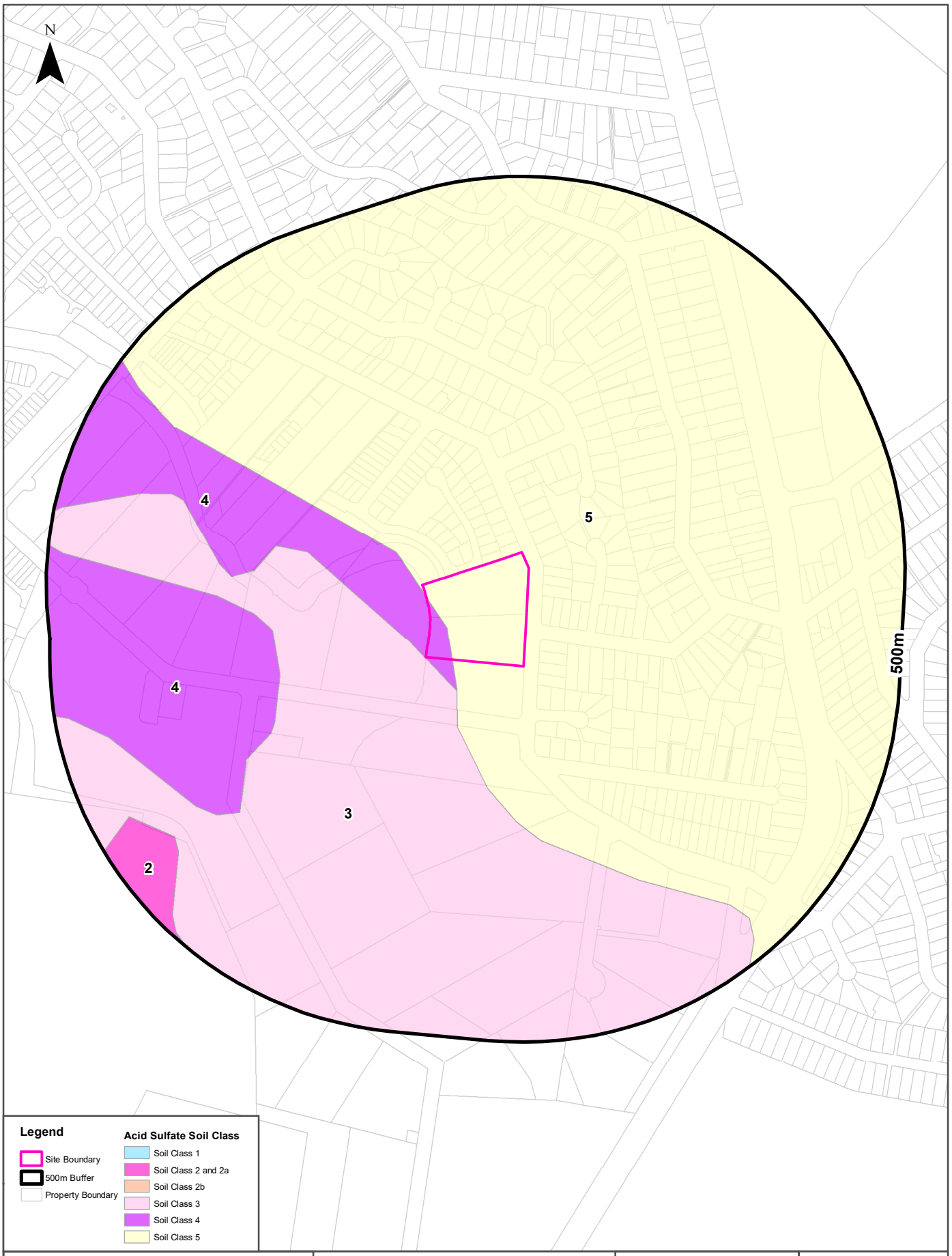
Soil Code	Name	Group	Process	Map Sheet	Scale
COwn	WATAGAN		COLLUVIAL	Sydney	1:100,000
ERer	ERINA		EROSIONAL	Sydney	1:100,000
SWwa	WARRIEWOOD		SWAMP	Sydney	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
BEna	NARRABEEN		BEACH	Sydney	1:100,000
COwn	WATAGAN		COLLUVIAL	Sydney	1:100,000
DTxx	DISTURBED TERRAIN		DISTURBED TERRAIN	Sydney	1:100,000
ERer	ERINA		EROSIONAL	Sydney	1:100,000
SWwa	WARRIEWOOD		SWAMP	Sydney	1:100,000
WATER	WATER		WATER	Sydney	1:100,000

Acid Sulfate Soils

25-27 Warriewood Road, Warriewood, NSW 2102



Scale: 0 100 200 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2020

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Acid Sulfate Soils

25-27 Warriewood Road, Warriewood, NSW 2102

Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

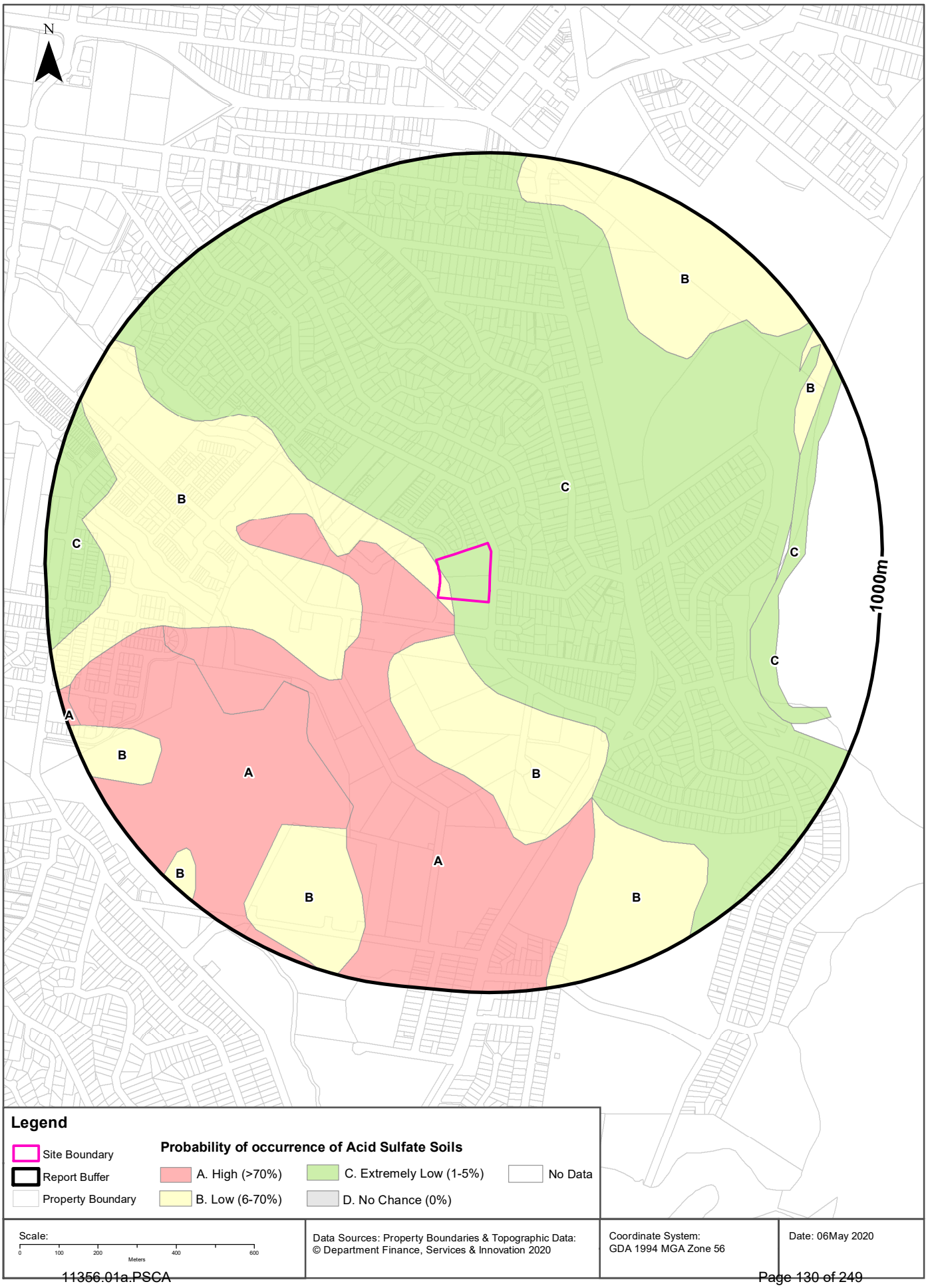
Soil Class	Description	EPI Name
4	Works more than 2 metres below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered more than 2 metres below natural ground surface, present an environmental risk	Pittwater Local Environmental Plan 2014

If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

25-27 Warriewood Road, Warriewood, NSW 2102



Acid Sulfate Soils

25-27 Warriewood Road, Warriewood, NSW 2102

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m
A	High Probability of occurrence. >70% chance of occurrence.	2m

Dryland Salinity

25-27 Warriewood Road, Warriewood, NSW 2102

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	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.

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
N/A	Outside Data Coverage			

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage

Mining Subsidence Districts

25-27 Warriewood Road, Warriewood, NSW 2102

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

State Environmental Planning Policy

25-27 Warriewood Road, Warriewood, NSW 2102

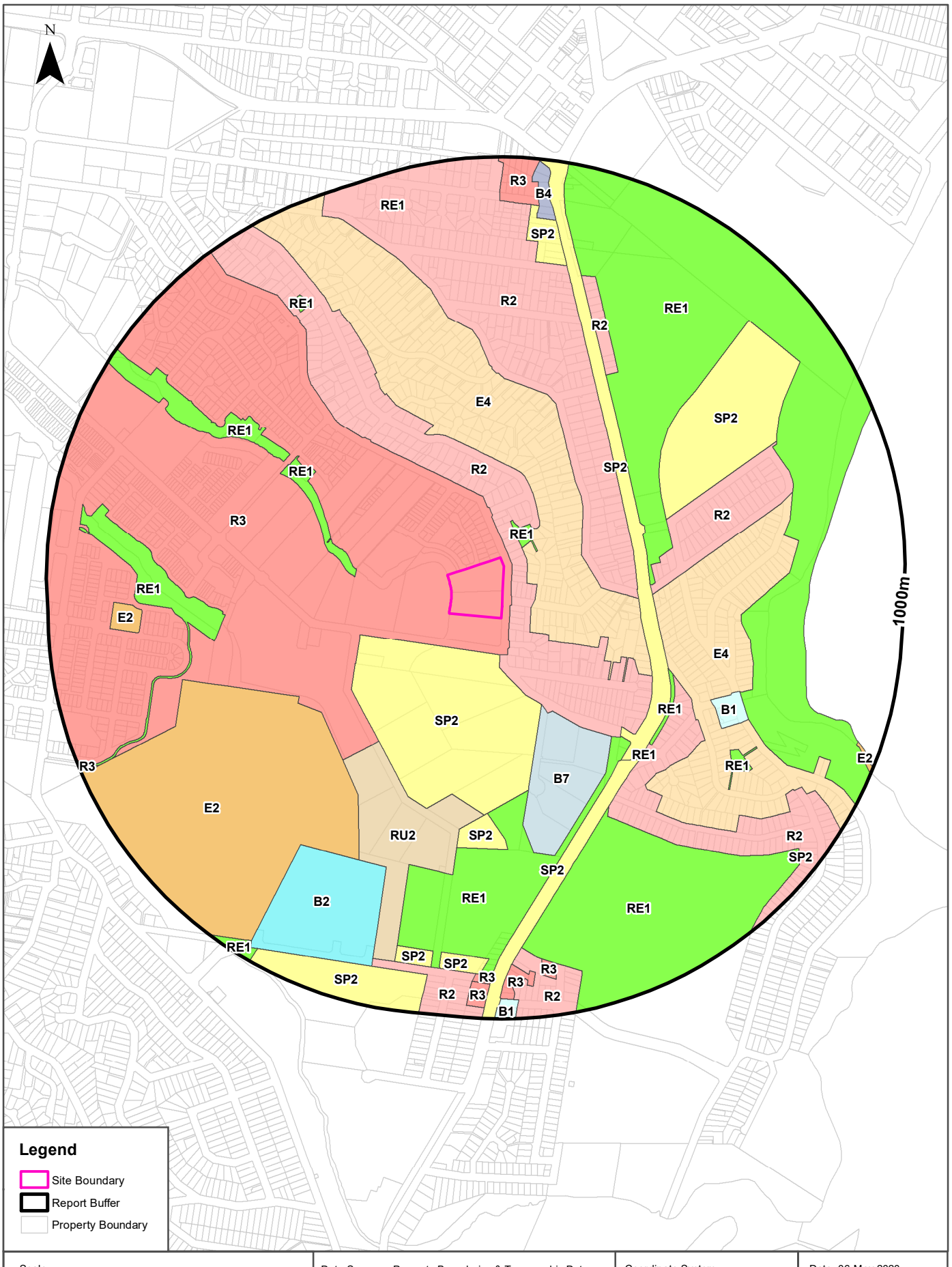
State Significant Precincts

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							

EPI Planning Zones

25-27 Warriewood Road, Warriewood, NSW 2102



Environmental Planning Instrument

25-27 Warriewood Road, Warriewood, NSW 2102

Land Zoning

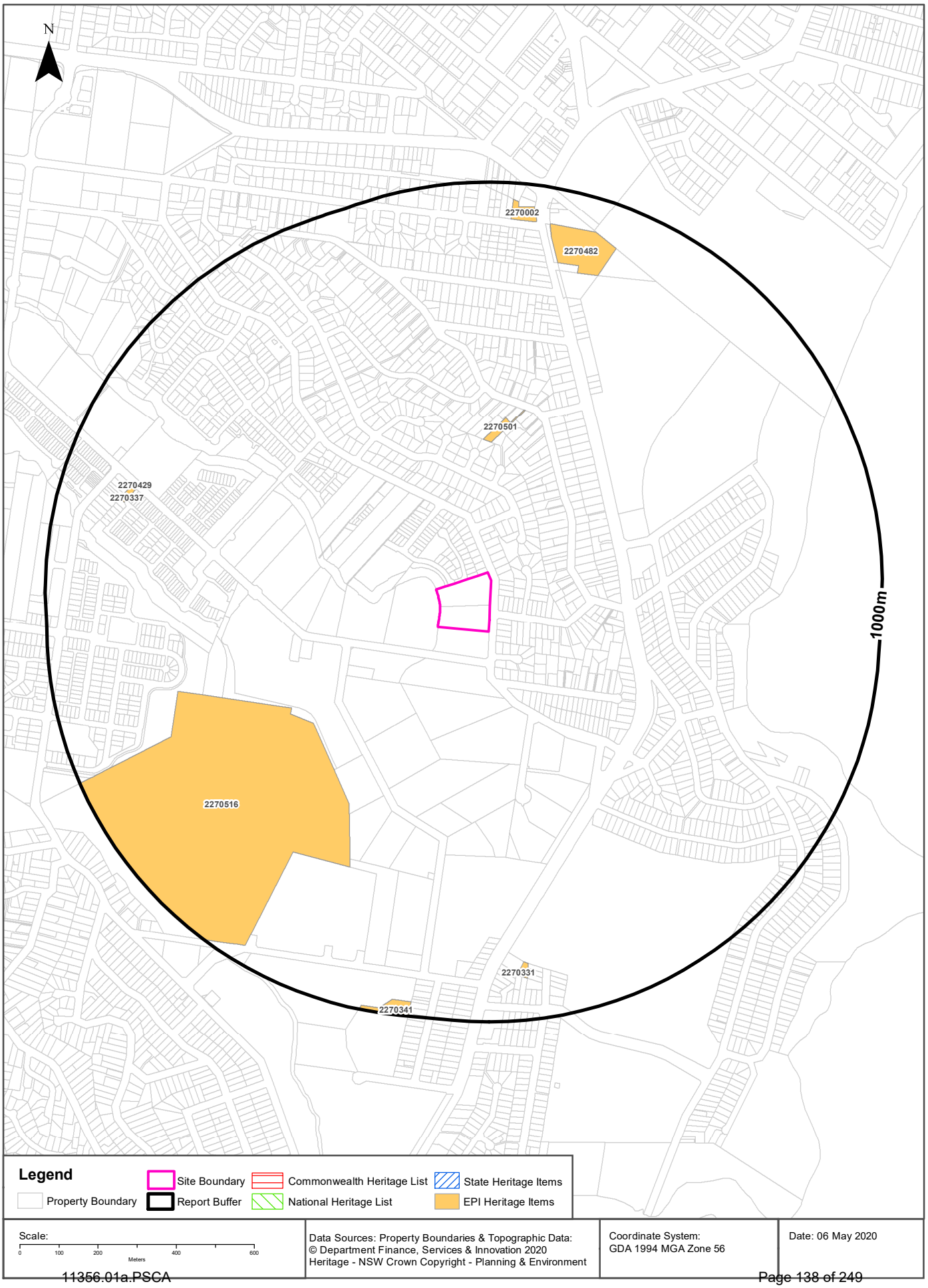
What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R3	Medium Density Residential		Pittwater Local Environmental Plan 2014	20/04/2018	20/04/2018	20/04/2018	Amendment No 10	0m	Onsite
R2	Low Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		19m	North
E4	Environmental Living		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		57m	North
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		58m	North East
SP2	Infrastructure	Sewerage System	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		84m	South
R2	Low Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		194m	North
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	13/04/2018	13/04/2018	20/04/2018	Amendment No 9	228m	North West
B7	Business Park		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		236m	South East
SP2	Infrastructure	Classified Road	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		322m	North East
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		354m	North East
RU2	Rural Landscape		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		364m	South
R2	Low Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		365m	East
E4	Environmental Living		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		372m	South East
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		402m	South
E2	Environmental Conservation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		403m	South West
SP2	Infrastructure	Health Services Facilities	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		420m	North East
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		432m	South East
R2	Low Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		448m	South East
SP2	Infrastructure	Classified Road	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		460m	South
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		486m	South East
SP2	Infrastructure	Public Administration Building	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		487m	South
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		495m	North West
R2	Low Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		526m	North East
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		539m	South East
B1	Neighbourhood Centre		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		558m	South East
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		559m	West
B2	Local Centre		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		652m	South West

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		657m	South East
SP2	Infrastructure	Emergency Services Facility, Admin Building	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		744m	North
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		752m	North West
E2	Environmental Conservation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		766m	West
R2	Low Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		822m	South
SP2	Infrastructure	Community Facility	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		837m	South
SP2	Infrastructure	Community Facility	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		842m	South
B4	Mixed Use		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		852m	North
R3	Medium Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		855m	South
R3	Medium Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		862m	South
R2	Low Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		879m	South
R3	Medium Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		884m	North
R3	Medium Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		888m	South
SP2	Infrastructure	Educational Establishment	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		898m	South
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		905m	North
R3	Medium Density Residential		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		908m	South
E2	Environmental Conservation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		939m	South East
SP2	Infrastructure	Sewerage System	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		947m	South East
B1	Neighbourhood Centre		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		949m	South
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	20/04/2018		954m	South West

Heritage Items

25-27 Warriewood Road, Warriewood, NSW 2102



Heritage

25-27 Warriewood Road, Warriewood, NSW 2102

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							

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
N/A	No records in buffer							

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
N/A	No records in buffer							

Environmental Planning Instrument - Heritage

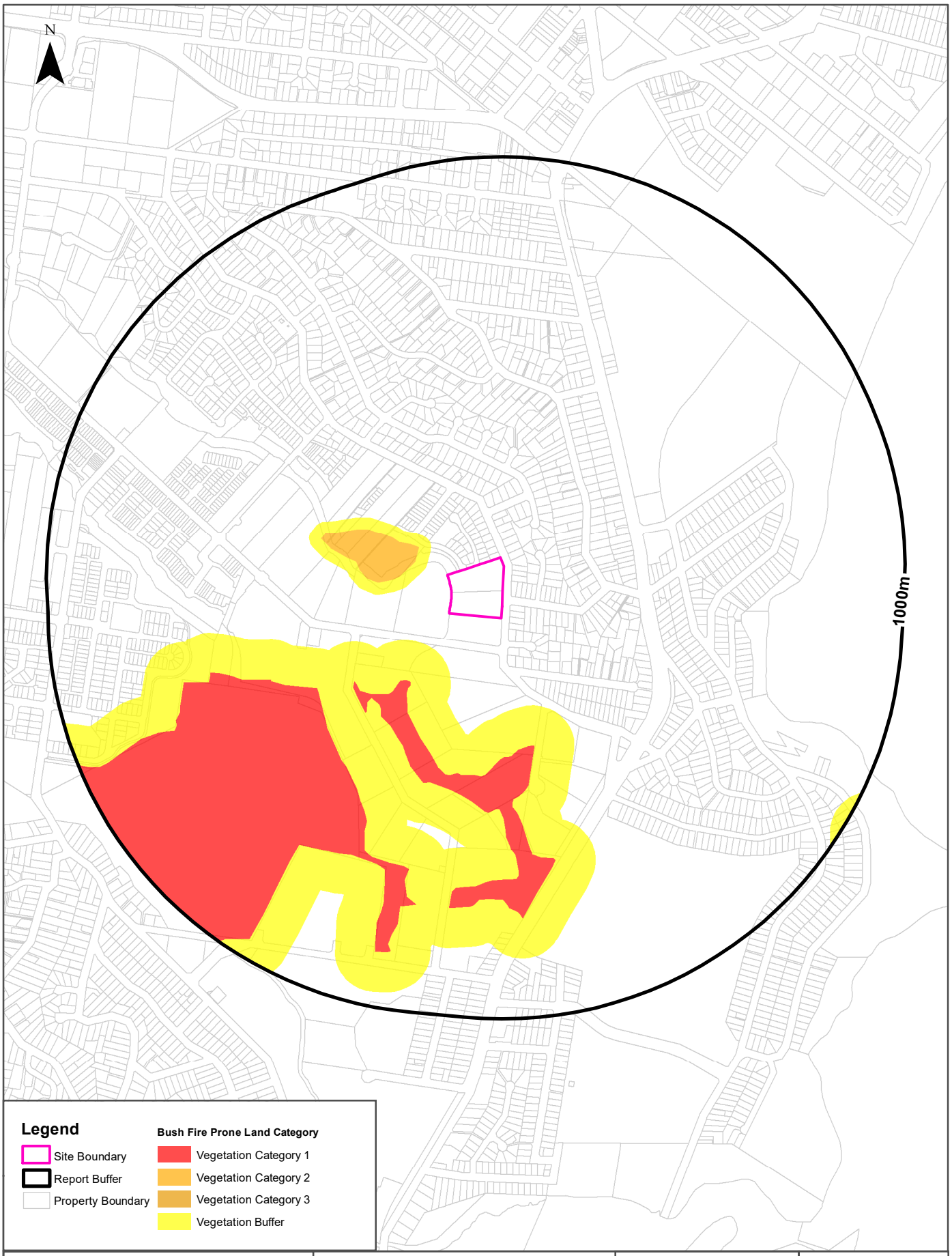
What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
2270501	House	Item - General	Local	Pittwater Local Environmental Plan 2014	22/01/2016	22/01/2016	22/01/2016	334m	North
2270516	Warriewood Wetland	Item - General	Local	Pittwater Local Environmental Plan 2014	22/01/2016	22/01/2016	22/01/2016	403m	South West
2270482	Mona Vale Bowling Club	Item - General	Local	Pittwater Local Environmental Plan 2014	22/01/2016	22/01/2016	22/01/2016	801m	North

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
2270337	Federation Cottage	Item - General	Local	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	22/01/2016	810m	West
2270429	Memorial in Bus Shelter	Item - General	Local	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	22/01/2016	812m	West
2270331	Moreton Bay Fig Tree - "Alma's Tree"	Item - General	Local	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	22/01/2016	850m	South
2270002	Part of facade of the Rock Lily Restaurant, being the faceted bay windows and area in between	Item - General	Local	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	22/01/2016	905m	North
2270341	Concrete Geodesic Domes	Item - General	Local	Pittwater Local Environmental Plan 2014	30/05/2014	27/06/2014	22/01/2016	960m	South

Natural Hazards - Bush Fire Prone Land

25-27 Warriewood Road, Warriewood, NSW 2102



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2020. Property Boundaries: © Department Finance, Services & Innovation 2020

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2020

Natural Hazards

25-27 Warriewood Road, Warriewood, NSW 2102

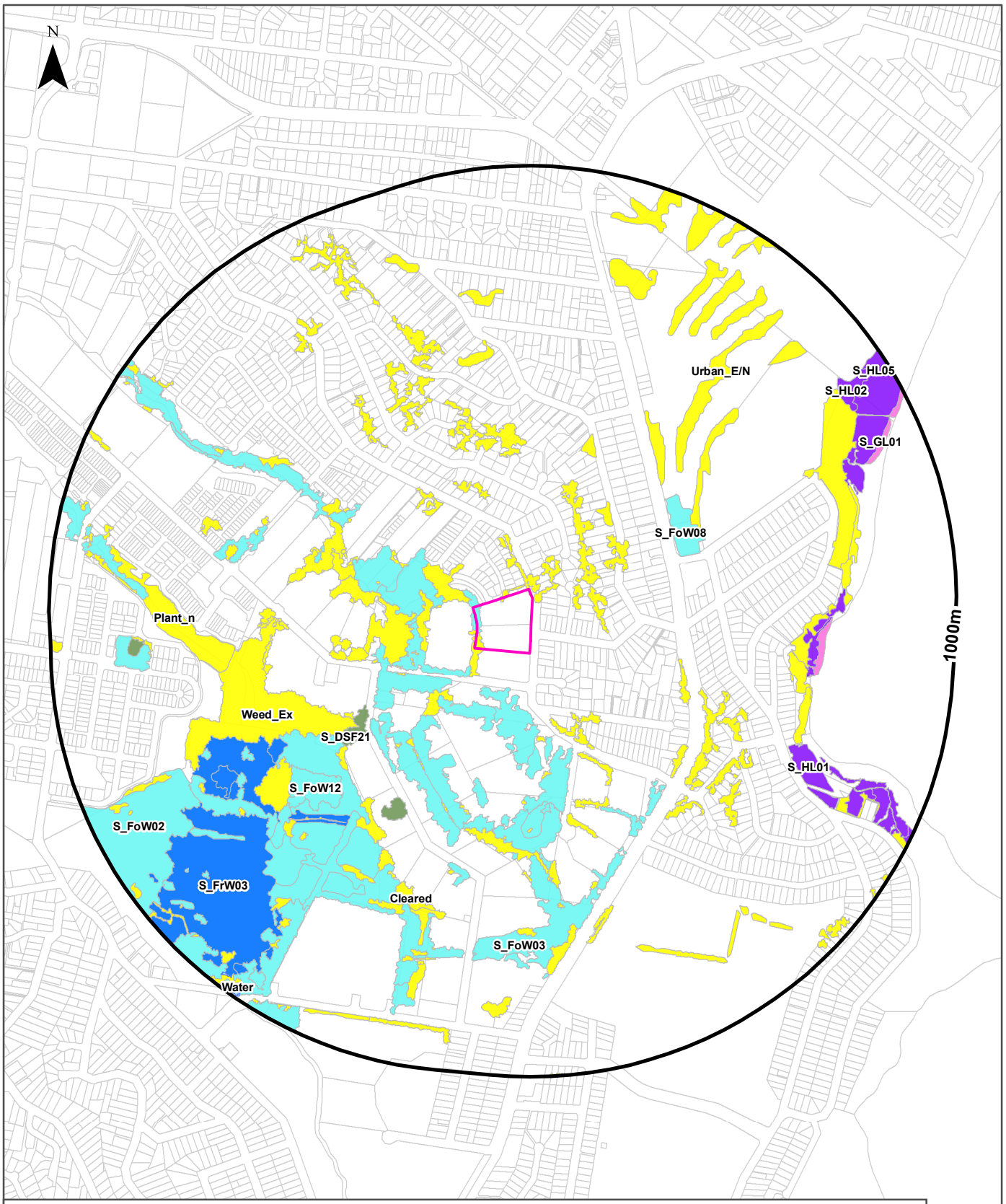
Bush Fire Prone Land

What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	57m	West
Vegetation Category 2	87m	West
Vegetation Category 1	195m	South

Ecological Constraints - Native Vegetation & RAMSAR Wetlands

25-27 Warriewood Road, Warriewood, NSW 2102



Ecological Constraints

25-27 Warriewood Road, Warriewood, NSW 2102

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Direction
S_FoW03	S_FoW03: Coastal Freshwater Swamp Forest			17: Pittosporum dominant	15: Regrowth	3: High	C.glauca	0m	Onsite
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/Native	0m	Onsite
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Exotic Species >90%cover	0m	Onsite
S_FoW02	S_FoW02: Coastal Flats Swamp Mahogany Forest	Swamp Sclerophyll Forest on Coastal Floodplains		11: Semi sheltered dry/mesic	13: Weeds	3: High	E.robusta	123m	South
Cleared	Cleared			00: Not assessed	00: Not assessed	0: Not assessed	Cleared	146m	South West
Cleared	Cleared			00: Not assessed	00: Not assessed	0: Not assessed	Cleared	146m	West
S_DSF21	S_DSF21: Coastal Sand Bangalay Forest	Bangalay Sand Forest		00: Not assessed	29: Urban rural landuse	3: High	E.botryoides/A.costata	289m	South West
S_FoW08	S_FoW08: Estuarine Swamp Oak Forest	Swamp Oak Floodplain Forest		00: Not assessed	00: Not assessed	0: Not assessed	C.glauca	359m	North East
S_FoW12	S_FoW12: Coastal Swamp Paperbark-Swamp Oak Scrub	Swamp Oak Floodplain Forest		18: Swampy sedges, shrubs, ferns and herbs	20: Previously cleared 1943	3: High	C.glauca/M.ericifolia	437m	South West
S_FrW03	S_FrW03: Coastal Freshwater Wetland	Freshwater Wetlands on Coastal Floodplains		18: Swampy sedges, shrubs, ferns and herbs	29: Urban rural landuse	3: High	M.ericifolia/sedges	492m	South West
Plant_n	Plant_n: Plantation (native and/or exotic)			00: Not assessed	00: Not assessed	0: Not assessed	Native or Exotic Plantations	565m	West
S_HL05	S_HL05: Coastal Foredune Wattle Scrub			00: Not assessed	00: Not assessed	0: Not assessed	B.integrifolia/L.laevigatum/M.elliptica	640m	East
S_HL01	S_HL01: Coastal Headland Clay Heath			00: Not assessed	00: Not assessed	0: Not assessed	A.distyla/B.integrifolia/L.laevigatum W.fruitocosa	645m	South East
S_GL01	S_GL01: Beach Spinfex Grassland			00: Not assessed	00: Not assessed	0: Not assessed	S.sericea/C.glaucescens	658m	East
S_HL02	S_HL02: Coastal Sand Tea-tree-Banksia Scrub			00: Not assessed	00: Not assessed	0: Not assessed	B.integrifolia/A.smithii/L.laevigatum/G.ferdinandiiC.anarchardiodes	862m	North East
Water	Water			00: Not assessed	00: Not assessed	0: Not assessed	Water	962m	South West

Ramsar Wetlands

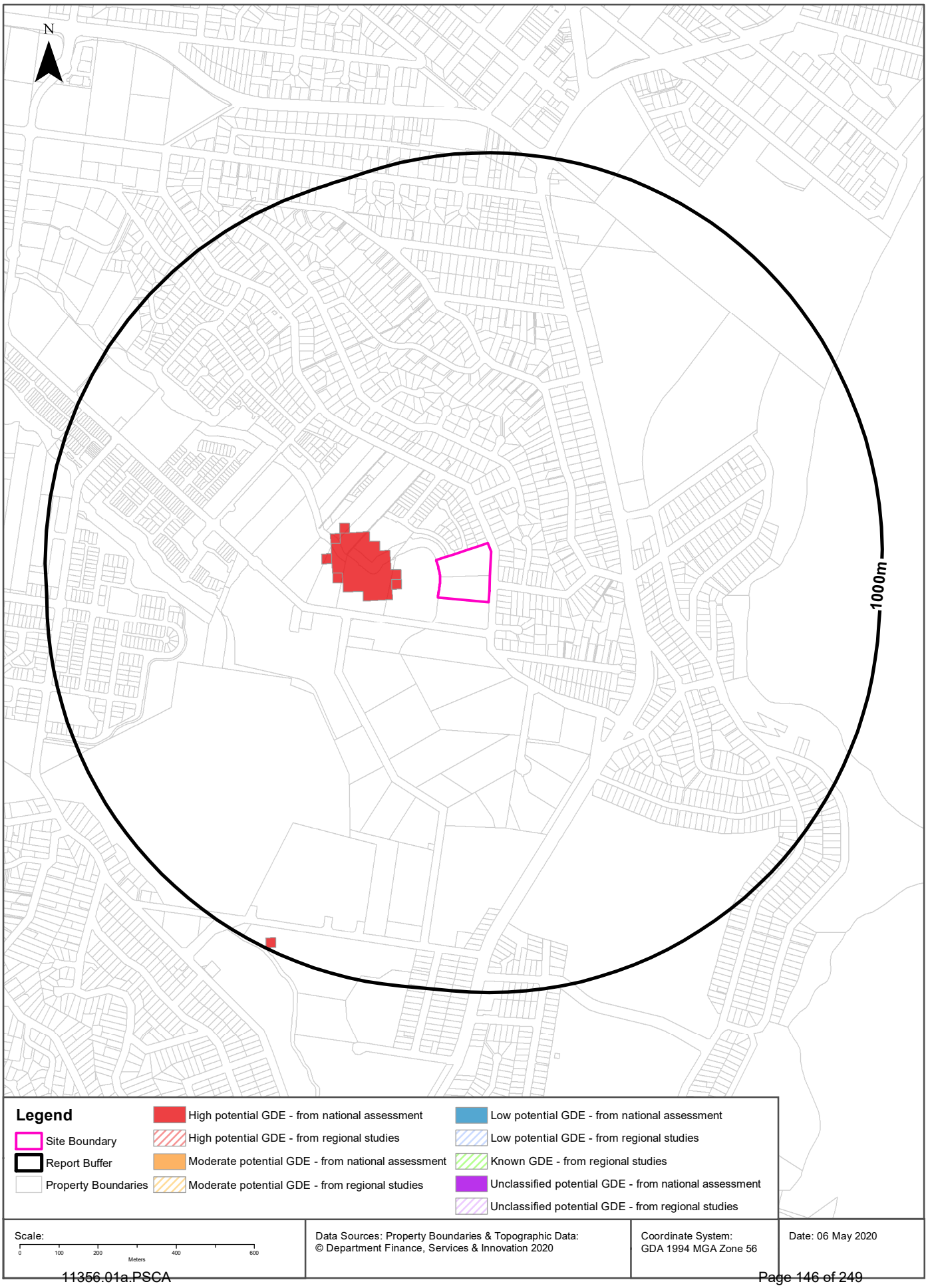
What Ramsar Wetland areas exist within the dataset buffer?

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 Environment

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

25-27 Warriewood Road, Warriewood, NSW 2102



Ecological Constraints

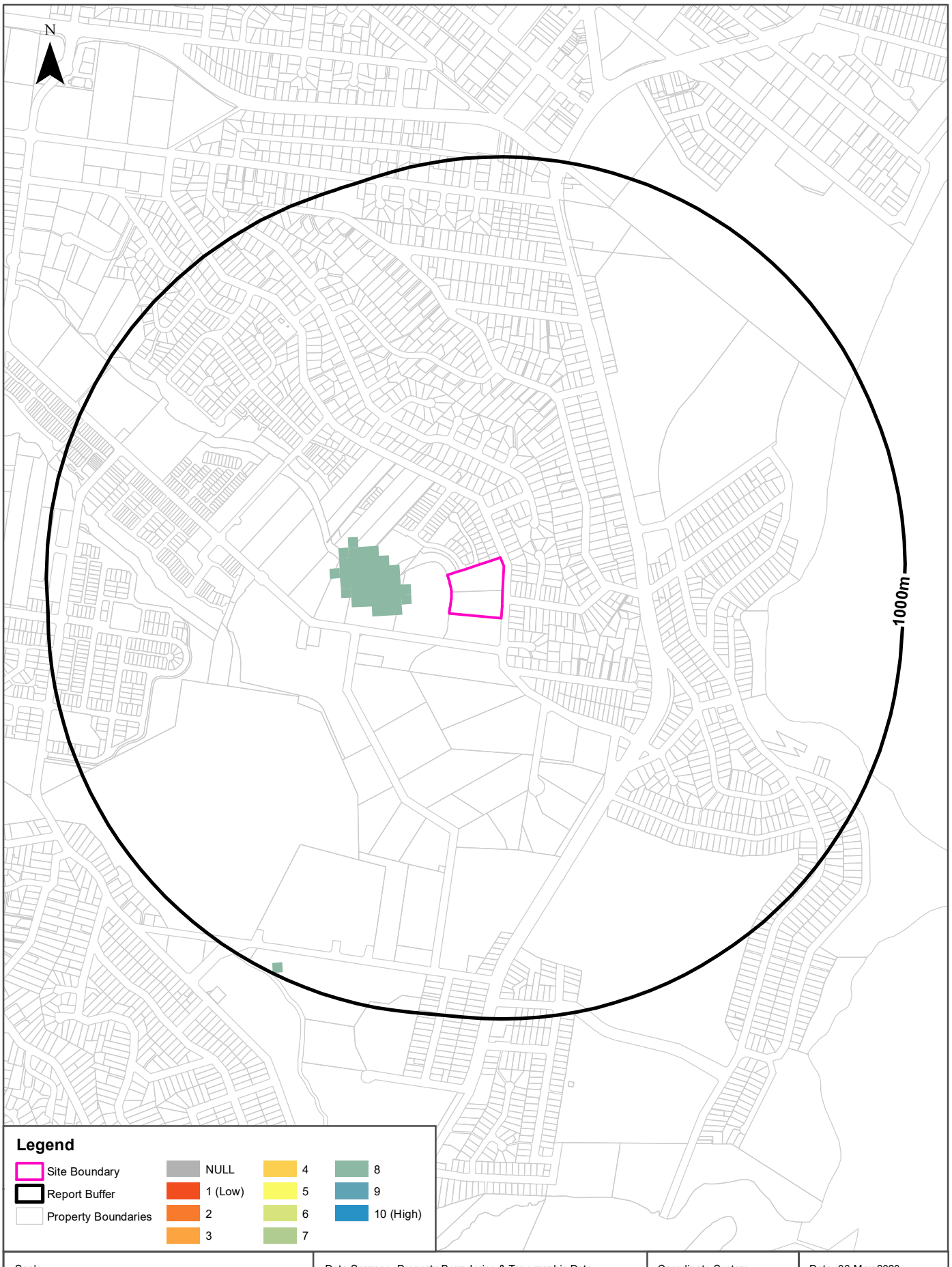
25-27 Warriewood Road, Warriewood, NSW 2102

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Unconsolidated sedimentary	93m

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

25-27 Warriewood Road, Warriewood, NSW 2102



Ecological Constraints

25-27 Warriewood Road, Warriewood, NSW 2102

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation	Unconsolidated sedimentary	93m

Ecological Constraints

25-27 Warriewood Road, Warriewood, NSW 2102

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Heleioporus australiacus	Giant Burrowing Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anous stolidus	Common Noddy	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna grisea	Sooty Shearwater	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna pacificus	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris alba	Sanderling	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris canutus	Red Knot	Not Listed	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris tenuirostris	Great Knot	Vulnerable	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus banksii banksii	Red-tailed Black-Cockatoo (coastal subspecies)	Critically Endangered	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Charadrius leschenaultii	Greater Sand-plover	Vulnerable	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Charadrius mongolus	Lesser Sand-plover	Vulnerable	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Charadrius veredus	Oriental Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Chlidonias leucopterus	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Diomedea exulans	Wandering Albatross	Endangered	Not Sensitive	Endangered	JAMBA
Animalia	Aves	Egretta sacra	Eastern Reef Egret	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Esacus magnirostris	Beach Stone-curlew	Critically Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Fregata ariel	Lesser Frigatebird	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Gygis alba	White Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Macronectes giganteus	Southern Giant Petrel	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Macronectes halli	Northern Giant-Petrel	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Philomachus pugnax	Ruff	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	Pterodroma leucoptera leucoptera	Gould's Petrel	Vulnerable	Not Sensitive	Endangered	
Animalia	Aves	Pterodroma solandri	Providence Petrel	Vulnerable	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Puffinus assimilis	Little Shearwater	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Stercorarius longicaudus	Long-tailed Jaeger	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Stercorarius pomarinus	Pomarine Jaeger	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Thalassarche cauta	Shy Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thalassarche chrysostoma	Grey-headed Albatross	Not Listed	Not Sensitive	Endangered	
Animalia	Aves	Thalassarche melanophris	Black-browed Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Todiramphus chloris	Collared Kingfisher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa incana	Wandering Tattler	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Xenus cinereus	Terek Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Mammalia	Arctocephalus forsteri	New Zealand Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Arctocephalus pusillus doriferus	Australian Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Dugong dugon	Dugong	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Eubalaena australis	Southern Right Whale	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Macropus parma	Parma Wallaby	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Megaptera novaeangliae	Humpback Whale	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Nyctophilus bifax	Eastern Long-eared Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Endangered Population, Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	Endangered	Not Sensitive	Vulnerable	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Endangered Population, Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Physeter macrocephalus	Sperm Whale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Pseudomys desertor	Desert Mouse	Critically Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Antaresia stimsoni	Stimson's Python	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Cacophis harriettae	White-crowned Snake	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Dermochelys coriacea	Leatherback Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Eretmochelys imbricata	Hawksbill Turtle	Not Listed	Not Sensitive	Vulnerable	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue-tongued Lizard	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Uvidicolus sphyrurus	Border Thick-tailed Gecko	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Varanus rosenbergi	Rosenberg's Goanna	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia terminalis subsp. terminalis	Sunshine Wattle	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Asterolasia elegans		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Boronia umbellata	Orara Boronia	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Brachyscome muelleroides	Claypan Daisy	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Chamaesyce psammogeton	Sand Spurge	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Cryptostylis hunteriana	Leafless Tongue Orchid	Vulnerable	Category 2	Vulnerable	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Genoplesium baueri	Bauer's Midge Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Endangered	Category 3	Not Listed	
Plantae	Flora	Grevillea caleyi	Caley's Grevillea	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Haloragodendron lucasii		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Hibbertia superans		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Not Listed	Not Sensitive	Extinct	
Plantae	Flora	Kunzea rupestris		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Lasiopetalum joyceae		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Listed	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Microtis angusii	Angus's Onion Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia laxa		Presumed Extinct	Not Sensitive	Extinct	
Plantae	Flora	Persoonia pauciflora	North Rothbury Persoonia	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Pimelea curviflora var. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Prostanthera densa	Villous Mint-bush	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Prostanthera marifolia	Seaforth Mintbush	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Senecio spathulatus	Coast Groundsel	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.

Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading “LC” or “LocConf”. These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

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   (h) the Report does not include any information relating to the actual state or condition of the Property;
   (i) the Report should not be used or taken to indicate or exclude actual fitness or unfitness of Land or Property for any particular purpose
   (j) the Report should not be relied upon for determining saleability or value or making any other decisions in relation to the Property and in particular should not be taken to be a rating or assessment of the desirability or market value of the property or its features; and
   (k) the End User should undertake its own inspections of the Land or Property to satisfy itself that there are no defects or failures
2. The End User may not make the Report or any copies or extracts of the report or any part of it available to any other person. If End User wishes to provide the Report to any other person or make extracts or copies of the Report, it must contact the purchaser of the Report before doing so to ensure the proposed use is consistent with the contract terms between Lotsearch and the purchaser.
3. Neither Lotsearch (nor any of its officers, employees or agents) nor any of its Third Party Content Suppliers will have any liability to End User or any person to whom End User provides the Report and End User must not represent that Lotsearch or any of its Third Party Content Suppliers accepts liability to any such person or make any other representation to any such person on behalf of Lotsearch or any Third Party Content Supplier.
4. The End User hereby to the maximum extent permitted by law:
   (a) acknowledges that the Lotsearch (nor any of its officers, employees or agents), nor any

of its Third Party Content Supplier have any liability to it under or in connection with the Report or these Terms;

(b) waives any right it may have to claim against Third Party Content Supplier in connection with the Report, or the negotiation of, entry into, performance of, or termination of these Terms; and

(c) releases each Third Party Content Supplier from any claim it may have otherwise had in connection with the Report, or the negotiation of, entry into, performance of, or termination of these Terms.

5. The End User acknowledges that any Third Party Supplier shall be entitled to plead the benefits conferred on it under clause 4, despite not being a party to these terms.
6. End User must not remove any copyright notices, trade marks, digital rights management information, other embedded information, disclaimers or limitations from the Report or authorise any person to do so.
7. End User acknowledges and agrees that Lotsearch and Third Party Content Suppliers retain ownership of all copyright, patent, design right (registered or unregistered), trade marks (registered or unregistered), database right or other data right, moral right or know how or any other intellectual property right in any Report or any other item, information or data included in or provided as part of a Report.
8. To the extent permitted by law and subject to paragraph 9, all implied terms, representations and warranties whether statutory or otherwise relating to the subject matter of these Terms other than as expressly set out in these Terms are excluded.
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11. Subject to paragraph 9, neither Lotsearch nor the End User is liable to the other for:
    (a) any indirect, incidental, consequential, special or exemplary damages arising out of or in relation to the Report or these Terms; or
    (b) any loss of profit, loss of revenue, loss of interest, loss of data, loss of goodwill or loss of business opportunities, business interruption arising directly or indirectly out of or in relation to the Report or these Terms,

    irrespective of how that liability arises including in contract or tort, liability under indemnity or for any other common law, equitable or statutory cause of action or otherwise.
12. These Terms are subject to New South Wales law.

APPENDIX IV

COUNCIL RECORDS

☰ Menu

Application Search

Council's Application Search can be used to track the progress of applications currently under assessment by Council (Development Application or a Complying Development Certificate), to view past development approvals against a property, or to make a submission on a Development Application.

Enter Application Number (e.g. DA2019/0123) or Property Address

17 applications found

IOC2019/0147
Application Type: Principal Certifying Authority
Interim Occupation Certificate - Construction of a residential aged care facility containing 130 sole occupancy high care rooms, subdivision and associated civil works, and the extension of a public road (Lorikeet Grove) - 19/124286-4
Status: Completed
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

CC2019/0842
Application Type: Construction Certificate
Private - CC4: New Build 130 Bed aged care and extension of a public road along with associated civil works along Warriewood Road - 18/124286-3(MOD)
Status: Completed
Determined: 12/08/2019
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

BD2019/00981
Application Type: Bonds
Security - Construction Excavation and Associated Works - (Road and Drainage damage bond)
Status:
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

BD2019/00980
Application Type: Bonds
Security - Builders Kerb Security Bond
Status:
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

Mod2019/0171
Application Type: Section 455 Modifications
Section 455 (1a) Minor Environmental Impact - Modification of development consent N0611/16 granted for the construction of a residential aged care facility, subdivision and associated civil works and the extension of a public road (Lorikeet Grove)
Status: Approved
Determined: 18/07/2019 (Council Staff)
Address: 27 Warriewood Road WARRIEWOOD NSW 2102
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
Address: 23 Warriewood Road WARRIEWOOD NSW 2102
[More]

CC2018/1422
Application Type: Construction Certificate
Private - CC3: New Build 130 bed aged care and extension of a public road along with associated civil works along warriewood road - 18/124286-3
Status: Completed
Determined: 19/11/2018
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

DA2018/1826
Application Type: Development Application
New - Construction of a mixed residential development, comprising residential flat buildings, semi-detached dwellings and dwelling houses, with associated internal road, site works, landscaping and

community title subdivision
Status: Approved
Determined: 18/06/2019 (Sydney North Planning Panel)
Address: 27 Warriewood Road WARRIEWOOD NSW 2102
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

CC2018/0852
Application Type: Construction Certificate
Private - CC2: Construction of a residential aged care facility containing 130 sole occupancy high care rooms, subdivision and associated civil works, and the extension of a public road (Lorikeet Grove) Stage 2 - Balance of structure - 18/124286-2
Status: Completed
Determined: 13/07/2018
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

NOC2018/1042
Application Type: Principal Certifying Authority
Notification Of Commencement - Construction of a residential aged care facility containing 130 sole occupancy high care rooms, subdivision and associated civil works, and the extension of a public road (Lorikeet Grove) STAGE 2 - Balance of structure - 18/124286-2
Status: Completed
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

CC2018/0390
Application Type: Construction Certificate
Private - CC1: Construction of a residential aged care facility containing 130 sole occupancy high care rooms, subdivision and associated civil works, and the extension of a public road (Lorikeet Grove) - Stage 1: Bulk excavation, footings, in-gound services, slab on ground, ground floor structural walls - 18/124286-1
Status: Completed
Determined: 16/03/2018
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

NOC2018/0487
Application Type: Principal Certifying Authority

Notification Of Commencement - Construction of a residential aged care facility containing 130 sole occupancy high care rooms, subdivision and associated civil works, and the extension of a public road (Lorikeet Grove) - Stage 1: Bulk excavation, footings, in-gound services, slab on ground, ground floor structural walls - 18/124286-1
Status: Completed
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

N0460/17
Application Type: Development Application
Miscellaneous DA (Converted) - Construction of a three (3) storey residential flat building of 32 residential apartments with 83 basement parking spaces and a three (3) storey multi-dwelling housing development of 12 dwellings with associated parking spaces.
Status: Withdrawn
Determined: 30/01/2018 (Council Staff)
Address: 27 Warriewood Road WARRIEWOOD NSW 2102
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
Address: 23 Warriewood Road WARRIEWOOD NSW 2102
[More]

N0611/16
Application Type: Development Application
New - Construction of a residential aged care facility containing 130 sole occupancy high care rooms, subdivision and associated civil works, and the extension of a public road (Lorikeet Grove)
Status: Approved
Determined: 13/07/2017 (Sydney North Planning Panel)
Address: 27 Warriewood Road WARRIEWOOD NSW 2102
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
Address: 23 Warriewood Road WARRIEWOOD NSW 2102
[More]

PP0003/13
Application Type: Public Exhibition Document
Planning Proposal - Planning Proposal to increase residential densities
Status: LEP Made
Address: 41 Warriewood Road WARRIEWOOD NSW 2102
Address: 27 Warriewood Road WARRIEWOOD NSW 2102

Address: 49 Warriewood Road WARRIEWOOD NSW 2102
Address: 23 Warriewood Road WARRIEWOOD NSW 2102
Address: 45 Warriewood Road WARRIEWOOD NSW 2102
Address: 2 Macpherson Street WARRIEWOOD NSW 2102
Address: 31 Warriewood Road WARRIEWOOD NSW 2102
Address: 29 Warriewood Road WARRIEWOOD NSW 2102
Address: 165 - 167 Warriewood Road WARRIEWOOD NSW 2102
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
Address: 43 Warriewood Road WARRIEWOOD NSW 2102
Address: 53 Warriewood Road WARRIEWOOD NSW 2102
Address: 53 A Warriewood Road WARRIEWOOD NSW 2102
Address: 53 B Warriewood Road WARRIEWOOD NSW 2102
Address: 53 C Warriewood Road WARRIEWOOD NSW 2102
[More]

PP0002/13
Application Type: Public Exhibition Document
Planning Proposal - to increase residential densities
Status: Refused
Address: 18 Macpherson Street WARRIEWOOD NSW 2102
Address: 27 Warriewood Road WARRIEWOOD NSW 2102
Address: 23 Warriewood Road WARRIEWOOD NSW 2102
Address: 2 Macpherson Street WARRIEWOOD NSW 2102
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

N0525/00
Application Type: Development Application
Miscellaneous DA (Converted) - storage of a site shed, toilet, vehicles and a small amount of landscape materials
Status: Refused
Determined: 10/08/2000
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

N0570/99
Application Type: Development Application
Subdivision - a subdivision of 8 existing lots into 11 lots for future industrial use; 1 lot for open space and 1 lot for future residential development. No access to Warriewood Road is proposed
Status: Refused
Determined: 01/06/2000

Address: 4 Macpherson Street WARRIEWOOD NSW 2102
Address: 27 Warriewood Road WARRIEWOOD NSW 2102
Address: 23 Warriewood Road WARRIEWOOD NSW 2102
Address: 2 Macpherson Street WARRIEWOOD NSW 2102
Address: 6 Macpherson Street WARRIEWOOD NSW 2102
Address: 31 Warriewood Road WARRIEWOOD NSW 2102
Address: 29 Warriewood Road WARRIEWOOD NSW 2102
Address: 25 Warriewood Road WARRIEWOOD NSW 2102
[More]

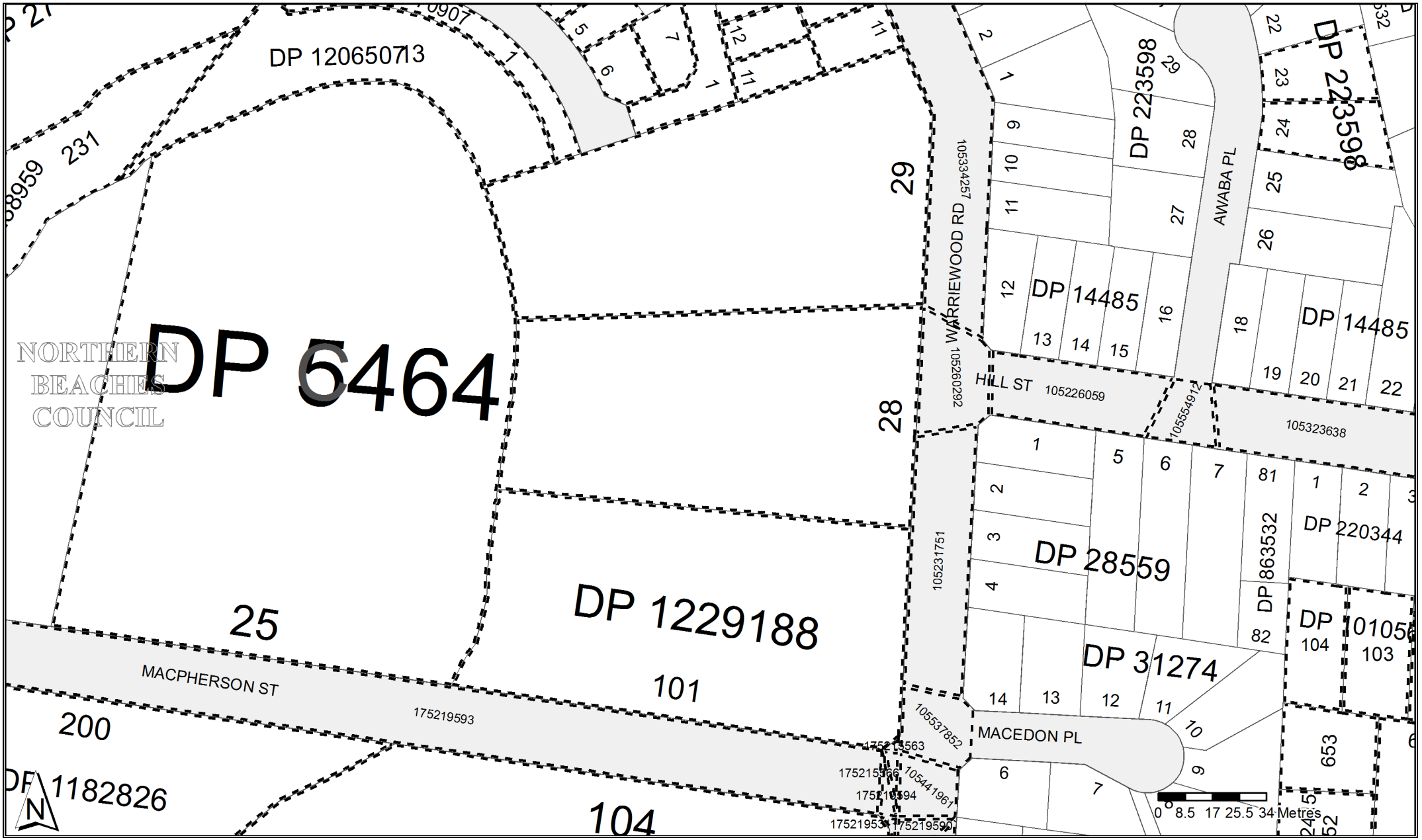
APPENDIX V

DP PLAN

Cadastral Records Enquiry Report : Lot 28 Section C DP 5464

Ref : NOUSER

Locality : WARRIEWOOD
Parish : NARRABEEN
LGA : NORTHERN BEACHES
County : CUMBERLAND



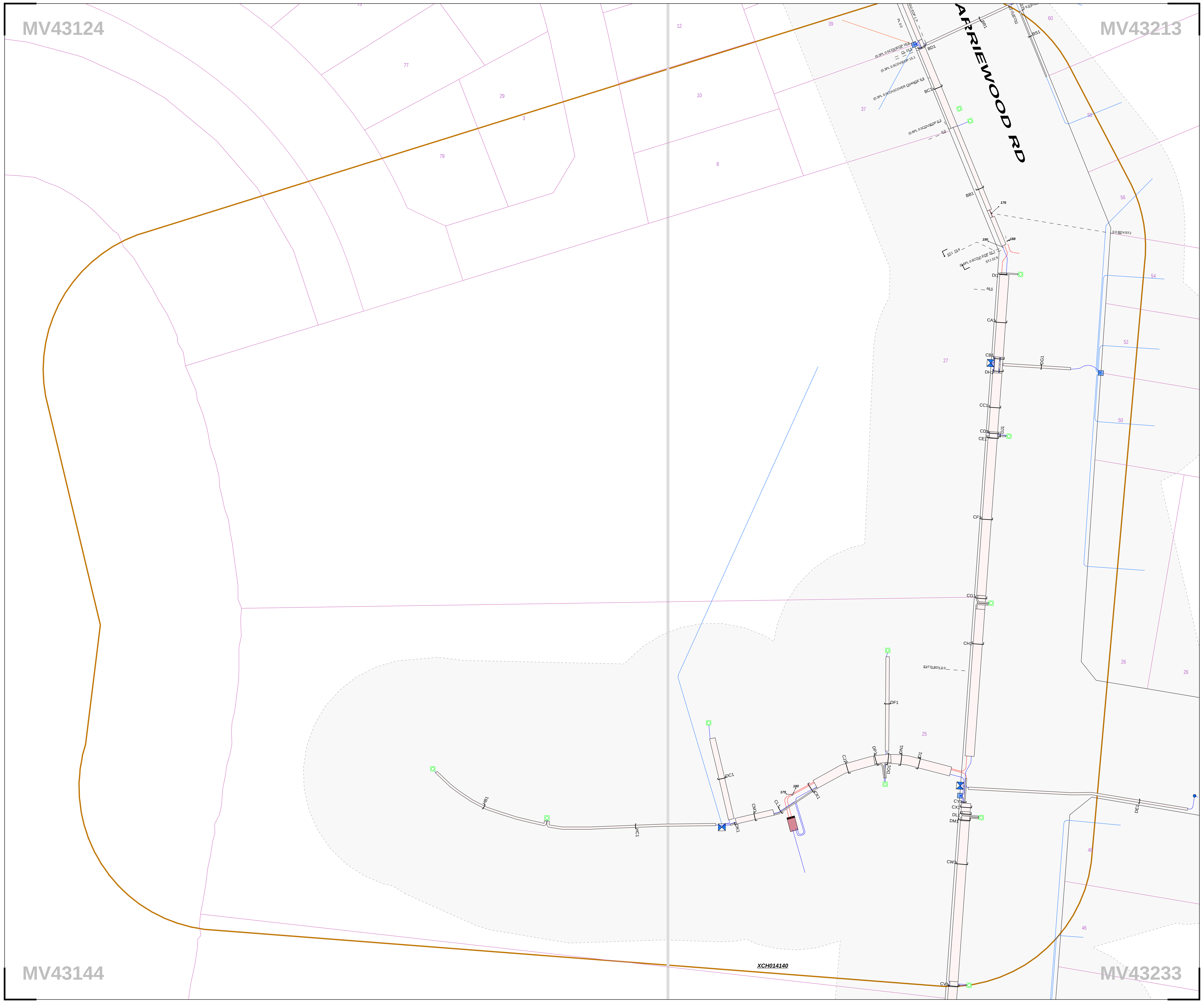
11356.01a.PSCA

This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

APPENDIX VI

BELOW GROUND UTILITIES SEARCH

1	2
MV431 - HB1 2x150 PVC GPS --- 0.5 Ref: F6	MV431 - HC1 2x150 PVC GPS --- 0.5 Ref: F7
MV432 - BB1 4x150 PVC 0.6 --- 0.5-0.6 Ref: B9	MV432 - BC1 TSB 4x150 PVC 2x50 PVC 0.3-0.6 ----- 0.5 Ref: A9
MV432 - BD1 3x150 PVC 0.3 --- 0.5 Ref: A9	MV432 - BR1 2x150 PVC NA --- 0.5-0.6 Ref: A9
MV432 - BS1 1x150 PVC 0.5 --- 0.7 Ref: A9	MV432 - CA1 TSB 5x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.7-0.8 Ref: C9
MV432 - CB1 5x150 PVC 1x63 PVC GPS --- 0.7 Ref: C9	MV432 - CC1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.7 Ref: C9
MV432 - CD1 TSB 6x150 PVC 1x63 PVC GPS --- 0.7 Ref: C9	MV432 - CE1 TSB 6x150 PVC 1x63 PVC 1x50 PVC GPS --- 0.7 Ref: C9
MV432 - CF1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.7 Ref: D9	MV432 - CG1 TSB 6x150 PVC 1x63 PVC 1x50 PVC GPS --- 0.7 Ref: D9
MV432 - CH1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.7 Ref: E9	MV432 - CI1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.8 Ref: E8



JOINT DETAIL REPORT

Map: MV432

No.	Bk-Pg	Pl/Cvr	Joint Location
176	SN19-0191	19.10/1.20	0.0 N OF 54 WARRIEWOOD RD EXTD N BDY
179	SC12691-0003+...	/0.80	AS PER GPS
180	SC12691-0003+...	/0.80	AS PER GPS
188	SN19-0191		NO RECORD
190	SN19-0239	0.80/0.60	73.9 N OF 27 WARRIEWOOD RD EXTD S BDY

WARNING

Ausgrid's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of Ausgrid assets in the street.
Persons working near electricity networks must exercise care and will be held responsible for any damage caused.
You must excavate by hand or use vacuum excavation to establish the location of Ausgrid underground cables and associated assets.
Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using safe work methods developed in accordance with the recommendations included in Safework NSW Code of Practice for Excavation and Safework NSW Guide for Work Near Underground Assets
as well as recommendations of Ausgrid's Network Standard NS156.
Overhead: Do not excavate near poles or towers until the stability of the foundation has been assessed by Ausgrid. Cables or earth conductors may be present close to substations, poles or towers.
Workers must maintain safe approach distances and follow applicable Safework NSW Codes of Practice.
NOTE: 1. You must keep Ausgrid plans on site during excavation works. If the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret the plans. 2. This information includes data from the NSW Digital Cadastral Database by Land and Property Information (c) 2016, used under Creative Commons licence version 4.0.

N

ISG GRID

MV43123	MV43124	MV43213
MV43141	MV43142	MV43231
MV43143	MV43144	MV43233

GMLA0

Distribution - 97314005

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

5 May 2020

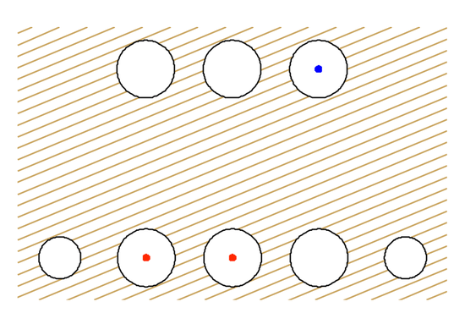
Page 1 of 2

1:278

0 — **17 metres**

11	12
MV432 - CJ1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.8 Ref: E8	MV432 - CK1 1x50 PVC GPS --- 0.7-0.8 Ref: F8
MV432 - CL1 1x50 PVC GPS --- 0.7-0.8 Ref: F8	MV432 - CM1 4x150 PVC 1x50 PVC GPS --- 0.7 Ref: F7
MV432 - CW1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.8 Ref: F9	MV432 - CX1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.8 Ref: F9
MV432 - CY1 1x150 PVC GPS --- 0.8 Ref: F9	MV432 - DC1 4x150 PVC 1x50 PVC GPS --- 0.8 Ref: F7
MV432 - DF1 2x50 PVC 1x150 PVC GPS --- 0.8 Ref: E8	MV432 - DG1 2x150 PVC GPS --- 0.8 Ref: C9
MV432 - DH1 5x150 PVC 1x63 PVC GPS --- 0.8 Ref: C9	MV432 - DI1 1x50 PVC GPS --- 0.6-0.7 Ref: B9
MV432 - DJ1 1x50 PVC NA --- 0.7 Ref: C9	MV432 - DK1 1x50 PVC NA --- 0.7 Ref: F7
MV432 - DL1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.8 Ref: F9	MV432 - DM1 TSB 6x150 PVC 1x50 PVC 1x63 PVC GPS --- 0.8 Ref: F9

MV432 - DN1

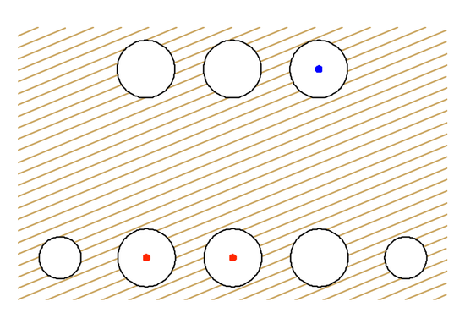


6x150 PVC
1x50 PVC
1x63 PVC
GPS

0.8

Ref: E8

MV432 - DO1



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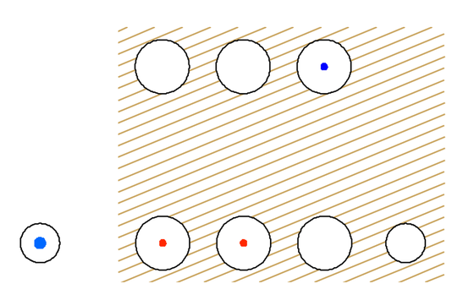
1x63 PVC
GPS

0.8

Ref: E8

MV432 - DP1



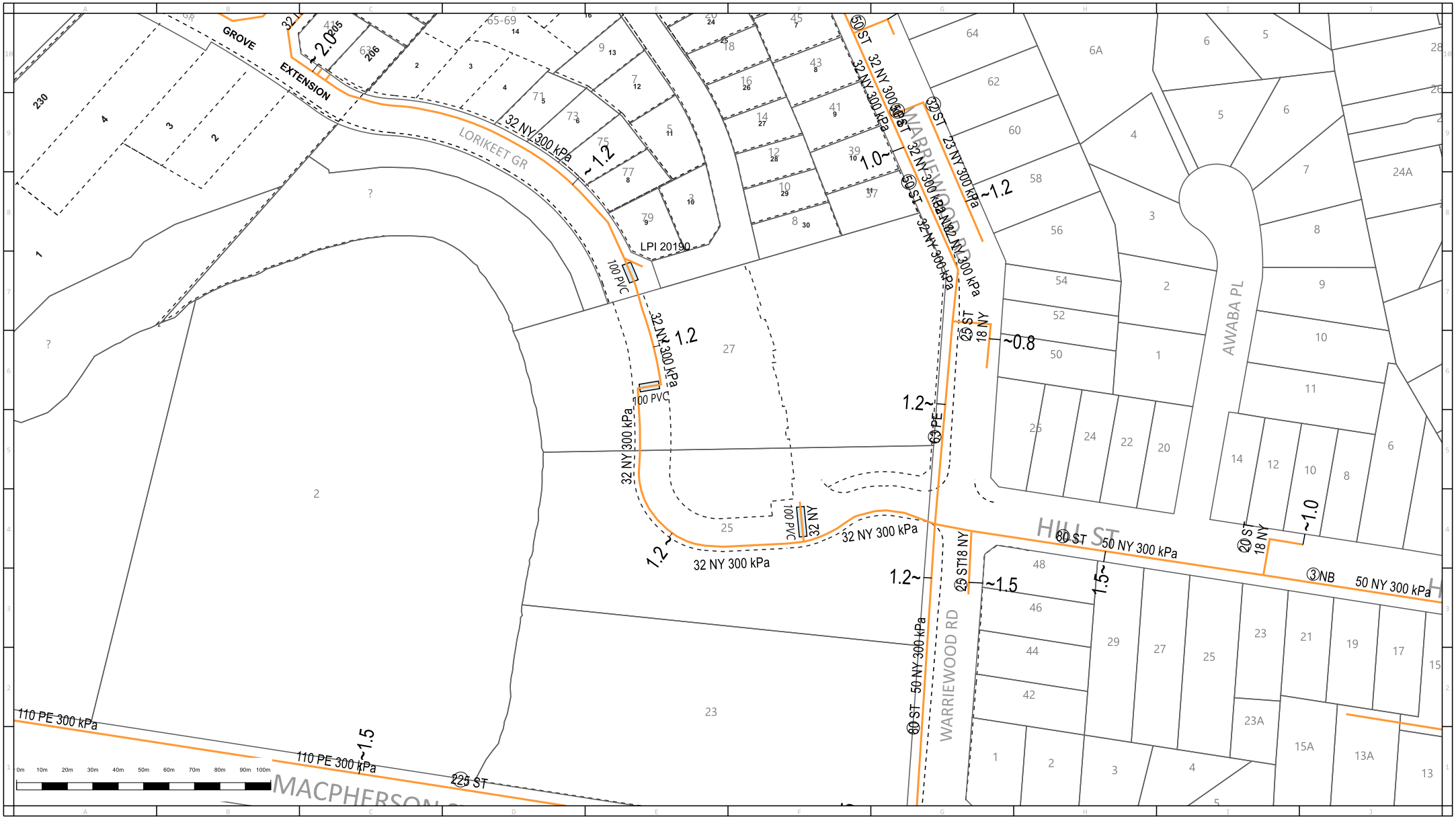
6x150 PVC
1x50 PVC
1x63 PVC
GPS

0.8

Ref: E8

WARNING: REFER TO DISCLAIMER ON PAGE 1

DBYD Authority: Jemena Gas Networks (NSW) **DBYD Location:** 25 Warriewood Road Warriewood NSW, 2102



Jemena
ABN 87 003 004 322

Main	In Service	Proposed
Unknown Pressure		
Distribution - 2 kPa		
Distribution - 7 kPa		
Distribution - 30 kPa		
Distribution - 100 kPa		
Distribution - 210 kPa		
Distribution - 300 kPa		
Distribution - 400 kPa		

Main	
Proposed Isolate (coloured according to kPa)	
Isolated Service	
Conduit or Casing	100 PVC
Size & Material (PL - Plastic, PVC, PE, NY, ST)	

High Pressure Main & Pipeline	In Service	Proposed
Critical Main (Treat as High Pressure Main)		
Secondary Network - 1050 kPa		
Isolated Steel Main (Treat as High Pressure Main)		
Primary - 3500 kPa		
JGN Trunk - 7000 kPa		
Transmission		

Fittings, Valves & Regulators	
Siphon	
Valve	
Regulator Set	
Regulator Station	
Automatic Line Break Valve	

Distance in metres of Main from Boundary Line ~1.5
MBK = Metres Back of Kerb
MFL = Metres from Fence Line
50mm Nylon main inserted in 6 inch (Nominal Bore) Cast Iron Main ⑥NB 50MM NY
32mm Nylon main inserted into 50mm Steel Main ⑤0MM 32MM NY

N W E S

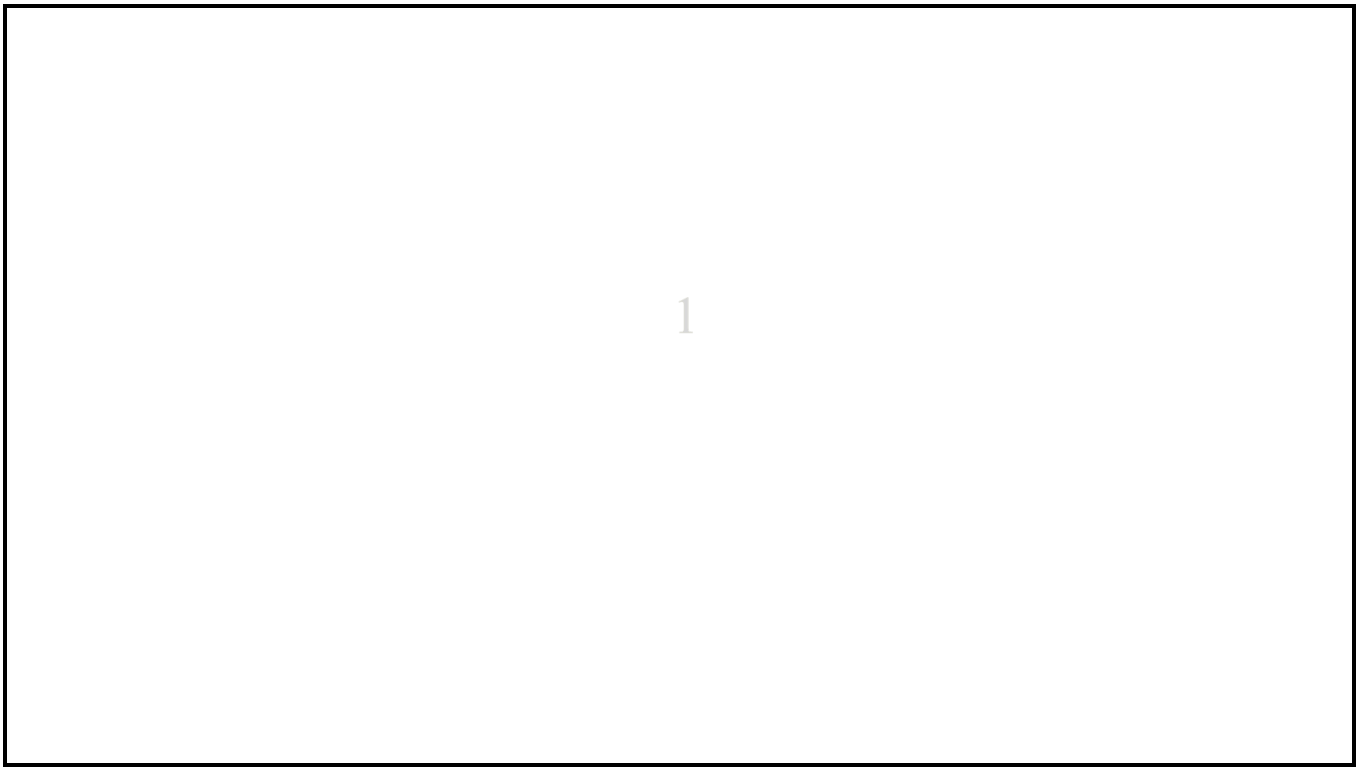
Scale: 1:2000

Issue Date: 05/05/2020
DBYD Seq No: 97314008
DBYD Job No: 19471858

WARNING: This plan is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake the proposed scope of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

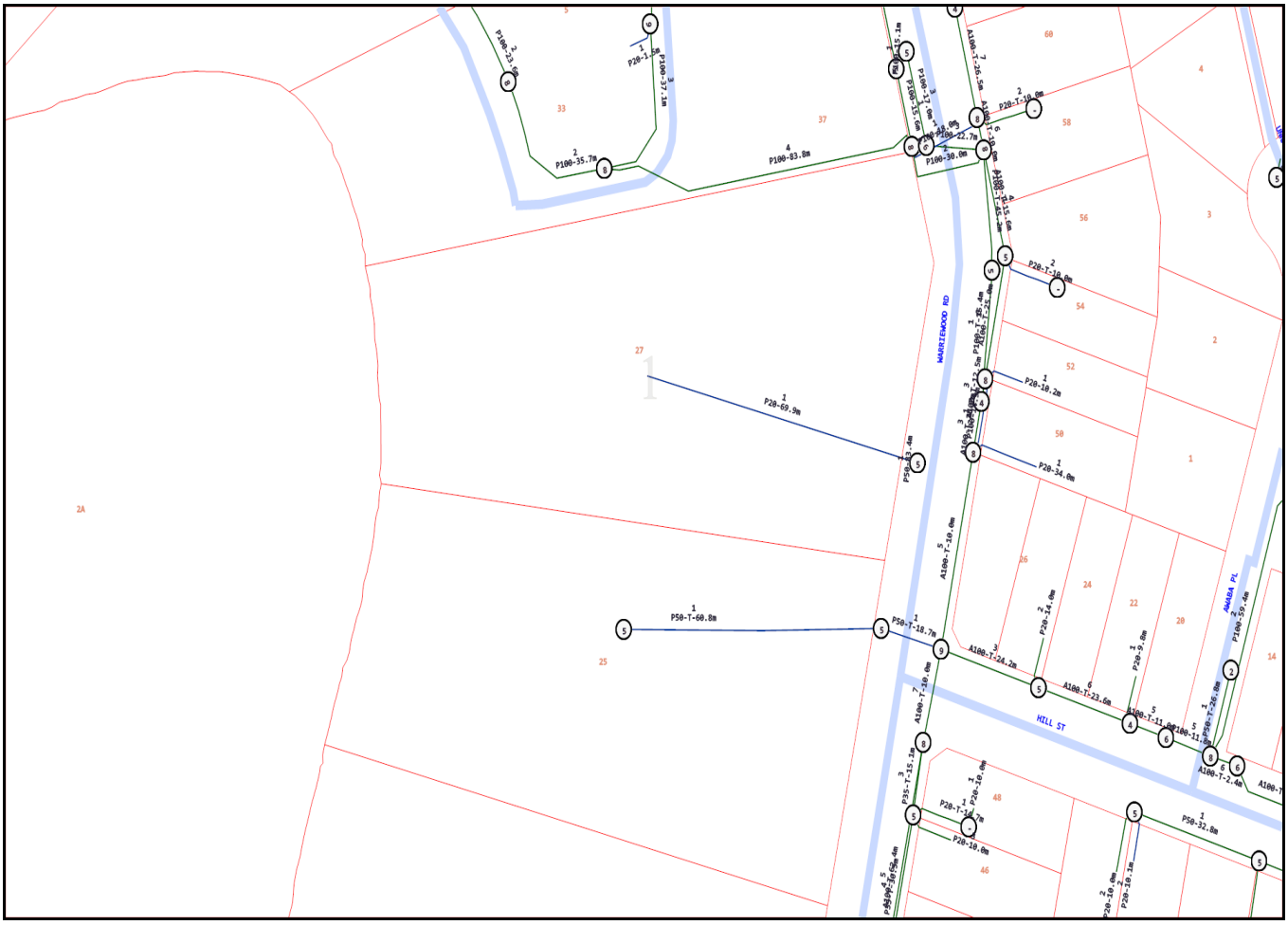
Indicative Plans

Issue Date:	04/05/2020
Location:	25 Warriewood Road , Warriewood , NSW , 2102



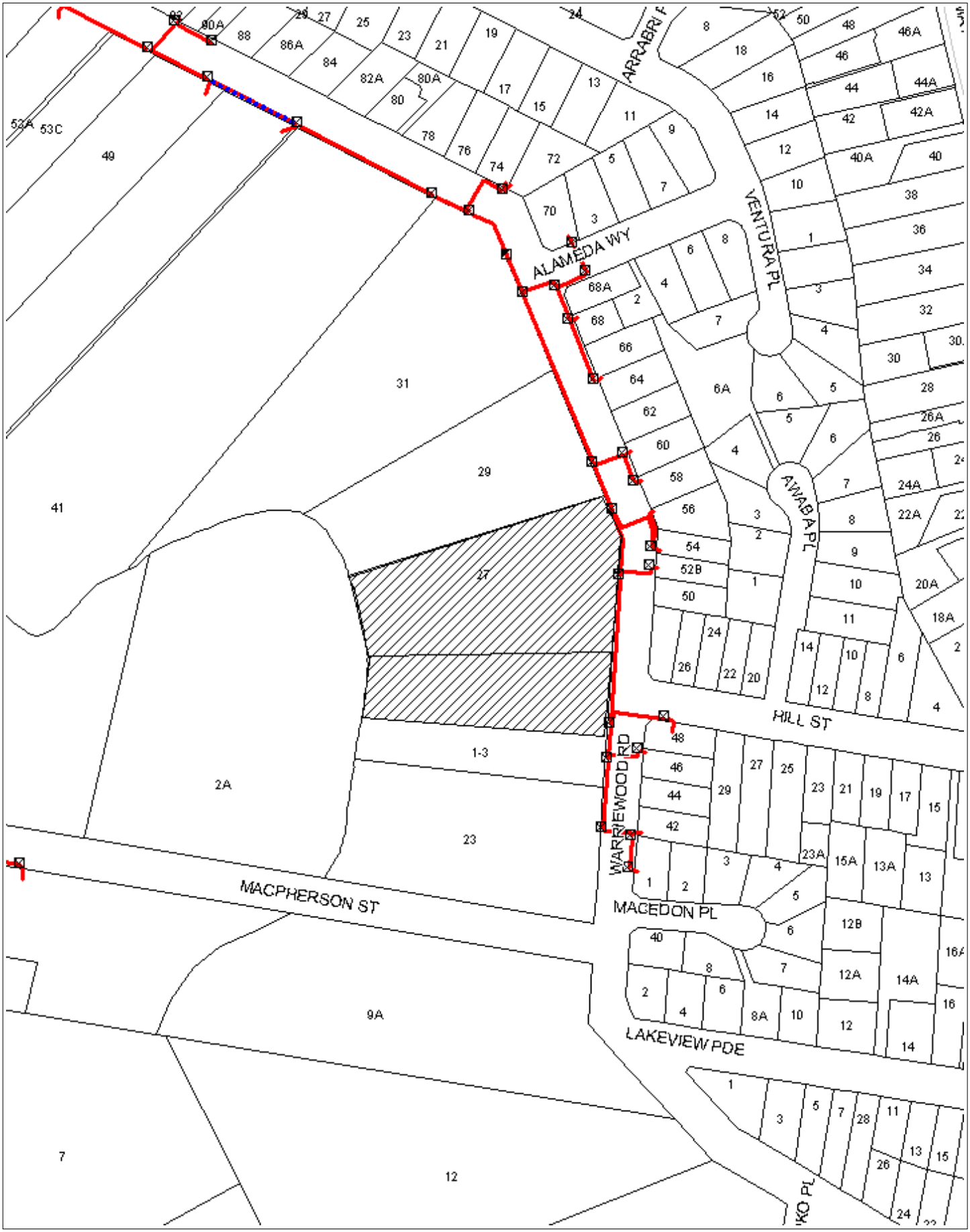
LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m



Emergency Contacts

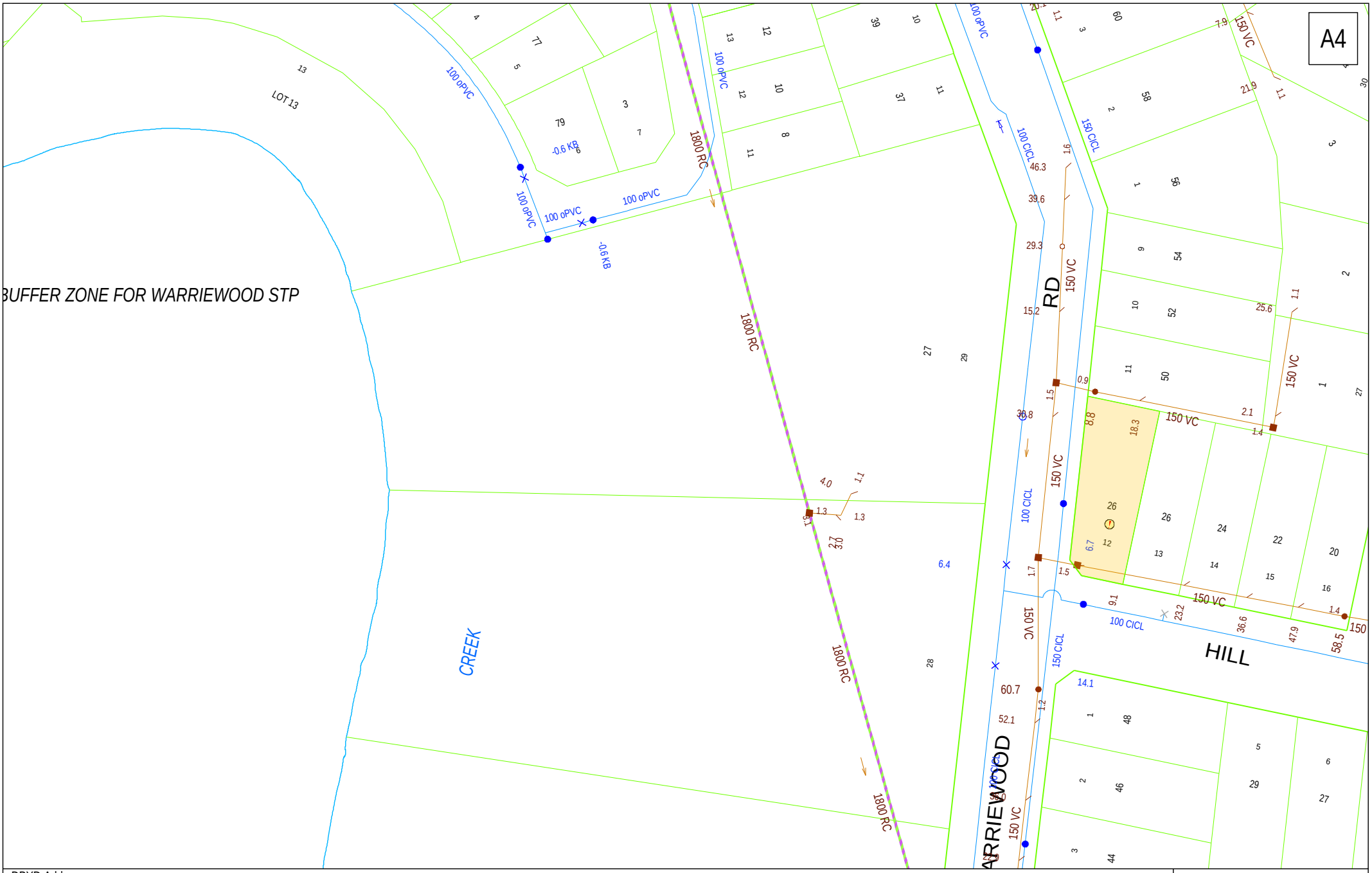
You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.



Sequence Number: 97314007

Date Generated: 05/05/2020

For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208



DBYD Address:
25 Warriewood Road
Warriewood NSW 2102

DBYD Job No: 19471858

DBYD Sequence No: 97314009

11356.01a.PSCA

No warranty is given that the information shown is complete or accurate.

SYDNEY WATER CORPORATION

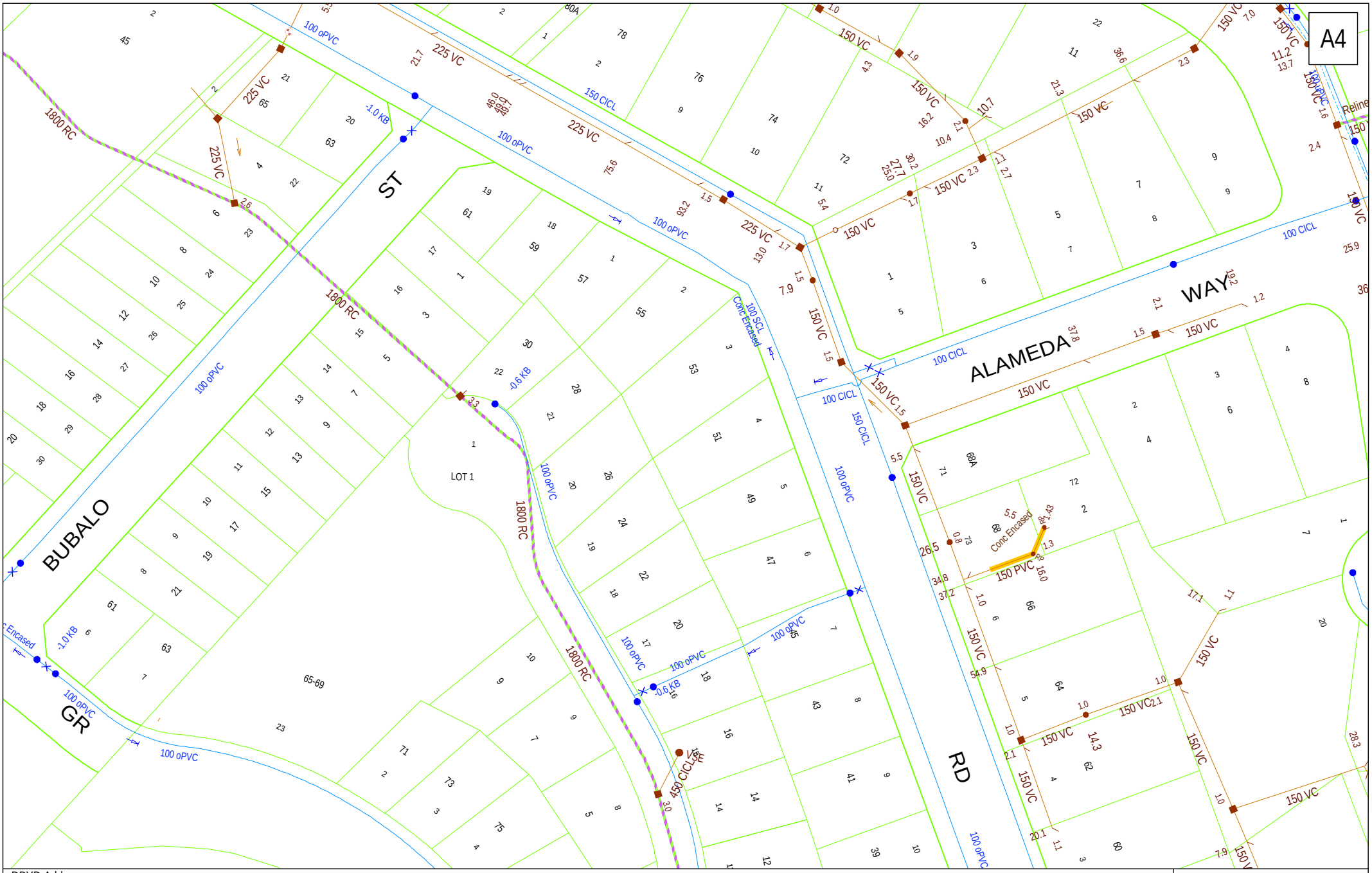
Scale: 1:1000

Date of Production: 05/05/2020

Plan 1 of 2

N

0m 5m 10m 15m 20m



DBYD Address:
25 Warriewood Road
Warriewood NSW 2102

DBYD Job No: 19471858

DBYD Sequence No: 97314009

11356.01a.PSCA

SYDNEY WATER CORPORATION

Scale: 1:1000

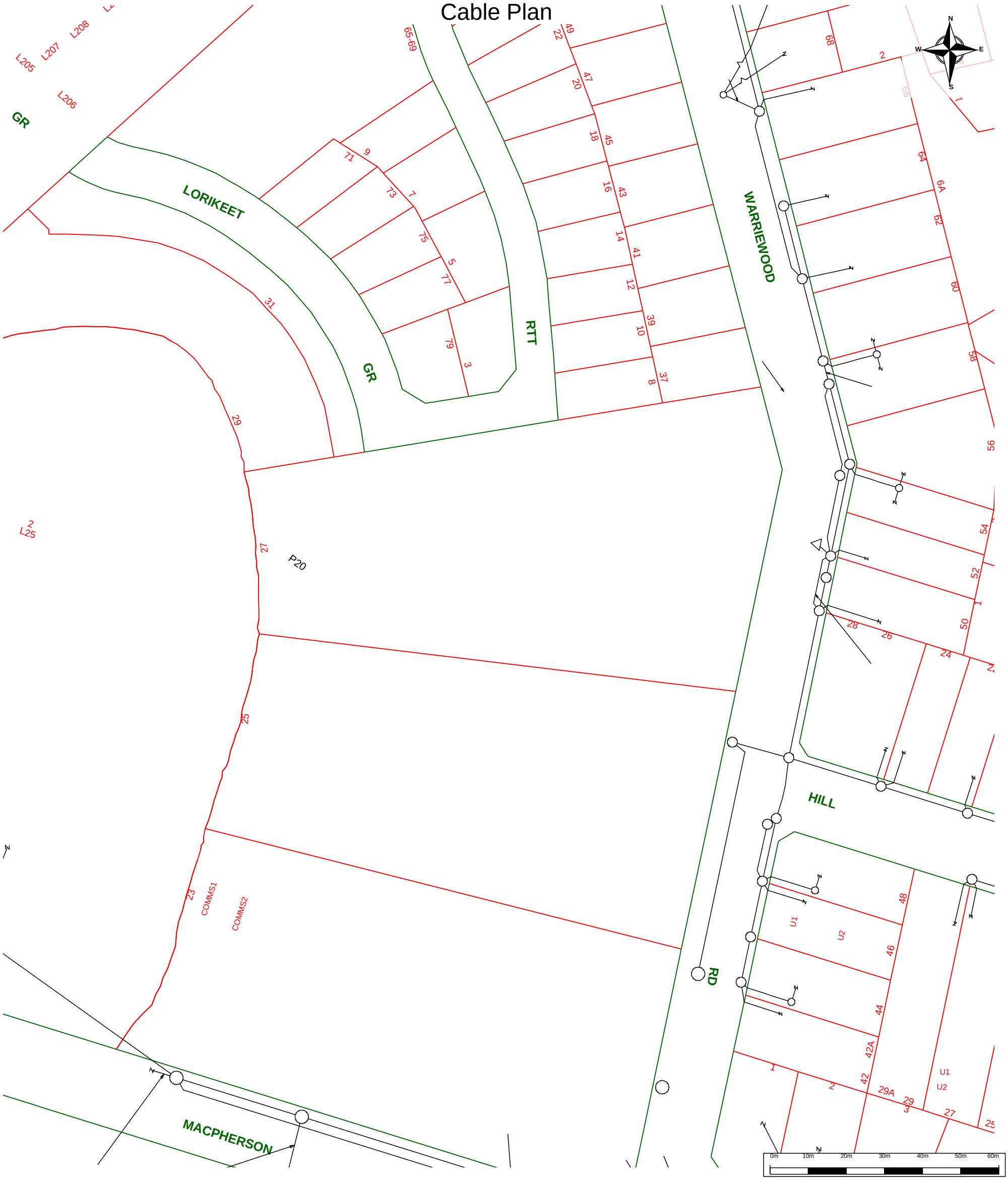
Date of Production: 05/05/2020

Plan 2 of 2

N

0m 5m 10m 15m 20m

Cable Plan



Telstra

For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 05/05/2020 08:30:52

Sequence Number: 97314006

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

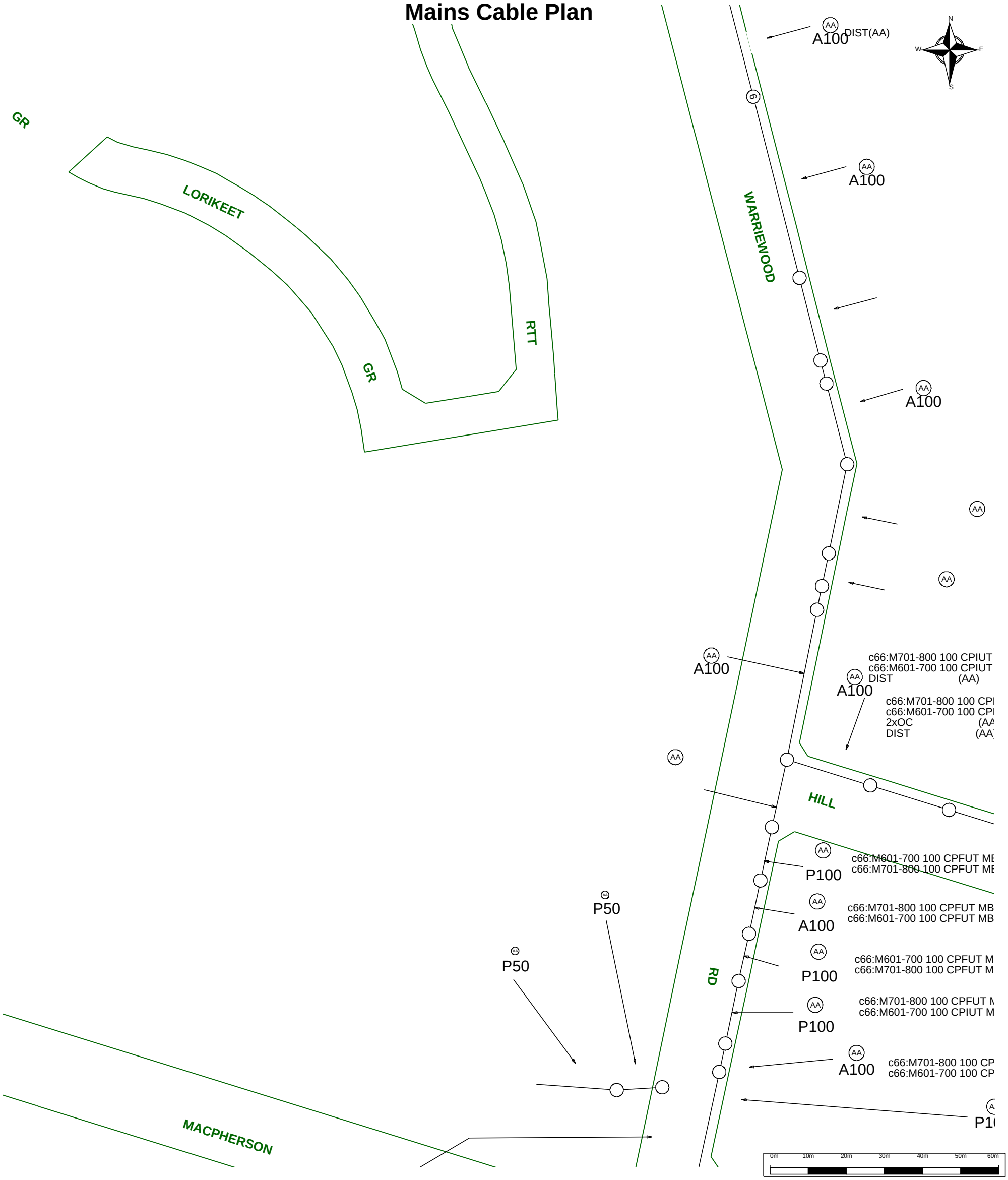
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Mains Cable Plan



Telstra

For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

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Sequence Number: 97314006

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

APPENDIX VII

ANALYSIS RESULTS

METALS				Sample Number	11356/S1	11356/S2	11356/S3	11356/S4	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19	11356/S20
				Sample Location	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
				Sample Depth from Surface (m)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANALYTE	NEPM HIL	NEPM EIL	Units	PQL																				
Arsenic	100	100	mg/kg	4	7	<4	7	4	<4	<4	<4	<4	5	<4	<4	<4	4	<4	<4	<4	<4	4	4	<4
Cadmium	20	-	mg/kg	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	100	410	mg/kg	1	22	6	6	10	5	10	11	11	8	20	13	15	6	10	13	12	10	12	11	11
Copper	6000	230	mg/kg	1	33	10	15	16	9	11	15	13	12	15	25	21	10	8	13	12	4	5	8	10
Lead	300	1100	mg/kg	1	36	11	19	46	7	13	16	120	18	17	14	18	17	13	17	12	10	15	13	18
Mercury	40	-	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	400	310	mg/kg	1	7	3	3	4	3	5	6	7	3	9	10	11	2	5	8	6	2	2	4	6
Zinc	7400	880	mg/kg	1	73	31	70	48	15	23	32	35	34	34	41	52	32	20	77	34	16	21	23	40

TRH/BTEX				Sample Number	11356/S1	11356/S2	11356/S3	11356/S4	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19	11356/S20
				Sample Location	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
Sample Depth from Surface (m)	<1m				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil Type	Sand				Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
ANALYTE	NEPM HSL	NEPM ESL	Units	PQL																				
TRH C6 - C9	-	-	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
TRH C6 - C10	-	-	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
vTPH C6 - C10 less BTEX (F1)	45	180	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Benzene	0.5	50	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	160	85	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	55	70	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	-	-	mg/kg	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-Xylene	-	-	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
naphthalene	3	170	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total +ve Xylenes	40	105	mg/kg	3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
TRH C10 - C14	-		mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH C15 - C28	-	-	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH C29 - C36	-	-	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10-C16	-	-	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C10 - C16 less Naphthalene (F2)	110	120	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH>C16-C34 (F3)	4500*	300	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH>C34-C40 (F4)	6300*	2800	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	-	-	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

*Friebel, E & Nadebaum, P 2011a, HSLs for petroleum hydrocarbons in soil and groundwater, part 1: technical development document, Technical report no. 10, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

PAHs				Sample Number	11356/S1	11356/S2	11356/S3	11356/S4	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19	11356/S20
				Sample Location	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
Sample Depth from Surface (m)					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil Type					Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
ANALYTE	NEPM HIL	NEPM EIL	Units	PQL																				
Naphthalene	-	170	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	-	-	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	-	-	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	-	-	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	-	-	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	3.9	0.1	0.2	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	-	-	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	-	-	mg/kg	0.1	0.7	<0.1	<0.1	0.1	0.2	0.2	0.3	0.6	0.2	6.3	0.3	0.5	<0.1	0.1	0.3	0.2	<0.1	<0.1	0.2	0.2
Pyrene	-	-	mg/kg	0.1	0.8	<0.1	<0.1	0.1	0.3	0.2	0.3	0.6	0.2	5.2	0.3	0.6	<0.1	0.1	0.3	0.2	<0.1	<0.1	0.2	0.2
Benzo(a)anthracene	-	-	mg/kg	0.1	0.5	<0.1	<0.1	<0.1	0.2	0.2	0.2	0.3	0.2	2.8	0.2	0.5	<0.1	<0.1	0.2	0.2	<0.1	<0.1	0.2	0.2
Chrysene	-	-	mg/kg	0.1	0.6	<0.1	<0.1	<0.1	0.2	0.2	0.2	0.3	0.2	2.3	0.2	0.5	<0.1	<0.1	0.2	0.2	<0.1	<0.1	0.2	0.2
Benzo(b,j+k)fluoranthene	-	-	mg/kg	0.2	1	<0.2	<0.2	<0.2	0.4	0.4	0.3	0.4	0.4	3.8	0.3	0.9	<0.2	0.2	0.4	0.4	<0.2	<0.2	0.4	0.3
Benzo(a)pyrene	-	30*	mg/kg	0.05	0.66	<0.05	<0.05	0.09	0.3	0.3	0.2	0.2	0.2	2.3	0.2	0.54	0.06	0.1	0.2	0.2	<0.05	<0.05	0.3	0.2
Indeno(1,2,3-c,d)pyrene	-	-	mg/kg	0.1	0.4	<0.1	<0.1	<0.1	0.2	0.2	<0.1	0.1	0.2	1.3	<0.1	0.3	<0.1	<0.1	0.2	0.1	<0.1	<0.1	0.2	0.1
Dibenzo(a,h)anthracene	-	-	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	-	-	mg/kg	0.1	0.6	<0.1	<0.1	<0.1	0.2	0.2	0.2	0.2	0.2	1.7	0.1	0.4	<0.1	0.1	0.2	0.2	<0.1	<0.1	0.3	0.2
Total +ve PAH's	300	-	mg/kg	0.05	5.9	<0.05	<0.05	0.4	2	1.9	1.6	3	1.8	31	1.7	4.4	0.06	0.68	2.3	1.6	<0.05	<0.05	1.9	1.6
Benzo(a)pyrene TEQ calc (zero)	3	-	mg/kg	0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**3.4**	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	3	-	mg/kg	0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**3.4**	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	3	-	mg/kg	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**3.4**	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

*Urban Residential and Public Open Space from Table 11 of *CRC CARE Technical Report No. 39 Risk-based remediation and management guidance for benzo(a)pyrene (March 2017)*.

OCP				Sample Number	11356/S1	11356/S2	11356/S3	11356/S4	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19	11356/S20
				Sample Location	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
				Sample Depth from Surface (m)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANALYTE	NEPM HIL	NEPM EIL	Units	PQL																				
alpha-BHC	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
HCB	10	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
beta-BHC	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
gamma-BHC	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Heptachlor	6	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
delta-BHC	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Aldrin	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Heptachlor Epoxide	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
gamma-Chlordane	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
alpha-chlordane	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Endosulfan I	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
pp-DDE	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Dieldrin	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Endrin	10	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Endosulfan II	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
pp-DDD	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Endrin Aldehyde	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
pp-DDT	-	180	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Endosulfan Sulphate	-	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Methoxychlor	300	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
DDT+DDD+DDE	240	-	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
Aldrin and Dieldrin	6	-	mg/kg	0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2
Total Chlordane	50	-	mg/kg	0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2
Total Endosulfan	270	-	mg/kg	0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3
Total Endrin	10	-	mg/kg	0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2
Total Heptachlor	6	-	mg/kg	0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2

PCBs			Sample Number	11356/S1	11356/S2	11356/S3	11356/S4	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19	11356/S20
			Sample Location	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
			Sample Depth from Surface (m)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANALYTE	NEMP HIL	Units	PQL																				
Total PCBs (1016-1260)	1	mg/kg	0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1

Inputs
Select contaminant from list below
As
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Arsenic generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	40
Urban residential and open public spaces	50	100
Commercial and industrial	80	160

Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
10
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.2
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	70	140
Urban residential and open public spaces	180	410
Commercial and industrial	290	670

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
24
Enter soil pH (calcium chloride method) (values from 1 to 14)
8.2
Enter organic carbon content (%OC) (values from 0 to 50%)
0.7
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.2
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	60	90
Urban residential and open public spaces	120	230
Commercial and industrial	170	330

Inputs
Select contaminant from list below
DDT
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	DDT generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	3	3
Urban residential and open public spaces	180	180
Commercial and industrial	640	640

Inputs
Select contaminant from list below
Naphthalene
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Naphthalene generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	10	10
Urban residential and open public spaces	170	170
Commercial and industrial	370	370

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
24
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.2
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	55
Urban residential and open public spaces	100	310
Commercial and industrial	200	520

Inputs
Select contaminant from list below
Pb
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Lead generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	110	470
Urban residential and open public spaces	270	1100
Commercial and industrial	440	1800

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
24
Enter soil pH (calcium chloride method) (values from 1 to 14)
8.2
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.2
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	90	250
Urban residential and open public spaces	320	880
Commercial and industrial	500	1300

APPENDIX VIII

LABORATORY ANALYSIS REPORTS

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 242833

Client Details

Client	Getex Pty Ltd
Attention	Administration Email
Address	2.02, Building 2 Waterloo Business Park, 35 Waterloo Rd, North Ryde, NSW, 2113

Sample Details

Your Reference	**11356**
Number of Samples	21 Soil
Date samples received	14/05/2020
Date completed instructions received	14/05/2020

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	21/05/2020
Date of Issue	21/05/2020

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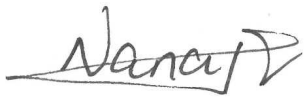
Results Approved By
Diego Bigolin, Team Leader, Inorganics
Dragana Tomas, Senior Chemist
Hannah Nguyen, Senior Chemist
Josh Williams, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		242833-1	242833-2	242833-3	242833-4	242833-5
Your Reference	UNITS	11356/S1	11356/S1a	11356/S2	11356/S3	11356/S4
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	19/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	20/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	85	110	103	96	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		242833-6	242833-7	242833-8	242833-9	242833-10
Your Reference	UNITS	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	16/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	86	82	79	97	97

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		242833-11	242833-12	242833-13	242833-14	242833-15
Your Reference	UNITS	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	16/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	107	85	107	100	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		242833-16	242833-17	242833-18	242833-19	242833-20
Your Reference	UNITS	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	16/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	104	117	73	72	82

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		242833-21
Your Reference	UNITS	11356/S20
Type of sample		Soil
Date extracted	-	15/05/2020
Date analysed	-	16/05/2020
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<3
Surrogate aaa-Trifluorotoluene	%	97

svTRH (C10-C40) in Soil						
Our Reference		242833-1	242833-2	242833-3	242833-4	242833-5
Your Reference	UNITS	11356/S1	11356/S1a	11356/S2	11356/S3	11356/S4
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	19/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	20/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	82	78	79	78

svTRH (C10-C40) in Soil						
Our Reference		242833-6	242833-7	242833-8	242833-9	242833-10
Your Reference	UNITS	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	16/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	75	78	69	79

svTRH (C10-C40) in Soil						
Our Reference		242833-11	242833-12	242833-13	242833-14	242833-15
Your Reference	UNITS	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	16/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	77	71	75	70

svTRH (C10-C40) in Soil						
Our Reference		242833-16	242833-17	242833-18	242833-19	242833-20
Your Reference	UNITS	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	16/05/2020	16/05/2020	16/05/2020	16/05/2020	16/05/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	78	79	68	78

svTRH (C10-C40) in Soil		
Our Reference		242833-21
Your Reference	UNITS	11356/S20
Type of sample		Soil
Date extracted	-	15/05/2020
Date analysed	-	16/05/2020
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	71

PAHs in Soil						
Our Reference		242833-1	242833-2	242833-3	242833-4	242833-5
Your Reference	UNITS	11356/S1	11356/S1a	11356/S2	11356/S3	11356/S4
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	19/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	20/05/2020	18/05/2020	18/05/2020	18/05/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	0.2	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.7	0.7	<0.1	<0.1	0.1
Pyrene	mg/kg	0.8	0.8	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	0.5	0.5	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.6	0.6	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	1	1	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.66	0.60	<0.05	<0.05	0.09
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	0.4	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.6	0.6	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	5.9	5.3	<0.05	<0.05	0.4
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.9	0.8	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.9	0.9	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1	0.9	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	103	93	100	97	97

PAHs in Soil						
Our Reference		242833-6	242833-7	242833-8	242833-9	242833-10
Your Reference	UNITS	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	0.2	0.3	0.6	0.2
Pyrene	mg/kg	0.3	0.2	0.3	0.6	0.2
Benzo(a)anthracene	mg/kg	0.2	0.2	0.2	0.3	0.2
Chrysene	mg/kg	0.2	0.2	0.2	0.3	0.2
Benzo(b,j+k)fluoranthene	mg/kg	0.4	0.4	0.3	0.4	0.4
Benzo(a)pyrene	mg/kg	0.3	0.3	0.2	0.2	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	0.2	<0.1	0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	0.2	0.2	0.2	0.2
Total +ve PAH's	mg/kg	2.0	1.9	1.6	3.0	1.8
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	98	98	100	100

PAHs in Soil						
Our Reference		242833-11	242833-12	242833-13	242833-14	242833-15
Your Reference	UNITS	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	3.9	0.1	0.2	<0.1	<0.1
Anthracene	mg/kg	0.9	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	6.3	0.3	0.5	<0.1	0.1
Pyrene	mg/kg	5.2	0.3	0.6	<0.1	0.1
Benzo(a)anthracene	mg/kg	2.8	0.2	0.5	<0.1	<0.1
Chrysene	mg/kg	2.3	0.2	0.5	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	3.8	0.3	0.9	<0.2	0.2
Benzo(a)pyrene	mg/kg	2.3	0.2	0.54	0.06	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	1.3	<0.1	0.3	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	1.7	0.1	0.4	<0.1	0.1
Total +ve PAH's	mg/kg	31	1.7	4.4	0.06	0.68
Benzo(a)pyrene TEQ calc (zero)	mg/kg	3.4	<0.5	0.7	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	3.4	<0.5	0.8	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	3.4	<0.5	0.8	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	98	99	100	98	101

PAHs in Soil						
Our Reference		242833-16	242833-17	242833-18	242833-19	242833-20
Your Reference	UNITS	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.3	0.2	<0.1	<0.1	0.2
Pyrene	mg/kg	0.3	0.2	<0.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	0.2	0.2	<0.1	<0.1	0.2
Chrysene	mg/kg	0.2	0.2	<0.1	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	0.4	0.4	<0.2	<0.2	0.4
Benzo(a)pyrene	mg/kg	0.2	0.2	<0.05	<0.05	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	0.1	<0.1	<0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	0.2	<0.1	<0.1	0.3
Total +ve PAH's	mg/kg	2.3	1.6	<0.05	<0.05	1.9
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	101	101	110	101

PAHs in Soil		
Our Reference		242833-21
Your Reference	UNITS	11356/S20
Type of sample		Soil
Date extracted	-	15/05/2020
Date analysed	-	18/05/2020
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	0.2
Pyrene	mg/kg	0.2
Benzo(a)anthracene	mg/kg	0.2
Chrysene	mg/kg	0.2
Benzo(b,j+k)fluoranthene	mg/kg	0.3
Benzo(a)pyrene	mg/kg	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2
Total +ve PAH's	mg/kg	1.6
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	99

Organochlorine Pesticides in soil						
Our Reference		242833-3	242833-5	242833-7	242833-9	242833-11
Your Reference	UNITS	11356/S2	11356/S4	11356/S6	11356/S8	11356/S10
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	91	94	94	94

Organochlorine Pesticides in soil						
Our Reference		242833-13	242833-15	242833-17	242833-19	242833-21
Your Reference	UNITS	11356/S12	11356/S14	11356/S16	11356/S18	11356/S20
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	97	105	93

PCBs in Soil						
Our Reference		242833-3	242833-5	242833-7	242833-9	242833-11
Your Reference	UNITS	11356/S2	11356/S4	11356/S6	11356/S8	11356/S10
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	91	94	94	94

PCBs in Soil						
Our Reference		242833-13	242833-15	242833-17	242833-19	242833-21
Your Reference	UNITS	11356/S12	11356/S14	11356/S16	11356/S18	11356/S20
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	97	105	93

Acid Extractable metals in soil						
Our Reference		242833-1	242833-2	242833-3	242833-4	242833-5
Your Reference	UNITS	11356/S1	11356/S1a	11356/S2	11356/S3	11356/S4
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Arsenic	mg/kg	7	6	<4	7	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	19	6	6	10
Copper	mg/kg	33	34	10	15	16
Lead	mg/kg	36	37	11	19	46
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	6	3	3	4
Zinc	mg/kg	73	75	31	70	48

Acid Extractable metals in soil						
Our Reference		242833-6	242833-7	242833-8	242833-9	242833-10
Your Reference	UNITS	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Arsenic	mg/kg	<4	<4	<4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	10	11	11	8
Copper	mg/kg	9	11	15	13	12
Lead	mg/kg	7	13	16	120	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	5	6	7	3
Zinc	mg/kg	15	23	32	35	34

Acid Extractable metals in soil						
Our Reference		242833-11	242833-12	242833-13	242833-14	242833-15
Your Reference	UNITS	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Arsenic	mg/kg	<4	<4	<4	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	13	15	6	10
Copper	mg/kg	15	25	21	10	8
Lead	mg/kg	17	14	18	17	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	10	11	2	5
Zinc	mg/kg	34	41	52	32	20
Iron	mg/kg	12,000	[NA]	[NA]	[NA]	[NA]

Acid Extractable metals in soil						
Our Reference		242833-16	242833-17	242833-18	242833-19	242833-20
Your Reference	UNITS	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Arsenic	mg/kg	<4	<4	<4	4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	12	10	12	11
Copper	mg/kg	13	12	4	5	8
Lead	mg/kg	17	12	10	15	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	6	2	2	4
Zinc	mg/kg	77	34	16	21	23

Acid Extractable metals in soil		
Our Reference		242833-21
Your Reference	UNITS	11356/S20
Type of sample		Soil
Date prepared	-	15/05/2020
Date analysed	-	18/05/2020
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	11
Copper	mg/kg	10
Lead	mg/kg	18
Mercury	mg/kg	<0.1
Nickel	mg/kg	6
Zinc	mg/kg	40

Moisture						
Our Reference		242833-1	242833-2	242833-3	242833-4	242833-5
Your Reference	UNITS	11356/S1	11356/S1a	11356/S2	11356/S3	11356/S4
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Moisture	%	6.7	6.7	3.1	9.4	13

Moisture						
Our Reference		242833-6	242833-7	242833-8	242833-9	242833-10
Your Reference	UNITS	11356/S5	11356/S6	11356/S7	11356/S8	11356/S9
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Moisture	%	2.9	3.7	6.2	4.9	3.5

Moisture						
Our Reference		242833-11	242833-12	242833-13	242833-14	242833-15
Your Reference	UNITS	11356/S10	11356/S11	11356/S12	11356/S13	11356/S14
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Moisture	%	6.6	7.2	4.3	7.6	3.1

Moisture						
Our Reference		242833-16	242833-17	242833-18	242833-19	242833-20
Your Reference	UNITS	11356/S15	11356/S16	11356/S17	11356/S18	11356/S19
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/05/2020	15/05/2020	15/05/2020	15/05/2020	15/05/2020
Date analysed	-	18/05/2020	18/05/2020	18/05/2020	18/05/2020	18/05/2020
Moisture	%	4.5	2.3	8.5	7.7	7.4

Moisture		
Our Reference		242833-21
Your Reference	UNITS	11356/S20
Type of sample		Soil
Date prepared	-	15/05/2020
Date analysed	-	18/05/2020
Moisture	%	8.8

CEC		
Our Reference		242833-11
Your Reference	UNITS	11356/S10
Type of sample		Soil
Date prepared	-	19/05/2020
Date analysed	-	19/05/2020
Exchangeable Ca	meq/100g	23
Exchangeable K	meq/100g	0.8
Exchangeable Mg	meq/100g	0.20
Exchangeable Na	meq/100g	0.31
Cation Exchange Capacity	meq/100g	24

Misc Inorg - Soil		
Our Reference		242833-11
Your Reference	UNITS	11356/S10
Type of sample		Soil
Date prepared	-	15/05/2020
Date analysed	-	15/05/2020
pH 1:5 soil:$CaCl_2$	pH Units	8.2
Total Organic Carbon (Walkley Black)	mg/kg	7,000

Clay 50-120g		
Our Reference		242833-11
Your Reference	UNITS	11356/S10
Type of sample		Soil
Date prepared	-	18/05/2020
Date analysed	-	19/05/2020
Clay in soils <2µm	% (w/w)	10

Method ID	Methodology Summary
AS1289.3.6.3	Determination Particle Size Analysis using AS1289.3.6.3 and AS1289.3.6.1 and in house method INORG-107. Clay fraction at <2µm reported.
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-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-036	Total Organic Carbon or Matter - A titrimetric method that measures the oxidisable organic content of soils.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.
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-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. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing 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.
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. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	242833-5
Date extracted	-			15/05/2020	3	15/05/2020	15/05/2020		15/05/2020	15/05/2020
Date analysed	-			16/05/2020	3	16/05/2020	16/05/2020		16/05/2020	16/05/2020
TRH C_6 - C_9	mg/kg	25	Org-023	<25	3	<25	<25	0	94	86
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	3	<25	<25	0	94	86
Benzene	mg/kg	0.2	Org-023	<0.2	3	<0.2	<0.2	0	101	96
Toluene	mg/kg	0.5	Org-023	<0.5	3	<0.5	<0.5	0	87	82
Ethylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	90	80
m+p-xylene	mg/kg	2	Org-023	<2	3	<2	<2	0	97	86
o-Xylene	mg/kg	1	Org-023	<1	3	<1	<1	0	97	87
naphthalene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	99	3	103	90	13	93	91

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/05/2020	15/05/2020		[NT]	[NT]
Date analysed	-			[NT]	15	16/05/2020	16/05/2020		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	15	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	15	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	15	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	15	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	15	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	15	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	15	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-023	[NT]	15	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	15	101	99	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	242833-5
Date extracted	-			15/05/2020	3	15/05/2020	15/05/2020		15/05/2020	15/05/2020
Date analysed	-			16/05/2020	3	16/05/2020	16/05/2020		16/05/2020	16/05/2020
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	3	<50	<50	0	113	102
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	3	<100	<100	0	101	97
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	3	<100	<100	0	123	85
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	3	<50	<50	0	113	102
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	3	<100	<100	0	101	97
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	3	<100	<100	0	123	85
Surrogate o-Terphenyl	%		Org-020	73	3	78	77	1	125	78

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/05/2020	15/05/2020		[NT]	[NT]
Date analysed	-			[NT]	15	16/05/2020	16/05/2020		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	15	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	15	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	15	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	15	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	15	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	15	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	15	70	76	8	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	242833-5
Date extracted	-			15/05/2020	3	15/05/2020	15/05/2020		15/05/2020	15/05/2020
Date analysed	-			18/05/2020	3	18/05/2020	18/05/2020		18/05/2020	18/05/2020
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	96	92
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	98	96
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	102	91
Anthracene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	98	93
Pyrene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	100	95
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	86	81
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	3	<0.05	0.06	18	98	97
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	98	3	100	100	0	99	92

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/05/2020	15/05/2020		[NT]	[NT]
Date analysed	-			[NT]	15	18/05/2020	18/05/2020		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	0.3	100	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	15	0.1	0.5	133	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	15	0.1	0.5	133	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	0.2	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	0.2	67	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	15	0.2	0.4	67	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	15	0.1	0.2	67	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	15	0.1	0.2	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	15	101	101	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	242833-5
Date extracted	-			15/05/2020	3	15/05/2020	15/05/2020		15/05/2020	15/05/2020
Date analysed	-			18/05/2020	3	18/05/2020	18/05/2020		18/05/2020	18/05/2020
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	106	104
HCB	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	108	98
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	110	94
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	118	112
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	116	110
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	116	110
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	120	118
Endrin	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	110	112
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	114	112
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	102	108
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	91	3	95	94	1	91	89

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/05/2020	15/05/2020		[NT]	[NT]
Date analysed	-			[NT]	15	18/05/2020	18/05/2020		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	15	95	98	3	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	242833-5
Date extracted	-			15/05/2020	3	15/05/2020	15/05/2020		15/05/2020	15/05/2020
Date analysed	-			18/05/2020	3	18/05/2020	18/05/2020		18/05/2020	18/05/2020
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	3	<0.1	<0.1	0	116	108
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	91	3	95	94	1	91	89

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/05/2020	15/05/2020		[NT]	[NT]
Date analysed	-			[NT]	15	18/05/2020	18/05/2020		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	15	95	98	3	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	242833-5
Date prepared	-			15/05/2020	3	15/05/2020	15/05/2020		15/05/2020	15/05/2020
Date analysed	-			18/05/2020	3	18/05/2020	18/05/2020		18/05/2020	18/05/2020
Arsenic	mg/kg	4	Metals-020	<4	3	<4	<4	0	101	99
Cadmium	mg/kg	0.4	Metals-020	<0.4	3	<0.4	<0.4	0	98	90
Chromium	mg/kg	1	Metals-020	<1	3	6	5	18	96	91
Copper	mg/kg	1	Metals-020	<1	3	10	9	11	101	106
Lead	mg/kg	1	Metals-020	<1	3	11	11	0	96	81
Mercury	mg/kg	0.1	Metals-021	<0.1	3	<0.1	<0.1	0	89	70
Nickel	mg/kg	1	Metals-020	<1	3	3	3	0	98	91
Zinc	mg/kg	1	Metals-020	<1	3	31	34	9	100	97
Iron	mg/kg	10	Metals-020	<10	[NT]	[NT]	[NT]	[NT]	127	#

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	15	15/05/2020	15/05/2020		[NT]	[NT]
Date analysed	-			[NT]	15	18/05/2020	18/05/2020		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	15	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	15	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	15	10	10	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	15	8	6	29	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	15	13	15	14	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	15	5	4	22	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	15	20	20	0	[NT]	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			19/05/2020	[NT]	[NT]	[NT]	[NT]	19/05/2020	[NT]
Date analysed	-			19/05/2020	[NT]	[NT]	[NT]	[NT]	19/05/2020	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	119	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			15/05/2020	[NT]	[NT]	[NT]	[NT]	15/05/2020	[NT]
Date analysed	-			15/05/2020	[NT]	[NT]	[NT]	[NT]	15/05/2020	[NT]
pH 1:5 soil:$CaCl_2$	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Total Organic Carbon (Walkley Black)	mg/kg	1000	Inorg-036	<1000	[NT]	[NT]	[NT]	[NT]	101	[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.

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

8 metals in soil - # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Getex Pty Ltd
Attention	Administration Email

Sample Login Details	
Your reference	11356
Envirolab Reference	242833
Date Sample Received	14/05/2020
Date Instructions Received	14/05/2020
Date Results Expected to be Reported	21/05/2020

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	21 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8.8
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBsin Soil	Acid Extractable metalsin soil	CEC	Misc Inorg - Soil	Clay 50-120g	On Hold
11356/S1	✓	✓	✓			✓				
11356/S1a										✓
11356/S2	✓	✓	✓	✓	✓	✓				
11356/S3	✓	✓	✓			✓				
11356/S4	✓	✓	✓	✓	✓	✓				
11356/S5	✓	✓	✓			✓				
11356/S6	✓	✓	✓	✓	✓	✓				
11356/S7	✓	✓	✓			✓				
11356/S8	✓	✓	✓	✓	✓	✓				
11356/S9	✓	✓	✓			✓				
11356/S10	✓	✓	✓	✓	✓	✓	✓	✓	✓	
11356/S11	✓	✓	✓			✓				
11356/S12	✓	✓	✓	✓	✓	✓				
11356/S13	✓	✓	✓			✓				
11356/S14	✓	✓	✓	✓	✓	✓				
11356/S15	✓	✓	✓			✓				
11356/S16	✓	✓	✓	✓	✓	✓				
11356/S17	✓	✓	✓			✓				
11356/S18	✓	✓	✓	✓	✓	✓				
11356/S19	✓	✓	✓			✓				
11356/S20	✓	✓	✓	✓	✓	✓				

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.

GETEX

Chain of Custody

From: Getex Pty Ltd
Address: 2.02, Building 2, Macquarie Business Park
35 Waterloo Road
MACQUARIE PARK NSW 2113
Phone: (02) 9889 2488
Facsimile: (02) 9889 2499
Email: help@getex.com.au
Attention: **Chris Chen**

To: Envirolab Services Pty Ltd
Address: 12 Ashley Street
CHATSWOOD NSW 2067
Phone: (02) 9910 6200
Facsimile: (02) 9910 6299

Date: 13/05/2020
Order Number: 7221
Project Number: 11356

TAT: **5 Day TAT**

☐ Samples Received at Ambient Temp. ☐ Samples Recieved Chilled Received By: Tanya Dibaly Date: 14/05/2020

Notes: Please use sample 11356/S1 for split sample

Envirolab Barcode Number	Getex Sample Number	Container (Plastic Tube – PT, Bag – B, Petri Dish – PD, Plastic Bottle – PB, Glass Jar – GJ, Glass Bottle – GB, Glass Vial - GV)	Soil – Single Analytes: TRH/BTEX	PAH Routine	PAH Low	OCP	OPP	PCB	Lead	4-17 Metals	Phenolics	Cyanide	Asbestos	TCLP Prep	Leachable PAH	6 Leachable Metals	pH (1:5)	Soil – Combos and Non-Standard Analytes: NEPM Soil Char Suite	Combination 3	Combination 5
1	11356/S1	GJ																	1	
2	11356/S1a*	GJ																	1	
3	11356/S2	GJ																		1
4	11356/S3	GJ																	1	
5	11356/S4	GJ																		1
6	11356/S5	GJ																	1	
7	11356/S6	GJ																		1
8	11356/S7	GJ																	1	
9	11356/S8	GJ																		1
10	11356/S9	GJ																	1	
11	11356/S10	GJ																1		1
12	11356/S11	GJ																	1	
13	11356/S12	GJ																		1
14	11356/S13	GJ																	1	
15	11356/S14	GJ																		1
		Total																1	8	7

ALS*

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 242833
Date Received: 14/05/2020
Time Received: 9:00
Received By: KD
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

GETEX

Chain of Custody

From: Getex Pty Ltd
Address: 2.02, Building 2, Macquarie Business Park
35 Waterloo Road
MACQUARIE PARK NSW 2113
Phone: (02) 9889 2488
Facsimile: (02) 9889 2499
Email: help@getex.com.au
Attention: **Chris Chen**

To: Envirolab Services Pty Ltd
Address: 12 Ashley Street
CHATSWOOD NSW 2067
Phone: (02) 9910 6200
Facsimile: (02) 9910 6299

Date: 13/05/2020
Order Number: 7221
Project Number: 11356

TAT: **5 Day TAT**

☐ Samples Received at Ambient Temp. ☑ Samples Recieved Chilled Received By: Tony Dhaly Date: 14/05/2020

Notes: Please use sample 11356/S1 for split sample

Envirolab Barcode Number	Getex Sample Number	Container (Plastic Tube – PT, Bag – B, Petri Dish – PD, Plastic Bottle – PB, Glass Jar – GJ, Glass Bottle – GB, Glass Vial - GV)	Soil – Single Analytes: TRH/BTEX	PAH Routine	PAH Low	OCP	OPP	PCB	Lead	4-17 Metals	Phenolics	Cyanide	Asbestos	TCLP Prep	Leachable PAH	6 Leachable Metals	pH (1:5)	Soil – Combos and Non-Standard Analytes: NEPM Soil Char Suite	Combination 3	Combination 5
16	11356/S15	GJ																	1	
17	11356/S16	GJ																		1
18	11356/S17	GJ																	1	
19	11356/S18	GJ																		1
20	11356/S19	GJ																	1	
21	11356/S20	GJ																		1

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2016621**	Page	: 1 of 6
Client	: **GETEX PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER COOK	Contact	: Customer Services ES
Address	: 2.02, Building 2, Waterloo Business Park 35 Waterloo Road North Ryde NSW 2113	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9889 2488	Telephone	: +61-2-8784 8555
Project	: 11356	Date Samples Received	: 14-May-2020 15:45
Order number	: 7221	Date Analysis Commenced	: 19-May-2020
C-O-C number	: ----	Issue Date	: 27-May-2020 09:33
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Gaston Allende	R&D Chemist	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	11356/S1a	----	----	----	----
			Client sampling date / time	13-May-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2016621-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**6.9**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**7**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**16**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**29**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**33**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**7**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**65**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	**0.8**	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	**0.9**	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**0.8**	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	**0.6**	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	**3.1**	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	**0.7**	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**1.0**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.3**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	11356/S1a	----	----	----	----
				Client sampling date / time	13-May-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2016621-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		120	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		120	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		150	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		110	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		260	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		83.6	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		78.3	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		41.5	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		84.7	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		94.3	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		93.9	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		92.0	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		110	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	11356/S1a	----	----	----	----
				Client sampling date / time	13-May-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2016621-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**97.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

GETEX

From: Getex Pty Ltd
Address: 2.02, Building 2, Macquarie Business Park
35 Waterloo Road
MACQUARIE PARK NSW 2113
Phone: (02) 9889 2488
Facsimile: (02) 9889 2499
Email: help@getex.com.au
Attention: **Chris Chen**

Chain of Custody

To: Envirolab Services Pty Ltd
Address: 12 Ashley Street
CHATSWOOD NSW 2067
Phone: (02) 9910 6200
Facsimile: (02) 9910 6299

Date: 13/05/2020
Order Number: 7221
Project Number: 11356

TAT: **5 Day TAT**

☐ Samples Received at Ambient Temp. ☐ Samples Recieved Chilled Received By: Tanya Dhaliy Date: 14/05/2020

Notes: Please use sample 11356/S1 for split sample

Envirolab Barcode Number	Getex Sample Number	Container (Plastic Tube – PT, Bag – B, Petri Dish – PD, Plastic Bottle – PB, Glass Jar – GJ, Glass Bottle – GB, Glass Vial - GV)	Soil: Single Analytes: TRH/BTEX	PAH Routine	PAH Low	OCP	OPP	PCB	Lead	4-17 Metals	Phenolics	Cyanide	Asbestos	TCLP Prep	Leachable PAH	6 Leachable Metals	pH (1:5)	Soil: Combos and Non-Standard Analytes: NEPM Soil Char Suite	Combination 3	Combination 5
1	11356/S1	GJ																	1	
2	11356/S1a	GJ																	1	
3	11356/S2	GJ																		1
4	11356/S3	GJ																	1	
5	11356/S4	GJ																		1
6	11356/S5	GJ																	1	
7	11356/S6	GJ																		1
8	11356/S7	GJ																	1	
9	11356/S8	GJ																		1
10	11356/S9	GJ																	1	
11	11356/S10	GJ																1		1
12	11356/S11	GJ																	1	
13	11356/S12	GJ																		1
14	11356/S13	GJ																	1	
15	11356/S14	GJ																		1
		Total																1	8	7

Relinquished by 14.5.20 1230

ALS

Environmental Division Sydney
Work Order Reference
ES2016621

Telephone : +61-2-8784 8555

rec: FARI 14/5/20 3:45pm

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET83014 / 86194 / 1 - 10
Your ref :11356
NATA Accreditation No: 14484

19 May 2020

Getex Pty Ltd
2.02 Building, 2, 35, Waterloo Road
North Ryde NSW 2113

Attn: Mr Chris Chen

Accredited for compliance with ISO/IEC 17025 - Testing.

Dear Chris

Asbestos Identification
This report presents the results of ten samples, forwarded by Getex Pty Ltd on 15 May 2020, for analysis for asbestos.

1.Introduction: Ten samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS 4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

3. Results :

Sample No. 1. ASET83014 / 86194 / 1. 11356/AS2.
Approx dimensions 10.0 cm x 10.0 cm x 3.2 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, glass, fibre cement*(Approx. estimated dimension=0.5cm x 0.3cm x 0.25cm), wood chips and plant matter.
Chrysotile* asbestos detected.

Sample No. 2. ASET83014 / 86194 / 2. 11356/AS4.
Approx dimensions 10.0 cm x 10.0 cm x 2.7 cm
The sample consisted of a mixture of clayish sandy soil, synthetic mineral fibres, stones, fragments of sandstone, brick, cement paint flakes, glass, char, wood chips and plant matter.
No asbestos detected.

Sample No. 3. ASET83014 / 86194 / 3. 11356/AS6.
Approx dimensions 10.0 cm x 10.0 cm x 2.4 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, bitumen, glass, wood chips and plant matter.
No asbestos detected.

Sample No. 4. ASET83014 / 86194 / 4. 11356/AS8.
Approx dimensions 10.0 cm x 10.0 cm x 2.9 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, glass, corroded metal, wood chips and plant matter.
No asbestos detected.

Sample No. 5. ASET83014 / 86194 / 5. 11356/AS10.
Approx dimensions 10.0 cm x 10.0 cm x 2.3 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, glass, paint flakes, wood chips and plant matter.
No asbestos detected.

Sample No. 6. ASET83014 / 86194 / 6. 11356/AS12.
Approx dimensions 10.0 cm x 10.0 cm x 3.1 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, bitumen, glass, metal, wood chips and plant matter.
No asbestos detected.

Sample No. 7. ASET83014 / 86194 / 7. 11356/AS14.
Approx dimensions 10.0 cm x 10.0 cm x 2.4 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, glass, plaster, paint flakes, wood chips and plant matter.
No asbestos detected.

Sample No. 8. ASET83014 / 86194 / 8. 11356/AS16.
Approx dimensions 10.0 cm x 10.0 cm x 3.7 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, glass, wood chips and plant matter.
No asbestos detected.

Sample No. 9. ASET83014 / 86194 / 9. 11356/AS18.
Approx dimensions 10.0 cm x 10.0 cm x 2.8 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, cement, glass, wood chips and plant matter.
No asbestos detected.

Sample No. 10. ASET83014 / 86194 / 10. 11356/AS20.
Approx dimensions 10.0 cm x 10.0 cm x 2.9 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, bitumen, glass, wood chips and plant matter.
No asbestos detected.

Reported by,

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signatory

NATA
WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating "No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by A4964-2004. Trace / respirable level asbestos will be

reported only when detected and trace analysis have been performed on each sample as required by AS4964-2004. When loose asbestos fibres/ fibre bundles are detected and reported that means they are larger handpicked fibres/ fibre bundles, and they do not represent respirable fibres. Dust/soil samples are always subjected to trace analysis except where the amounts involved are extremely minute and trace analysis is not possible to be carried out. When trace analysis is not performed on dust samples it will be indicated in the report that trace analysis has not been carried out due to the volume of the sample being extremely minute.

CHAIN OF CUSTODY FORM

GETEX

From:	Getex Pty Ltd	To:	Australian Safer Environment & Technology Pty Ltd	Date:	13/05/2020
Address:	2.02, Building 2, Waterloo Business Park 35 Waterloo Road North Ryde NSW 2113	Address:	Unit 10 Level 7, 90 George Street Hornsby NSW 2077	Order No.:	7222
Phone:	(02) 9889 2488	Phone:	(02) 99872183	Project No.:	**11356**
Facsimile:	(02) 9889 2499	Facsimile:	(02) 99872151	TAT Required:	**5 Day TAT**
Email:	**help@getex.com.au**				
Attention:	Chris Chen				

ASET830141861941-10

☐ Samples received at ambient temperature ☐ Samples received chilled Received by (signature) Date: 15/5/20 12.30pm

ASET Reference Number	GETEX Sample Number	Container Plastic Tube – PT Bag – B Petri Dish – PD Plastic Bottle – PB Glass Jar – GJ Glass Bottle – GB Glass Vial - GV	Analysis Required																					
			Asbestos in Soil (NEPM)	Asbestos in Dust	Asbestos in Material	Asbestos Fibre Counting	Asbestos in Vinyl	Weight of ACM	Asbestos in Soil (presence/absence)																
1	11356/AS2	B							X															
2	11356/AS4	B							X															
3	11356/AS6	B							X															
4	11356/AS8	B							X															
5	11356/AS10	B							X															
6	11356/AS12	B							X															
7	11356/AS14	B							X															
8	11356/AS16	B							X															
9	11356/AS18	B							X															
10	11356/AS20	B							X															
		Total							10															

15 MAY 2020

11356ase01-COC

APPENDIX IX

QA/QC

QUALITY ASSURANCE/QUALITY CONTROL

The sampling and analysis program included, for Quality Assurance / Quality Control (QA/QC) purposes, the analysis of blind and split replicate samples. For soil sampling one blind and two split replicate was taken for TRH, BTEX, PAHs and Metals. The primary and blind replicate samples were sent to the same laboratory (Envirolab Services Pty Ltd) and the split replicate was to an independent laboratory (ALS Environmental).

The data quality objective was defined as an acceptable relative percentage difference (RPD) between the primary and blind or split sample of 30% - 50%. This variation can be expected to be higher for organic analysis than for inorganics, and for low concentration of analytes. However a higher RPD was considered to be acceptable in cases where the analytical result was less than three times the laboratory's lower limit of reporting, or where the analytical result was less than 10% of the acceptance criteria. In these situations a large RPD value that has little significance.

The RPD is a measure of precision that was calculated by dividing the difference of two laboratory reported values by the average of those values, multiplied by 100.

I.e. RPD = $(X_1 - X_2) / X_{ave} \times 100$

Where:

X_1 = concentration observed with the first detector or equipment;

X_2 = concentration observed with the second detector, equipment, or absolute value; and

X_{ave} = average concentration = [(X1 + X2) / 2]

The Laboratory QA/QC procedure must comply with the following minimum requirements:

- At least one blank every 20 samples
- At least one Laboratory control sample every 20 samples
- At least one duplicate every 10 samples
- At least one matrix spike every 20 samples

The assessment of the laboratory analytical data also included the following conditions:

- Maximum sample holding times for organics were 14 days. Metals and metalliods holding times were 6 months. Mercury (Hg) holding times was 28 days;
- Sample preservation and handling were conducted in accordance with industry accepted standards;
- All sample analyses were conducted by NATA accredited laboratories;
- Laboratory blank analysis to be below PQLs; and
- The relative percentage difference (RPD) of duplicates/replicates and percent recoveries of control spikes to be calculated and compared to the following criteria:
    - Less than 30% for field replicates;
    - Less than 40% for internal duplicate samples and less than 44% on duplicates with 10 times the limit of reporting; and
    - 75-125% recovery for internal recovery samples.

Analyte	Analyte Concentration Totals (mg/kg)			Relative Percentage Difference of Blind Replicate	Relative Percentage Difference of Split Replicate
Sample Number	11356/S1	11356/S1a	11356/S1b	%	%
Laboratory	Envirolab Services Pty Ltd	Envirolab Services Pty Ltd	ALS Environmental	-	-
Replicate Description	Primary Sample	Blind Replicate of 11356/S1	Split Replicate of 11356/S1	-	-
TRH C6 - C9	<25	<25	-	0%	-
TRH C6 - C10	<25	<25	<10	0%	86%*
vTPH C6 - C10 less BTEX (F1)	<25	<25	<10	0%	86%*
Benzene	<0.2	<0.2	<0.2	0%	0%
Toluene	<0.5	<0.5	<0.5	0%	0%
Ethylbenzene	<1	<1	<0.5	0%	67%*
m+p-xylene	<2	<2	<0.5	0%	120%*
o-Xylene	<1	<1	<0.5	0%	67%*
naphthalene	<1	<1	<1	0%	0%
Total +ve Xylenes	<3	<3	<0.5	0%	0%
TRH C10 - C14	<50	<50	<50	0%	0%
TRH C15 - C28	<100	<100	<100	0%	0%
TRH C29 - C36	<100	<100	120	0%	18%
TRH >C10-C16	<50	<50	< 50	0%	0%
TRH >C10 - C16 less Naphthalene (F2)	<50	<50	< 50	0%	0%
TRH >C16-C34	<100	<100	150	0%	40%
TRH >C34-C40	<100	<100	110	0%	10%
Naphthalene	<0.1	<0.1	< 0.5	0%	133%*
Acenaphthylene	0.1	<0.1	< 0.5	0%	133%*
Acenaphthene	<0.1	<0.1	< 0.5	0%	133%*
Fluorene	<0.1	<0.1	< 0.5	0%	133%*
Phenanthrene	0.2	0.2	< 0.5	0%	86%*
Anthracene	0.2	<0.1	< 0.5	67%*	86%*
Fluoranthene	0.7	0.7	0.8	0%	13%
Pyrene	0.8	0.8	0.9	0%	12%
Benzo(a)anthracene	0.5	0.5	< 0.5	0%	0%
Chrysene	0.6	0.6	< 0.5	0%	18%
Benzo(b,j+k)fluoranthene	1	1	0.8	0%	22%
Benzo(a)pyrene	0.66	0.6	0.6	10%	10%
Indeno(1,2,3-c,d)pyrene	0.4	0.4	< 0.5	0%	22%
Dibenzo(a,h)anthracene	<0.1	<0.1	< 0.5	0%	133%*
Benzo(g,h,i)perylene	0.6	0.6	< 0.5	0%	18%
Total +ve PAH's	5.9	5.3	3.1	11%	62%^

Analyte	Analyte Concentration Totals (mg/kg)			Relative Percentage Difference of Blind Replicate	Relative Percentage Difference of Split Replicate
Sample Number	11356/S1	11356/S1a	11356/S1b	%	%
Laboratory	Envirolab Services Pty Ltd	Envirolab Services Pty Ltd	ALS Environmental	-	-
Replicate Description	Primary Sample	Blind Replicate of 11356/S1	Split Replicate of 11356/S1	-	-
Benzo(a)pyrene TEQ calc (zero)	0.9	0.8	0.7	12%	25%
Benzo(a)pyrene TEQ calc(half)	0.9	0.9	1	0%	11%
Benzo(a)pyrene TEQ calc(PQL)	1	0.9	1.3	11%	26%
Arsenic	7	6	7	15%	0%
Cadmium	<0.4	<0.4	<1	0%	86%*
Chromium	22	19	16	15%	32%
Copper	33	34	29	3%	13%
Lead	36	37	33	3%	9%
Mercury	<0.1	<0.1	< 0.1	0%	0%
Nickel	7	6	7	15%	0%
Zinc	73	75	65	3%	12%

*Results less than three times the laboratory detection limits
^Results less than 10% of the Assessment Criteria

Laboratory QA/QC

Envirolab Services Pty Ltd and Eurofins | mgt both comply with the minimum Laboratory QA/QC requirements as established in Section 11.1.6, which include performing the following:

- At least one blank every 20 samples;
- At least one Laboratory control sample every 20 samples;
- At least one duplicate every 10 samples; and
- At least one matrix spike every 20 samples.

The laboratories have met the previously determined QA/QC requirements. The QA/QC data is considered satisfactory and the quality of the analytical results considered suitable for the purposes of the soil sampling.

Field Replicates QA/QC

All QA/QC data is either within the RPD, the result was less than three times the laboratories limit of reporting or less than 10% of the acceptance criteria. The data is considered satisfactory to meet the predetermined data quality objective.

Strict field QA procedures were applied to all stages of sample collection, preparation and equipment decontamination and were conducted in accordance with industry accepted

standards and Getex's standard operating and field quality procedures. Fieldwork was undertaken by experienced and professionally qualified environmental scientists.

The QA/QC data is considered satisfactory and the quality of the sampling data considered suitable for the purposes of the sampling conducted.