FOUNDATION EARTH SCIENCES

DETAILED SITE INVESTIGATION (DSI)

Property Address

Stage 1 & 2 - 5 Skyline Place, Frenchs Forest NSW

Prepared for

Platino Properties Pty Ltd

Date

February 2021

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ABBREVIATIONS

AIP	*Australian Institute of Petroleum Ltd*	**QA/QC**	*Quality Assurance, Quality Control*
ANZECC	*Australian and New Zealand Environment and Conservation Council*	**RAC**	*Remediation Acceptance Criteria*
AST	*Aboveground Storage Tank*	**RAP**	*Remediation Action Plan*
BGL	*Below Ground Level*	**RPD**	*Relative Percentage Difference*
BTEX	*Benzene, Toluene, Ethyl benzene and Xylene*	**SAC**	*Site Assessment Criteria*
COC	*Chain of Custody*	**SVC**	*Site Validation Criteria*
DA	*Development Approval*	**TCLP**	*Toxicity Characteristics Leaching Procedure*
DP	*Deposited Plan*	**TPH**	*Total Petroleum Hydrocarbons*
DQOs	*Data Quality Objectives*	**UCL**	*Upper Confidence Limit*
EPA	*Environment Protection Authority*	**UST**	*Underground Storage Tank*
ESA	*Environmental Site Assessment*	**VHC**	*Volatile Halogenated Compounds*
HIL	*Health-Based Soil Investigation Level*	**VOC**	*Volatile Organic Compounds*
LGA	*Local Government Area*	**DPI**	Department of Primary Industries
NEHF	*National Environmental Health Forum*		
NEPC	*National Environmental Protection Council*		
NHMRC	*National Health and Medical Research Council*		
OCP	*Organochlorine Pesticides*		
OPP	*Organophosphate Pesticides*		
PAH	*Polycyclic Aromatic Hydrocarbon*		
PCB	*Polychlorinated Biphenyl*		
PID	*Photo Ionisation Detector*		
PQL	*Practical Quantitation Limit*		

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EXECUTIVE SUMMARY

Foundation Earth Sciences was appointed by Platino Properties Pty Ltd to undertake a Detailed Site Investigation (DSI) for the property situated at Stage 1 & 2 - 5 Skyline Place, Frenchs Forest NSW ("the site").

Refer to **Figure 1** - Site Location , **Figure 2** - Site Features & **Figure 3** Borehole Locations and Exceedance Plan.

The site is currently occupied by administrative/commercial/light industrial properties & ground level car parking. Existing one & two storey warehouse and offices will be retained to the southern portion of the site. The north portion of the site is proposed to be redeveloped into mixed use senior living apartment including commercial areas on the lower ground floor & ground floor, landscaping, deep soil areas and a basement car parking with car parking spaces in the lower ground level.

Soils sampled across the Site were assessed against the Site Acceptance Criteria (SAC) provided by the National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013) Table 1A - Residential B & HIL D – Commercial/ Industrial.

Based on the results of the investigation, the site may be considered ***suitable*** for the proposed development, subject to the following;

- It is considered that the site could be deemed suitable for the proposed development subject to the implementation of a Remediation Action Plan (RAP) to manage the abovementioned environmental concerns including further Investigation to assess the inaccessible areas and to satisfy the minimum requirements by NSW EPA Sampling Design Guidelines.

- Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).

If during any potential site works, significant odours and / or evidence of gross contamination (including asbestos) not previously detected are encountered, or any other significant unexpected occurrence, site works should cease in that area, at least temporarily, and the environmental consultant should be notified immediately to set up a response to this unexpected occurrence.

Thank you for the opportunity of undertaking this work. We would be pleased to provide further information on any aspects of this report.

1.0 INTRODUCTION

Foundation Earth Sciences was appointed by Platino Properties Pty Ltd to undertake a Detailed Site Investigation (DSI) for the property situated at Stage 1 & 2 - 5 Skyline Place, Frenchs Forest NSW ("the site").

Refer to **Figure 1** - Site Location and **Figure 2** - Site Features.

The site is currently occupied by administrative/commercial/light industrial properties & ground level car parking. Existing one & two storey warehouse and offices will be retained to the southern portion of the site. The north portion of the site is proposed to be redeveloped into mixed use senior living apartment including commercial areas on the lower ground floor & ground floor, landscaping, deep soil areas and a basement car parking with car parking spaces in the lower ground level. The Site Assessment forms part of SEPP 55 Guideline (Remediation of Land) with a proposed redevelopment to determine the end land-use suitability of the property.

Soils sampled across the Site were assessed against the Site Acceptance Criteria (SAC) provided by the National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013) Table 1A - Residential B & HIL D –Commercial & Industrial.

2.0 OBJECTIVE

The NSW Office of Environment and Heritage (OEH) indicate that a Detailed Site Environmental Investigation should provide comprehensive information on:

- Any issues raised in preliminary investigations;
- The type, extent and level of contamination;
- Contaminant dispersal in the air, surface water, soil and dust;
- The potential effects of contaminants on public health and the environment;
- Where applicable, off-site impacts on soil, sediment and biota; and
- The adequacy and completeness of all information available to be used in making decisions on remediation.

The project objectives of this Detailed Site Investigation (DSI) has been requested to determine the potential for onsite contamination arising from any areas of concern located within the site and its surrounding area. This investigation will consider the potential for suspected historical activities to have caused contamination at the Site and determine land use suitability for the proposed land use.

The proposed investigation program and the Detailed Site Investigation are designed to assess the presence of any unacceptable on site or off-site risk to human health or the environment. The report will draw conclusions regarding the land use suitability of the Site for the proposed land use or provide recommendations to enable such conclusions and determine the need for a further assessment.

3.0 SCOPE OF WORKS

The scope of works for this Detailed Site Investigation (DSI) included:

- Collecting site information, review of historical information and past site practices, (site surveys, site records on waste management practices, NSW Land Titles Office records of ownership, aerial photographs obtained from the NSW Department of Lands, WorkCover NSW records and site interviews);
- A site inspection to identify areas of environmental concern, on-site waste disposal practices and location of sewers, drains, holding tanks, Underground Storage Tanks, Aboveground Storage Tanks and pits, spills and ground discolouration etc.;
- A targeted soil boring/sampling investigative study – formulating and conducting a sampling plan and borehole investigation; the soil samples are taken and submitted for analysis on particular contaminants;
- Groundwater monitoring, well installation and sampling program based on site access;
- Laboratory analysis and results from sample analysis – findings and comparison to regulatory guidelines;
- Quality Assurance/Quality Control (QA/QC) – all QA/QC procedures were undertaken in accordance with the Foundation Earth Sciences Quality Assurance/Quality Control manual;
- Interpretation of results and findings; and
- Recommendations and final conclusions drawn from interpretation of the results.

4.0 SITE IDENTIFICATION AND SITE HISTORY REVIEW

4.1 Site identification

The site is identified as follows:

Table 1: Site Identification Review

Site Identifier	Site Details	
Site Location	Stage 1 & 2 - 5 Skyline Place, Frenchs Forest NSW	
Lot/DP	SP49558	
Site Coordinates #	NE corner: Latitude: -33.750544, Longitude: 151.238242 NW corner: Latitude: -33.750395, Longitude: 151.237143 SE corner: Latitude: -33.751606, Longitude: 151.238013 SW corner: Latitude: -33.751446, Longitude: 151.236933	
Parish	Manly Cove	
County	Cumberland	
Site Area ##	1.263 ha	
Local Government Area (LGA)	Northern Beaches	
Zoning###	B7 – Business Park	
Surrounding Land Uses	*North*	Frenches Forest Road East then Residential
	South	Commercial/ industrial
	East	Commercial/ industrial
	West	Commercial/ industrial

Notes: # Six Maps
Appendix F – Proposed Development Plans and Survey
refer to NSW Planning Portal
https://www.planningportal.nsw.gov.au/find-a-property

4.2 Review of Historical Maps

A review of the maps originally produced by Higinbotham & Robinson was undertaken. No relevant information was found as part of this assessment.

4.3 Underground Services

Dial Before You Dig' plans were requested and reviewed for the Site. Plans were provided by Ausgrid, Jemena Gas, NBN Co, Optus and/or Uecomm, Pipe Networks, Sydney Water & Telstra NSW. The plans did not indicate the presence of any major underground services or utility easements at the site except some minor communication cables and an Ausgrid Substation is located at the north boundary. It is noted that this underground service is considered a potential preferential pathway.

Refer to **Appendix A** – DBYD Plans

4.4 Review of aerial photographs

A number of aerial photographs obtained from the NSW Department of Lands and/or the Land and Property Information Spatial Information Exchange website "Six maps" were reviewed as part of this DSI. Copies of the aerial photographs are kept in the offices of Foundation Earth Sciences and are available for examination upon request. The results of this review are presented in the following table:

Table 2 Review of Aerial Photographs

Year	Site		Surrounding areas
1943	Rural	The site appeared to be trees covered cleared land and part of a larger rural residential property.	The surrounding area appeared to be entirely similar rural areas with the excepting of rural residential properties to the east.
1970	Commercial/ Rural residential	The site has been developed and appeared to be occupied by one big house in the southern boundary. It is a part of the big site be connected to the south.	N: Road then low density residential S: Vacant (belong to the same site) E: Vacant (belong to the same site) then Commercial. / industrial W: Trees
1991	Commercial/industrial	The property at 5 Skyline Place appeared to contain some warehouses in the southern and western portion with rest of the site was used for car parking purpose.	N: Road then low density residential S: Industrial E: Road then Commercial/ industrial W: Commercial/ industrial
2018	Commercial/industrial	No obvious change from previous aerial photo	No obvious change from previous aerial photo with the exception of: E: extension/ more development than before
Current	As per inspection	The site is as inspected (section 7.1)	As per inspection

In summary, the aerial photographs indicate the site has been part of a larger rural area until at least 1943. From 1943 to 1970 the site had been redeveloped to include one big building in the south-eastern corner. Sometime between 1970 and 1991 the site

demolished and developed into warehouses and car parking spaces. All site surfaces appeared sealed and used for industrial/commercial purpose from at least 1991 and remained mostly unchanged to the present date.

The surrounding land had been rural area in all directions with the excepting of rural residential properties noticed to the east in the 1943 aerial photograph. Residential land use, including higher density dwellings, has continued to the north since 1970. Progressive industrial/commercial land use has been noticed to the south, east and west from 1970.

Appendix M – Aerial Photographs.

4.1 Title search

A review of historical documents held at the NSW Department of Lands offices was undertaken to characterise the previous land use and occupiers of the site.

Table 3 Land Title Search

SP49558 (No Stage 1 & 2 - 5 Skyline Place, Frenchs Forest)		
Year	**Proprietor**	**Company/Personal Occupation**
Current	Lease to different business entities	
2004	Trust Company of Australia	Lease to different commercial entities
1992	A.I. Mclean Pty Ltd	
1992	State Authorities Superannuation Board	
1986	State Superannuation Board	
1986	LEDA Holdings Pty Ltd	
1985	Mirvac Pty Ltd	

SP49558 (No Stage 1 & 2 - 5 Skyline Place, Frenchs Forest)		
Year	**Proprietor**	**Company/Personal Occupation**
1981	Myer Shopping Centres Proprietary	
1955	Northern Forests Development Pty Ltd	
1931	Jidney Arthur Walsh Charlotte Helen Macintyres	

In summary, the land titles have indicated the following:

The site owned by the same private individuals before 1931 and then transferred and under different business entities until 1985. In 2004, the site was subdivided into a strata plan and leased to different business entities.

Appendix N – land titles.

4.2 Anecdotal Evidence

No anecdotal evidence was available at the time of the investigation.

4.3 NSW EPA Records

The NSW EPA publishes records of contaminated sites under Section 58 of the Contaminated Land Management (CLM) Act 1997. The notices relate to investigation

and/or remediation of site contamination considered to pose a significant risk of harm under the definition in the CLM Act.

A search of the database revealed that the subject site is not listed and there were no listed properties in the suburb of Frenchs Forest.

It should be noted that the NSW EPA record of Notices for Contaminated Land does not provide a record of all contaminated land in NSW.

Refer to **Appendix B** – NSW EPA Records.

4.4 NSW EPA POEO Register

A search of the POEO Register revealed that the site was not listed.

Refer to **Appendix B** – NSW EPA Records for a copy of the POEO register search.

4.5 Council Records

The Northern Beaches Council database was accessed in order to disclose file records relating to the site and the search revealed the following:

Stage 1 & 2 - 5 Skyline Place, Frenchs Forest

- Development Application 1995/587
- Use of Unit E at No.5 Skyline Place for production, editing and associated offices that used by a Pay Television Company
- Consent No. 95/613

- Development Application 1991/362
- The current tenants of Unit D are to expand and occupy warehouse space of Unit C for wholesaling of electronic equipment.
- Consent No. 91/318

- Development Application 1991/363
- The current tenants of Unit B are to expand and occupy first floor office and part the ground floor showroom areas of Unit C for storage, administration and distribution of electronic equipment.
- Consent No. 91/317

- Development Application 1989/628
- Occupation of Unit A, No.5 Skyline Place for manufacturing, warehousing, distribution and office use for a computer company
- Consent No. 89/541

- Development Application 1989/498
- Use of Unit A, No.5 Skyline Place as a warehouse for the distribution of hair care and beauty products, associated offices, amenities, laboratory and showroom
- Company – Sabre Corporation
- Consent No. 89/418

- Development Application 0450/86
- The former Drive-In-Threatre site was subdivided for industrial development
- Consent No. 86/113

- Development Application 1988/654
- Use for internal partitioning and use of existing factory Unit E for warehouse and distribution of computer software, with associated offices, showroom and workshop.
- Company – State Authorities Superannuation Board
- Consent No. 89/1

- Development Application 1988/98
- For internal partitioning and use of factory Unit C for the storage and distribution of books, magazines and periodicals for the publishing industry.
- Tenant: Child& Associates Publishing Pty Ltd
- Consent No. 88/88

- Development Application 1987/73
- Use of Unit B at No.5 Skyline Place as a warehouse, wholesale showroom and ancillary offices.
- Consent No. 87/82

- Development Application 1987/164
- Use of Unit A at No.5 Skyline Place as a warehouse, service centre and distribution centre for computer hardware and software and associated offices.
- Consent No. 87/180

- Development Application 1987/72
- Use of Unit B at No.5 Skyline Place as a warehouse, showroom and offices for the storage and distribution of electronic sound equipment by Pioneer

Electronics(Australia) Pty Ltd and computer equipment by Rank Electronics(Australia) Pty Ltd.

- Consent No. 87/82

Refer to **Appendix L – Council Records**

4.6 Planning Certificates

The Planning Certificate – Section 10.7(2) (formerly Section 149) of the Environmental Planning & Assessment Act 1979 for the site was provided by the client. A summary of the information pertaining to site is provided below:

SP49558 (5 Skyline Place)

- The Warringah Local Environmental Plan 2011 applies to this land.
- The Draft State Environmental Planning Policy (Environmental) & (Primary Production and Rural Development) apply to this land.
- The following planning proposals may affect the land

- Dee Why Town Centre Planning Controls (PEX2018/002)

- The site is currently zoned B7 Business Park
- The land does not include or comprise critical habitat.
- The land is not in a heritage conservation area.
- The land does not contain an item of environmental heritage.
- The State Environmental Planning Policy(Sydney Region Growth Centres) 2006 does not apply to the land
- The following complying development codes may be carried out

- Housing Code
- Rural Housing Code

- Low Rise Medium Density Code
- Housing Alterations Code
- General Development Code
- Commercial and Industrial Alterations Code
- Commercial and Industrial (New Buildings and Additions) Code
- Container Recycling Facilities Code
- Subdivisions Code
- Demolition Code
- Fire Safety Code

- The land is not within a proclaimed mine subsidence district.
- The land is not affected by any road widening or road realignment under division 2 of part 3 of the Roads Act 1993.
- The land is not affected by a policy or resolution that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence & acid sulphate soils or any other risk other than flooding.
- The land is not reserved, in part or whole, for acquisition by a public authority, as referred to in Section 27 of the Act.
- The land is not subject to flood related development controls.
- The Northern Beaches Contributions Plan 2018 applies to the property.
- The land is identified as bush fire prone land on the Draft Northern Beaches Bush Fire Prone Land Map 2018.
- The land is not biodiversity certified land or part of the Threatened Species Conservation.

Refer to **Appendix O – Planning Certificates**

4.7 SafeWork NSW

Foundation Earth Sciences submitted a request for information on the Storage of Hazardous Chemicals at the site from the database records of SafeWork NSW. The search result has not located any records pertaining to the premises.

Refer to **Appendix P** – SafeWork Records.

4.8 Previous Reports

One previous report was identified at the time of writing this report and is listed below:

- Foundation Earth Sciences (2018), Stage 1 Preliminary Site Investigation, Stage 1 & 2 - 5 Skyline Place, Frenchs Forest NSW, Report Job No: E1100, dated 07/05/2018.

Foundation Earth Sciences was appointed by Platino Properties Pty Ltd to undertake a Preliminary Site Investigation (PSI) for the property situated at 1&Stage 1 & 2 - 5 Skyline Place, Frenchs Forest NSW ("the site").

Based on the investigation including the previous site history, underground services plans & site inspection, the potential for significant soil and/or groundwater impact is considered medium. In applying the NEPM 2013 Schedule B2 "Guideline on Site Characterisation"; there is sufficient evidence, uncertainty and/ or suspicion of contamination, therefore further investigation is recommended.

The following areas identified in the CSM as a potential concern are addressed as follows:

- Areas of potential filling (underground services, stockpile, driveway areas and visible fill)
- Site history (illegal dumping including fill onsite)
- Surrounding land uses including the existence of underground storage tanks
- Car parking areas / building degradation

The following data gaps were identified:

- The SafeWork NSW records has been searched, but has not been received and/or reviewed as part of this investigation.
- The presence of groundwater
- The proposed development plans include deep soil areas which are recommended for intrusive investigation to determine site suitability in relation to the proposed development.

In Summary

Based on the results of this investigation it is considered that the risks to human health and the environment associated with soil and groundwater contamination at the site are medium in the context of the proposed use of the site. The site ***can be made suitable*** for the proposed development, subject to the following recommendations:

- Preparation of a Detailed Site Investigation (Phase 2 Environmental Site assessment) by a suitably qualified Environmental Consultant.

If during any potential site works any significant unexpected occurrence is identified, site works should cease in that area, at least temporarily, and the environmental

consultant should be notified immediately to set up a response to this unexpected occurrence.

4.9 Summary of site history

In summary:

- The aerial photographs indicate the site has been part of a larger rural area until at least 1943. From 1943 to 1970 the site had been redeveloped to include one big building in the south-eastern corner. Sometime between 1970 and 1991 the site demolished and developed into warehouses and car parking spaces. All site surfaces appeared sealed and used for industrial/commercial purpose from at least 1991 and remained mostly unchanged to the present date.
- The surrounding land had been rural area in all directions with the excepting of rural residential properties noticed to the east in the 1943 aerial photograph. Residential land use, including higher density dwellings, has continued to the north since 1970. Progressive industrial/commercial land use has been noticed to the south, east and west from 1970.
- The site owned by the same private individuals before 1931 and then transferred and under different business entities until 1985. In 2004, the site was subdivided into a strata plan and leased to different business entities.
- NSW EPA Records reveal that the subject site is not listed.
- Foundation Earth Sciences submitted a request for information on the Storage of Hazardous Chemicals at the site from the database records of SafeWork NSW. The search result has not located any records pertaining to the premises.
- The Northern Beaches Council database was accessed in order to disclose file records relating to the site and the search revealed the following:
    - In 1995, used of Unit E at No.5 Skyline Place for production, editing and associated offices that used by a Pay Television Company

- In 1991, the current tenants of Unit D were to expand and occupy warehouse space of Unit C for wholesaling of electronic equipment.
- In 1989, occupation of Unit A, No.5 Skyline Place for manufacturing, warehousing, distribution and office use for a computer company
- In 1988, for internal partitioning and used of factory Unit C for the storage and distribution of books, magazines and periodicals for the publishing industry.
- In 1987, used of Unit A at No.5 Skyline Place as a warehouse, service centre and distribution centre for computer hardware and software and associated offices.

4.10 Integrity Assessment

The information found in the historical sources has been found to be in general concurrence. It is therefore considered that accuracy of this data is acceptable for this investigation.

5.0 REVIEW OF ENVIRONMENTAL INFORMATION

Table 4: Site Condition and Surrounding Environment Review

Site Information	Descriptions
Sensitive Receivers	The nearest sensitive human receptors are the current and future users of the site, construction workers during the site redevelopment and the general public. The nearest downgradient watercourse is the Trefoil Creek located approximately 450m northwest of the site.
Soil Landscape *Review of NSW Soil and Land Information website ESPADE.*	The Soil Landscape Map viewed on NSW ESPADE indicates that the site is located within the Mittagong landscape area. These soils are considered stony soils with low soil fertility and low available water capacity.
Topography *Review of NSW Soil and Land Information website ESPADE.*	The topography viewed on NSW ESPADE indicated the following for the Mittagong Landscape: Gently undulating plateau, 200-1000 m in width, with level to gently inclined slope gradients of <10%. Local relief is <30 m. Rock outcrop is absent. Based on the site inspection it was determined that the site had an approximate slope of 5-10^{o} to the west.
Geological Profile	The Geological Map of Sydney (Geological Series Sheet 9130, Scale 1:100,000, 1983), published by the Department of Mineral

<table>
<tr><th>Site Information</th><th colspan="6">Descriptions</th></tr>
<tr><td></td><td colspan="6">Resources indicates the residual soils within the site to be underlain by Triassic Age Shale of the Wianamatta Group, comprising shale and laminite.</td></tr>
<tr><td>Presence of Acid Sulphate Soils
Review of NSW Department of Land & Water Conservation (DLWC) Acid Sulphate Soil Risk Maps (Edition Two, December 1997, Scale 1:250,000.

A copy of the Council Risk Map is located in Appendix J.</td><td colspan="6">A review of the “No.90 Parramatta_ Prospect” map indicated that there is a “No Known Occurrence” of acid sulphate soil materials within the soil profile.

Furthermore, and in accordance to the Warringah Local Environmental Plan 2011 “Acid Sulfate Soils Maps Sheet ASS_018” the site is not located in Class 1 to 5.</td></tr>
<tr><td rowspan="3">Localised Hydrogeology

Review of DPI (Office of Water) Database.

Copies of the groundwater bore records are located in:

Appendix D – DPI (Office of Water) Database Records.</td><td>Number</td><td>Location from Site</td><td>Depth</td><td>SWL</td><td>Use</td><td>Water Bearing Zones</td></tr>
<tr><td>GW020065</td><td>200 E</td><td>114.90</td><td>-</td><td>Waste Disposal</td><td>-</td></tr>
<tr><td>GW020067</td><td>200 E</td><td>137.20</td><td>-</td><td>Waste Disposal</td><td>-</td></tr>
<tr><td>Nearest Surface Water Body</td><td colspan="6">The nearest downgradient watercourse is the Trefoil Creek located approximately 450m northwest of the site.</td></tr>
</table>

Site Information	Descriptions
Nearest Active Service Station (Google Maps Search)	1.8km southeast of the site
Local Meteorology (Bureau of Meteorology BOM website) **Appendix E** – BOM Data.	The monthly rainfall of the local surrounding area is represented by the data collected from the BOM rainfall gauge located in Belmorse (Evelyn Place), which is located approximately 1.9km from Frenchs Forest. The records indicate that the mean monthly rainfall in March (date of fieldwork) was 133.9mm and the highest monthly rainfall in March was 334.2mm.

6.0 REVIEW OF CONSTRUCTION AND SERVICE INFORMATION

6.1 Proposed Development

The site is currently occupied by administrative/commercial/light industrial properties & ground level car parking. Existing one & two storey warehouse and offices will be retained to the southern portion of the site. The north portion of the site is proposed to be redeveloped into mixed use senior living apartment including commercial areas on the lower ground floor & ground floor, landscaping, deep soil areas and a basement car parking with car parking spaces in the lower ground level.

Refer to **Appendix F** - Proposed Development Plans & Survey.

7.0 SITE VISIT

7.1 General

The site was visited on the 25th & 26th of March 2019 by Foundation Earth Sciences Environmental Scientists to inspect the site for any potential sources of contamination.

The following items were considered as part of the site visit:

- Description of the building structures;
- Site surroundings;
- Present and past industrial processes and operations at the site;
- Surface water, groundwater, stormwater and sewer;
- Present and past storage of chemicals and wastes associated with site use and their on-site location;
- Waste management practices and management of hazardous materials;
- Presence of Underground Storage Tanks or Above Ground Storage Tanks;
- Odour; and
- Occupational health and safety.

7.2 Site observations

At the time of the site visit the following observations were made as per the following table:

Table 5: Site Inspection Review

Factors Considered	Description
Buildings & Structures on Site	The site at 5 Skyline Place is rectangular in shape and was occupied by two to three storeys buildings with flat roofs and consisted of grassed areas, concrete slabs, driveway, car park, cracking and/or staining was noticed on the concrete slabs. The buildings are located in the southern and western part of the site and used as office and storage warehouse for different businesses and northwest corner of the site is used as a gym.
Percentage Hard-standing surface	80%
Concrete Condition	Average
Chemical Storage	No chemicals were noted within the accessible areas of the site.
Above and Underground Storage Tanks	USTs and ASTs were not identified within the accessible areas property.
Trade Waste Pits	No trade waste agreements or pits were identified for the building.
Nearby Electrical Transformers	One electrical transformers were identified within the northern boundary of 5 Skyline Place
Asbestos	No fibro cement sheeting was identified within the building structures in accessible areas.
Soil Staining and Odours	Soil odours were identified within a few borehole locations of the property. No significant soil staining was noted during the inspection
Stormwater and Sewer	Stormwater and sewage were connected to the local utilities.

A summary of the current tenants on site: (base on site inspection and internet search)

- No. 5 Skyline Place, Frenchs Forst
- Unit A, UGL & Fighting Chance

- UGL is an engineering company provides construction, maintenance and asset management service to rail, resources and infrastructure sectors and corporate real estate, facilities management and business process outsourcing to property users.

- Fighting Chance is a non-profit organisation which exists to enrich the lives of young adults with disability in Australia

- Unit B, Jindex

- Design, manufacture and sales of Pinch Valve and other types of valves.

- Unit C, SAPRO Australia

- Wholesales and retails of food delicacies

- Unit D, EZGO Augusta Golf Cars Pty Ltd

- The distributors of all E-Z-GO Cushman and Bad Boy Buggies products for Australia and the Pacific Region.

- Unit E, Anytime Fitness

- A health and fitness club.

Refer to **Figure 2** - Site Features and **Appendix C** – Site Photographs.

8.0 PRELIMINARY CONCEPTUAL SITE MODEL (CSM)

Based on the above information, site history and site walkover, the areas of potential concern and associated contaminants for the site CSM were identified. These are summarised in the following table.

Table 6: Areas and Contaminants of Concern

Known and potential contamination source	Associated Contaminants
Historical Site Uses (printing & tyre repair workshop)	Heavy Metals, TRH, BTEX, PAH, OCP, PCB
Imported Fill	Heavy Metals, TRH, BTEX, PAH, OCP, PCB
Car parking Areas	TRH, BTEX, PAH
Building degradation/ Demolition	Heavy Metals and Asbestos
Surrounding Land Use (production, wholesaling, publishing & manufacturing)	TRH, BTEX, VOC

Table 7: Potentially Contaminated Media

Known and potential contamination source	Associated Contaminants
Fill Material	There is the potential for contamination to be present in the upper fill material.
Groundwater	There is the potential for the leaching of contaminants into groundwater onsite and also migration of the contaminants.
Ground Gas	Given the historical site uses; ground gas is considered to a potential contaminated medium.

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); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review, site inspection and previous report are present in solid (e.g. impacted fill, asbestos), liquid (e.g. dissolved in water) and gaseous/vapour forms.

Aerial photography has indicated that there were some unsealed ground surfaces and therefore, there is the potential for migration of contaminants via wind-blown dust.

Rainfall infiltration at the site is expected to occur in unsealed areas. There is therefore the potential that soil contamination could result in impacts to shallow groundwater.

The historical uses include printing and production, wholesaling, publishing & manufacturing. Therefore, the site has the potential for possible migration of contaminant ground gas / soil vapour.

Potential Exposure Pathways

Potential exposure pathways include:

- Dermal;
- Ingestion; and
- Inhalation.

Due to the presence of exposed potentially impacted soil/fill on ground surfaces, dermal and inhalation exposure is considered a potential exposure pathway.

The potential for ingestion of soil is considered as a potential exposure pathway. Although groundwater is not used at the site, there is the potential, for ingestion of contaminants via groundwater removed from monitoring wells.

There is the potential for vapour to be present in the underlying profile within the site. As such, these gases potentially pose a risk to human health via the inhalation pathway.

The proposed development does contain the construction and development of a basement. Because of these dermal and inhalation exposure pathways by potentially contaminated groundwater is a potential.

Receptors

Potential receptors of environmental impact present within the site which will be required to be addressed with respect to the suitability of the site for the proposed use include:

- Excavation/construction/maintenance workers conducting activities at the site, who may potentially be exposed to COPCs through direct contact with impacted soils, Vapour Intrusion and/or groundwater present within excavations and/or inhalation of dusts/fibres associated with impacted soils;
- Future occupants/users of the site may potentially be exposed to COPCs through direct contact with impacted soils and/or ingestion of impacted soils and/or inhalation of dusts/fibres associated with impacted soils and/or exposure to vapour; and/or
- Offsite sensitive receptors of groundwater; and/or
- Flora species to be established on vegetated areas of the site.
- Trefoil Creek

Preferential Pathways

For the purpose of this assessment, preferential pathways have been identified as natural and/or man-made pathways that result in the preferential migration of COPCs as either liquids or gases.

Man-made preferential pathways are present throughout the site, generally associated with fill materials and services present beneath existing ground surface. Fill materials and service lines are anticipated to have a higher permeability than the underlying natural soil and/or bedrock.

The plans did not indicate the presence of any major underground services or utility easements at the site except some minor communication cables and an Ausgrid Substation is located at the north boundary. It is noted that this underground service is considered a potential preferential pathway.

9.0 REVIEW OF DATA QUALITY OBJECTIVES

The DQOs were also prepared using Appendix IV of the Site Auditor Guidelines. These require 7 steps. The steps being

a. State the problem
b. Identify the decisions
c. Identify inputs to decision
d. Define the study boundaries
e. Develop a decision rule
f. Specify limits on decision errors
g. Optimise the design for obtaining data

9.1 State the Problem

The site requires to be confirmed suitable for the proposed development. The site is proposed to be redeveloped and has had some areas of potential concern, those being historical land uses, possible areas of imported fill of unknown origin, degradation of the building materials and leakages from vehicles on site.

Technically defensible evidence needs to be provided so that the identified Site does not present an unacceptable risk to human health or the environment and is suitable for the intended land use.

9.2 Identify the Decisions

The decisions to be made on the contamination and the new environmental data required includes considering relevant site contamination criteria for each medium (fill, soil and sediment). A proposed use of the 95% UCL on the mean concentrations for all soil chemicals of potential concern must be less than the site criteria identified for the relevant land use suitability.

The decisions made in completing this assessment are as follows:

- Does the site or is the site likely to present a risk of harm to humans or the environment
- Is the site currently suitable for the proposed land use being residential with soil access
- Is there a potential for soil and groundwater contamination
- Is there a potential for offsite migration issues
- Does the sampling results meet the site criteria proposed
- If not, does the site require remediation works

9.3 Identify Inputs to Decision

This step requires the identification of the environmental variables/characteristics that need measuring, identification of which media (fill, soil etc.) need to be collected, identification of the site criteria for each medium of concern and appropriate analytical testing. Inputs include:

- Existing site information
- Site history

- Regional geology, topography and hydrogeology
- Potential contaminants
- Proposed Land Use
- Site assessment criteria
- Results as measured against criteria

9.4 Define the Study Boundaries

Specific spatial and temporal aspects must be provided to identify the boundaries of the investigation and to identify any restrictions that may hinder the assessment process. The site is located at Stage 1 & 2 - 5 Skyline Place, Frenchs Forest NSW. The site is approximately 12,570 m^2 in area.

Refer to **Figure 1** - Site Location and **Figure 2** – Site Features.

9.5 Develop a Decision Rule

The information obtained through this assessment will be used to characterise the soils and the groundwater on the site in terms of contamination issues and risks to human health and the environment. The decision rule in characterising the site will be as follows:

- Laboratory test results will be measured against the criteria provided within this report
- The site will be deemed suitable for the proposed use if the following criteria are fulfilled:
    - Soil and groundwater concentrations are within background levels

- QA/QC shows data can be relied upon
- Results generally meet regulatory criteria
- Results are from NATA accredited laboratories
- Detection limits are below assessment criteria
- Results can be shown to be of minimal concern

9.6 Specify Limits on Decision Errors

The limits on decision errors for this assessment are as follows:

- The assessment criteria adopted from the guidelines within this report have risk probabilities already incorporated.
- The acceptable limits for inter/intra laboratory duplicate sample comparisons are laid out within our protocols.
- The acceptable limits for laboratory QA/QC parameters are based upon the laboratory reported acceptable limits and those stated within the NEPM 2013 Guidelines.

9.7 Optimise the Design for Obtaining Data

A resource-effective sampling and analysis design was undertaken for data collection that satisfies the DQO's. The sampling and analytical plan is designed to avoid Type 1 and Type 2 errors and includes defining minimum sample numbers required to detect contamination as determined with procedures provided in the NSW EPA 1995 Sampling Design Guidelines and AS 4482.1 - 2005 and appropriate quality control procedures.

Furthermore, only laboratories accredited by NATA for the analysis undertaken were used. The laboratory data was assessed from quality data calculated during this

assessment. Field QA/QC protocols adopted and incorporate traceable documentation of procedures used in the sampling and analytical program and in data verification procedures.

10.0 INTRUSIVE SOIL INVESTIGATION

The intrusive soil investigation took place on the 25th -26th March 2019 and was designed to meet the Data Quality Objectives.

10.1 Soil Assessment

Samples were recovered from fifteen (15) borehole locations across the site and were labelled BH1 to BH15. These locations were selected to detect any contamination that may have originated from past and present activities, and due to potential excavation and future development in these areas.

Table 8: Sampling Information - Soil

Analyte / Analyte Group / Sample	Depth (m)	SAMPLING DATE	HEAVY METALS (8)	TRH	BTEX	PAH	OCP	PCB	PH / CEC / %CLAY	TRH C6-C10 & BTEXN	Asbestos ID/ %w/w
BH1	0.1-0.2	26.3.2019	✔	✔	✔	✔	✔	✔			
BH2	0.2-0.3	25.3.2019	✔	✔	✔	✔	✔	✔			✔
BH2	2.0-2.1	25.3.2019	✔	✔	✔	✔	✔	✔			
BH3	1.2-1.3	25.3.2019	✔	✔	✔	✔	✔	✔			
BH3	2.9-3.0	25.3.2019	✔	✔	✔	✔	✔	✔			
BH4	0.1-0.2	25.3.2019	✔	✔	✔	✔	✔	✔			
BH4	2.0-2.1	25.3.2019	✔	✔	✔	✔	✔	✔			
BH4	4.1-4.2	25.3.2019	✔	✔	✔	✔	✔	✔			
BH5	0.7-0.8	26.3.2019	✔	✔	✔	✔	✔	✔			
BH5	1.3-1.4	26.3.2019	✔	✔	✔	✔	✔	✔			
BH6	0.2-0.3	25.3.2019	✔	✔	✔	✔	✔	✔			
BH7	0.2-0.3	25.3.2019	✔	✔	✔	✔	✔	✔			
BH8	0.3-0.4	25.3.2019	✔	✔	✔	✔	✔	✔			
BH8	0.7-0.8	25.3.2019	✔	✔	✔	✔	✔	✔			
BH9	0.2-0.3	26.3.2019	✔	✔	✔	✔	✔	✔	✔		
BH9	0.6-0.7	26.3.2019	✔	✔	✔	✔	✔	✔	✔		
BH10	0.2-0.3	25.3.2019	✔	✔	✔	✔	✔	✔			
BH11	0.3-0.4	26.3.2019	✔	✔	✔	✔	✔	✔			
BH11	0.7-0.8	26.3.2019	✔	✔	✔	✔	✔	✔			
BH11	1.3-1.4	26.3.2019	✔	✔	✔	✔	✔	✔			
BH12	0.4-0.5	25.3.2019	✔	✔	✔	✔	✔	✔			
BH13	0.1-0.2	25.3.2019	✔	✔	✔	✔	✔	✔			✔
BH14	0.1-0.2	26.3.2019	✔	✔	✔	✔	✔	✔			
BH15	0.2-0.3	26.3.2019	✔	✔	✔	✔	✔	✔			
D1	-	25.3.2019	✔	✔	✔	✔	✔	✔			
D2	-	26.3.2019	✔	✔	✔	✔	✔	✔			
SS1	-	25.3.2019	✔	✔	✔	✔	✔	✔			
SS2	-	26.3.2019	✔	✔	✔	✔	✔	✔			
TS1	-	25.3.2019								✔	
TB1	-	25.3.2019								✔	
TS2	-	26.3.2019								✔	
TB2	-	26.3.2019								✔	

The locations of the boreholes and samples are shown in **Figure 3** and details of the boreholes are presented in **Appendix G** – Borehole Logs.

Based on information from all boreholes, the surface and sub-surface profile across the site is generalised as follows:

- Fill: Silty Clay, Clayey Silt, Clayey Sandy Silt & Silty Sandy Clay
- Natural: Silty CLAY;
- Bedrock: SANDSTONE, extremely weathered

10.2 Sampling Density and Rationale

The NSW EPA "Sampling Design Guidelines" (September 1995) requires a minimum sampling density of twenty-three (23) sampling points for a site area of approximately 1.263ha.

Foundation Earth Sciences recovered twenty-four soil samples from fifteen boreholes located across the open areas of the site. Sampling was limited in nature and not designed to meet the above guidelines, but target any potential areas of concern with consideration given to accessibility and limitations in relation to underground services & access.

10.3 Sampling Methodology

In summary:

- Soil samples were also collected directly from the push tube / split spoon sampler.
- Soil samples were collected using a hand auger, DCP and U50 to collect undisturbed samples.
- Samples were transferred directly into appropriately labelled clean laboratory supplied containers;
- Samples were transferred into chilled eskies for sample preservation;
- A Chain of Custody was completed and forwarded to the laboratory. Sampling analysis was based on field observations and were in accordance to the schedule outlined in Section 12.

- Soil samples were submitted to their respective laboratories as specified in Section 12.4.

Sampling of asbestos was undertaken as follows:

- Soil samples were submitted to their respective laboratories as specified in Section 12.4.
- A minimum 10L sample from each sample location was recovered;
- Each sample (minimum of 10 L) was screened through a 7mm sieve and the material retained on the sieve examined for any bonded ACM and / or suspect material and forwarded to the laboratory for analysis if any suspected ACM is encountered;
- If visible FA material is present or suspected, the soil should be wetted to minimise the release of fibres;
- Identified bonded ACM and FA should be weighed for each sample; and
- One wetted 500ml sample from each sampling location was submitted for laboratory analysis for AF.

11.0 GROUNDWATER INVESTIGATION

11.1 Groundwater Assessment

Foundation Earth Sciences installed two groundwater monitoring well on the 25th – 26th March 2019 as part of the Limited DSI. Samples were recovered from one (1) groundwater well labelled as GW1 at the time of sampling. The schedule of analysis is provided below:

Table 9: Sampling Information – Groundwater

SAMPLE ID	SAMPLING DATE	HEAVY METALS	TRH	BTEX	PAH	VOC	TRH C6-C10 & BTEXN
Benviron Group DSI							
GW1	5.4.2019	X	X	X	X	X	
GWD1	5.4.2019	X	X	X	X	X	
GWSS1	5.4.2019	X	X	X	X	X	
TS1	-					X	X
TB1	-					X	X

The location of the groundwater well is shown in **Figure 3** –Borehole Locations & Exceedance Plan and details of the boreholes are presented in **Appendix G** – Borehole Logs.

Refer to **Appendix I** – Field Record Forms.

11.2 Groundwater Methodology

Groundwater monitoring wells were constructed on the 4th March 2019 by adopting the following methodology:

- 50mm diameter, Class 18PVC threaded and flush joined casing and 0.45 machine-slotted screens were used;
- Coarse, washed sand and gravel was placed in the annulus surrounding the piping to a height of the screen;
- Bentonite pellets were placed in the annulus to form an impermeable plug near the top of the well to prevent surface runoff from entering directly into the well;
- A PVC cap was placed on the casing;
- 100mm diameter stainless steel flushed covers were used for all well finishes and concreted onto the ground surface.

Table 10: Summary of Well Construction Details

Well ID	Total Depth	Screening (m)	Surface Level (RL)	Water Bearing	Comment
BH3 /GW1	8.6	2.6-8.6	Appro 155	Weathered Sandstone	Current
BH9/GW2	8.5	2.5-8.5	Appro 156	Weathered Sandstone	Current/Dry

Notes:

1. RLs was estimated from the closest point on the site plan provided in Appendix F.

The following works were carried out upon completion of the well installations:

- The wells were developed by removing at least three well volumes until groundwater parameters reached equilibrium and no further turbidity improvements were observed.

Drilling and installation of the monitoring wells was carried out on the 25th – 26th March 2019, using a combination of solid stem auguring, under supervision of Foundation Earth Sciences.

11.3 Groundwater Sample Collection

Groundwater sampling was undertaken on the 05th April 2019. Prior to sampling, the resting water level was recorded within the well while checking for the presence of phase separated hydrocarbon.

Sampling was completed using a low flow peristaltic pump – a low flow/minimum drawdown sampling technique used to minimise any disturbance to the aquifer.

Field measured parameters were collected using a certified and calibrated YSI Quatro Plus water quality meter. Samples were collected when field measured parameters (pH, electrical conductivity, redox potential, dissolved oxygen and temperature) had stabilised. The samples were placed into appropriate laboratory supplied bottles and preserved on ice. The peri pump and other sampling equipment were decontaminated before and after use to avoid possible cross contamination. All samples collected were preserved on ice and couriered directly to the laboratory under COC documentation.

11.4 Groundwater Observations

Table 11: Groundwater Elevations & Observations

Well ID	Well Depth	Surface Level RL	Groundwater Depth Measured (m BGL)	Groundwater Level (RL)	PSH Depth
BH3 /GW1	8.6	Appro 155	6.17	148.83	None

Notes:

2. RLs were estimated from the closest point on the site plan provided in Appendix F.

12.0 QUALITY ASSURANCE / QUALITY CONTROL

12.1 General QA/QC

The frequency required for each field quality assurance / quality control (QA/QC) sample is presented in the table below.

Table 13: QA/QCs Frequencies

	Intra Lab	Inter Lab	Rinsate	Spikes	Blanks
Sampling Frequency	1 in 20	1 in 20	1/day	1/day	1/day

During the contamination assessment the integrity of data collected is considered vital. With the assessment of the site, a number of measures were taken to ensure the quality of the data. These are as follows:

12.2 Sample Containers

Soil samples collected during the investigation were placed immediately into laboratory prepared glass jars with Teflon lid inserts. Standard identification labels were adhered to each individual container and labelled according to depth, date, sampling team and media collected.

12.3 Decontamination

All equipment used in the sampling program was decontaminated prior to use and between samples to prevent cross contamination. Decontamination of equipment involved the following procedures:

- Cleaning equipment in potable water to remove gross contamination;
- Cleaning in a solution of Decon 90;
- Rinsing in clean demineralised water then wiping with clean lint free cloths;

Foundation Earth Sciences also adopted a sampling gradient of lowest to highest potential contamination to minimise the impact of cross contamination. This gradient was determined from the historical review and the on-site inspection that was carried out prior to sampling.

Although Foundation Earth Sciences maintains consistent sampling procedures, a rinsate sample is obtained to ensure false positive samples are not generated and that decontamination procedures are effective in preventing cross contamination. The Rinsate water is collected after being in contact generally with the trowel used for sampling. Analytical results that target the contaminants of concern are compared to a blank sample, which is taken directly from the rinsate water container supplied by the laboratory.

A rinsate sample was not collected as the samples were taken either directly from the push tube / split spoon sampler or U50 tube and therefore the chance for cross-contamination was minimal.

12.4 Sample Tracking, Identification and Holding Times

All samples were forwarded to Envirolab and ALS Environmental under recognised chain of custodies with clear identification outlining the date, location, sampler and sample ID. All samples were recorded by the laboratory as meeting their respective holding times. The sample tracking system is considered adequate for the purposes of sample collection.

12.5 Sample Transport

All samples were packed into an esky with ice from the time of collection. A trip blank and trip spike are collected where appropriate. These were transported under chain of custody from the site to Envirolab Pty Ltd and ALS Environmental, both NATA registered laboratories. During the project, the laboratory reported that all the samples arrived intact and were analysed within holding times for the respective analytes.

Samples were kept below 4°C at all times, soil samples submitted for asbestos analysis are not required to be kept below 4°C.

12.6 Trip Spike

Trip Spike samples were obtained from the laboratory prior to conducting field sampling where volatile substances are suspected. Foundation Earth Sciences QA/QC procedures for the collection of environmental samples involves the collection of trip blanks, trip spikes and duplicate samples both intra and inter laboratory.

12.7 Trip Blank

A trip blank accompanied the sampling for the sampling process and is not separated from the sample collection and transportation process. The purpose of the trip blank is to identify whether cross-contamination is occurring during the sample collection and transport process.

12.8 Field Duplicate Samples

The tables below list the duplicate soil samples collected with their corresponding primary samples.

Table 14: Soil Field Duplicate Samples

Primary Sample	Sample Depth (m BGL)	Intra Duplicate	Inter Duplicate	Date Sampled
BH13	0.1-0.2	D1	SS1	25.03.2019
BH14	0.1-0.2	D2	SS2	26.03.2019

Table 15: Groundwater Field Duplicate Samples

Primary Sample	Screen Zone (m bgl)	Intra Duplicate	Inter Duplicate	Date Sampled
BH3/ GW1	2.6-8.6	GWD1	GWSS1	05.04.2019

Field duplicate samples for soil were prepared in the field through the following process:

- A larger than normal quantity of soil is recovered from the sample location selected for duplication.
- Two Portions of the sub-sample are immediately transferred, one for an intra-laboratory duplicate and another as a sample.
- Samples are placed into a labelled, laboratory supplied 250ml glass jar and sealed with an airtight, Teflon screw top lid. The fully filled jars are labelled as the sample and duplicate and immediately placed in a chilled esky.

Soil Intra-Laboratory duplicate samples were sent to Envirolab Pty Ltd while Inter-Laboratory duplicate samples were sent to ALS Environmental.

A summary of the test results with the Relative Percentage Difference (RPD) is presented in the following tables.

The comparisons between the duplicates and original samples indicate acceptable RPDs when they comply with criteria which are commonly set at:

- less than 30% for inorganics and 50% for organics
- greater than five (5) times the laboratory limit of recording (LOR)
- greater than 50% of the relevant health investigation level (HIL) concentration.

The tables, below, give details of intra laboratory and inter laboratory duplicates.

Table 16a: Intra-lab Soil Sample D1 RPDs

ANALYTE	BH13 0.1-0.2 mg/kg	ENVIROLAB D1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	<4	-
Cadmium	<0.4	<0.4	-
Chromium	15	13	14
Copper	19	12	45
Lead	5	9	57
Mercury	<0.1	<0.1	-
Nickel	21	20	5
Zinc	26	27	4
TRH			
C10-C14	<50	<50	-
C15-C28	<100	<100	-
C29-C36	<100	<100	-
BTEX			
Benzene	<0.2	<0.2	-
Toulene	<0.5	<0.5	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<1	<1	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.05	<0.05	-
Total PAH	<0.05	<0.05	-
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.1	-
Aldrin	<0.1	<0.1	-
Dieldrin	<0.1	<0.1	-
DDD	<0.1	<0.1	-
DDE	<0.1	<0.1	-
DDT	<0.1	<0.1	-
Chlordane (trans & cis)	<0.1	<0.1	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<0.1	-

Table 16b: Intra-lab Soil Sample D2 RPDs

ANALYTE	BH14 0.1-0.2 mg/kg	ENVIROLAB D2 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	<4	-
Cadmium	<0.4	<0.4	-
Chromium	10	10	0
Copper	12	12	**0**
Lead	17	18	6
Mercury	<0.1	<0.1	-
Nickel	7	8	13
Zinc	38	39	3
TRH			
C10-C14	<50	<50	-
C15-C28	130	130	-
C29-C36	<100	<100	-
BTEX			
Benzene	<0.2	<0.2	-
Toulene	<0.5	<0.5	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<1	<1	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	0.09	0.06	40
Total PAH	0.78	0.06	171
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.1	-
Aldrin	<0.1	<0.1	-
Dieldrin	<0.1	<0.1	-
DDD	<0.1	<0.1	-
DDE	<0.1	<0.1	-
DDT	<0.1	<0.1	-
Chlordane (trans & cis)	<0.1	<0.1	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<0.1	-

Table 17: Intra-lab Groundwater Sample GWD1 RPDs

ANALYTE	Envirolab GW1 ug/l	DUPLICATE GWD1 ug/l	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	1	1	0
Cadmium	<0.1	<0.1	-
Chromium	<1	<1	-
Copper	<1	4	-
Lead	<1	<1	-
Mercury	<0.05	<0.05	-
Nickel	18	17	6
Zinc	31	30	3
TRH			
C6-C10 (F1)	<10	<10	-
C10-C16 (F2)	<50	<50	-
BTEX			
Benzene	<1	<1	-
Toulene	<1	<1	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<2	<2	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.1	<0.1	-
Naphthalene	<0.2	<0.2	-
VOC			
Vinyl Chloride	<10	<10	-
Chloroform	<1	<1	-

The comparisons between the intra-laboratory duplicates and corresponding original samples for soil and groundwater indicated generally acceptable RPD overall.

Table 18a: Inter-lab Soil Sample SS1 RPDs

ANALYTE	BH13 0.1-0.2 mg/kg	ALS SS1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	<5	-
Cadmium	<0.4	<1	-
Chromium	15	30	67
Copper	19	10	62
Lead	5	11	75
Mercury	<0.1	<0.1	-
Nickel	21	22	5
Zinc	26	35	30
TRH			
C10-C14	<50	<50	-
C15-C28	<100	<100	-
C29-C36	<100	<100	-
BTEX			
Benzene	<0.2	<0.2	-
Toulene	<0.5	<0.5	-
Ethylbenzene	<1	<0.5	-
Xylenes - Total	<1	<0.5	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.05	<0.5	-
Total PAH	<0.05	<0.5	-
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.05	-
Aldrin	<0.1	<0.05	-
Dieldrin	<0.1	<0.05	-
DDD	<0.1	<0.05	-
DDE	<0.1	<0.05	-
DDT	<0.1	<0.05	-
Chlordane (trans & cis)	<0.1	<0.05	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<0.1	-

Table 18b: Inter-lab Soil Sample SS2 RPDs

ANALYTE	BH14 0.1-0.2 mg/kg	ALS SS2 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	<5	-
Cadmium	<0.4	<1	-
Chromium	10	9	11
Copper	12	10	18
Lead	17	17	0
Mercury	<0.1	<0.1	-
Nickel	7	6	15
Zinc	38	37	3
TRH			
C10-C14	<50	<50	-
C15-C28	130	<100	-
C29-C36	<100	<100	-
BTEX			
Benzene	<0.2	<0.2	-
Toulene	<0.5	<0.5	-
Ethylbenzene	<1	<0.5	-
Xylenes - Total	<1	<0.5	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	0.09	<0.5	-
Total PAH	0.78	<0.5	-
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.05	-
Aldrin	<0.1	<0.05	-
Dieldrin	<0.1	<0.05	-
DDD	<0.1	<0.05	-
DDE	<0.1	<0.05	-
DDT	<0.1	<0.05	-
Chlordane (trans & cis)	<0.1	<0.05	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<0.1	-

Table 19: Inter-lab Groundwater Sample GWSS1 RPDs

ANALYTE	Envirolab GW1 ug/l	DUPLICATE GWD1 ug/l	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	1	1	0
Cadmium	<0.1	<0.1	-
Chromium	<1	<1	-
Copper	<1	4	-
Lead	<1	<1	-
Mercury	<0.05	<0.05	-
Nickel	18	17	6
Zinc	31	30	3
TRH			
C6-C10 (F1)	<10	<10	-
C10-C16 (F2)	<50	<50	-
BTEX			
Benzene	<1	<1	-
Toulene	<1	<1	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<2	<2	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.1	<0.1	-
Naphthalene	<0.2	<0.2	-
VOC			
Vinyl Chloride	<10	<10	-
Chloroform	<1	<1	-

The comparisons between the inter-laboratory duplicates and corresponding original samples for soil and groundwater indicated generally acceptable RPD overall, with the exception of the concentration of arsenic, total PAH, chromium, copper and lead for soil which exceeded the DQOs for this project, however these exceedances are not considered significant because they are most likely due to the heterogeneity of the sample or low concentrations within the sample.

Field duplicates provide an indication of the whole investigation process, including the sampling process, sample preparation and analysis. The accuracy of the data is considered to be adequate due to the effect on confidence intervals with low concentrations in the samples and their duplicates.

12.9 Trip Spike and Trip Blank Results

Trip Spike samples were obtained from the laboratory prior to conducting field sampling where volatile substances are suspected. Trip spike and trip blank samples were collected to assess the effect of sample handling on volatile concentrations in the samples collected and the results are listed in the tables below:

Table 20: Trip Spike

ANALYTE	TS1 Trip Spike % Soil (mg/kg) 25.3.2019	ANALYTE	TS1 Trip Spike % water (ug/L) 5.4.2019
BTEX		**BTEX**	
Benzene	92%	Benzene	106%
Toluene	93%	Toluene	103%
Ethyl Benzene	95%	Ethyl Benzene	107%
O-Xylenes	95%	O-Xylenes	108%
M & P Xylenes	97%	M & P Xylenes	104%

ANALYTE	TS2 Trip Spike % Soil (mg/kg) 26.03.2019
BTEX	
Benzene	95%
Toluene	96%
Ethyl Benzene	95%
O-Xylenes	95%
M & P Xylenes	95%

Results discussed in Section 12.11

Table 21: Trip Blank

ANALYTE	Trip Blank Soil (TB1) mg/kg 25.3.2019	ANALYTE	Trip Blank Water (TB1) ug/L 05.04.2019
TRH		**TRH**	
C6-C10	<25	C6-C10	10
BTEX		**BTEX**	
Naphthalene	<1	Naphthalene	NA
Benzene	<0.2	Benzene	<1
Toluene	<0.5	Toluene	<1
Ethyl Benzene	<1	Ethyl Benzene	<1
Total Xylenes	<1	Total Xylenes	<1
		VOCs	<LOR

ANALYTE	Trip Blank Soil (TB2) mg/kg
TRH	
C6-C10	<25
BTEX	
Naphthalene	<1
Benzene	<0.2
Toluene	<0.5
Ethyl Benzene	<1
Total Xylenes	<1

Results discussed in Section 12.11

12.10 Laboratory QA/QC

The integrity of analytical data provides the second step in the QA/QC process for total data compliance. The data validation techniques adopted by Foundation Earth Sciences are based upon techniques published by the US EPA and in line with methods and guidelines adopted by the NSW EPA and outlined in the NEPM, 2013.

Descriptions are provided of the specific mechanisms used in the assessment of accuracy, precision and useability of analytical data within the project.

Refer to **Appendix H**- NATA Laboratory Test Results.

12.11 QA/QC Results

The QA/QC results for soil collected at the site are summarised in the table below:

Table 22: QA/QC Results Summary

Data Quality Indicator	Results	DQI Met
Completeness		
Soil & Groundwater		
Data from critical samples is considered valid	Data is considered valid	Yes
Satisfactory frequency / result for QC samples	The QC results are considered adequate for the purpose of the investigation	Yes
Field documentation completed	Field records are complete	Yes
Boreholes logs & COCs completed and holding times complied with	Logs, COCs and holding times have been completed and complied with	Yes
Comparability		
Soil & Groundwater		
Standard operating procedures used	Yes	Yes
Consistent field conditions, sampling staff and laboratory analysis	Sampling was conducted by one Foundation Earth Sciences scientist operating under the SOPs. The laboratories remained consistent	Yes

Data Quality Indicator	Results	DQI Met
	throughout the investigation	
Same analytical methods used	All analytical methods used between laboratories were based on the USEPA/APHA methods	Yes
Limit of reporting appropriate and consistent	The LORs were the same within each laboratory but differed between the primary and secondary laboratories. The LORs were considered appropriate based on the results.	Yes
Representativeness		
Soil & Groundwater		
Sampling appropriate for media and analytes	All sampling was conducted in accordance with Foundation Earth Sciences SOPs.	Yes
Samples adequately preserved	The majority of samples collected were received by laboratories at the correct temperature. Where relevant, samples were stored in acid-preserved containers supplied by laboratories.	Yes
Precision		
Soil & Groundwater		
SOPs appropriate and complied with in relation to field duplicates	The recovery of field duplicates was conducted in accordance with Foundation Earth Sciences SOPs s to allow for the assessment of field precision.	Yes
RPDs of the field duplicates within control limits	RPDs of >50% were identified in a number of samples analysed for metals& total PAH and was likely due to the	Partial

Data Quality Indicator	Results	DQI Met
	heterogeneity of the sample and/or the low concentrations in the sample. Given that the majority of RPDs for the remaining analytes were <50%, the data set was considered to be adequately precise.	
RPDs of the laboratory duplicates within control limits	The RPDs of the laboratory duplicates were within the control limits.	Yes
Accuracy		
Soil & Groundwater		
SOPs appropriate and complied with in relation to field blanks	Yes	Yes
Rinsate Blanks, trip blanks & laboratory blanks free of contaminants	Laboratory blanks & trip blanks were free of contaminants.	Yes
Surrogate spikes within control limits	Yes	Yes
Laboratory control spikes within control limits	Laboratory Control Spike recoveries were within control limits with the exception of laboratory certificate 214514-Revision R01 for the soil spike. TRH Soil C10- C40 NEPM # Percent Recovery is not possible to report as the high concentration of analytes in the samples 214514-3 and 13 have caused interference.	Partial
Matrix Spike recoveries within control limits	Matrix spike recoveries were within control limits.	Yes
Trip spike recoveries within control limits	Yes	Yes

12.12 QA/QC Evaluation / Conclusion

In summary, the findings of the QA/QC evaluation indicated the following:

- Data Completeness – The data set is considered complete.
- Data Comparability – The data set is considered comparable.
- Data Representativeness – The data set is considered representable.
- Data Precision – The following non-conformance was identified with regards to data precision:
    - RPDs of >50% were identified in a number of samples analysed for metals& total PAH and was likely due to the heterogeneity of the sample and/or the low concentrations in the sample. Given that the majority of RPDs for the remaining analytes were <50%, the data set was considered to be adequately precise.
- Data Accuracy – The following non-conformance was identified with regards to data accuracy:
    - Laboratory Control Spike recoveries were within control limits with the exception of laboratory certificate 214514-Revision R01 for the soil spike. TRH Soil C10- C40 NEPM # Percent Recovery is not possible to report as the high concentration of analytes in the samples 214514-3 and 13 have caused interference.

It is therefore considered that the data is sufficiently reliable and that the results can be used for the purpose of this project.

13.0 SITE ASSESSMENT CRITERIA

13.1 SOILS

13.1.1 Health Investigation Levels (HILs)

To assess the contamination status of soils at a site, the NSW EPA refers to the document entitled National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (Amendment 2013).

The site is currently occupied by administrative/commercial/light industrial properties & ground level car parking. Existing one & two storey warehouse and offices will be retained to the southern portion of the site. The north portion of the site is proposed to be redeveloped into mixed use senior living apartment including commercial areas on the lower ground floor & ground floor, landscaping, deep soil areas and a basement car parking with car parking spaces in the lower ground level. The Site Assessment forms part of SEPP 55 Guideline (Remediation of Land) with a proposed redevelopment to determine the end land-use suitability of the property.

Soils sampled across the Site were assessed against the Site Acceptance Criteria (SAC) provided by the National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013) Table 1A - Residential B & HIL D –Commercial & Industrial.

The site will be assessed against the NEPM exposure scenario 'Residential B & HIL D – Commercial & Industrial' Health Investigation Levels of the above-mentioned guidelines and specifically refers to the following:

HIL 'B' Residential with minimal opportunities for soil access: includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments

HIL 'D' Commercial/industrial includes premises such as shops, offices, factories and industrial sites.

Only *HIL 'B' Criteria values are* adopted and compared in the result summary table in Appendix K as the values are more stringent to *HIL 'B'. (The soil testing results exceed HIL 'D' will exceed HIL 'B')*

The soil regulatory guidelines are presented in the table below.

Table 23: Health Investigation Levels (HIL) Criteria for Soil Contaminants

Benviron group simple sustainable solutions	Residential B	Reference
Heavy Metals		
Arsenic	500	NEPM 2013 - Table 1(A)1 HILs
Beryllium	90	NEPM 2013 - Table 1(A)1 HILs
Boron	40000	NEPM 2013 - Table 1(A)1 HILs
Cadmium	150	NEPM 2013 - Table 1(A)1 HILs
Chromium (VI)	500	NEPM 2013 - Table 1(A)1 HILs
Cobalt	600	NEPM 2013 - Table 1(A)1 HILs
Copper	30000	NEPM 2013 - Table 1(A)1 HILs
Lead	1200	NEPM 2013 - Table 1(A)1 HILs
Manganese	14000	NEPM 2013 - Table 1(A)1 HILs
Mercury (Inorganic)	120	NEPM 2013 - Table 1(A)1 HILs
Methyl Mercury	30	NEPM 2013 - Table 1(A)1 HILs
Nickel	1200	NEPM 2013 - Table 1(A)1 HILs
Selenium	1400	NEPM 2013 - Table 1(A)1 HILs
Zinc	60000	NEPM 2013 - Table 1(A)1 HILs
Cyanide (Free)	300	NEPM 2013 - Table 1(A)1 HILs
Polycyclic Aromatic Hydrocarbons (PAHs)		
Carcinogenic PAHs (as Bap TEQ)	4	NEPM 2013 - Table 1(A)1 HILs
Total PAHs	400	NEPM 2013 - Table 1(A)1 HILs
Organochlorine Pesticides		
DDT + DDE + DDD	600	NEPM 2013 - Table 1(A)1 HILs
Aldrin + Dieldrin	10	NEPM 2013 - Table 1(A)1 HILs
Chlordane	90	NEPM 2013 - Table 1(A)1 HILs
Endosulfan	400	NEPM 2013 - Table 1(A)1 HILs
Heptachlor	10	NEPM 2013 - Table 1(A)1 HILs
HCB	15	NEPM 2013 - Table 1(A)1 HILs
Phenols		
Phenols	45000	NEPM 2013 - Table 1(A)1 HILs
Pentachlorophenol	130	NEPM 2013 - Table 1(A)1 HILs
Cresols	4700	NEPM 2013 - Table 1(A)1 HILs
Polychlorinated Biphenyls (PCBs)		
PCBs	1200	NEPM 2013 - Table 1(A)1 HILs
Other Pesticides		
Atrazine	470	NEPM 2013 - Table 1(A)1 HILs
Chlorpyrifos	340	NEPM 2013 - Table 1(A)1 HILs
Bifenthrin	840	NEPM 2013 - Table 1(A)1 HILs
Herbicides		
2,4,5-T	900	NEPM 2013 - Table 1(A)1 HILs
2,4-D	1600	NEPM 2013 - Table 1(A)1 HILs
MCPA	900	NEPM 2013 - Table 1(A)1 HILs
MCPB	900	NEPM 2013 - Table 1(A)1 HILs
Mecoprop	900	NEPM 2013 - Table 1(A)1 HILs
Picloram	6600	NEPM 2013 - Table 1(A)1 HILs
Other Organics		
PDBE (Br1-Br9)	2	NEPM 2013 - Table 1(A)1 HILs

	Commerical/Industrial D	Reference
Heavy Metals		
Arsenic	3000	NEPM 2013 - Table 1(A)1 HILs
Beryllium	500	NEPM 2013 - Table 1(A)1 HILs
Boron	300000	NEPM 2013 - Table 1(A)1 HILs
Cadmium	900	NEPM 2013 - Table 1(A)1 HILs
Chromium (VI)	3600	NEPM 2013 - Table 1(A)1 HILs
Cobalt	4000	NEPM 2013 - Table 1(A)1 HILs
Copper	240000	NEPM 2013 - Table 1(A)1 HILs
Lead	1500	NEPM 2013 - Table 1(A)1 HILs
Manganese	60000	NEPM 2013 - Table 1(A)1 HILs
Mercury (Inorganic)	730	NEPM 2013 - Table 1(A)1 HILs
Methyl Mercury	180	NEPM 2013 - Table 1(A)1 HILs
Nickel	6000	NEPM 2013 - Table 1(A)1 HILs
Selenium	10000	NEPM 2013 - Table 1(A)1 HILs
Zinc	400000	NEPM 2013 - Table 1(A)1 HILs
Cyanide (Free)	1500	NEPM 2013 - Table 1(A)1 HILs
Polycyclic Aromatic Hydrocarbons (PAHs)		
Carcinogenic PAHs (as Bap TEQ)	40	NEPM 2013 - Table 1(A)1 HILs
Total PAHs	4000	NEPM 2013 - Table 1(A)1 HILs
Organochlorine Pesticides		
DDT + DDE + DDD	3600	NEPM 2013 - Table 1(A)1 HILs
Aldrin + Dieldrin	45	NEPM 2013 - Table 1(A)1 HILs
Chlordane	530	NEPM 2013 - Table 1(A)1 HILs
Endosulfan	2000	NEPM 2013 - Table 1(A)1 HILs
Heptachlor	50	NEPM 2013 - Table 1(A)1 HILs
HCB	80	NEPM 2013 - Table 1(A)1 HILs
Phenols		
Phenols	240000	NEPM 2013 - Table 1(A)1 HILs
Pentachlorophenol	660	NEPM 2013 - Table 1(A)1 HILs
Cresols	25000	NEPM 2013 - Table 1(A)1 HILs
Polychlorinated Biphenyls (PCBs)		
PCBs	7	NEPM 2013 - Table 1(A)1 HILs
Other Pesticides		
Atrazine	2500	NEPM 2013 - Table 1(A)1 HILs
Chlorpyrifos	2000	NEPM 2013 - Table 1(A)1 HILs
Bifenthrin	4500	NEPM 2013 - Table 1(A)1 HILs
Herbicides		
2,4,5-T	5000	NEPM 2013 - Table 1(A)1 HILs
2,4-D	9000	NEPM 2013 - Table 1(A)1 HILs
MCPA	5000	NEPM 2013 - Table 1(A)1 HILs
MCPB	5000	NEPM 2013 - Table 1(A)1 HILs
Mecoprop	5000	NEPM 2013 - Table 1(A)1 HILs
Picloram	35000	NEPM 2013 - Table 1(A)1 HILs
Other Organics		
PDBE (Br1-Br9)	10	NEPM 2013 - Table 1(A)1 HILs

Note - All values are in mg/kg

13.1.2 Health Screening Levels (HSLs)

The HSLs are applicable to generic land uses such as residential, commercial/industrial or recreational/public open space and different soil types between the ground surface and soils >4 metres below ground level. The HILs have been applied to assess human health risks via the inhalation and direct contact pathways of exposure.

It should be noted that HSL D can be used in lieu of HSL B for buildings that comprise car parks or commercial properties on the ground floor.

For assessing TRH and BTEX contamination at sites used for sensitive land use, such as residential, the NEPM refers to the Health Screening Levels (HSLs) "HSL A and HSLB".

For selection of the health screening criteria an assessment of the in-situ soil profile should be undertaken. The soil profile consisted of predominantly Clay, Sand or Silt.

Table 24: Health Screening Levels (HSL) Criteria

	HSL A & HSL B	HSL A & HSL B	HSL A & HSL B	HSL A & HSL B	HSL D	HSL D	HSL D	HSL D	Soil Saturation Concentration (Csat)	Reference
	0m to <1m	1m to <2m	2m to <4m	4m+	0m to <1m	1m to <2m	2m to <4m	4m+		
SAND										
Toluene	160	220	310	540	NL	NL	NL	NL	560	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	55	NL	NL	NL	NL	NL	NL	NL	64	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	40	60	95	170	NL	NL	NL	NL	300	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	3	NL	NL	NL	NL	NL	NL	NL	9	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.5	0.5	0.5	0.5	3	3	3	3	360	NEPM 2013 - Table 1(A) 3 HSLs
F1	45	70	110	200	260	370	630	NL	950	NEPM 2013 - Table 1(A) 3 HSLs
F2	110	240	440	NL	NL	NL	NL	NL	560	NEPM 2013 - Table 1(A) 3 HSLs
SILT										
Toluene	480	NL	NL	NL	NL	NL	NL	NL	640	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	NL	NL	NL	NL	NL	NL	NL	NL	69	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	110	310	NL	NL	NL	NL	NL	NL	330	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	5	NL	NL	NL	NL	NL	NL	NL	10	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.7	1	2	3	4	4	6	10	440	NEPM 2013 - Table 1(A) 3 HSLs
F1	50	90	150	290	250	360	590	NL	910	NEPM 2013 - Table 1(A) 3 HSLs
F2	280	NL	NL	NL	NL	NL	NL	NL	570	NEPM 2013 - Table 1(A) 3 HSLs
CLAY										
Toluene	480	NL	NL	NL	NL	NL	NL	NL	630	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	NL	NL	NL	NL	NL	NL	NL	NL	68	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	110	310	NL	NL	NL	NL	NL	NL	330	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	5	NL	NL	NL	NL	NL	NL	NL	10	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.7	1	2	3	4	6	9	20	430	NEPM 2013 - Table 1(A) 3 HSLs
F1	50	90	150	290	310	480	NL	NL	850	NEPM 2013 - Table 1(A) 3 HSLs
F2	280	NL	NL	NL	NL	NL	NL	NL	560	NEPM 2013 - Table 1(A) 3 HSLs

Note - All values are in mg/kg

13.1.3 (EILs) and (ESLs)

Ecological Investigation Levels (EILs) -

The NEPM 2013 states that "Ecological investigation levels (EILs) for the protection of terrestrial ecosystems have been derived for common contaminants in soil based on a species sensitivity distribution (SSD) model developed for Australian conditions. EILs have been derived for As, Cu, CrIII, DDT, naphthalene, Ni, Pb and Zn

Insufficient data was available to derive ACLs for arsenic (As), DDT, lead (Pb) and naphthalene. As a result, the derived EILs are generic to all soils and are presented as total soil contaminant concentrations in Tables 1B (4) and 1B (5) within the NEPM 2013.

For the purposes of EIL derivation, a contaminant incorporated in soil for at least two years is considered to be aged for the purpose of EIL derivation. The majority of contaminated sites are likely to be affected by aged contamination. Fresh contamination is usually associated with current industrial activity and chemical spills".

The following process describes the method for calculation of site specific EILs.

A. EILs for Ni, Cr III, Cu, Zn and Pb aged contamination (>2 years)

Steps 1–4 below describe the process for deriving site-specific EILs for the above elements using Tables 1B (1) – 1B (4), which can be found at the end of the NEPM 2013.

1. Measure or analyse the soil properties relevant to the potential contaminant of concern (pH, CEC, organic carbon, clay content). Sufficient samples need to be taken for these determinations to obtain representative values for each soil type in which the contaminant occurs.

2. Establish the sample ACL for the appropriate land use and with consideration of the soil-specific pH, clay content or CEC. The ACL for Cu may be determined by pH or CEC and the lower of the determined values should be selected for EIL calculation. Note that the ACL for Pb is taken directly from Table 1(B) 4.

3. Calculate the contaminant ABC in soil for the particular contaminant and location from a suitable reference site measurement or other appropriate method.

4. Calculate the EIL by summing the ACL and ABC:

$$EIL = ABC + ACL$$

B. EILs for As, DDT and naphthalene

EILs for aged contamination for DDT and naphthalene are not available and the adopted EIL is based on fresh contamination taken directly from Table 1B (5). The EILs for As, DDT and naphthalene are generic i.e. they are not dependent on soil type and are taken directly from Table 1B (5). Only EILs for fresh contamination are available for As, DDT and naphthalene due to the absence of suitable data for aged contaminants.

Ecological Screening Levels (ESLs) -

Ecological screening levels (ESLs) are presented based on a review of Canadian guidance for petroleum hydrocarbons in soil and application of the Australian methodology (Schedule B5b) to derive Tier 1 ESLs for BTEX, benzo(a)pyrene and F1 and F2 (Warne 2010a, 2010b)

The Canadian Council of the Ministers of the Environment (CCME) has adopted risk-based TPH standards for human health and ecological aspects for various land uses in the *Canada-wide standard for petroleum hydrocarbons (PHC) in soil* (CCME 2008) (CWS PHC). The standards established soil values including ecologically based criteria for sites affected by TPH contamination for coarse- and fine-grained soil types.

Table 25: Ecological Investigation Levels (EIL) and Ecological Screening Levels (ESL) Criteria

Contaminant	Age/Soil Texture	National parks and areas of high conservation value	Urban residential and open public spaces	Commercial and industrial	Reference
Ecological Investigation Levels (EILs)					
Heavy Metals					
Arsenic	**Fresh**	20	50	80	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	40	100	160	NEPM 2013 - Table 1(B) 1-5 EILs
Chromium (III)	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Copper	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Lead	**Fresh**	110	270	440	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	470	1100	1800	NEPM 2013 - Table 1(B) 1-5 EILs
Nickel	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Zinc	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Polycyclic Aromatic Hydrocarbons (PAHs)					
Naphthalene	**Fresh**	10	170	370	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	10	170	370	NEPM 2013 - Table 1(B) 1-5 EILs
Organochlorine Pesticides					
DDT	**Fresh**	3	180	640	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	3	180	640	NEPM 2013 - Table 1(B) 1-5 EILs
Ecological Screening Levels (ESLs) and Management Limits					
F1 (C_6-C_{10})	**Coarse**				NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	125*	180*	215*	NEPM 2013 - Table 1(B) 6-7 EILs
F1 (C_6-C_{10})	**Coarse**		700	700	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	800	800	NEPM 2013 - Table 1(B) 6-7 EILs
F2 (>C_{10}-C_{16})	**Coarse**				NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	25*	120*	170*	NEPM 2013 - Table 1(B) 6-7 EILs
F2 (>C_{10}-C_{16})	**Coarse**		1000	1000	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	1000	1000	NEPM 2013 - Table 1(B) 6-7 EILs
F3 (>C_{16}-C_{34})	**Coarse**	-	300	1700	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	1300	2500	NEPM 2013 - Table 1(B) 6-7 EILs
F3 (>C_{16}-C_{34})	**Coarse**		2500	3500	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	3500	5000	NEPM 2013 - Table 1(B) 6-7 EILs
F4 (>C_{34}-C_{40})	**Coarse**	-	2800	3300	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	5600	6600	NEPM 2013 - Table 1(B) 6-7 EILs
F4 (>C_{34}-C_{40})	**Coarse**		10000	10000	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	10000	10000	NEPM 2013 - Table 1(B) 6-7 EILs
Benzene	**Coarse**	10	50	75	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	10	65	95	NEPM 2013 - Table 1(B) 6-7 EILs
Toluene	**Coarse**	10	85	135	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	65	105	135	NEPM 2013 - Table 1(B) 6-7 EILs
Ethylbenzene	**Coarse**	1.5	70	165	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	40	125	185	NEPM 2013 - Table 1(B) 6-7 EILs
Xylenes	**Coarse**	10	105	180	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	1.6	45	95	NEPM 2013 - Table 1(B) 6-7 EILs
Benzo(a)pyrene	**Coarse**	0.7	0.7	0.7	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	0.7	0.7	0.7	NEPM 2013 - Table 1(B) 6-7 EILs

Notes

1 Urban residential/public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.

2 Aged values are applicable to arsenic contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.

3 Insufficient data was available to calculate aged values for DDT and naphthalene, consequently the values for fresh contamination should be used.

4 Insufficient data was available to calculate ACLs for As, DDT and naphthalene. The EIL should be taken directly from Table 1B(5).

5 ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability.

6 '-' indicates that insufficient data was available to derive a value.

7 To obtain F1, subtract the sum of BTEX concentrations from C6-C10 fraction and subtract naphthalene from >C10-C16 to obtain F2.

8 Management limits are applied after consideration of relevant ESLs and HSLs

9 Separate management limits for BTEX and naphthalene are not available hence these should not be subtracted from the relevant fractions to obtain F1 and F2.

13.2 Asbestos

Health screening for asbestos in soil, which are based on scenario-specific likely exposure levels, are adopted from the WA DoH guidelines and are referred in Table 7 in Schedule B1. The following health screening levels for asbestos can be seen below:

Table 26: Health Screening Levels for Asbestos

	Health Screening Levels (w/w)			
Form of Asbestos	**Residential A**	**Residential B**	**Recreational C**	**Commercial/Industrial D**
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF (Friable Asbestos)	0.001%			
All forms of asbestos	No visible asbestos for surface soil			

13.3 Aesthetic Considerations

Schedule B1 in NEPC (2013) requires the consideration of aesthetic issues arising from soils and groundwater within the site. The following assessment criteria were adopted when considering aesthetics:

- no persistently malodourous soils or extracted groundwater;
- no persistent hydrocarbon sheen on surface water;
- no staining or discolouration in soils, taking into consideration the natural state of the soil; and
- no large or frequently occurring anthropogenic materials present (to the extent practicable).

13.4 Groundwater

The NSW DECC has endorsed the use of the Groundwater Investigation Levels (GILs) given in the 1999 NEPM '*Schedule B(1) Guideline on the Investigation Levels for Soil and Groundwater'* (Amendment 2013) and the water quality trigger levels given in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC & ARMCANZ, 2000). These Guidelines provide criteria for:

- Aquatic ecosystems – both marine and fresh waters

The NEPM advises that 'when assessing groundwater contamination, the GILs are to be applied at the point of extraction and as response levels at the point of use, or where there is a likelihood of an adverse environmental effect at the point of discharge'.

For assessing groundwater quality, it is first necessary to assess the potential uses of groundwater downgradient of the site being assessed.

Potential uses of groundwater downgradient of the site include:

- Discharge to water bodies sustaining aquatic ecosystems particularly Fresh Water.
- Extraction of groundwater by local users.

The threshold concentrations presented in the ANZECC (2000) Fresh and Marine Waters Quality Guidelines are considered applicable for the protection of aquatic ecosystems of the receiving waters. As these guidelines apply to receiving waters, it is generally conservative to apply these to groundwater discharging to receiving waters. It is important to note that these are not threshold values at which an environmental problem is likely to occur if exceeded, rather, if the trigger values are exceeded, then

further action is required which may include either further site-specific investigations to assess whether or not there is an actual problem or management / remedial action should be undertaken.

It is considered that ***Fresh water trigger*** values are applicable for investigating chemical concentrations in groundwater at the site. The nearest watercourse is Trefoil Creek located approximately 450m northwest of the site. It is understood that the NSW EPA policy is that the trigger values for the protection of 95% of aquatic ecosystems should be used as groundwater assessment criteria when considering moderately or highly disturbed receiving environments. The receiving waters for groundwater at the site are considered to be moderately disturbed ecosystems and the ANZECC (2000) 95% protection values are therefore considered appropriate groundwater assessment criteria for the site.

14.0 RESULTS

SOIL

The laboratory certificates are presented in **Appendix H** – NATA Accredited Laboratory Certificates.

A summary of the results together with the assessment criteria adopted are provided in **Appendix K** – Summary Tables.

14.1 HEAVY METALS

14.1.1 Heath Investigation Levels

As indicated in Table K1 all the heavy metals were below the respective LOR and/or the Health Investigation Level (HIL) for a residential development, that being the HIL 'B'.

14.1.2 Ecological Investigation Levels

The EILs for Copper, Zinc, Lead, Nickel and Chromium III were derived by adding the Ambient Background Concentration (ABC) to the Added Contaminant Limits (ACL), as per the following formula:

EIL = ABC + ACL

The ABC for the site has been determined by recovering a sample from an appropriate reference point, that being:

- BH9 (0.2-0.3m)
- BH9 (0.6-0.7m)

The soil samples collected from BH7 were analysed for pH, CEC & %CLAY to provide the background parameters for the soil on the site.

As shown in Table K1 all of the locations were below the site derived EILs.

14.2 TRH, BTEX, NAPHTHALENE &/OR BENZO (A) PYRENE

14.2.1 Heath Screening Levels & Management Limits

As indicated in Table K1, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), benzene, toluene, ethyl benzene, xylenes and naphthalene concentrations were below the HSL 'A' & HSL 'B' for a Clay/ Sand/Silt soil profile with a source depth of "0m to <1m" and/or "1m to <2m" and/or "2m to <4m" and/or "4m+" with the exception of

- The Naphthalene concentration of 23mg/kg in BH8 (0.3-0.4m) exceeded the HSL A& B(CLAY) criteria of 5mg/kg

As shown in Table K1, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), F3 (C_{16}-C_{34}), F4 (C_{34}-C_{40}), concentrations were below the Management Limits for a fine-grained and or coarse-grained soil texture in a "residential parkland and public open space".

14.2.2 Ecological Screening Levels

As indicated in Table K1, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), F3 (C_{16}-C_{34}), F4 (C_{34}-C_{40}), benzene, toluene, ethyl benzene, xylenes and benzo(a)pyrene concentrations were below the ESL for a fine-grained and/or coarse-grained soil texture in an "urban residential and public open space" with the exception of the following:

- A F2(C10- C16) concentration of 240mg/kg in BH8 (0.3-0.4m) exceeded the ESL criteria of 120mg/kg.
- A F3(C16- C34) concentration of 2400mg/kg in BH8 (0.3-0.4m) exceeded the ESL criteria of 1300mg/kg.
- A F3(C16- C34) concentration of 1900mg/kg in BH15 (0.2-0.3m) exceeded the ESL criteria of 1300mg/kg.
- The benzo(a)pyrene concentrations of 2.3mg/kg in BH4 (2.0-2.1m), 8.1mg/kg in BH8 (0.3-0.4m),3.6mg/kg in BH10 (0.2-0.3m) & 3.2mg/kg in BH15(0.2-0.3m) exceeded the ESL criteria of 0.7mg/kg.

14.3 PAH, OCP & PCB

14.3.1 Heath Investigation Levels

As indicated in Table K1, the concentrations of the benzo(a)pyrene (as TEQ), Total PAH, OCP & PCB were below the Health Investigation Level (HIL) for a residential development, that being the HIL 'B' and/or the limit of reporting (LOR) with the exception of the following:

- The Bap TEQ concentrations of 12mg/kg in BH8 (0.3-0.4m), 5mg/kg in BH10 (0.2-0.3m) & 4.4mg/kg in BH15(0.2-0.3m) exceeded the HIL criteria of 4mg/kg.

14.3.2 EILs & ESLs

As indicated in Table K1, the concentrations of arsenic, naphthalene and DDT were below the EILs & ESLs for urban residential and public open space.

14.4 Asbestos

As shown in Table K1, the soil sample tested for Asbestos was below the %w/w asbestos for FA & AF adjusted assessment criteria & below the %w/w asbestos ACM – Residential use, childcare centres, preschools etc.

GROUNDWATER

The laboratory certificates are presented in **Appendix H** – NATA Accredited Laboratory Certificates.

A summary of the results together with the assessment criteria adopted are provided in **Appendix K** – Summary Tables.

14.5 HEAVY METALS

As indicated in Table K2, dissolved copper, nickel and zinc were detected at concentrations above or equal to the respective groundwater investigation level for the

95% protection of freshwater aquatic ecosystems in GW1 and/or associated field duplicates.

The remaining metals concentrations were either below the laboratory limits of reporting (LOR) or their respective assessment criteria.

14.6 TRH & BTEXN

As shown In Table K2, the BTEXN concentrations were either less than the laboratory limit of reporting (LOR) and/or below the assessment criteria.

As indicated in Table K2, the TRH F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), benzene, toluene, ethyl benzene, xylenes and naphthalene concentrations were below the HSL 'A' & HSL 'B' for a Sand profile with a source depth of "4m to <8m".

14.7 PAH

As indicated in Table K2, the PAH concentrations were either less than the laboratory limit of reporting (LOR) and/or below the assessment criteria.

14.8 VOCs in Groundwater

As indicated in Table K3, the VOC concentrations were either less than the laboratory limit of reporting (LOR) and/or below the adopted assessment criteria.

Refer to **Appendix H** – NATA Accredited Laboratory Certificates.

15.0 UPDATED CONCEPTUAL SITE MODEL (CSM)

Chemical of Concern:

Soil contaminations are found in a few borehole locations (designated BH4, BH8, BH10 & BH15) with the contaminants of concern being benzo(a)pyrene, TRH F2(C10-C16), TRH F3(C16-C34), Naphthalene& B(a)p TEQ .

Levels of dissolved heavy metals were detected above groundwater investigation levels. However, these excursions were considered to be background levels and therefore of limited concerns.

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); and
- The site topography, geology, hydrology and hydrogeology.

The redevelopment works at site will created minimal unsealed ground surfaces and therefore, there is a low risk for migration of contaminants via wind-blown dust. Likewise, rainfall infiltration at the site is not expected due to the proposed sealed surfaces across the site based on the proposed development. The removal of the

contaminated soil, will reduced the risk for any ongoing / future migration of contaminants.

Potential Exposure Pathways (Transport of Chemicals of Concern)

Potential exposure pathways include:

- Dermal;
- Ingestion; and
- Inhalation.

The potential for ingestion of soil is considered a potential exposure pathway based on the proposed at grade development. There is no risk for ingestion of contaminants via groundwater removed from monitoring wells as no monitoring wells will remain on the site post remediation works.

Based on the health screening limits (HSLs) for both soil and groundwater observed during the DSI; dermal and inhalation exposure pathways by potentially contaminated soil, groundwater and vapour is considered a low to medium risk.

Receptors

Human:

The site groundwater is not currently used for or planned to be used for drinking water as town water is provided by Sydney Water. The most likely human receptor(s) would be persons exposed to groundwater extracted from a bore and used for non-domestic purposes such as for stock watering, recreation such as to fill household pools and water gardens, including watering of fruit and vegetables in private gardens.

The nearest watercourse is Trefoil Creek located approximately 450m northwest of the site.

Ecological

The ecological receptors would be surface water and benthic organisms in Trefoil Creek. This assumes that the any contaminations can be transported offsite in groundwater via interconnected fractures in the shale and/or sandstone to Amaroo Gully.

Table 27: Updated CSM Soil

Potential Sources	Potential Receptor	Potential Exposure Pathways	Complete Linkages	Risk	Justification
Benzo(a)pyrene impacts at BH4	Site users or the general public	Dermal contact, inhalation or ingestion of exposed impacted soils	Yes (Current)	Medium	Direct contact with impacted soils is available
			No (Future)	Negligible	Contaminated soils are likely to be removed during basement excavation works.
	The aquatic ecosystems at Trefoil Creek	Migration of impacted groundwater and surface water run-off	Yes (Current)	High	Impacted fill soil contamination could migrate off site with surface water run-off.
			No (Future)	Negligible	If present, contaminated groundwater is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.
	Underlying Aquifer	Leaching and migration of contaminants through groundwater infiltration	Yes (Current)	Medium	Groundwater infiltration is likely to be higher within sandy or weathered bedrock zones.
			No (Future)	Negligible	Contaminated soils are likely to be removed during basement excavation works.

Potential Sources	Potential Receptor	Potential Exposure Pathways	Complete Linkages	Risk	Justification
PAH, TRH & BTEX impacts at BH8	Site users or the general public	Dermal contact, inhalation or ingestion of exposed impacted soils	Yes (Current)	Medium	Direct contact with impacted soils is available
			No (Future)	Negligible	If present, contaminated soil is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.
	The aquatic ecosystems at Trefoil Creek	Migration of impacted groundwater and surface water run-off	Yes (Current)	High	Impacted fill soil contamination could migrate off site with surface water run-off.
			No (Future)	Negligible	If present, contaminated groundwater is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.
	Underlying Aquifer	Leaching and migration of contaminants through groundwater infiltration	Yes Current)	Medium	Groundwater infiltration is likely to be higher within sandy or weathered bedrock zones.
			No (Future)	Negligible	If present, contaminated soil is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.

Potential Sources	Potential Receptor	Potential Exposure Pathways	Complete Linkages	Risk	Justification
PAH impacts at BH10	Site users or the general public	Dermal contact, inhalation or ingestion of exposed impacted soils	Yes (Current)	Medium	Direct contact with impacted soils is available
			No (Future)	Negligible	If present, contaminated soil is likely to be remediated and any remaining residual contamination would likely

Potential Sources	Potential Receptor	Potential Exposure Pathways	Complete Linkages	Risk	Justification
					be at negligible concentrations.
	The aquatic ecosystems at Amaroo Gully / Blackbutt Creek	Migration of impacted groundwater and surface water run-off	Yes (Current)	High	Impacted fill soil contamination could migrate off site with surface water run-off.
			No (Future)	Negligible	If present, contaminated groundwater is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.
	Underlying Aquifer	Leaching and migration of contaminants through groundwater infiltration	Yes Current)	Medium	Groundwater infiltration is likely to be higher within sandy or weathered bedrock zones.
			No (Future)	Negligible	If present, contaminated soil is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.

Potential Sources	Potential Receptor	Potential Exposure Pathways	Complete Linkages	Risk	Justification
PAH & TRH impacts at BH15	Site users or the general public	Dermal contact, inhalation or ingestion of exposed impacted soils	Yes (Current)	Medium	Direct contact with impacted soils is available
			No (Future)	Negligible	If present, contaminated soil is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.
	The aquatic ecosystems at Amaroo Gully / Blackbutt Creek	Migration of impacted groundwater and surface water run-off	Yes (Current)	High	Impacted fill soil contamination could migrate off site with surface water run-off.
			No (Future)	Negligible	If present, contaminated groundwater is likely to be remediated and any

Potential Sources	Potential Receptor	Potential Exposure Pathways	Complete Linkages	Risk	Justification
					remaining residual contamination would likely be at negligible concentrations.
	Underlying Aquifer	Leaching and migration of contaminants through groundwater infiltration	Yes Current)	Medium	Groundwater infiltration is likely to be higher within sandy or weathered bedrock zones.
			No (Future)	Negligible	If present, contaminated soil is likely to be remediated and any remaining residual contamination would likely be at negligible concentrations.

Data Gaps

The following Data gaps were identified for the site:

- Additional sampling in areas which were inaccessible in order to satisfy the NEPM 2013 and sampling design guidelines.
- Delineation of current hotspots identified within the site.

16.0 DISCUSSION

16.1 SOILS

The depth of the impacted soil at borehole BH4 is within 2.5m of the site surfaces. The soil results exceeded the ESL guidelines for benzo(a)pyrene, however the location is in the proposed basement area, therefore remediation of these locations is not required as the soil will be removed offsite with basement excavation earthworks.

The site has some areas of potential concern, those being historical land uses (commercial/ industrial), surrounding land use (commercial/ industrial), possible areas of imported fill of unknown origin, degradation of the building materials and leakages from vehicles on site.

The following borehole locations; BH8, BH10& BH15, require remediation in order to render the site suitable for the proposed development.

Information pertaining to the above mentioned locations is included below:

- The TRH F2(C10-C16), F3(C16-C34), Naphthalene, benzo(a)pyrene & Bap TEQ concentrations within BH8 is located in the fill layer to a depth of 0.4m BGL.
- The benzo(a)pyrene & Bap TEQ concentrations within BH10 is located in the fill layer to a depth of 0.3m BGL.
- The TRH F3(C16-C34), benzo(a)pyrene & Bap TEQ concentration within BH15 is located in the fill layer to a depth of 0.3m BGL.

Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).

Reference should be made to Figure 3 & 4 in for a copy of the locations on the site

16.2 GROUNDWATER QUALITY

The groundwater monitoring undertaken by Foundation Earth Sciences has no concerns with TRH, BTEXN, PAH & VOC in relation to the adopted guidelines.

Levels of dissolved heavy metals were detected above groundwater investigation levels. However, these excursions were considered to be background levels and therefore of limited concerns based on the following reason;

- Foundation Earth Sciences has extensive contaminated land experience in the Sydney Basin, which has indicated a common pattern of groundwater to be impacted by heavy metals. This is likely to be associated with progressive development and an increase in population growth and/or density.

16.3 DUTY TO REPORT

Under Section 60 of the Contaminated Land Management Act 1997, the owner of the land is required to notify contamination in circumstances as indicated in the NSW EPA (2015) *Guidelines on Duty to Report Contamination under the Contaminated Land Management Act 1997*.

Sites that are significantly impacted by soil, groundwater and ground gases are likely to require notification to the NSW EPA under section 60 of the CLM Act. A decision process for use by site owners or responsible persons considering reporting contamination under section 60 is provided in Appendix 1 (Figure 1) of the aforementioned guidelines.

17.0 CONCLUSION AND RECOMMENDATION

Based on the results of the investigation, the site can be considered ***suitable*** for the proposed development, subject to the following;

- It is considered that the site could be deemed suitable for the proposed development subject to the implementation of a Remediation Action Plan (RAP) to manage the abovementioned environmental concerns including further Investigation to assess the inaccessible areas and to satisfy the minimum requirements by NSW EPA Sampling Design Guidelines.
- Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).

If during any potential site works, significant odours and / or evidence of gross contamination (including asbestos) not previously detected are encountered, or any other significant unexpected occurrence, site works should cease in that area, at least temporarily, and the environmental consultant should be notified immediately to set up a response to this unexpected occurrence.

Thank you for the opportunity of undertaking this work. We would be pleased to provide further information on any aspects of this report.

18.0 LIMITATIONS

To the best of our knowledge information contained in this report is accurate at the date of issue, however, subsurface conditions, including groundwater levels and contaminant concentrations, can change in a limited time. This should be borne in mind if the report is used after a protracted delay.

There is always some disparity in subsurface conditions across a site that cannot be fully defined by investigation. Hence it is unlikely that measurements and values obtained from sampling and testing during environmental works carried out at a site will characterise the extremes of conditions that exist within the site.

There is no investigation that is thorough enough to preclude the presence of material that presently or in the future, may be considered hazardous at the site. Since regulatory criteria are constantly changing, concentrations of contaminants presently considered low may, in the future, fall under different regulatory standards that require remediation.

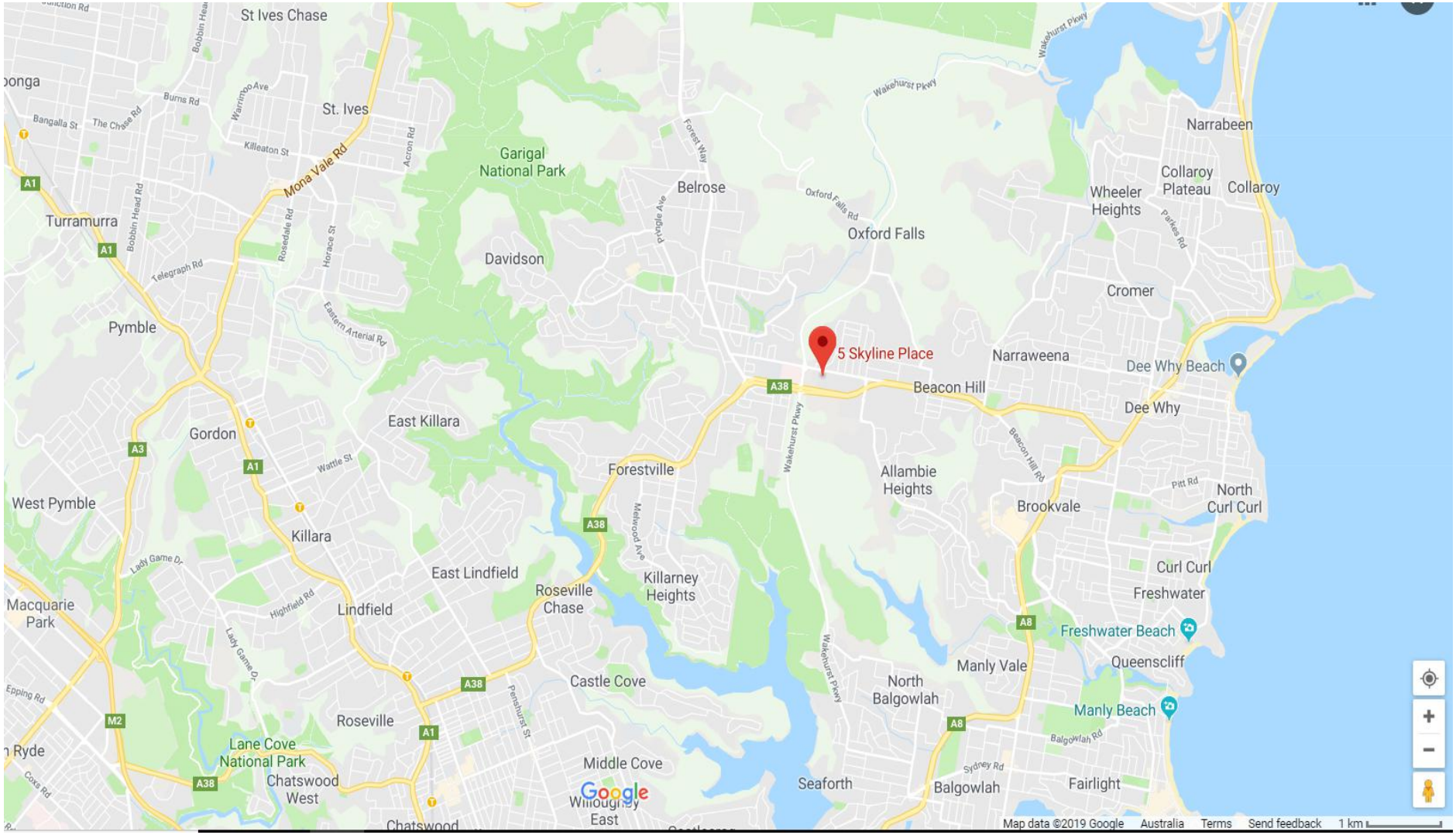
Opinions expressed herein are judgements and are based on our understanding and interpretation of current regulatory standards and should not be construed as legal opinions.

REFERENCES

- Australian and New Zealand Environment and Conservation Council (ANZECC) (1996) – *Drinking Water Guidelines*.
- Australian and New Zealand Environment and Conservation Council (ANZECC) (2000) – *Guidelines for Fresh and Marine Waters*.
- Department of Urban Affairs and Planning – EPA (1998) "*Managing Land Contamination – Planning Guidelines – SEPP 55 – Remediation of Land*".
- National Environmental Protection Council (NEPC) (1999) – *National Environmental Protection (Assessment of Site Contamination) Measure. Amendment 2013*
- National Health and Medical Research Council (NHMRC) & National Resource Management Ministerial Council (NRMMC) "National Water Quality Management Strategy, Australian Drinking Water Guidelines" (2011)
- NSW EPA (2014) "*Technical Note: Investigation of Service Station Sites*".
- NSW EPA (2009) "*Guidelines on Significant Risk of Harm from contaminated land and the duty to report*".
- NSW OEH "Guidelines for Consultants Reporting on Contaminated Sites" (2011). NSW Environment Protection Authority, Sydney.
- NSW DEC, "Guidelines for the Assessment and Management of Groundwater Contamination" (March 2007).
- NSW DEC "Guidelines for the NSW Site Auditor Scheme" (2006, 2nd edition). NSW Environment Protection Authority, Sydney.
- NSW EPA (2014) – "Waste Classification Guidelines, Part 1: Classifying Waste";
- NSW EPA "Guidelines for Consultants Reporting on Contaminated Sites" (2011). NSW Environment Protection Authority, Sydney.
- NSW EPA (2014) "Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997";

- NSW EPA "Sampling Design Guidelines" (1995). NSW Environment Protection Authority, Sydney.
- US EPA "Regional Screening Level (RSL) Summary Tables" (2016). United States Environment Protection Authority.
- SLR Consulting Pty Ltd (2016), Stage 1 Preliminary Site Investigation, 844-846 Pacific Highway, Gordon NSW, Report ID: 610.16831-R01, dated 14th October 2016.

FIGURE 1: SITE LOCATION



Source: Google Maps

Key		DRAWN RL	Site Location
Site Location	Benviron group simple sustainable solutions	FIGURE 1	Detailed Site Investigation
		Job # E1100-2	5 Skyline Place, Frenchs Forest NSW

FIGURE 2: SITE FEATURES

Feature No	Details
1	Car park
2	Vegetations
3	Loading Dock/ Warehouse
4	Gym - Anytime Fitness
5	Office
6	Driveway

Key

Site Location

DRAWN	RL
FIGURE	2
Job #	E1100-2

Site Features Plan

Reference: Six Map Scale 1:1,128

5 Skyline Place, Frenchs Forest NSW

FIGURE 3: BOREHOLE LOCATIONS & EXCEEDANCE PLAN

N

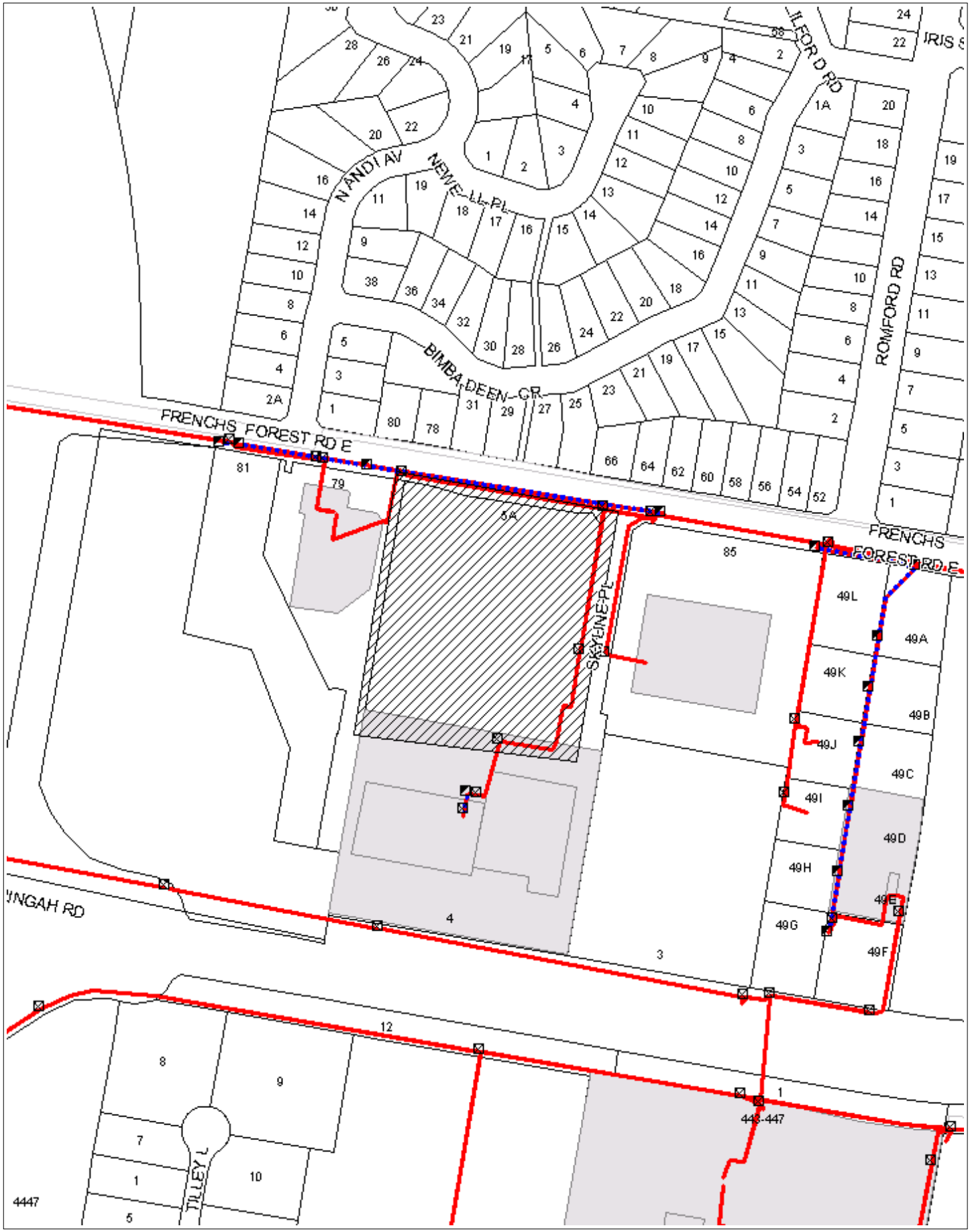
Soil Exceedance (mg/kg)

Groundwater Exceedance (ug/L)

GW1	GWD1	GWSS1
Nickel: 18	17	16
Zinc: 31	30	30
Copper:	*4*	

Key Site Location Soil BH Groundwater Well	Benviron group simple sustainable solutions	DRAWN RL	Site Features, Borehole Locations & Exceedance Plan
		FIGURE 3	Platino Properties Pty Ltd
		Job # E1100-2	5 Skyline Place, Frenchs Forest NSW

APPENDIX A: DBYD PLANS

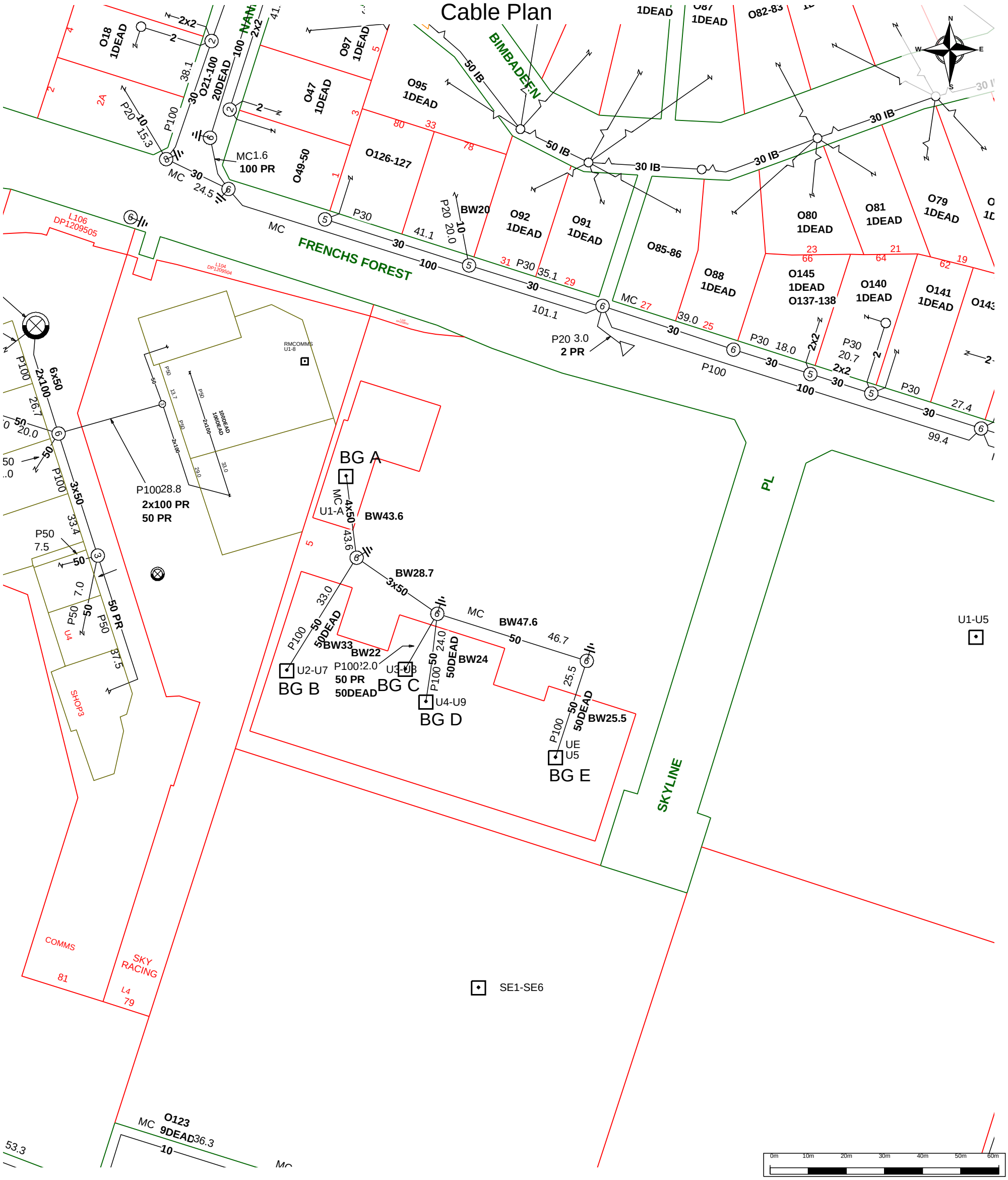


Sequence Number: 81486529

Date Generated: 21/03/2019

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

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 21/03/2019 16:02:05	Sequence Number: 81486528
	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

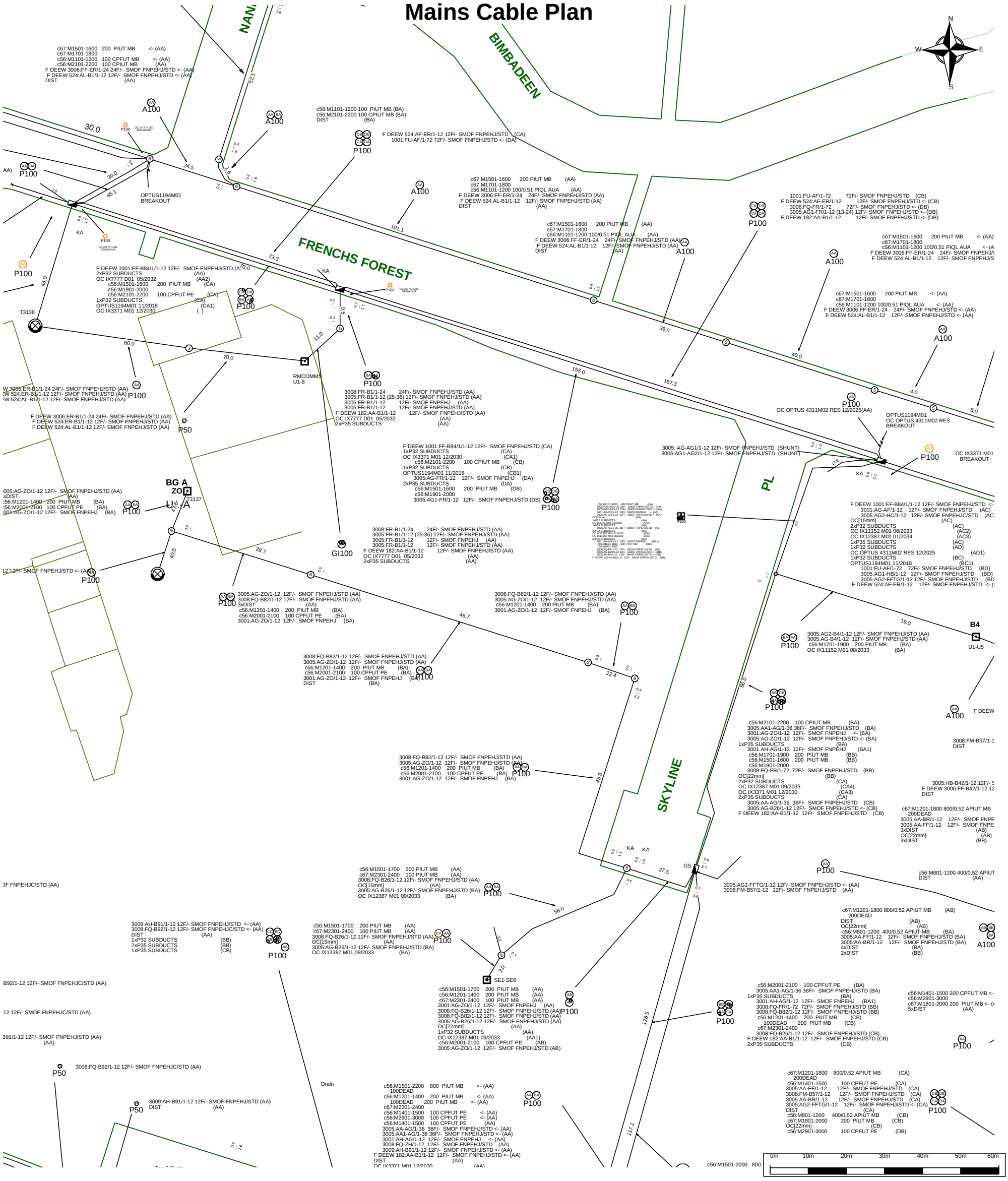
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths 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



For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)	Sequence Number: 81486528
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	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.
Generated On 21/03/2019 16:02:08	

Response Cover Letter

Date: 21/03/2019

PIPE Networks
Level 17, 127 Creek St
Brisbane QLD 4000
Phone: +61 732339895
Fax: +61 732339880

To:
Mr ray Liu - Customer ID: 1643055
Benvrion Group - Mr ray Liu
Unit 3 112 Fairfield Street
Fairfield East
NSW
2165

Email: ray@benvirongroup.com.au
Phone: 0466 385 221
Fax: Not Supplied
Mobile: 0430712310

Dear Mr ray Liu

The following is our response to your Dial Before You Dig enquiry.

Assets Affected: PIPE Networks ASSETS ARE NOT AFFECTED BY YOUR ENQUIRY

Sequence Number: 81486526

Location: 5 Skyline Place
Frenchs Forest
NSW
2086

Commencement Date: 25/03/2019

Please read over the attached documents for more information about your enquiry.

Level 17, PIPE Networks House, 127 Creek Street, Brisbane 4000
PH:(07) 3233 9895 FAX:(07) 3233 9880

Attention: Mr ray Liu
Fax: Not Supplied
DBYD Enquiry Number: 81486526

Date: <Enquiry date >

Location: 5 Skyline Place
Frenchs Forest
NSW
2086

DBYD ENQUIRY RETURN:

PIPE Networks **DOES NOT** own or operate telecommunications network infrastructure within the request area detailed above.

Should the scope of your work or the area of your work change, please contact as below to receive further advice.

Due to continued network expansion, the network information can only be considered valid and accurate for 28 days from issue.

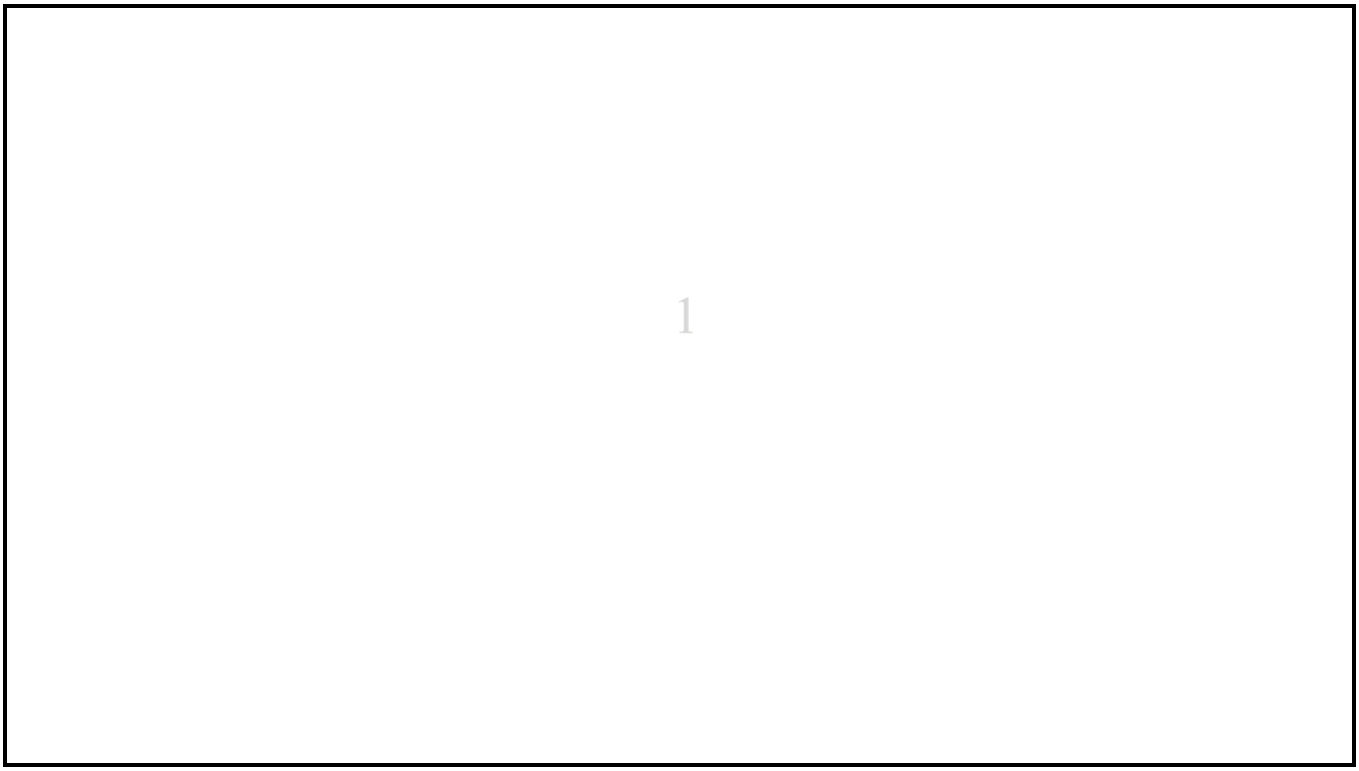
PIPE Networks will seek compensation for any damage to its network through negligence or ignorance of duty of care.

Should you require any further information, please contact as below:

PIPE NETWORKS
Ph (07) 3233 9895
Email: dbyd@pipenetworks.com
(for information specifically on this job only)

Indicative Plans

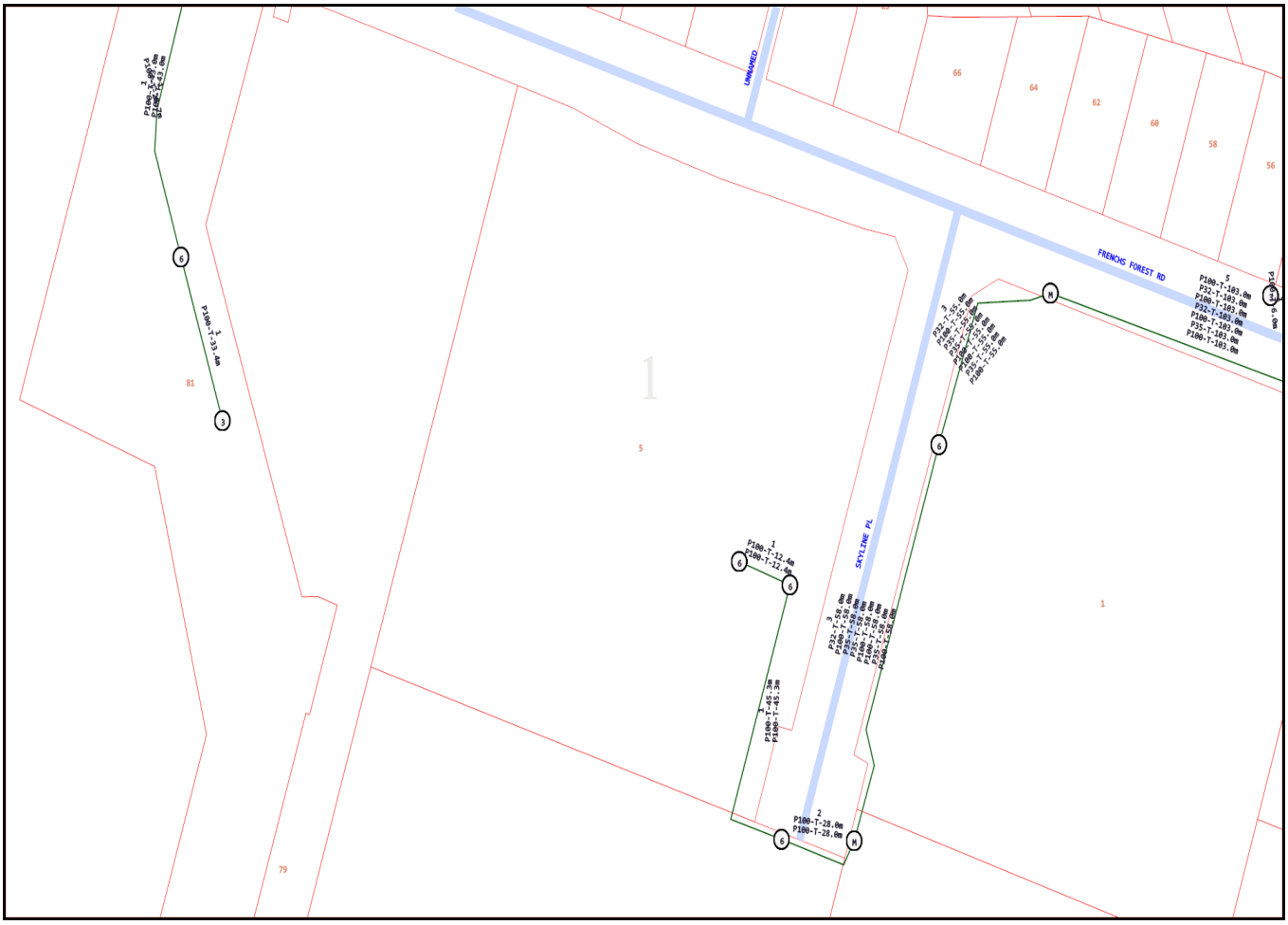
Issue Date:	21/03/2019
Location:	5 Skyline Place , Frenchs Forest , NSW , 2086



LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PPT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
M	Manhole "M"
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 (Copper/RF/Fibre) cables.
5 — 9	Trench containing only DESIGNED/CONSTRUCTED (Copper/RF/Fibre/Power) cables.
5 — 9	Trench containing any INSERVICE (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

Email info@nbn.com.au Web nbn.com.au



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.

Job No 15973507

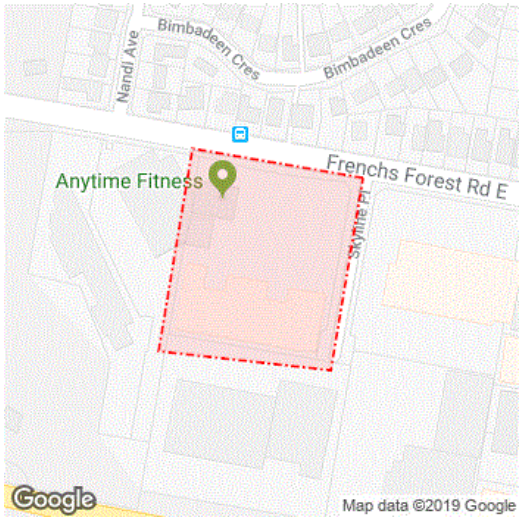
Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mr ray Liu	**Caller Id:**	1643055	**Phone:**	0466 385 221
Company:	Benvrion Group	**Mobile:**	0430712310	**Fax:**	Not Supplied
Address:	Unit 3 112 Fairfield Street Fairfield East NSW 2165	**Email:**	ray@benvirongroup.com.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.



User Reference: E1100-2
Working on Behalf of: Private

Enquiry Date:	**Start Date:**	**End Date:**
21/03/2019	25/03/2019	26/03/2019

Address:
5 Skyline Place
Frenchs Forest NSW 2086

Job Purpose:	**Onsite Activity:**
Excavation	Vertical Boring
Location of Workplace:	**Location in Road:**
Private Property	Not Supplied

- Check the location of the dig site is correct. If not submit a new enquiry.
- If the scope of works change, or plan validity dates expire, resubmit your enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Not Supplied

Your Responsibilities and Duty of Care

- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days.
Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
81486527	Ausgrid	0249510899	NOTIFIED
81486530	Jemena Gas North	1300880906	NOTIFIED
81486532	NBN Co, NswAct	1800626762	NOTIFIED
81486529	Optus and/or Uecomm, Nsw	1800505777	NOTIFIED
81486526	PIPE Networks, Nsw	1800201100	NOTIFIED
81486531	Sydney Water	132092	NOTIFIED
81486528	Telstra NSW, Central	1800653935	NOTIFIED

END OF UTILITIES LIST

APPENDIX B: NSW EPA RECORDS

Number	Name	Location
7551	3M AUSTRALIA PTY LTD	13 RODBOROUGH ROAD, FRENCHS FOREST, NSW 2086
1019148	3M AUSTRALIA PTY LTD	13 RODBOROUGH ROAD, FRENCHS FOREST, NSW 2086
1044336	3M AUSTRALIA PTY LTD	13 RODBOROUGH ROAD, FRENCHS FOREST, NSW 2086
6050	ALCON LABORATORIES (AUSTRALIA) PTY LTD	10 & 11/25 FRENCHS FOREST ROAD EAST, FRENCHS FOREST, NSW 2086
1048452	ALCON LABORATORIES (AUSTRALIA) PTY LTD	10 & 11/25 FRENCHS FOREST ROAD EAST, FRENCHS FOREST, NSW 2086
1532783	Bei Qin Bo	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542760	COMMUNITY ASSOCIATION DP270902	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1532863	David Xing	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778172	David Xing	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542562	David Xing	FRENCHS FOREST, NSW 2086
-1	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
20673	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1538344	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
3085780134	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1548318	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1552903	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1560778	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1562465	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086

1566087	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1566978	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1568182	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1570226	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
3173527208	FERROVIAL AGROMAN (AUSTRALIA) PTY. LTD.	Northern Beaches Hospital Connectivity and Network Enhancements Project, FRENCHS FOREST, NSW 2086
1532864	Fu Zhen Zhang	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778219	Fu Zhen Zhang	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1532865	Hongli Zhang	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778255	Hongli Zhang	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1533175	Jian Ping Wu	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542548	Jianping Hu	FRENCHS FOREST, NSW 2086
1532872	Junkan Niu	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778264	Junkan Niu	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542543	Junkan Niu	FRENCHS FOREST, NSW 2086
1532873	Li Zhang	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778228	Lu Mi Ying Duo Ge	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1532874	Lu Mi Ying Duo Ge	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542545	Lu Mi Ying Duo Ge	FRENCHS FOREST, NSW 2086
1532876	Shao Su Xing	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778246	Shao Su Xing	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1533164	Shuguang Xu	Lot 1 DP270902, FRENCHS FOREST, NSW 2086

3085778273	Shuguang Xu	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
12114	SILTECH PTY LTD	15 Rodborough Road, FRENCHS FOREST, NSW 2086
1093326	SILTECH PTY LTD	15 Rodborough Road, FRENCHS FOREST, NSW 2086
1533165	Wei Ru Niu	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1543471	Xiaomin Lian	Lot 15 DP 270902, FRENCHS FOREST, NSW 2086
1542551	Xiu Cheng Zhang	FRENCHS FOREST, NSW 2086
1533168	Xui Cheng Zhang	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778237	Xui Cheng Zhang	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1533169	Yi Ling Jin	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1541655	Yi Ling Jin	2 Bayview Close, FRENCHS FOREST, NSW 2086
1542561	Yinglu Wang	FRENCHS FOREST, NSW 2086
1533173	Yue De Ji	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
3085778282	Yue De Ji	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542546	Yue De Ji	FRENCHS FOREST, NSW 2086
1533174	Zheng Cai Ge	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542540	Zheng Cai Ge	Lot 1 DP270902, FRENCHS FOREST, NSW 2086
1542541	Zi Lin Liu	FRENCHS FOREST, NSW 2086

Type	Status	Issued date
POEO licence	No longer in force	24-May-00
s.58 Licence Variation	Issued	25-Jul-02
s.58 Licence Variation	Issued	9-Feb-05
POEO licence	Surrendered	3-Apr-00
s.58 Licence Variation	Issued	3-Jun-05
s.91 Clean Up Notice	Issued	12-Oct-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Issued	17-Dec-15
s.91 Clean Up Notice	Issued	7-Sep-16
Penalty Notice	Withdrawn	
POEO licence	Issued	19-Oct-15
s.58 Licence Variation	Issued	24-Feb-16
Penalty Notice	Issued	2-Sep-16
s.96 Prevention Notice	Issued	17-Jan-17
s.58 Licence Variation	Issued	7-Jun-17
s.58 Licence Variation	Issued	30-Jan-18
s.58 Licence Variation	Issued	2-Mar-18

s.58 Licence Variation	Issued	19-Jun-18
s.58 Licence Variation	Issued	3-Aug-18
s.58 Licence Variation	Issued	9-Aug-18
s.58 Licence Variation	Issued	19-Oct-18
Penalty Notice	Issued	23-Jan-19
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Issued	17-Dec-15
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Issued	17-Dec-15
s.91 Clean Up Notice	Issued	12-Oct-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Issued	17-Dec-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Withdrawn	
s.91 Clean Up Notice	Issued	12-Oct-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Issued	17-Dec-15
s.91 Clean Up Notice	Issued	12-Oct-15

Penalty Notice	Issued	17-Dec-15
POEO licence	Surrendered	13-Oct-05
s.58 Licence Variation	Issued	24-Nov-08
s.91 Clean Up Notice	Issued	12-Oct-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Issued	17-Dec-15
s.91 Clean Up Notice	Issued	12-Oct-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	12-Oct-15
Penalty Notice	Issued	17-Dec-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	12-Oct-15
s.91 Clean Up Notice	Issued	7-Sep-16
s.91 Clean Up Notice	Issued	7-Sep-16

APPENDIX C: SITE PHOTOGRAPHS

SITE PHOTOGRAPHS

Client:	**Platino Properties Pty Ltd**
Project:	**Limited DSI**
Site Location:	**5 Skyline Place, Frenchs Forest NSW**
Job No.:	**E1100-2 Frenchs Forest**

Photo 1

View of the garden bed area/ northern boundary

Looking east
Inspected 25.03.2019

Photo 2

View of drilling at the car park
Looking west
Inspected 25.03.2019

Photo 3

View of drilling at the fron of warehouse
looking south
Inspected 25.03.2019

Photo 4

View of the electrical transformer at the north noundary
looking south
Inspected 26.03.2019

Photo 5

View of drill BH9/GW2
Looking northwest
Inspected 26.03.2019

Photo 6

View of drilling at the front of warehouse
looking southheast
Inspected 26.03.2019

APPENDIX D: DPI (OFFICE OF WATER) DATABASE RECORDS

WaterNSW
Work Summary

GW020067

Licence: **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): WASTE DISPOSAL

Work Type: Bore open thru rock
Work Status:
Construct.Method: Cable Tool
Owner Type: Federal Govt

Commenced Date: **Final Depth:** 137.10 m
Completion Date: 01/10/1962 **Drilled Depth:** 137.20 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property: **Standing Water Level (m):**
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	MANLY COVE	52
Licensed:			

Region: 10 - Sydney South Coast **CMA Map:** 9130-3N
River Basin: 213 - SYDNEY COAST - GEORGES RIVER **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6264015.000 **Latitude:** 33°45'05.1"S
Elevation Source: (Unknown) **Easting:** 336964.000 **Longitude:** 151°14'23.2"E

GS Map: - **MGA Zone:** 56 **Coordinate Source:** GD.,PR. MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Pressure Cemented Casing	0.00	1.80				
1	1	Casing		0.00	64.60	152			
1	1	Opening	Perforations	7.30	8.80	152		1	
1	1	Opening	Perforations	57.90	57.90	152		2	

Water Bearing Zones

From	To	Thickness	WBZ Type	S.W.L.	D.D.L.	Yield	Hole	Duration	Salinity

(m)	(m)	(m)		(m)	(m)	(L/s)	Depth (m)	(hr)	(mg/L)
93.50	97.40	3.90	Consolidated						

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Topsoil	Topsoil	
0.30	1.52	1.22	Clay Red Sandstone	Clay	
1.52	5.48	3.96	Pipe Clay White	Clay	
5.48	6.40	0.92	Clay Grey	Clay	
6.40	7.62	1.22	Clay Yellow	Clay	
7.62	7.92	0.30	Driller	(Unknown)	
7.92	8.22	0.30	Clay Grey	Clay	
8.22	9.14	0.92	Driller	(Unknown)	
9.14	20.11	10.97	Sandstone	Sandstone	
20.11	21.64	1.53	Driller	(Unknown)	
21.64	33.22	11.58	Sandstone	Sandstone	
33.22	34.44	1.22	Clay White	Clay	
34.44	38.70	4.26	Sandstone	Sandstone	
38.70	39.31	0.61	Clay White	Clay	
39.31	59.74	20.43	Sandstone	Sandstone	
59.74	60.96	1.22	Shale	Shale	
60.96	62.48	1.52	Sandstone Clay Seams	Sandstone	
62.48	73.15	10.67	Clay White Grey Seams Sandstone	Clay	
73.15	88.39	15.24	Sandstone	Sandstone	
88.39	89.61	1.22	Shale	Shale	
89.61	93.26	3.65	Sandstone	Sandstone	
93.26	93.57	0.31	Clay White	Clay	
93.57	101.80	8.23	Sandstone Water Supply	Sandstone	
101.80	102.71	0.91	Shale Clay	Shale	
102.71	137.16	34.45	Sandstone	Sandstone	

Remarks

19/02/1975: SITED RAAF BASE BROOKVALE
19/02/1975: RECHARGE TEST CAPACITY 0.177 L/S

***** End of GW020067 *****

WaterNSW
Work Summary

GW020065

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): WASTE DISPOSAL

Work Type: Bore open thru rock
Work Status:
Construct.Method: Cable Tool
Owner Type: Federal Govt

Commenced Date:
Completion Date: 01/05/1962
Final Depth: 114.90 m
Drilled Depth: 114.90 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	MANLY COVE	52
Licensed:			

Region: 10 - Sydney South Coast
River Basin: 213 - SYDNEY COAST - GEORGES RIVER
Area/District:
CMA Map: 9130-3N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6264072.000
Easting: 336967.000
Latitude: 33°45'03.2"S
Longitude: 151°14'23.3"E

GS Map: -
MGA Zone: 56
Coordinate Source: GD.,PR. MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Corrugated Galvanised Iron	0.00	12.10	152			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
85.30	110.90	25.60	Consolidated						

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Topsoil	Topsoil	
0.30	4.87	4.57	Clay	Clay	
4.87	8.22	3.35	Pipe Clay White	Clay	
8.22	10.66	2.44	Driller	(Unknown)	
10.66	33.22	22.56	Sandstone	Sandstone	
33.22	34.13	0.91	Sandstone	Sandstone	
34.13	35.96	1.83	Shale Clay	Shale	
35.96	56.38	20.42	Sandstone	Sandstone	
56.38	56.99	0.61	Mudstone Clay	Mudstone	
56.99	61.87	4.88	Shale	Shale	
61.87	110.94	49.07	Sandstone Water Supply	Sandstone	
110.94	114.90	3.96	Shale	Shale	

Remarks

19/02/1975: SITED RAAF BASE BROOKVALE
19/02/1975: RECHARGE TEST CAPACITY 0.758 L/S

***** End of GW020065 *****

APPENDIX E: BUREAU OF METEOROLOGY

Monthly Rainfall (millimetres)

BELROSE (EVELYN PLACE)

Station Number: 066188 · State: NSW · Opened: 1991 · Status: Open · Latitude: 33.74°S · Longitude: 151.22°E · Elevation: 168 m

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1991							76.0	7.6	9.8	24.4	53.6	249.6	
1992	112.7	485.6	98.7	258.6	52.5	96.0	14.8	38.4	24.6	72.6	163.6	221.8	1639.9
1993	77.4	93.6	101.2	49.4	13.6	66.0	76.4	72.1	160.6	65.0	80.2	64.4	919.9
1994	58.0	116.2	187.6	118.6	45.0	75.4	81.0	19.2	40.4	44.2	69.6	100.4	955.6
1995	172.2	119.4	254.6	65.4	228.6	142.4	3.0	0.6	204.4	47.2	143.8	131.2	1512.8
1996	137.0	56.8	61.0	21.6	156.8	147.5	50.8	189.2	123.4	29.0	97.0	35.2	1105.3
1997	168.2	203.8	38.0	*5.8*	163.4	144.4	181.4	22.4	116.4	83.8	60.6	45.8	1234.0
1998	106.2	48.4	25.2	452.8	340.6	139.0	98.4	441.8	40.4	50.6	75.0	44.8	1863.2
1999	208.0	230.4	51.6	357.8	73.8	96.4	180.4	89.4	43.0	189.2	70.8	102.6	1693.4
2000	74.8	25.2	334.2	73.6	59.8	39.2	39.8	26.2	*36.6*		203.2	56.0	
2001	88.4	157.0	113.4	141.4	293.4	11.8	121.0	62.8	21.6	47.0	94.6	71.8	1224.2
2002	86.0	362.1	95.8	24.0	105.6	32.2	10.8	64.2		27.6	30.4	102.4	
2003	12.4	120.0	255.6	226.8	356.2	62.6	51.8	43.6	4.0	102.6	144.4	84.0	1464.0
2004	62.6	149.8	93.2	70.8	5.6	8.7	56.6	105.4	52.1	314.6	75.0	89.6	1084.0
2005	83.4	138.8	139.2	48.6	123.2	106.4	85.4	3.4	51.8	78.2	127.2	29.4	1015.0
2006	159.6	75.6	36.4	11.0	45.8	133.2	112.8	62.2	150.2	17.8	61.0	56.0	921.6
2007	68.2	123.0	68.4	200.2	16.8	359.6	44.4	135.0	44.4	40.6	164.6	129.8	1395.0
2008	92.4	322.0	67.4	167.4	12.0	210.2	72.6	44.6	101.4	68.4	87.6	71.6	1317.6
2009	54.8	184.4	97.2	156.8	134.6	115.2	65.2	5.2	7.4	197.2	16.6	88.2	1122.8
2010	45.8	353.0	85.8	40.6	124.2	124.4	122.6	36.4	72.6	74.6	154.6	104.4	1339.0
2011	71.6	30.6	290.8	211.8	109.2	95.6	290.4	47.0	106.2	50.6	177.0	148.8	1629.6
2012	187.8	197.4	226.8	170.0	31.7	214.7	44.3	11.4	28.2	35.0	68.4	47.4	1263.1
2013	222.8	155.8	103.8	176.6	89.4	273.4	14.0	15.4	59.8	38.0	247.8	40.8	1437.6
2014	28.0	69.2	125.6	103.4	23.6	85.2	15.6	252.4	77.8	53.6	22.0	162.4	1018.8
2015	227.4	72.4	55.4	255.8	123.6	91.2	43.6	48.0	94.6	39.6	202.4	86.8	1340.8
2016	344.0	16.0	137.0	63.2	8.4	380.2	108.0	124.4	64.8	29.6	33.8	75.2	1384.6
2017	24.6	202.4	278.8	57.4	45.8	*149.8*	6.8	28.8	0.8	41.0	64.8	43.6	944.6
2018	50.6	96.6	112.6	29.8	22.4	130.6	5.8	6.2	*59.0*	*205.8*	*107.0*	*89.6*	916.0
2019	*38.6*	*77.4*	*212.8*										

Quality control: 12.3 Done & acceptable, *12.3* Not completed or unknown

Monthly Rainfall (millimetres)

BELROSE (EVELYN PLACE)

Station Number: 066188 · State: NSW · Opened: 1991 · Status: Open · Latitude: 33.74°S · Longitude: 151.22°E · Elevation: 168 m

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	109.4	153.0	133.9	131.8	103.9	130.8	74.1	71.5	66.5	76.6	103.4	91.9	1269.7
Lowest	12.4	16.0	25.2	5.8	5.6	8.7	3.0	0.6	0.8	17.8	16.6	29.4	916.0
5th percentile	25.8	27.1	37.0	14.2	9.5	17.9	6.2	4.0	5.0	25.4	24.9	37.2	920.2
10th percentile	35.4	43.1	47.5	23.0	13.0	36.4	9.6	5.9	8.8	28.4	32.8	42.8	930.8
Median	84.7	121.5	102.5	103.4	73.8	115.2	60.9	44.1	52.1	50.6	83.9	85.4	1263.1
90th percentile	212.4	331.3	262.6	256.9	254.5	238.2	139.9	151.3	134.1	192.4	184.6	152.9	1635.8
95th percentile	225.8	358.9	286.6	328.0	326.4	333.7	181.1	230.3	157.5	203.2	202.9	201.0	1682.7
Highest	344.0	485.6	334.2	452.8	356.2	380.2	290.4	441.8	204.4	314.6	247.8	249.6	1863.2

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

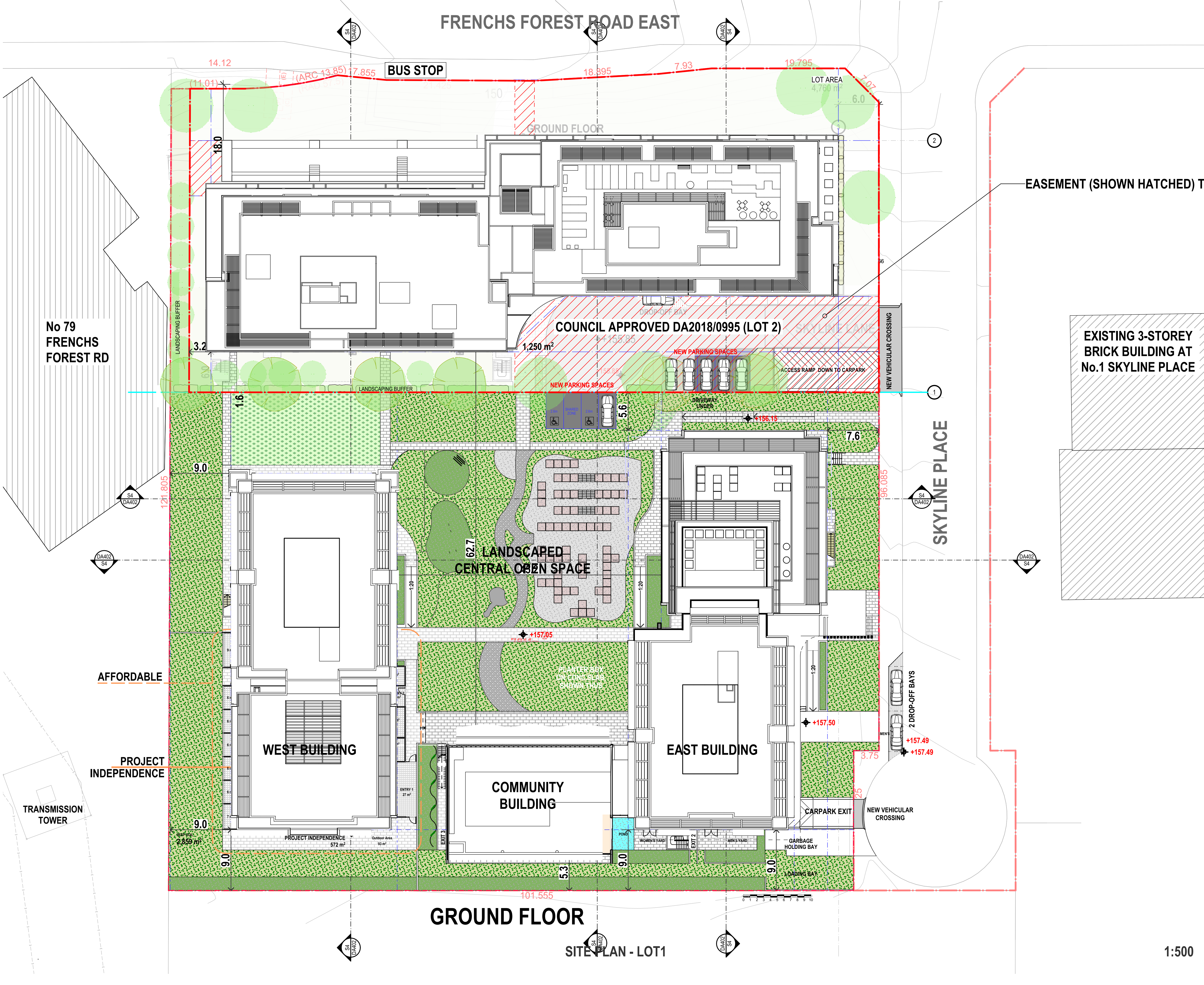
2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml.

APPENDIX F: PROPOSED DEVELPOMENT PLANS AND SURVEY



GROUND FLOOR

SITE PLAN - LOT1

Printed 10-02-2021

ISSUE	REVISIONS	DATE
A	ORIGINAL ISSUE	15.01.21

PROJECT:

MIXED USE AND SENIORS LIVING DEVELOPMENT

5 Skyline Place Frenchs Forest NSW 2086

SP 49558

SITE PLAN

PA STUDIO

LEVEL 2, 20 YOUNG ST. NEUTRAL BAY, NSW 2089
TEL: 8968 1900 FAX: 8968 1999 ACN: 603 389 288

1:500

SCALE: AS SHOWN

SUBSET: SITE PLAN

DRAWN BY: SU/WH/SP

DRAWING DA101

ISSUE A

FILE: BIM Server: BIM21 - BIMcloud Basic for ARCHICAD 21/SKY5 (LOT1)

APPENDIX G: BOREHOLE LOGS

Job No:	E1100-2
Hole No:	BH1
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	HA
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 26.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		ML	Fill: Clayey Silt, fine to medium grained, brown with grass			No visual fibro cement frags	0.1
		0.2			roots			No HC odours or stianning noticed	0.2
		0.3							0.3
		0.4							0.4
		0.5			End of BH1 @0.4m BGL(Collapse)				0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH2
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1							0.1
		0.2		F	Fill: Silty Clay, low to medium plasticity, brown/ dark brown	M	S	No visual fibro cement frags	0.2
		0.3			with gravels			No HC odours or stianning noticed	0.3
		0.4							0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0		F	Fill: Silty Clay, low to medium plasticity, grey	M	S/F	No visual fibro cement frags	2.0
		2.1			with small gravels			No HC odours or stianning noticed	2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1		Sandstone	SANDSTONE, weathered, white	D	H		3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6			End of BH2 @3.5m BGL				3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

BOREHOLE & GROUNDWATER WELL LOG

CLIENT	Platino Properties Pty Ltd	**BOREHOLE NO.**	BH3/GW1
PROJECT	Limited Detailed Site Investigation	**DATE.**	25.03.2019
LOCATION	5 Skyline Place, Frenchs Forest NSW	**JOB NO.**	E1100-2
METHOD	Drill Rig	**SURFACE ELEV.**	-
LOGGED BY	RL	**CHECKED BY**	MS

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design
0.1				F	Fill: Silty Clay, low to medium plasticity, dark brown					Collar
0.2					with gravels	M	S			Cement
0.3										
0.4										
0.5										Casing
0.6										
0.7										Sand
0.8										
0.9										
1										
1.1					with tile & brick pieces between 1.0-1.5m BGL					Bentonite
1.2										
1.3								No HC odours or staining		
1.4								No visual fibro cement frags		
1.5										Sand
1.6										
1.7										
1.8										
1.9					Sandstone, extremely weatherd, light yellow/white	D/M	H			
2										Casing
2.1										
2.2										
2.3										
2.4										
2.5					Fill: Silty Clay, low to medium plasticity, brown					
2.6										
2.7										Sand
2.8										
2.9								No HC odours or staining		
3								No visual fibro cement frags		
3.1										
3.2										
3.3				Sandstone	SANDSTONE, weathered, yellow	D	H			
3.4										Screen
3.5										
3.6										
3.7										
3.8										
3.9										
4					becoming white					
4.1										
4.2										
4.3										
4.4										Sand
4.5										
4.6										
4.7										
4.8										
4.9										
5										
5.1										Screen
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9										
6										
6.1			▼					SWL 6.17m BGL 05.04.2019		Sand
6.2										
6.3										
6.4										
6.5										
6.6										
6.7										
6.8										
6.9										
7					possible waterseepage from driller (a soft layer/gap)					
7.1										
7.2										
7.3										
7.4										Screen
7.5										
7.6										
7.7										
7.8										
7.9										
8										
8.1										
8.2										
8.3										
8.4										Sand
8.5										
8.6										
8.7					**End of BH3/GW1 @ 8.6m**					
8.8										
8.9										
9										
9.1										
9.2										
9.3										
9.4										
9.5										
9.6										
9.7										
9.8										
9.9										
10										
10.1										
10.2										
10.3										
10.4										
10.5										
10.6										
10.7										
10.8										
10.9										
11										

Log Symbols

▼ Standing groundwater level in borehole

Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

D Dry - Runs freely through fingers
M Moist - Does not run freely but no free water visible on soil surface
W Wet - Free water visible on soil surface

Soil Classification

Clay	- Particle size less than 0.002mm
Silt	- Particle size between 0.002 and 0.06mm
Sand	- Particle size between 0.06 and 2.0mm
Gravel	- Particle size between 2.0 and 60mm

Strength

VS	Very Soft	- Unconfined compressive strength less than 25kPa
S	Soft	- Unconfined compressive strength 25-50kPa
F	Firm	- Unconfined compressive strength 50-100kPa
St	Stiff	- Unconfined compressive strength 100-200kPa
VSt	Very Stiff	- Unconfined compressive strength 200-400kPa
H	Hard	- Unconfined compressive strength greater than 400kPa

Job No:	E1100-2
Hole No:	BH4
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1							0.1
		0.2		F	Fill: Silty Clay, low to medium plasticity, brown/ dark brown	M	S	No visual fibro cement frags	0.2
		0.3			with gravels			No HC odours or stianning noticed	0.3
		0.4							0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0						No visual fibro cement frags	2.0
		2.1						No HC odours or stianning noticed	2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6		F	Fill: Silty Clay, low to medium plasticity, brown/ orange	D/M	S		3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1						No visual fibro cement frags	4.1
		4.2						No HC odours or stianning noticed	4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9		Sandstone	SANDSTONE, weathered, yellow	D	H		4.9
		5.0							5.0
		5.1			End of BH4 @5.0m BGL				5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH5
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 26.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		Concrete	Concrete				0.1
		0.2							0.2
		0.3		Fill	Fill: Silty Clay, low to medium plasticity, brown/ dark brown	M	S		0.3
		0.4			with gravels				0.4
		0.5							0.5
		0.6							0.6
		0.7						No visual fibro cement frags	0.7
		0.8						No stianning but odours noticed	0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3		Fill	Fill: Silty Sandy Clay, medium to high plasticity, brown	M	F	No visual fibro cement frags	1.3
		1.4						No stianning but odours noticed	1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1			N: Silty Sandy CLAY, medium to high plasticity, brown/grey	M	F/St		2.1
		2.2			/orange				2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6			End of BH5 @2.5m BGL				2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH6
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1							0.1
		0.2		F	Fill: Silty Clay, low to medium plasticity, brown/ dark brown	M	S	No visual fibro cement frags	0.2
		0.3			with gravels			No HC odours or stianning noticed	0.3
		0.4							0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6		F	Sandstone, extremely weatherd, light yellow/white	D	H		1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0		F	Fill: Silty Clay, low to medium plasticity, dark brown	M	S		2.0
		2.1							2.1
		2.2		CH	N:Silty Sandy CLAY, medium to high plasticity, orange/grey				2.2
		2.3			/brown				2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1			End of BH6 @3.0m BGL				3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH7
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1							0.1
		0.2		F	Fill: Silty Clay, low to medium plasticity, brown	M	S	No visual fibro cement frags	0.2
		0.3						No HC odours or stianning noticed	0.3
		0.4							0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8			SANDSTONE, weathered, white/grey	D	H		0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6			End of BH7 @1.5m BGL				1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH8
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1							0.1
		0.2		F	Fill: Silty Clay, low to medium plasticity, brown	M	S	No visual fibro cement frags	0.2
		0.3						No stianning but odours noticed	0.3
		0.4							0.4
		0.5							0.5
		0.6							0.6
		0.7						No visual fibro cement frags	0.7
		0.8		CH	N: Silty CLAY, meidum to high plasticity, grey	M	F/St	No stianning but odours noticed	0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3			SANDSTONE, weathered, yellow	D	H		1.3
		1.4							1.4
		1.5							1.5
		1.6			End of BH8 @1.5m BGL				1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

BOREHOLE & GROUNDWATER WELL LOG

CLIENT	Platino Properties Pty Ltd	**BOREHOLE NO.**	BH9/GW2
PROJECT	Limited Detailed Site Investigation	**DATE.**	26.03.2019
LOCATION	5 Skyline Place, Frenchs Forest NSW	**JOB NO.**	E1100-2
METHOD	Drill Rig	**SURFACE ELEV.**	-
LOGGED BY	RL	**CHECKED BY**	MS

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design
0.1				F	Fill: Silty Clay , low to medium plasticity, brown	M	S	No HC odours or staining No visual fibro cement frags		Collar
0.2										Cement
0.3										
0.4										
0.5				CL	N: Silty CLAY, low to medium plasticity, white/grey	M	F			Casing
0.6								No HC odours or staining No visual fibro cement frags		
0.7										Sand
0.8										
0.9										
1										Bentonite
1.1										
1.2										
1.3										
1.4				Sandstone	Sandstone, extremely weatherd, light yellow/white	D/M	H			Sand
1.5										
1.6										
1.7										
1.8										
1.9										
2										Casing
2.1										
2.2										
2.3										
2.4										
2.5										
2.6										
2.7										Sand
2.8										
2.9										
3										
3.1										
3.2										
3.3										
3.4										Screen
3.5										
3.6										
3.7										
3.8										
3.9										
4										
4.1										
4.2										
4.3										
4.4										Sand
4.5										
4.6										
4.7										
4.8										
4.9										
5										
5.1										Screen
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9										
6										
6.1										Sand
6.2										
6.3										
6.4										
6.5										
6.6										
6.7										
6.8										
6.9										
7										
7.1										
7.2										
7.3										
7.4										Screen
7.5										
7.6										
7.7										
7.8										
7.9										
8										
8.1										
8.2										
8.3								Dry 05.04.2019		
8.4										Sand
8.5										
8.6					**End of BH9/GW2 @ 8.5m**					
8.7										
8.8										
8.9										
9										
9.1										
9.2										
9.3										
9.4										
9.5										
9.6										
9.7										
9.8										
9.9										
10										
10.1										
10.2										
10.3										
10.4										
10.5										
10.6										
10.7										
10.8										
10.9										
11										

Log Symbols

▽ Standing groundwater level in borehole

▶ Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

D Dry - Runs freely through fingers
M Moist - Does not run freely but no free water visible on soil surface
W Wet - Free water visible on soil surface

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

VS Very Soft - Unconfined compressive strength less than 25kPa
S Soft - Unconfined compressive strength 25-50kPa
F Firm - Unconfined compressive strength 50-100kPa
St Stiff - Unconfined compressive strength 100-200kPa
VSt Very Stiff - Unconfined compressive strength 200-400kPa
H Hard - Unconfined compressive strength greater than 400kPa

Job No:	E1100-2
Hole No:	BH10
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1							0.1
		0.2		F	Fill: Silty Clay, low to medium plasticity, brown	M	S	No visual fibro cement frags	0.2
		0.3						No HC odours or stianning noticed	0.3
		0.4							0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8					F/St		0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2		Sandstone	SANDSTONE, weathered, white	D	H		1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6			End of BH10 @1.5m BGL				1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH11
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 26.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		Concrete	Concrete				0.1
		0.2							0.2
		0.3		F	Fill: Silty Clay, low to medium plasticity, brown/ dark brown	M	S	No visual fibro cement frags	0.3
		0.4			with gravels			No stianning but odours noticed	0.4
		0.5							0.5
		0.6							0.6
		0.7		CH	N: Silty CLAY, meidum to high plasticity, grey/ white			No visual fibro cement frags	0.7
		0.8					F/St	No stianning but odours noticed	0.8
		0.9							0.9
		1.0							1.0
		1.1		Sandstone	SANDSTONE, weathered, white/ grey	D	H		1.1
		1.2							1.2
		1.3						No visual fibro cement frags	1.3
		1.4						No stianning but odours noticed	1.4
		1.5							1.5
		1.6			End of BH11 @1.5m BGL				1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH12
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		Concrete	Concrete				0.1
		0.2							0.2
		0.3							0.3
		0.4		CH	N: Silty CLAY, medium to high plasticity, red/grey	D/M	St	No visual fibro cement frags	0.4
		0.5						No HC odours or stianning noticed	0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			End of BH12 @1.0m BGL				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH13
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	HA
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 25.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		ML	Fill: Clayey Sandy Silt, fine to medium grained, brown with grass roots			No visual fibro cement frags	0.1
		0.2						No HC odours or stianning noticed	0.2
		0.3						D1/SS1	0.3
		0.4			End of BH13 @0.3m BGL(Collapse)				0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH14
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	HA
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 26.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		ML	Fill: Clayey Silt, fine to medium grained, brown with grass			No visual fibro cement frags	0.1
		0.2			roots			No HC odours or stianning noticed	0.2
		0.3						D2/SS2	0.3
		0.4			End of BH14 @0.3m BGL(Collapse)				0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
- **S** Soft
- **F** Firm
- **St** Stiff
- **VSt** Very Stiff
- **H** Hard

Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

Job No:	E1100-2
Hole No:	BH15
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Platino Properties Pty Ltd	Test Location:	Refer to Figure 2
Project:	Limited Detailed Site Investigation	Test Method:	Drill Rig
Project Location:	5 Skyline Place, Frenchs Forest NSW	Date: 26.03.2019	Logged by: RL
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		Concrete	Concrete				0.1
		0.2							0.2
		0.3		F	Fill: Silty Clay, low to medium plasticity, brown/ dark brown	D/M	S/F	No visual fibro cement frags	0.3
		0.4			with gravels			No stianning OR odours noticed	0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2		CL	N: Silty Sandy CLAY, low to medium plasticity, white/ grey	D/M	St		1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6			End of BH15 @1.5m BGL				1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5
		3.6							3.6
		3.7							3.7
		3.8							3.8
		3.9							3.9
		4.0							4.0
		4.1							4.1
		4.2							4.2
		4.3							4.3
		4.4							4.4
		4.5							4.5
		4.6							4.6
		4.7							4.7
		4.8							4.8
		4.9							4.9
		5.0							5.0
		5.1							5.1
		5.2							5.2
		5.3							5.3
		5.4							5.4
		5.5							5.5
		5.6							5.6
		5.7							5.7
		5.8							5.8
		5.9							5.9
		6.0							6.0

Explanatory Notes:

Consistency
- **VS** Very Soft
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Density Index
- **VL** Very Loose
- **L** Loose
- **MD** Medium Dense
- **D** Dense
- **VD** Very Dense

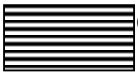
Samples
- **B** Bulk Sample
- **D** Disturbed Sample
- **U50** Undisturbed Sample (50mm diam.)
- **N** S.P.T. Value

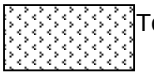
Moisture
- **D** Dry
- **M** Moist
- **W** Wet
- **Wp** Plastic Limit
- **Wl** Liquid Limit

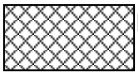
GRAPHIC SYMBOLS FOR SOIL AND ROCK

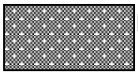
Soil


Bituminous Concrete


Concrete

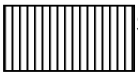

Topsoil


Fill


Peat

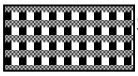

Clay

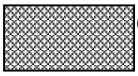

Silty Clay

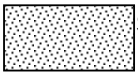

Silt

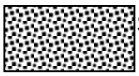

Sandy Clay

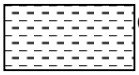

Gravelly Clay


Shaly Clay

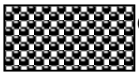

Clayey Silt

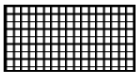

Sandy Silt


Sand

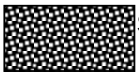

Clayey Sand


Silty Sand

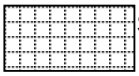

Gravel

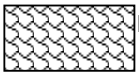

Sandy Gravel

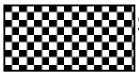
Sedimentary Rock

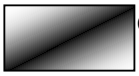

Sandstone Coarse Grained

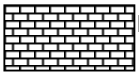

Sandstone Fine Grained


Siltstone


Laminite


Shale


Coal


Limestone

APPENDIX H: NATA ACCREDITED LABORATORY CERTIFICATES

Chain of Custody Record

Client Details:	**Benviron Group** **PO Box 4405, East Gosford NSW 2250** ben@benvirongroup.com.au michael@benvirongroup.com.au;ray@benvirongroup.com.au emerson@benvirongroup.com.au **ph: +61466 385 221**	**Project Manager:**	Michael Silk	**Project #:**	E1100-2
		Sampled By:	RL	**Project Name:**	Frenchs Forest DSI
Delivery Details:	**ALS Environmental** **277-289 woodpark Road, Smithfield,2164** **email: Vibeshan.dayalan@alsglobal.com** **ph: +61287848555**	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	1	**Turnaround time:**	Standard

#	Sample ID	Date Sampled	Matrix	Analytes									ALS Suites	Sample Comments
				Heavy Metals (8)	TRH	BTEXN	PAH	OC	PCB					
1	SS1	25.03.2019	Soil	×	×	×	×	×	×				S-8	Keep
2	SS2	26.03.2019	Soil	×	×	×	×	×	×				S-8	Keep

Environmental Division
Sydney
Work Order Reference
ES1909674

Telephone : – 61-2-8784 8555

Special Directions and Coments:

Relinquished by	Ray Liu	**Received By**	Sangeeta
Signature		**Signature**	
Date	27.03.2019	**Date**	28/3/2019 1:40pm.

Method of shipment

courier

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1909674**

Client	: **BENVIRON GROUP**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL SILK	Contact	: Customer Services ES
Address	: PO BOX 4405 EAST GOSFORD NSW 2250	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: michael@benvirongroup.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: +61 02 0466 385 221	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: E1100-2 Frenchs Forest DSI	Page	: 1 of 3
Order number	:	Quote number	: EB2017BENVIRON0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: RAY LIU		

Dates

Date Samples Received	: 28-Mar-2019 13:40	Issue Date	: 29-Mar-2019
Client Requested Due Date	: 03-Apr-2019	Scheduled Reporting Date	: **03-Apr-2019**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 5.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA055-103 Moisture Content	SOIL - S-08 TRH/BTEXN/PAH/OC/PCB/8 Metals
ES1909674-001	25-Mar-2019 00:00	SS1	✓	✓
ES1909674-002	26-Mar-2019 00:00	SS2	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	accounts@benvirongroup.com.au

BEN BUCKLEY

- *AU Certificate of Analysis - NATA (COA)	Email	ben@benvirongroup.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ben@benvirongroup.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ben@benvirongroup.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ben@benvirongroup.com.au
- Chain of Custody (CoC) (COC)	Email	ben@benvirongroup.com.au
- EDI Format - ENMRG (ENMRG)	Email	ben@benvirongroup.com.au
- EDI Format - ESDAT (ESDAT)	Email	ben@benvirongroup.com.au
- EDI Format - XTab (XTAB)	Email	ben@benvirongroup.com.au

EMERSON

- *AU Certificate of Analysis - NATA (COA)	Email	emerson@benvirongroup.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	emerson@benvirongroup.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	emerson@benvirongroup.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	emerson@benvirongroup.com.au
- Chain of Custody (CoC) (COC)	Email	emerson@benvirongroup.com.au
- EDI Format - ENMRG (ENMRG)	Email	emerson@benvirongroup.com.au
- EDI Format - ESDAT (ESDAT)	Email	emerson@benvirongroup.com.au
- EDI Format - XTab (XTAB)	Email	emerson@benvirongroup.com.au

MICHAEL SILK

- *AU Certificate of Analysis - NATA (COA)	Email	michael@benvirongroup.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	michael@benvirongroup.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	michael@benvirongroup.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	michael@benvirongroup.com.au
- Chain of Custody (CoC) (COC)	Email	michael@benvirongroup.com.au
- EDI Format - ENMRG (ENMRG)	Email	michael@benvirongroup.com.au
- EDI Format - ESDAT (ESDAT)	Email	michael@benvirongroup.com.au
- EDI Format - XTab (XTAB)	Email	michael@benvirongroup.com.au

RAY LIU

- *AU Certificate of Analysis - NATA (COA)	Email	ray@benvirongroup.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ray@benvirongroup.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ray@benvirongroup.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ray@benvirongroup.com.au
- Chain of Custody (CoC) (COC)	Email	ray@benvirongroup.com.au
- EDI Format - ENMRG (ENMRG)	Email	ray@benvirongroup.com.au
- EDI Format - ESDAT (ESDAT)	Email	ray@benvirongroup.com.au
- EDI Format - XTab (XTAB)	Email	ray@benvirongroup.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1909674**	Page	: 1 of 5
Client	: **BENVIRON GROUP**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL SILK	Telephone	: +61-2-8784 8555
Project	: E1100-2 Frenchs Forest DSI	Date Samples Received	: 28-Mar-2019
Site	: ----	Issue Date	: 03-Apr-2019
Sampler	: RAY LIU	No. of samples received	: 2
Order number	:	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) SS1	**25-Mar-2019**	**----**	----	----	**01-Apr-2019**	08-Apr-2019	✓
Soil Glass Jar - Unpreserved (EA055) SS2	**26-Mar-2019**	**----**	----	----	**01-Apr-2019**	09-Apr-2019	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) SS1	**25-Mar-2019**	**01-Apr-2019**	21-Sep-2019	✓	**01-Apr-2019**	21-Sep-2019	✓
Soil Glass Jar - Unpreserved (EG005T) SS2	**26-Mar-2019**	**01-Apr-2019**	22-Sep-2019	✓	**01-Apr-2019**	22-Sep-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) SS1	**25-Mar-2019**	**01-Apr-2019**	22-Apr-2019	✓	**01-Apr-2019**	22-Apr-2019	✓
Soil Glass Jar - Unpreserved (EG035T) SS2	**26-Mar-2019**	**01-Apr-2019**	23-Apr-2019	✓	**01-Apr-2019**	23-Apr-2019	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
Soil Glass Jar - Unpreserved (EP066) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
Soil Glass Jar - Unpreserved (EP068) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**01-Apr-2019**	08-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP071) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
Soil Glass Jar - Unpreserved (EP080) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**01-Apr-2019**	09-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP071) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**01-Apr-2019**	08-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP071) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
Soil Glass Jar - Unpreserved (EP080) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**01-Apr-2019**	09-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP071) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**02-Apr-2019**	11-May-2019	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) SS1	**25-Mar-2019**	**01-Apr-2019**	08-Apr-2019	✓	**01-Apr-2019**	08-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP080) SS2	**26-Mar-2019**	**01-Apr-2019**	09-Apr-2019	✓	**01-Apr-2019**	09-Apr-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1909674**	Page	: 1 of 9
Client	: **BENVIRON GROUP**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL SILK	Contact	: Customer Services ES
Address	: PO BOX 4405 EAST GOSFORD NSW 2250	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 0466 385 221	Telephone	: +61-2-8784 8555
Project	: E1100-2 Frenchs Forest DSI	Date Samples Received	: 28-Mar-2019
Order number	:	Date Analysis Commenced	: 01-Apr-2019
C-O-C number	: ----	Issue Date	: 03-Apr-2019
Sampler	: RAY LIU		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 2		

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 Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2268882)									
ES1909600-055	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	7	77.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	12	81.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	17	58.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	9	10.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
ES1909792-032	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	1	1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	39	43	10.2	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	23	25	9.35	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	50	51	2.53	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	15	16	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	92	82	11.5	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2269583)									
ES1909673-001	Anonymous	EA055: Moisture Content	----	0.1	%	1.2	1.5	26.3	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2268881)									
ES1909600-055	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1909792-032	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2268125)									
ES1909674-001	SS1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2268124)									
ES1909674-001	SS1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2268124) - continued									
ES1909674-001	SS1	EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2268122)									
ES1909815-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	6.8	5.8	15.6	0% - 50%
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	3.7	3.5	4.65	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.8	1.7	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	12.3	11.0	11.2	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2268122) - continued									
ES1909674-001	SS1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2268123)									
ES1909815-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	28000	27200	2.50	0% - 20%
		EP071: C29 - C36 Fraction	----	100	mg/kg	3260	3300	1.42	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	4580	4490	2.05	0% - 20%
ES1909674-001	SS1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2268754)									
ES1909673-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1909827-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2268123)									
ES1909815-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	24700	24200	2.24	0% - 20%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	1800	1890	4.89	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	11000	10700	2.47	0% - 20%
ES1909674-001	SS1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2268754)									
ES1909673-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1909827-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2268754)									
ES1909673-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1909827-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2268882)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	103	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.9	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	100	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	100	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	105	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	112	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2268881)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.3	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2268125)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	104	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2268124)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	104	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	102	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	83.3	54	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2268122)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2268122) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	110	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	118	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	115	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	118	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	124	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	122	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	124	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	123	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	106	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	110	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.4	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	105	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	109	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	88.5	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	85.0	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	85.3	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2268123)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	84.2	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	91.6	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	99.5	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2268754)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.5	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2268123)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	86.6	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	101	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	90.9	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2268754)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	79.5	68	128
EP080: BTEXN (QCLot: 2268754)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.5	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	77.4	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	73.8	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	84.8	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.4	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	105	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2268882)							
ES1909600-055	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	104	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.7	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	97.6	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	94.0	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.0	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	97.3	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2268881)							
ES1909600-055	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	76.7	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2268125)							
ES1909674-001	SS1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	101	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2268124)							
ES1909674-001	SS1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	123	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	81.0	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	107	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.7	70	130
		EP068: Endrin	72-20-8	2 mg/kg	92.4	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	96.1	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2268122)							
ES1909674-001	SS1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	104	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2268123)							
ES1909674-001	SS1	EP071: C10 - C14 Fraction	----	523 mg/kg	91.0	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	114	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	114	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2268754)							
ES1909673-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	92.5	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2268123)							
ES1909674-001	SS1	EP071: >C10 - C16 Fraction	----	860 mg/kg	106	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	118	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	92.3	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2268754)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2268754) - continued							
ES1909673-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	70	130
EP080: BTEXN (QCLot: 2268754)							
ES1909673-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	89.4	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	97.3	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.3	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	105	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.2	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	90.0	70	130

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1909674**	Page	: 1 of 7
Client	: **BENVIRON GROUP**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL SILK	Contact	: Customer Services ES
Address	: PO BOX 4405 EAST GOSFORD NSW 2250	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 0466 385 221	Telephone	: +61-2-8784 8555
Project	: E1100-2 Frenchs Forest DSI	Date Samples Received	: 28-Mar-2019 13:40
Order number	:	Date Analysis Commenced	: 01-Apr-2019
C-O-C number	: ----	Issue Date	: 03-Apr-2019 16:35
Sampler	: RAY LIU		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 2		

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
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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
- EP071: Results of sample SS2 have been confirmed by re-extraction and re-analysis.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SS1	SS2	----	----	----
			Client sampling date / time	25-Mar-2019 00:00	26-Mar-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1909674-001	ES1909674-002	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.6**	**13.8**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**30**	**9**	----	----	----
Copper	7440-50-8	5	mg/kg	**10**	**10**	----	----	----
Lead	7439-92-1	5	mg/kg	**11**	**17**	----	----	----
Nickel	7440-02-0	2	mg/kg	**22**	**6**	----	----	----
Zinc	7440-66-6	5	mg/kg	**35**	**37**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SS1	SS2	----	----	----
			Client sampling date / time	25-Mar-2019 00:00	26-Mar-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1909674-001	ES1909674-002	--------	--------	--------
				Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	**120**	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	**120**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SS1	SS2	----	----	----
				Client sampling date / time	25-Mar-2019 00:00	26-Mar-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1909674-001	ES1909674-002	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	150	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	130	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	280	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		88.9	85.9	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		90.6	107	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		94.0	122	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		93.3	87.7	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		86.7	82.6	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		67.9	76.6	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		98.3	93.2	----	----	----
Anthracene-d10	1719-06-8	0.5	%		84.7	83.0	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		82.4	77.4	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		111	98.4	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SS1	SS2	----	----	----
				Client sampling date / time	25-Mar-2019 00:00	26-Mar-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1909674-001	ES1909674-002	--------	--------	--------
					Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.2	%		**87.7**	**92.1**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**95.5**	**94.3**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
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

APPENDIX I: FIELD RECORD FORMS

Site Inspection
Daily Worksheet Record

PROJECT NAME:	Limited 1052	**PROJECT NO:**	611 05-2
CLIENT:	Platter	**DATE:**	26/03/2019
SITE ADDRESS:	5 Skyline Place. Frenchs Forest.		
SITE CONTACT:	Sarkis	**PHONE:**	0409 888 143
REPRESENTATIVE:	RL		
TITLE:	Civil & Trial Engineer	**PHONE:**	0419 560 849
FIELD NOTES:			

Start Time	8:30	Finish Time	2:30pm
Weather	Sunny	Rainfall (mm)	—
Wind Direction	—	Wind Speed	—
Humidity	—		—
Odours Present	—	Staining Present	—

Environmental and Safety Concerns

- One GW (BH9/GW3) Installation
- Six soil Boreholes

Actions

Site Safety Induction	✓	Stormwater Control	—
Dust Suppression	✓	Traffic Control	✓
Machinery onsite	✓	Equipment onsite	—

Site Inspection
Daily Worksheet Record

PROJECT NAME:	Limited DSZ	**PROJECT NO:**	Tc1100-2
CLIENT:	Platino. (Paul Matlock)	**DATE:**	25/03/2019
SITE ADDRESS:	5 Skyline Place		
SITE CONTACT:	Sarkis	**PHONE:**	0409 888 143
REPRESENTATIVE:	RL		
TITLE:	Civil & Envi Engrs	**PHONE:**	0419 540 319
FIELD NOTES:			

Start Time	7:30	Finish Time	3:30
Weather	Light rain / Cloudy	Rainfall (mm)	—
Wind Direction	—	Wind Speed	—
Humidity	—		
Odours Present	Yes	Staining Present	NO

Environmental and Safety Concerns

— One GW & soil

— Eight soil locations

Actions

Site Safety Induction	✓	Stormwater Control	✓
Dust Suppression	✓	Traffic Control	✓
Machinery onsite	✓	Equipment onsite	✓

APPENDIX J: COUNCIL ACID SULPHATE SOIL MAP

Warringah Local Environmental Plan 2011

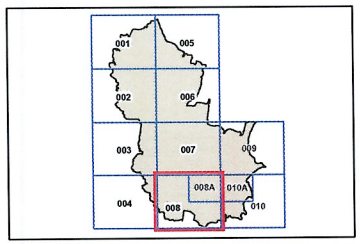
Acid Sulfate Soils Map - Sheet ASS_008

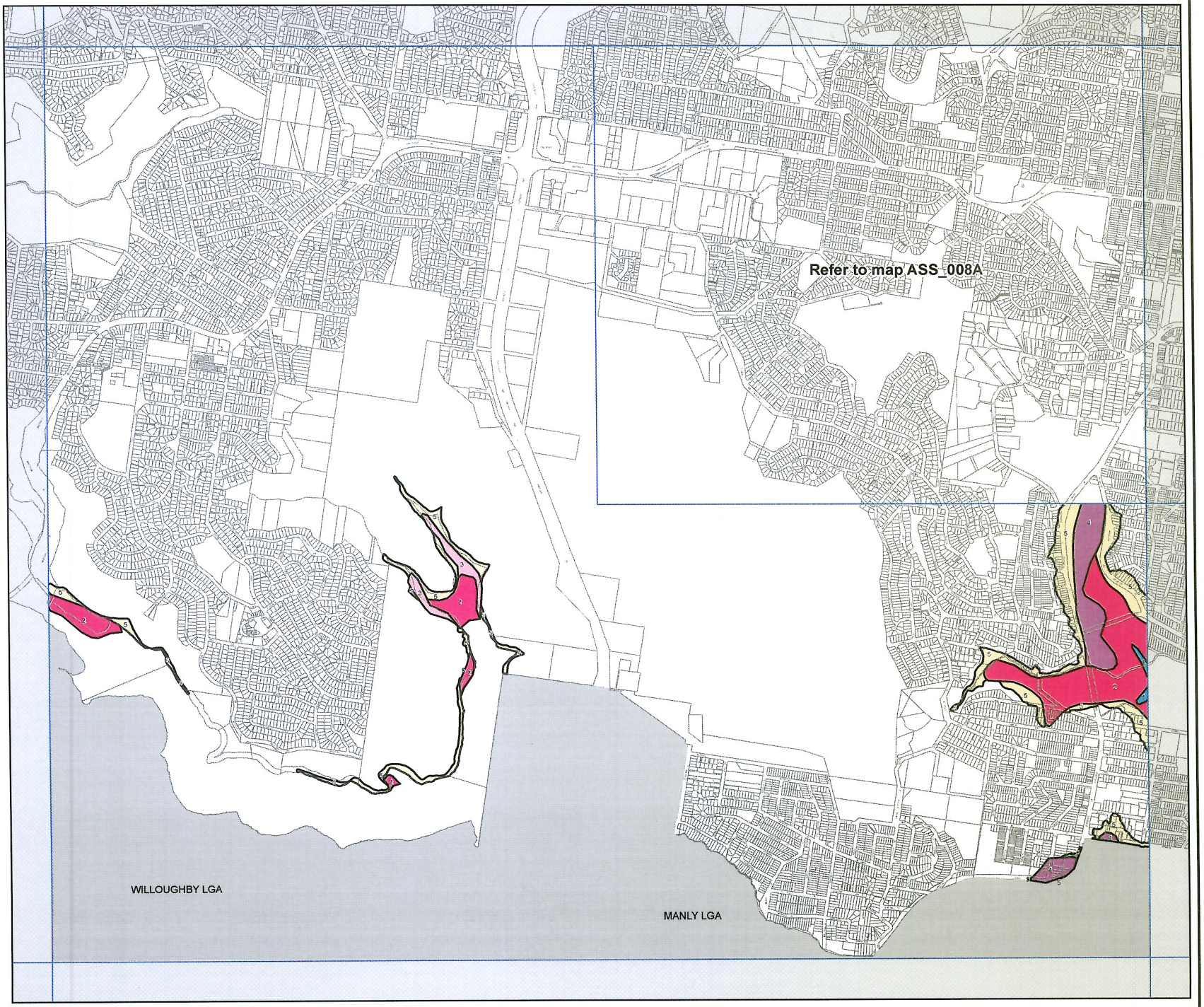
Acid Sulfate Soils

- Class 1
- Class 2
- Class 3
- Class 4
- Class 5

Cadastre

Cadastre 19/09/2011 © Warringah Council





N

0 200 400 Metres

Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number: 1800_COM_ASS_008_020_20111121

APPENDIX K: SUMMARY TABLES

Table K1

Sample Information				Heavy Metals (mg/kg)								TRH (mg/kg)						BTEX (mg/kg)					PAH (mg/kg)				OCP (mg/kg)											TOTAL PCB	ASBESTOS		
Label	Depth (m BGL)	Date	Soil Type	ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	F1 (C_6-C_{10}) [2]	F2 (>C_{10}-C_{16}) [3]	F1 (C_6-C_{10})	F2 (>C_{10}-C_{16})	F3 (C_{16}-C_{34})	F4 (C_{34}-C_{40})	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	NAPHTHALENE	BENZO(A)PYRENE	CARINOGENIC PAHs (as Bap TEC	TOTAL PAH	NAPHTHALENE	DDT + DDD + DDE	ALDRIN + DIELDRIN	CHLORDANE	ENDOSULFAN	ENDRIN	HEPTACHLOR	HCB	METHOXYCHLOR	TOXAPHENE	DDT		% w/w (AF /FA)	% w/w (ACM)	Asbestos ID
BH1	0.1-0.2	26.03.2019	F - Clayed Silt	<4	<0.4	9	13	16	<0.1	5	54	<25	<50	<25	<50	360	170	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH2	0.2-0.3	25.03.2019	F - Silty Clay	<4	<0.4	9	6	9	<0.1	6	18	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001	<0.01	ND
BH2	2.0-2.1	25.03.2019	F - Silty Clay	5	<0.4	11	9	14	<0.1	2	10	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH3	1.2-1.3	25.03.2019	F- Silty Clay	6	<04	23	5	16	<0.1	3	13	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH3	2.9-3.0	25.03.2019	F- Silty Clay	<4	<0.4	8	<1	7	<0.1	2	4	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH4	0.1-0.2	25.03.2019	F - Silty Clay	4	<0.4	60	18	34	<0.1	7	70	<25	51	<25	51	750	270	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH4	2.0-2.1	25.03.2019	F - Silty Clay	<4	<0.4	25	11	12	<0.1	23	21	<25	<50	<25	<50	620	410	<0.2	<0.5	<1	<1	<1	2.3	3.1	26	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH4	4.1-4.2	25.03.2019	F- Silty Clay	<4	<0.4	11	1	7	<0.1	2	3	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.1	<0.5	0.99	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH5	0.7-0.8	26.03.2019	F - Silty Clay	<4	<0.4	10	3	10	<0.1	4	7	<25	<50	<25	<50	200	120	<0.2	<0.5	<1	<1	<1	0.4	0.6	9.2	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH5	1.3-1.4	26.03.2019	F - Silty Sandy Clay	<4	<0.4	11	6	12	<0.1	3	7	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.09	<0.5	0.91	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH6	0.2-0.3	25.03.2019	F - Silty Clay	6	<0.4	14	9	11	<0.1	10	18	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.2	<0.5	1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH7	0.2-0.3	25.03.2019	F - Silty Clay	<4	<0.4	14	15	16	<0.1	8	51	<25	<50	<25	<50	280	160	<0.2	<0.5	<1	<1	<1	0.05	<0.5	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH8	0.3-0.4	25.03.2019	F - Silty Clay	<4	<0.4	24	3	10	<0.1	4	7	<25	240	<25	260	2400	1100	<0.2	<0.5	1	1	23	8.1	12	190	54	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH8	0.7-0.8	25.03.2019	N - Silty CLAY	<4	<0.4	13	<1	19	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	0.2	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH9	0.2-0.3	26.03.2019	F - Silty Clay	4	<0.4	12	23	30	<0.1	12	71	<25	100	<25	100	390	120	<0.2	<0.5	<1	<1	<1	0.08	<0.5	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH9	0.6-0.7	26.03.2019	N - Silty CLAY	4	<0.4	9	2	12	<0.1	1	6	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH10	0.2-0.3	25.03.2019	F - Silty Clay	5	<0.4	16	14	16	<0.1	8	22	<25	<50	<25	<50	1200	830	<0.2	<0.5	<1	<1	<1	3.6	5	37	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH11	0.3-0.4	26.03.2019	F - Silty Clay	21	<0.4	41	7	14	<0.1	15	13	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.2	<0.5	1.4	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH11	0.7-0.8	26.03.2019	N - Silty CLAY	6	<0.4	18	<1	14	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH11	1.3-1.4	26.03.2019	Weathered Sandstone	<4	<0.4	11	<1	13	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH12	0.4-0.5	25.03.2019	N - Silty CLAY	9	<0.4	19	3	27	<0.1	2	10	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH13	0.1-0.2	25.03.2019	F - Clayed Sandy Silt	<4	<0.4	15	19	5	<0.1	21	26	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001	<0.01	ND
BH14	0.1-0.2	26.03.2019	F - Clayed Silt	<4	<0.4	10	12	17	<0.1	7	38	<25	<50	<25	<50	130	<100	<0.2	<0.5	<1	<1	<1	0.09	<0.5	0.78	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH15	0.2-0.3	26.03.2019	F - Silty Clay	<4	<0.4	17	6	12	<0.1	8	14	<25	<50	<25	<50	1900	1400	<0.2	<0.5	<1	<1	<1	3.2	4.4	40	0.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
D1	-	26.03.2019	-	<4	<0.4	13	12	9	<0.1	20	27	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
D2	-	25.3.2019	-	<4	<0.4	10	12	18	<0.1	8	39	<25	<50	<25	<50	130	<100	<0.2	<0.5	<1	<1	<1	0.06	<0.5	0.06	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
SS1	-	25.03.2019	-	<5	<1	30	10	11	<0.1	22	35	<10	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<1	<0.5	0.6	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.1	-	-	-
SS2	-	26.03.2019	-	<5	<1	9	10	17	<0.1	6	37	<10	<50	<10	<50	150	130	<0.2	<0.5	<0.5	<0.5	<1	<0.5	0.6	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.1	-	-	-
3				4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.001	0.01	0.1
NEPM (2013) HIL B				**500**	**150**	**500**	**30,000**	**1,200**	**120**	**1,200**	**60,000**													**4**	**400**		**600**	**10**	**90**	**400**	**20**	**10**	**15**	**500**	**30**		**1**			
NEPM (2013) EIL & ESLs [1]				100																					170										180			
Fill BH9 (0.2-0.3m)						410	120	1100		40	300																												
Natural BH9 (0.6-0.7m)						410	95	1100		30	240																												
NEPM (2013) ESLs - (Fine Grain Soil - Clay / Silt) [1]												180	120			1,300	5,600	65	105	125	45		0.7															
NEPM (2013) ESLs - (Coarse Grain Soil - Sand /Gravel) [1]												180	120			300	2,800	50	85	70	105		0.7															
NEPM (2013) HSL A & B (CLAY)																																						
0m to <1m												50	280					0.7	480	NL	110	5																	
1m to <2m												90	NL					1	NL	NL	310	NL																	
2m to <4m												150	NL					2	NL	NL	NL	NL																	
4m+												290	NL					3	NL	NL	NL	NL																	
Soil Saturation Concentration (Csat)												850	560					430	630	68	330	10																	
NEPM (2013) HSL A & B (SAND)																																						
0m to <1m												45	110					0.5	160	55	40	3																	
1m to <2m												70	240					0.5	220	NL	60	NL																	
Soil Saturation Concentration (Csat)												950	560					360	560	64	300	9																	
NEPM (2013) HSL A & B (SILT)																																						
0m to <1m												50	280					0.7	480	NL	110	5																	
Soil Saturation Concentration (Csat)												910	570					440	640	69	330	10																	
NEPM (2013) Management Limit (Fine Grain Soil)														800	1,000	3,500	10,000																					
NEPM (2013) Management Limit (Coarse Grain Soil)														700	1,000	2,500	10,000																					
NEPM (2013) HSL - Asbestos																																				0.001%		Detected
%w/w asbestos for FA and AF																																						
%w/w asbestos for ACM - Residential A																																					0.01%	

Notes

1 Urban residential / public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
2 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
3 To obtain F2 subtract naphthalene from the >C_{10}-C_{16} fraction.
NL Calculated HSL is Non Limiting per NEPM (2013)
ND Not detected

Table K2

Sample Information		Heavy Metals								TRH		BTEX							PAH					
SAMPLE ID	Date	ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	F1 (C_6-C_{10}) [2]	F2 (>C_{10}-C_{16}) [3]	BENZENE	TOLUENE	ETHYL BENZENE	M/P-XYLENE	O-XYLENE	NAPHTHALENE	TOTAL-XYLENE	BENZO(A)PYRENE	ANTHRACENE	PHENANTHRENE	FLUORANTHENE	NAPHTHALENE
Benviron Group DSI 2018																								
GW1	5.4.2019	1	<0.1	<1	<1	<1	<0.05	18	31	<10	<50	<1	<1	<1	<2	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.2
GWD1	5.4.2019	1	<0.1	<1	4	<1	<0.05	17	30	<10	<50	<1	<1	<1	<2	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.2
GWSS1	5.4.2019	1	<0.1	<0.1	<1	<1	<0.1	16	30	<20	<100	<1	<2	<2	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1
Limit of Resolution (LOR)		1	0.1	1	1	1	0.05	1	1	10	50	1	1	1	2	1	1	2	0.1	0.1	0.1	0.1	0.2
GILs - NEPM (2013) - Groundwater Investigation Levels																								
Fresh Waters [2]		**24/13**	**0.20**	**1.00**	**1.40**	**3.40**	**0.06**	**11.00**	**8.00**			**950**	**-**	**-**	**200**	**350**			**-**	**-**	**-**	**-**	**16**
Fresh Waters - Low Reliability (Trigger Values) [3]													**180**	**80**	**-**	**-**			**0.1**	**0.01**	**0.6**	**1**	**-**
Marine Water [2]		-	0.70	4.40	1.30	4.40	0.10	7.00	15.00			500	-	-	-	-			-	-	-	-	50
Drinking Water [4]		10.00	2.00	50.00	2.00	10.00	1.00	20.00	-			1	800	300	600				0.01	-	-	-	-
Groundwater HSLs - NEPM (2013) HSL A & B (CLAY)																								
2m to <4m										NL	NL	5,000	NL	NL	-	-	NL	NL						
4m to <8m										NL	NL	5,000	NL	NL	-	-	NL	NL						
8m +										NL	NL	5,000	NL	NL	-	-	NL	NL						
Solubility Limit										9,000	3,000	59,000	61,000	3,900	-	-	170	21,000						

Notes

1	All units are in ug/L
2	Investigation Levels apply to typical slightly-moderately disturbed systems
3	QSAR derived, statistical distribution method used, 95% trigger values applied as per ANZECC 2000
4	Investigation levels are taken from the health values of the Australian Drinking Water Guidelines NHMRC 2011
NL	Non Limiting

Table K3

Sample Information		ALKANES							ALKENES					BENZENES											Other VOC	
SAMPLE ID	GME DATE	TETRACHLOROMETHANE (CARBON TETRACHLOR	TRICHLOROMETHANE (CHLOROFORM)	BROMODICHLOROMETHANE	TRIHALOMETHANES (TOTAL)	1, 2-DICHLOROETHANE	CYCLOHEXANE	1,1,2-TRICHLOROETHANE	CHLOROETHENE (VINYL CHLORIDE)	TRICHLOROETHENE	CIS-1,2-DICHLOROETHENE	1,1-DICHLOROETHENE	TETRACHLOROETHENE (PCE PERCHLOROETHENE	CHLOROBENZENE	1,2-DICHLOROBENZENE	1,3-DICHLOROBENZENE	1,4-DICHLOROBENZENE	1,2,3-TRICHLOROBENZENE	1,2,4-TRICHLOROBENZENE	ISOPROPYL BENZENE (CUMENE)	SEC-BUTYL BENZENE	1,3,5-TRIMETHYL BENZENE	N-PROPYL BENZENE	N-BUTYL BENZENE	1.2.4 - TRIMETHYLBENZENE	4-ISOPROPYL TOULENE	HEXACHLOROBUTADIENE
Benviron Group DSI 2018																										
GW1	5.4.2019	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
GWD1	5.4.2019	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
GWSS1	5.4.2019	<0.05	<0.1	<0.1	<0.1	<0.1	-	-	<0.3	<0.05	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.05	-	-	<0.05	-	<0.04
Limit of Resolution (LOR)		1	1	1	1	1	1	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GILs - NEPM (2013) - Groundwater Investigation Levels																										
Fresh Waters [2]		NV	NV		-	NV	NV	6,500	NV	NV	NV	NV	NV	NV	160	260	60	3	85					NV		NV
Marine Waters [2]								1,900									60		20							
Marine Low reliability										330.00																
Fresh Water Low reliability (Trigger Values -99%) [a]			370		-																					
Fresh Water Low reliability (Trigger Values -95%) [b]					-					330										30						
Drinking Water [4]		3	**3**		250	3			0.30		60	30	50													
US EPA Regional Screening Levels (RSLs) May 2016																										
US EPA MCLs [c]							NV													NV	NV	NV	NV	NV	NV	NV
US EPA Tapwater [d]							13,000													NV	2,000	120	660	1,000	15	NV

Notes

1	All units are in ug/L
2	Investigation levels apply to typical slightly-moderately disturbed systems
4	Investigation levels are taken from the health values of the Australian Drinking Water Guidelines NHMRC 2011
-	NV - no derived value
-	" - " Not Tested
a:	QSAR derived, statistical distribution method used, 99% trigger value applied as per ANZECC guidelines for slightly-moderately disturbed systems
b:	QSAR derived, statistical distribution method used, 95% trigger value applied as per ANZECC guidelines for slightly-moderately disturbed systems
c:	US EPA Region 9 RSL (MCLs) utilised in absence of criteria from NEPM 2013. MCLs are legally enforceable USEPA drinking water standards
d:	US EPA Region 9 RSL (Tapwater) utilised in absence of criteria from NEPM 2013. Non cancer

APPENDIX L: COUNCIL RECORDS

Record Number:	PFPF4319/5/01
Council No:	BOX3943
MS Box No:	197
Notes:	NO BARCODE AVAILABLE

WARRINGAH SHIRE COUNCIL
ACTION RECORD

P.F. 4319/5 | 1

STREET No. 5 STREET Skyline Pl SUBURB Frenchs Forest
LOT No. 15 PORTION No. D.P.
ASSESSMENT No. TYPE OF BUILDING

DO NOT LEAVE FILE IN STRONG SUNLIGHT

RELATED FILES PF 1296/L 15-16 TIME PERIOD - April 88

FILE USERS PLEASE NOTE

A TO TRANSFER A FILE TO ANOTHER OFFICER
1 Place your initials in "Initials" column
2 Place name of officer to whom the file is to go on the next line
3 Place date in "Date" column
4 Note transfer on your transfer slip

B TO RETURN FILE TO CENTRAL RECORDS.
1. Complete "Initials" column
2. Complete "Date returned to Records" column.
3. Send file to Central Records

C Folio Numbers are reference indicators. Each item of correspondence will have a folio reference

D TO HAVE FILE RESUBMITTED.
1 Complete "Initials" column
2 Place date required in "Resub" column.
3. Send file to Central Records.

E PAPERS ARE NOT BE REMOVED FROM THIS FILE WITHOUT THE CONCURRENCE OF THE RECORDS MANAGER.

F THIS FILE IS NOT TO LEAVE THE COUNCIL OFFICES WITHOUT THE CENTRAL RECORDS SECTION BEING FIRST ADVISED.

G. THIS FILE IS TO BE RETURNED TO CENTRAL RECORDS WHEN PRESENT ACTION IS COMPLETE AND IS NOT TO BE HELD IN THE DEPARTMENT FOR REFERENCE PURPOSES.

Folio	FOR ACTION Referred To	On Date	ACTION TAKEN Initials	Date Retnd Records	Resub. Date
	file	1 2 86			
R	T.P.DU	10/2/87	✓		
	P. Gatenby	[illegible]	[illegible]	12/2/87	
LA	TP	[illegible]	[illegible]	[illegible]	
	DU	17/2/87	[illegible]		
	[illegible]	[illegible]	[illegible]		
	S EVANS	26/2	[illegible]		
	V Iles	16/3	[illegible]		
	C Brown	24/3			
	DU	[illegible]	[illegible]		
	[illegible]	[illegible]	[illegible]	[illegible]	
R	Brown	[illegible]/87			
	Evans	19/5/87	[illegible]		
	V Iles	27/5	[illegible]		
	[illegible]	[illegible]	[illegible]		
	J Johnson	1/6	[illegible]		
	DU	1/6	[illegible]		
	B. Kipriovich	[illegible]	[illegible]	2/6/87	
A	C Brown	9-6-87	CB	9/6/87	
R	P Gatenby	14/7/87	[illegible]	11/7/87	
R	C. Brown	17/8/87	CB	17/8	
	P Gatenby	19/8/87	[illegible]	19/8	
A	C Brown	19/8/87	[illegible]	[illegible]/87	
R	P. Gatenby	31-5-88	[illegible]	31/5/88	
R	[illegible]	[illegible]/88	[illegible]		
R	DU	[illegible]	GO		
	H TSEMB'S	[illegible]	[illegible]	9.1.89	
	WILSON	[illegible]/3/89	[illegible]		
	R. McWhite	[illegible]	[illegible]	13/4/89	
R	TP	13.8.91			

Folio	FOR ACTION Referred To	On Date	ACTION TAKEN Initials	Date Retnd Records	Resub. Date
	ARCHIVES	13/8			
R	RA[illegible]			[illegible]	

MAKE UP NEW FILE COVER NOW

FILE No. P.F. 4319/5

PART

FILES

22071

3 4

SHIRE CLERK

[illegible]/9/86.

GR

$6.3 \times 5.9 = 37.17$

$3.5 \times 13.2 = 46.2$

$3.5 \times 2.4 = 8.4$

$10.3 \times 4.1 = 42.23$

$6.2 \times 7 = 43.4$

$10.8 \times 3.6 = 38.88$

$10 \times 4.2 = 42$

$7.1 \times 7.8 = 55.38$

$4.1 \times 3.6 = 14.76$

328.42

$24.3 \times 17.9 = 434.97$

$- 6.4$

$- 10.56 = 418.01$

16.96

$- 4.06$ $\quad 413.95$

↳ ~~746.43~~ $= (24.88)$ ~~25~~ spaces

742.37 $\quad (24.75)$ 25 spaces

Warehouse

$31.4 \times 11.4 = 357.96$

$7.2 \times 18.4 = 132.48$

$-60.$

430.44

$+ \quad 29.58$

$14.3 \times 6 \quad + \quad 85.8$

12.6

558.42

$= 11.17 = 111$

35.421 $\quad$ ~~35.9~~ 36

↳ (36) spaces req'd (35.9)

8 1st

~~7 4x~~

3.6 x 4.5	16.2
3.8 x 5.5	20.9
1.6 x 8.7	13.92
9.2 x 1.5	13.8
2.8 x 3.9	10.92
2.9 x 3.0	8.7
1.5 x 5.5	8.25
4 x 1.5	6
6 x 1.6	9.6
4.2 x 1.1	4.62
	112.91

$\Rightarrow$ (3.76) 4 spaces.

(if included in calcs)

Circulation exclusions etc - -

6.4
10.56
4.06
21.02

from plan submitted 12.5.87.

Unit A

consent

gr. fl. 983 1/50. 1st. fl 413 1/30

↳ cars req'd. 19.66 13.76

↳ total 34 (33.42) car spaces req'd.

current proposal

gr. fl. 557 office 1/30 1st. fl. 413 1/30
426 warehouse 1/50

↳ cars req'd 18.57 13.76
8.52
27.09

↳ total 41 car spaces req'd.

---

37 car spaces are provided ∴ 4 deficient spaces.

floor area.

24 × 24 = 576.

= 15

= 4

557 1/50 = 11.14 if assessed as showroom

18.56 if assessed as office.

WARRINGAH SHIRE COUNCIL

5811

INSTRUCTION TO SOLICITOR Wilshire Webb Son & Doyle.

MATTER Appeal to the Land & Environment Court against conditions 28 & 32 of Development Consent No. 86/113 dated 16th April, 1986. Lot A, F.P. 327468, Lot A, F.P. 391811 & Part Lot A, F.P.391810, proposed Lot 15, Frenchs Forest Road East, Frenchs Forest.

PAPERS FORWARDED (12 / 9 /19 86) Council File PF:1796/Lots 15 & 16.

INSTRUCTIONS (12 / 9 /19 86)

1. Attend callover at Land & Environment Court on 30.9.86 at 9.00a.m.
2. Defend appeal on Council behalf as required.

FILE NO. PF"1796/Lots 15 & 16.

INITIATING OFFICER Mr. Steven Evans. Town Planning Branch. 982-0374

12/9/86.

SHIRE CLERK

H. Wilshire Webb, Son & Doyle

SOLICITORS

H. WILSHIRE WEBB
NEIL D. HOWIE
G.D. GERSBACH
I.E. WOODWARD

140 SUSSEX STREET, SYDNEY 2000

Telephone: 29 3311

D.X. 298

Also at Mann Street, GOSFORD

OUR REF: NDH:DP5811
YOUR REF:

20th November, 1986

John Hamilton Hughes,
Solicitor
DX 10582
NORTH SYDNEY

Dear Sir,

RE: Warringah Shire Council ats Colin Graham, Alcock, Giles Tribe Pty. Limited

We confirm, following our discussions that Council officers are prepared to recommend to the Council that the proceedings be resolved on the following basis:-

1: Appeal No. 10452 of 1986 Consent Orders enclosed.

2: Your client to provide a cheque in favour of the Council for the total sum of $18,828.00 and the Council to return the two Deeds of Guarantee submitted to the Council under cover of your letter dated 30th July 1986.

3: Appeal No. 20616 of 1986 Consent Orders enclosed.

4: Council to provide a cheque to Leda Holdings Pty. Limited in the sum of $2,801.00 being the Council's agreed proportion of fees of K. R. Stubbs & Associates Pty. Limited in respect of drainage design.

We note your advice that your client accepts the resolution of the proceedings on this basis and the matter will be reported on to a meeting of the Development Unit of the Council for authority to effect the proposed settlement tomorrow morning.

The writer will appear before the Registrar at 2pm in respect of proceedings no. 20616 of 1986 and will inform the Registrar that both matters are settled subject to ratification by the meeting of the Development Unit and request that both proceedings be listed for mention only before an Assessor of the Court on Monday morning.

Yours faithfully,
H. WILSHIRE WEBB, SON & DOYLE

H. Wilshire Webb, Son & Doyle

H. WILSHIRE WEBB
NEIL D. HOWIE
G.D. GERSBACH
I.E. WOODWARD

SOLICITORS

140 SUSSEX STREET, SYDNEY 2000

Telephone: 29 3311

D.X. 298

Also at Mann Street,
GOSFORD

OUR REF:
NDH:DP
YOUR REF:
PF 1796/Lots 15 & 16

WARRINGAH SHIRE COUNCIL
20 NOV 1986 = 3.30pm by Courier.
REF D. Johson
FILE
FILE No. PF 1796/15 & 16

19th November, 1986

The General Manager,
Warringah Shire Council,
Civic Centre,
Pittwater Road,
DEE WHY

ATTENTION: Mr. D. Johnson

Dear Sir,

RE: Instruction No. 5811 - Colin Graham, Alcock, Giles Tribe Pty. Limited - Lot 15 Frenchs Forest Road East, Frenchs Forest - Appeal to the Land & Environment Court

Further to our telephone conversation with Mr. Johnson this morning we now enclose the following:-

1: Letter to John Hamilton Hughes, Solicitor of todays date.

2: Consent Orders for Appeal No. 10452 of 1986.

3: Consent Orders for Appeal No. 20616 of 1986.

It is proposed that the matter be mentioned before an Assessor of the Court on Monday morning to enable the Consent Orders to be made and for the Council to receive a cheque for the total sum of $18,828.00. It will be necessary for the Council to provide to the applicant:-

a) A cheque in favour of Leda Holdings for the Engineering fees of $2,801.00 or alternatively a letter in the same terms as referred to in our letter to the Solicitor for the Applicant.

b) The original guarantees enclosed with the letter from the Solicitor for the Applicant dated 30th July 1986.

Yours faithfully,
H. WILSHIRE WEBB, SON & DOYLE

encl.

DJ's letter to W. Webbs sent via courier system. ... agreed with ... Letter sent to ...

IN THE LAND AND ENVIRONMENT COURT OF NEW SOUTH WALES

No. 10452 of 19 86

COLIN GRAHAM, ALCOCK, GILES TRIBE PTY. LIMITED
.....Applicant

WARRINGAH SHIRE COUNCIL
.....Respondent

CONSENT ORDERS

BY CONSENT:-

THE COURT ORDERS:-

1: The Appeal be upheld.

2: Condition 28 of Consent No. 86/113 dated 16th April 1986 as modified on the 16th July 1986 be amended by the deletion of the amount of "$32,500.00" therein appearing and the substitution in lieu therefore of the amount "$16,500.00".

3: Condition 32 of Consent No. 86/113 dated 16th April 1986 as modified on the 16th July 1986 be amended by the deletion of the sum "$31,044.00" therein appearing and the substitution in lieu therefore of the figure "$2,328.00".

4: There be no order as to costs.

ORDERED:

BY THE COURT

E. C. IRWIN
REGISTRAR

H. WILSHIRE WEBB,
SON & DOYLE
Solicitors,
140 Sussex Street,
Sydney. NSW 2000.

TEL: 29 3311
DX : 298
REF: NDH

..... Solicitor for the Applicant

..... Solicitor for the Respondent

IN THE LAND AND ENVIRONMENT COURT OF NEW SOUTH WALES

No. 20616 of 19 86

LEDA HOLDINGS PTY. LIMITED
.....Applicant

WARRINGAH SHIRE COUNCIL
.....Respondent

CONSENT ORDERS

BY CONSENT:-

THE COURT ORDERS:-

1: The Appeal be upheld.

2: Condition 29 of Building Approval no. 1862 of 1986 dated 30th July 1986 be deleted and the following substituted in lieu therefore:-

"29. The metal tray sheeting/roofing to be permanently treated with an anti-glare finish."

3: There be no order as to costs.

ORDERED:

BY THE COURT

E. C. IRWIN
REGISTRAR.

H. WILSHIRE WEBB,
SON & DOYLE
Solicitors,
140 Sussex Street,
Sydney. NSW 2000.

TEL: 29 3311
DX : 298
REF: NDH

..... Solicitor for the Applicant

..... Solicitor for the Respondent

H. Wilshire Webb, Son & Doyle

SOLICITORS

140 SUSSEX STREET, SYDNEY 2000

Telephone: 29 3311

D.X. 298

H. WILSHIRE WEBB
NEIL D. HOWIE
G.D. GERSBACH
I.E. WOODWARD

Also at Mann Street, GOSFORD

OUR REF: NDH:DP
YOUR REF:
PF 1796/Lots 15 & 16

19th November, 1986

The General Manager,
Warringah Shire Council,
Civic Centre,
Pittwater Road,
DEE WHY

URGENT

ATTENTION: Mr. D. Johnson

Dear Sir,

RE: Instruction No. 5811 - Colin Graham, Alcock, Giles Tribe Pty. Limited - Lot 15 Frenchs Forest Road East, Frenchs Forest - Appeal to the Land & Environment Court

---

We enclose a copy of a Statement of Evidence filed on behalf of the Applicant by Mr. C. R. Pickering, Chartered Engineer.

We confirm our advice that this afternoon after a number of discussions the Applicant advised that he was prepared to resolve the appeals on the following basis:-

1: The contribution under Condition 28 be $16,500.

2: The contribution under Condition 32 to be the amount of $2,328.00

3: The Applicant to pay the fees of the Engineer for drawing the drainage design to the extent of its proportion of the total costs of drainage.

4: The Council to agree to the modification of Condition 29 of the building approval as requested by the Applicant.

We have already received verbal instructions from Mr. Seagg of the Health and Building Department that Council will consent to the modification of Condition 29 of the building approval.

As discussed with Mr. Johnson, we confirm our advice that the costs of the hearing of the appeals which are listed for two days would amount to at least an additional $2,000 even if Council succeeded in obtaining the full amount of drainage contribution

calculated on proportions of the areas of the catchment which is presently assessed in the sum of $19,500 for the subject land. Whilst the applicant by its offer must be conceding in its considerations that Council has good prospects of succeeding, the circumstances of the earlier subdivision approval provides an arguable basis for the Applicants claim that the Council should not receive a further drainage contribution over and above the works carried out at subdivision stage.

In the circumstances we would recommend that we be instructed as a matter of urgency to settle the proceedings on the basis that conditions 28 and 32 be amended as offered by the Applicant and that the total amount of $18,828 be paid with the guarantees being returned to the Applicant. In addition Council to pay the Applicant or to the Engineer the sum of $2,801 in respect of the account from the Engineer to the Applicant in the sum of $3,754.00.

Yours faithfully,
H. WILSHIRE WEBB, SON & DOYLE

encl.

10453/86

K.R. STUBBS & ASSOCIATES PTY. LTD.

STATEMENT OF EVIDENCE

C.R. PICKERING B. Sc.Eng. (Civil), M.I.E. Aust.

LEDA HOLDINGS PTY. LTD. V WARRINGAH SHIRE COUNCIL

RE: Lot 15 Frenchs Forest Road East, Frenchs Forest

Condition Appealed against:-

(28) "The applicant is required to contribute a sum of $32,500 towards the extension of the piped drainage system in Frenchs Forest Road to this property. This contribution is to be paid prior to building approval."

1. The former Drive-In-Theatre site was subdivided for Industrial Development.

2. Stormwater drainage works and roadworks were constructed as part of the subdivision to Council's satisfaction.

3. The stormwater drainage works included provision for connection of Lot 15 (375mm dia. pipeline constructed from system in Frenchs Forest Road and provided with a pit within Lot 15 for future connection).

4. The stormwater works connected to an existing Council system which conveyed stormwater to the northern side of Frenchs Forest Road and thence generally in a northerly direction through a residential estate.

5. Construction of the stormwater works commenced in September, 1985.

6. Prior to this construction commencing (November, 1984) Council approved a stormwater design some 160 metres to the west of Lot 15 within Frenches Forest Road which made provision for the upstream catchment which included Lot 15.

7. The average co-efficient of runoff for Lot 15: -

   a) Prior to subdivision -- 0.86
   b) Subsequent to development -- 0.83

8. The time of concentration for Lot 15:-

   a) Prior to subdivision -- 6 min.
   b) Subsequent to development -- 6 min.

C.R. PICKERING
Chartered Engineer
17.11.86

H. Wilshire Webb, Son & Doyle

SOLICITORS

H. WILSHIRE WEBB
NEIL D. HOWIE
G.D. GERSBACH
I.E. WOODWARD

140 SUSSEX STREET, SYDNEY 2000

Telephone: 29 3311

D.X. 298

Also at Main Street, GOSFORD

OUR REF: NDH:DP
YOUR REF: PF 1796/Lots 15 & 16

14th November, 1986

WARRINGAH SHIRE COUNCIL
— CENTRAL RECORDS —
17 NOV 1986
REF. TO: C. Seagg
FILE WITH: D. Johnson 15/9/86
FILE No. PF 1796/3-4 15/9/16.

The General Manager,
Warringah Shire Council,
Civic Centre,
Pittwater Road,
DEE WHY

ATTENTION: Mr. C. Seagg orig to

Dear Sir,

RE: Instruction No. 5811 - Colin Graham, Alcock, Giles Tribe Pty. Limited - Lot 15, Frenchs Forest Road East, Frenchs Forest - Appeal to the Land & Environment Court

---

We refer to our letter dated 13th November, 1986 addressed to Council (Mr. D. Johnson).

We now enclose the following:-

1: Copy Class 2 Application to the Land & Environment Court of New South Wales returnable at 2pm on 20th November, 1986 appealing against condition 29 of the building approval requiring a colour bond roof.

2: Notice of Motion returnable at the same time seeking that Class 2 appeal be heard with the Class 1 appeal.

3: Affidavit by Mr. Hughes sworn 13th November, 1986.

Would Council please provide us with an instruction to appear on the Notice of Motion and, if appropriate, to defend the appeal or take any action necessary protect Council's interests in the appeal.

If the Council has no objection to an appropriate modification to condition 29 of the building approvel would Council please advise the wording of an appropriately modified condition 29.

Council's urgent instructions by no later than Tuesday morning is requested to avoid unnecessary costs being incurred.

Yours faithfully,
H. WILSHIRE WEBB, SON & DOYLE

encl.

H. Wilshire Webb, Son & Doyle

SOLICITORS

H. WILSHIRE WEBB
NEIL D. HOWIE
G.D. GERSBACH
I.E. WOODWARD

140 SUSSEX STREET, SYDNEY 2000

Telephone: 29 3311

D.X. 298

Also at Mann Street, GOSFORD

OUR REF: NDH:DP5811
YOUR REF:

13th November, 1986

John Hamilton Hughes,
Solicitor,
DX 10582
NORTH SYDNEY

Dear Sir,

RE: Warringah Shire Council ats Colin Graham, Alcock, Giles Tribe Pty. Limited (Leda Holdings Pty. Limited)
Lot 15, Skyline Place, Frenchs Forest

We refer to our telephone conversation on Wednesday 12th November.

We confirm our advice that in respect of condition 28 of the Consent as modified, on checking the calculation of the contribution required by Council for the purposes of the hearing of the appeal, the amount now required is the sum of $21,667.00, that is approximately one third of the estimated costs of the drainage works in the sum of $65,000.00.

In respect of condition 32 we are also instructed that the Department of Main Roads have now advised that there will be no requirement for signal control at the junction of Frenchs Forest Road East and Skyline Place. The Council now seeks a contribution in respect of Lot 15 in the sum of $2,328.00 in respect of contribution for works required to protect the local road systems from through traffic intrusion, namely Frenchs Forest Road West and Romford/Iris/Tristram Roads.

Yours faithfully,
H. WILSHIRE WEBB, SON & DOYLE

H. Wilshire Webb, Son & Doyle

SOLICITORS

H. WILSHIRE WEBB
NEIL D. HOWIE
G.D. GERSBACH
I.E. WOODWARD

140 SUSSEX STREET, SYDNEY 2000

Telephone: 29 3311

D.X. 298

Also at Mann Street, GOSFORD

OUR REF: NDH:DP
YOUR REF: PF 1796/Lots 15 & 16

13th November, 1986

The General Manager,
Warringah Shire Council,
Civic Centre,
Pittwater Road,
DEE WHY

ATTENTION: MR D JOHNSON

Dear Sir,

RE: Instruction No. 5811 - Colin Graham, Alcock, Giles Tribe Pty. Limited - Lot 15, Frenchs Forest Road East, Frenchs Forest - Appeal to the Land & Environment Court

We confirm our earlier advice that the appeal against conditions of development consent under Section 97 of the Environmental Planning and Assessment Act has been listed for hearing on Monday 24th November and Tuesday 25th November, 1986 before an Assessor of the Court.

The appeal is against conditions 28 and 32 of Development Consent no. 86/113 dated 16th April 1986 as modified in the form of modified development consent dated 16th July 1986. The stated position of the applicant is that it seeks the deletion of each condition.

We have also been informed yesterday by the Solicitor for the applicant that the applicant also intends to lodge a Class 2 building appeal against the imposition of a condition of building approval requiring a colour bond roof to the development. We further understand that the applicant intends filing and serving a Notice of Motion seeking that the Class 2 appeal be heard at the same time as the class 1 appeal relating to conditions 28 and 32.

We comment separately on the issues raised by conditions 28 and 32.

Condition 28 - drainage of the site to the public stormwater drainage system in Frenchs Forest Road East

The relevant conditions of Consent 86/113 dated 16th April 1986 are as follows:-

1: Condition 14 requiring the connection of roof and site drainage to Council's underground stormwater system from a pitt within the property boundary by means of a RCP of 375mm minimum diameter.

2: Condition 18 requiring the submission of Engineering plans including stormwater run off calculations and details of proposed structures etc. to be approved by the Engineers Department.

3: Condition 19 requiring, inter alia, construction of drainage works within the road reserve to comply with Council's specifications.

4: Condition 22 requiring stormwater from the property to be piped by gravitational means to Council's stormwater system and to the satisfaction of Council's Engineer.

5: Condition 28 requiring the applicant to address in the Engineering plans the adequacy of the two public stormwater drainage systems to which the site presently drains and the need for drainage amplification and the provision of the extension of the public stormwater system in the southern side of Frenchs Forest Road East.

6: Condition 29 requiring the design of internal drainage to give consideration to reducing and detaining the rate of stormwater run off from the site.

Following a request for the "deletion and/or modification of condition 28" from Leda Holdings Pty. Limited in a letter dated 28th May 1986 the Council on the 16th July, 1986 issued a modified form of Consent amending condition 28 to require a contribution of $32,500.00 towards the extension of the pipe drainage system in Frenchs Forest Road to the property to be paid prior to building approval.

The basis for the request for deletion and/or modification of condition 28 by the applicant was on the grounds:-

a) The Council had a responsibility to ensure that the public stormwater system on the southern side of Frenchs Forest Road East was available to the site as a condition of the subdivision approvals.

b) The development will not increase the amount of stormwater run off from the site from the amount of run off from the site in its condition at the time of subdivision that is with a bitumen tarmac surface in fact there may be a reduction in the amount of stormwater run off from the site as a result of the development.

Condition 28 and the associated conditions in the Consent dated 16th April 1986 required the developer to carry out the design and construction of drainage works which pursuant to condition 28 could include the need for drainage amplification and the provision of the extension of the public stormwater system on the southern side of Frenchs Forest Road East with the design and construction to be to the satisfaction of Council's Engineer. The modified condition 28 (16th July 1986) provided the other option of the applicant paying a contribution to the Council towards the extension of the drainage system in Frenchs Forest Road East.

As to condition 28 in its original form Section 91(3)(f) authorises the imposition of a condition requiring the carrying out of works (whether or not being works on the land to which the application relates) relating to any matter referred to in Section 90(1) applicable to the development the subject of the Consent. The carrying out of works from the land to the public drainage system and the amplification of the public drainage system would be a head of consideration under Section 90(1)(b)(h)(1)(o) and possibly (q) and (r). The test of the validity of such a condition has on a number of occasions been stated by the Courts to be that the condition must be for a planning purpose; it must fairly and reasonably relate to a development; and it must be reasonable.

As to condition 28 as modified Section 91(3)(h) authorises a condition to be imposed under Section 94 which permits, relevantly, the payment of a monetary contribution towards provision or improvement of amenities or services. For the subject matter the section requires:-

1: That the proposed development is likely to require the provision of or increase the demand for additional drainage in the public system or amplification of the existing drainage system.

2: In all the circumstances of the case it is reasonable to impose a requirement for a monetary contribution.

3: That the contribution sought by the Council is reasonable in all the circumstances.

Whether or not the works are to be carried out by the applicant or a contribution is to be paid essentially the same considerations apply as to a sufficient nexus between the development and the required works and that the extent of the works required are reasonable. In any event it would appear that the applicant and Council prefer a contribution and it is probable on the hearing of the appeal that the issues will relate by agreement to the modified condition requiring a contribution.

From our discussions with Mr. D. Johnson we understand that Council has assessed a contribution on the following basis:-

1: At the time of development consent and subdivision approval under Part XII of the Local Government Act for the subdivision Council required Skyline Place to drain to a pit on Frenchs Forest Road adjacent to the pathway to the north and approximately one third along the frontage of the subject land from Skyline Place. These works were constructed. Whilst it is clear that it now appears that approximately two thirds of the area of the subject land could not reasonably have been expected to drain to that pit the considerations at the subdivision stage in respect of drainage related to undeveloped land.

2: Whether or not at the time of subdivision approval it was appropriate for the two thirds section of the area of the land to drain its surface waters to the street table the development of the land for the erection of buildings and construction of hard surface areas and the consequent construction of a formal drainage system at the very least increased the concentration of waters whether or not it can be demonstrated that such development increased the volume of waters from the land in its undeveloped state.

2: The present system of public drainage along the northern pathway, inter alia, from the pit adjacent to the frontage of the subject land is presently inadequate.

3: The development of the subject land generates a requirement for the construction of a further pit nearer the western boundary of the subject land on Frenchs Forest Road East and for the construction of 375mm piping to this pit and to link this pit with further existing pits on Frenchs Forest Road East to the west of Nandi Avenue which in turn link to an existing drainage system which is adequate to take all necessary drainage from the public system; from the subject land; and other lands in the catchment area.

4: Over and above the requirements of the drainage of the subject land Council sees a necessity for the pipe to be 675mm width to accommodate the additional drainage through the public system from the relevant catchment which includes Skyline Place and Lots 11 and 12 and part of Frenchs Forest East.

5: The required contribution towards the construction of the additional pit, the installation of the piping to 675mm, the upgrading of the two further pits to connect with the drainage system west of Nandi Avenue can be based on the relevant areas of the lands within the catchment.

6: The catchment is identified as Lots 11 and 12 (the Hooker land) representing 42% of the total catchment area, the public roads consisting of part of Frenchs Forest Road East and Skyline Place representing 14% and the subject land representing 45%. In respect of the subject land as one third of the area as a result of the construction of drainage for Skyline Place drains to Skyline Place, this area should not be included in the contribution leaving a net area of 30% for the subject land of the total area of the catchment for assessment of contribution.

7: The catchment plan prepared by Ledingham Hensby Oxley & Partners Pty. Limited in addition to the areas referred to also identifies land to the west of the subject land as being included within the catchment area. These lands to the west already drain adequately to the existing drainage system to the west of Nandi Avenue and do not require any additional drainage to the proposed drainage works to connect the catchment area identified by the Council.

8: The Council identifies the cost of the applicant carrying out those works arising solely from the development (i.e. the construction of the additional pit and the construction of a 375mm pipe) as being approximately $35,000. The cost of the works proposed by the Council is approximately $65,000. This figure has been confirmed by calculations prepared by the applicant's Engineers in a sum of about $75,000. (These calculations should be available on the hearing).

9: The Council now assesses the contribution required at 30% of $65,000 that is $19,500.

We consider that the Council has reasonable prospects of obtaining a contribution in the sum of $19,500 provided the above matters can be established in evidence and there is no dispute as to the adequacy or otherwise of the two systems or as to the cost calculation.

Condition 32 Traffic Management Contribution

Condition 32 as imposed on the 16th April 1986 required prior to the issue of building approval a Bank guarantee for the sum of $31,044.00 to cover the cost of carrying out road works associated with traffic management on the relevant streets and the installation of traffic signals at the access point to Frenchs Forest Road if such were considered by Council to be required for the development of the land. The condition was modified on the 16th July, 1986 so as to require the lodgment of the guarantee prior to completion of the development and occupation following a request from the applicant that the guarantee be provided prior to the issue of a Section 317A Certificate (letter dated 12th June, 1986).

The condition, in effect, is a condition imposed pursuant to Section 94 of the Act requiring a monetary contribution and depends for its validity upon the considerations arising from that Section.

Since the condition was imposed the Department of Main Roads has advised that there will be no requirement for signal control at the junction of Frenchs Forest Road East and Skyline Place. The contribution therefore relates to works required to protect the local road systems traffic management.

We would ask that Mr. Hewitt amplify his memo of 11th November, 1986 to establish the following matters:-

1: In what way is it said that traffic from the subject land may lead to a requirement for additional works to be carried out on the local road systems.

2: What are the precise works to be carried out.

3: What is the approximate costing of these works as presently known.

4: What stage in the planning process have these works reached and can it be said that it is more likely than not that these or at least works of a similar standard and cost will be constructed. What is the estimated date for construction of these works.

5: How is responsibility for these works allocated to the subject land.

6: The calculation leading to the conclusion that a contribution of $2,328 for the subject land is required should be detailed.

7: All relevant policies or resolutions of the Council and any other traffic authorities or committees should be detailed to establish that the Council is undergoing a consistent and co-ordinated process of seeking contributions for development of this nature to the uprading of the local street system which can be said to be fair and equitable in its application to development.

Generally

We note that under cover of a letter dated 30th July, 1986 from the Solicitor for the applicant two deeds were provided to Council signed under common seal by Leda Holdings Pty. Limited and Citibank Limited which in effect provided the necessary guarantees sought by the Council pursuant to modified conditions 28 and 32. We have given consideration to whether as a result of the provision of these deeds the applicant is "dissatisfied with

the determination of the consent authority" pursuant to Section 97 of the Act. We are of the opinion that the Court would hold that the delivery of the deeds of guarantee to the Council was subject to Council accepting the implicit condition in the letter from the Solicitor of that date to the effect that appeals were to be lodged and that their client remained dissatisfied with the conditions with the further stipulation that "should the appeal be successful we will be seeking an order for repayment of the cash contribution...". The deeds were provided to enable the release of the building approval. We understand that the building approval was released and in our opinion the release of the building approval would constitute acceptance of the terms of the conditional delivery of the deeds of guarantee. In these circumstances we consider that the Court would hold that the applicant is still a person "dissatisfied with the determination".

Outline of evidence

In order to properly present the issues on the hearing of the appeal we would ask that the following matters be attended to:-

1: Three folders should be prepared with the following documents in order:-

(a) An extract from WLEP 1985 map as to zoning of the land.

(b) The development application

(c) The owners consent

(d) The Environmental Impact Statement

(e) The report to Council or the Development Unit

(f) Any relevant correspondence prior to determination

(g) Council's Notice of Determination.

(h) All relevant correspondence leading up to the modification of the consent and a copy of the modified consent together with a copy of any report to the Development Unit or Council.

(i) The development consent plans.

(j) Drawing no. LH92/1 and 2 prepared by Ledingham Hensby Oxley & Partners Pty. Limited and any relevant correspondence in respect of this plan.

2: A separate folder should be provided which should contain a copy of all relevant development consents and subdivision approvals and plans relating to the earlier

history of subdivision together with copies of any relevant correspondence.

3: The earlier subdivision files and the building approval file should be available with the development consent file.

4: A separate folder containing any relevant material in support of the traffic contribution.

5: Photographs of the subject land, Skyline Place, Lots 11 and 12, the relevant section of Frenchs Forest Road, the relevant existing pits and drainage systems should also be taken to assist the Court in assessing the evidence.

6: Mr. David Johnson should prepare a statement of evidence as to the relevant issues relating to condition 28. If it is anticipated that there is to be any dispute as to matters of engineering design or costing it may be of assistance to have Mr. K. Smith prepare an appropriate assessment of those aspects.

7: Mr. Hewitt should prepare a statement of evidence to cover the matters earlier referred to.

We would ask that the statements of evidence be available no later than Wednesday 19th November so that these statements may be exchanged with the applicant for any statements of evidence by experts to be called by the applicant.

We would also ask that all the material be available no later than Friday afternoon so that the writer may peruse the relevant material prior to the hearing on Monday 24th November.

We enclose a copy of a letter which we have sent to the Solicitor for the applicant.

Yours faithfully,
H. WILSHIRE WEBB, SON & DOYLE

encl.

THE COUNCIL OF THE
SHIRE OF WARRINGAH
All correspondence to be addressed to The General Manager,
Civic Centre, Pittwater Road, Dee Why, 2099 DX 9118 Dee Why
Telephone: (02) 982 0333 Fax: (02) 982 4770

File No: PF 1796/Lots 15,16 DJ.KH/1711e
Your Ref:

21st November 1986

H Wilshire Webb Son & Doyle
Solicitors
140 Sussex Street
SYDNEY NSW 2000

Dear Sir

re: Instruction No: 5811 Appeal to Land & Environment Court Lot 15 Frenchs Forest Road East, Frenchs Forest

Reference is made to your letter of 20th November 1986 in respect of the above matter.

In respect of Appeal 10452 Council advises it is prepared to agree to:-

1. The amendment of Condition 28 by the deletion of the amount of $32,500 and the insertion of the amount of $16,500.

2. Condition 32 by the deletion of the amount stated therein and the replacement with $2,328.

3. We agree that there be no order as to costs.

We understand that the above amounts of $18,828 will be exchanged for the bank guarantees held in respect of the above matters, the originals of such guarantees are attached hereto.

The appellants costs in respect of the engineering design fees paid in respect of Condition 28 amounted to $3,724 and Council's share acknowledged as $2,801 is attended to by the attached cheque.

Council's advice in respect of Appeal 20616 is being addressed separately by the Health and Building Branch of Environmental Services Division.

Yours faithfully

Discussed with G.M.
19-11-86

M A Knight
DIVISIONAL MANAGER
PUBLIC WORKS/
SHIRE ENGINEER

Enquiries:
Mr D Johnson, Development
& Subdivision Engineer, 8.30-10am, Mon-Fri

CLOSED FILE PART

****

THIS PART OF THE FILE IS NOW CLOSED OFF.

All further correspondence is to be actioned and filed on

PART ... of the file.

Any loose papers belonging to this file dated upto the date of the closure of this file, are to be returned to Central Records for attachment.

No loose papers out of the time period covered by this file are to be added.

L. Emery.
L.D. Emery,
Records Manager

****

SEE NEW PART OF FILE

TOWN PLANNING DEPARTMENT

To File From Cullright Date 29.4.87

Lot 15 D.P. Address Skyline Pl. French Forest

Subject Car parking allocation / Plan 85104 21 / submitted 29.4.87. File No. PF4319/5

Consent 86/113 as modified applies.

158 carparking spaces are provided (11 of which are stacked towards French Forest Road.)

Consent No 86/113 condition 33 required the stacked spaces be allocated to a specific unit.

Applicant proposes the 11 spaces be allocated to Unit E, as well as indicating the allocation of all spaces between specified units.

Using G.F.A. of 3693 sm Warehouse/Showroom and 2101 sm office (measured from working drawings by applicant (see letter 16.6.86) and deducting wall thicknesses, amenities, corridors, stairs, 60 sm loading bay)

a total of 144 car spaces are required under DCP 2.

There is therefore an excess of 14 spaces provided over that required.

		Spaces Provided		Spaces Required
Unit	A	37	(3)	34
	B	25	(3)	22
	C	25	(3)	22
	D	29	(3)	26
	E	42	(2)	40
		158	(14)	144

These additional spaces are allocated evenly (as possible) between the five units.

No objection to 1) allocation of spaces between units as indicated on Plan 85104 21 dated May 86, submitted 16.4.87

2) allocation of the 11 stacked spaces to Unit E.

Cullright (T.P.) 29.4.87

CB

Graham Alcock Giles Tribe Pty Ltd

C S Graham B Arch FRAIA
F J Alcock ARAIA
D J Giles B Arch ARAIA
A R Tribe B Arch Dip T&CP FRAIA MRAPI
B J Woodmansey HNC Bldg (UK)
F J B Johnston B Arch ARAIA

Architects and Town Planners

4 Bond Street Mosman NSW 2088
PO Box 596 Spit Junction NSW 2088
Telephone 02 960 3399
Facsimile 02 969 5874

25670

27th April 1987

Ref No. 8755

The Town Clerk
Warringah Shire Council
Civic Centre
Pittwater Road
DEE WHY NSW 2099

Attention: Christine Wright
Town Planning Department

Re: Usage Application and Fitout
Tenancy A
5 Skyline Place, Frenchs Forest

With reference to your telephone enquiry, we now submit the following information:-

Staff: 30 Males and 13 Females.

OUTLINE OF USE:- The building will be used as warehouse, service centre and distribution centre for computer hardware and software, including any associated administration.

The tenant is "Wordplex Australia Pty. Ltd.".

Woodmansey

GRAHAM ALCOCK GILES TRIBE PTY. LTD

Graham Alcock Giles Tribe Pty Ltd

Facsimile Transmission

Architects and Town Planners

4 Bond Street Mosman NSW 2088
PO Box 596 Spit Junction NSW 2088
Telephone 02 960 3399
Facsimile 02 969 5874

Project TENANCY FITOUT, UNIT A
5 SKYLINE PLACE, FRENCH'S FOREST

To: WARRINGAH SHIRE COUNCIL

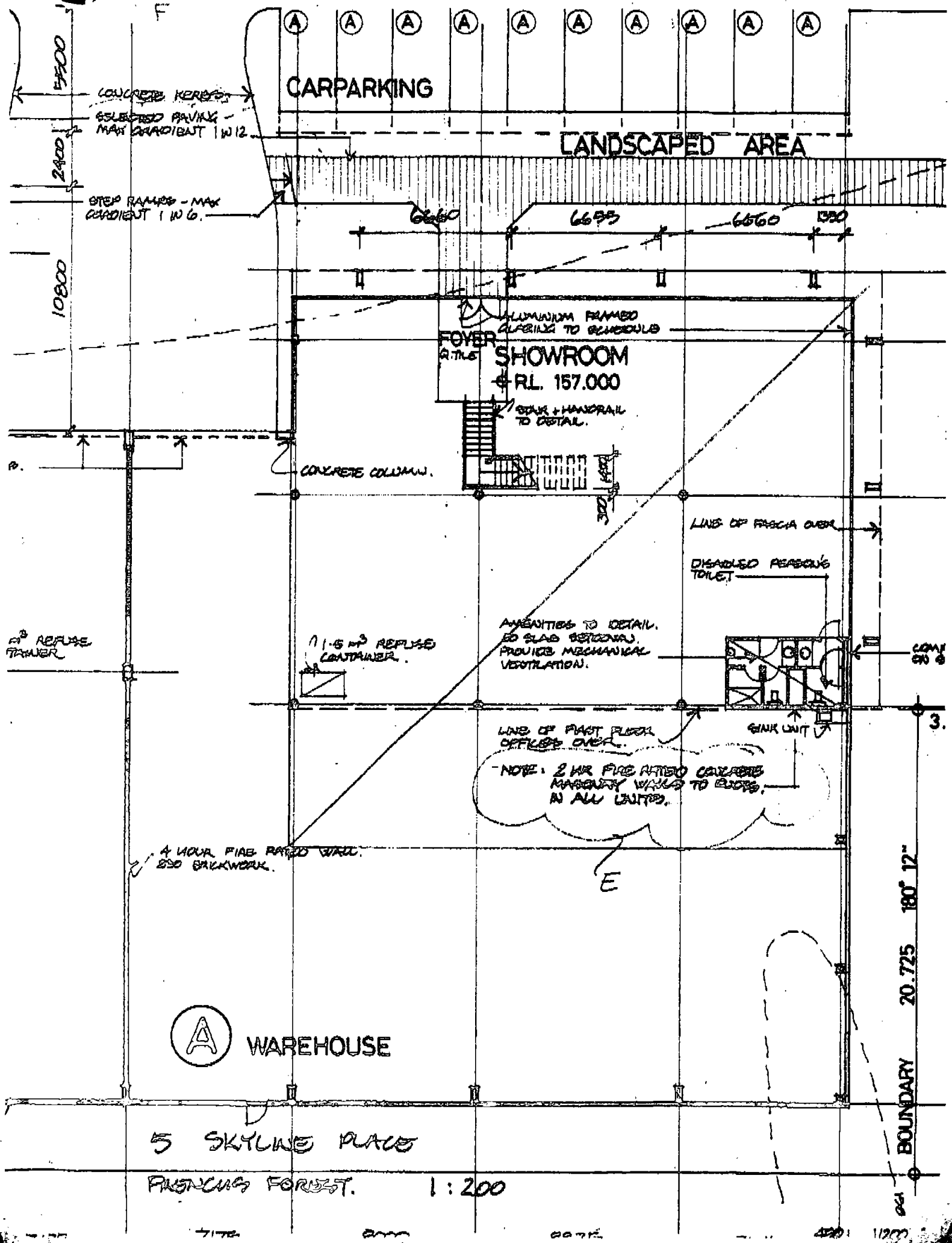
Date 16·4·87

Attn. CHRISTINE WRIGHT
TOWN PLANNING DEPT.

From IAN McCAIG

1:200 PLAN OF GROUND FLOOR OF UNIT A.

This Facsimile Transmission has 2 pages (including this header).


CARPARKING
LANDSCAPED AREA
CONCRETE KERBS
SELECTED PAVING - MAX GRADIENT 1 IN 12
STEP RAMPS - MAX GRADIENT 1 IN 6.
2400
10800
6660
6655
6660
1350
ALUMINIUM FRAMED GLAZING TO SCHEDULE
FOYER
SHOWROOM
R.L. 157.000
STAIR + HANDRAIL TO DETAIL.
CONCRETE COLUMNS.
LINE OF FASCIA OVER
DISABLED PERSONS TOILET
AMENITIES TO DETAIL. ED SLAB BOTTOMS. PROVIDE MECHANICAL VENTILATION.
1.5 m³ REFUSE CONTAINER.
m³ REFUSE TAINER
LINE OF FIRST FLOOR OFFICES OVER.
SINK UNIT
NOTE: 2 HR FIRE RATED CAVITY MASONRY WALLS TO BOTH IN ALL UNITS.
4 HOUR FIRE RATED WALL. ESD BRICKWORK.
E
3.
A WAREHOUSE
5 SKYLINE PLACE
FRENCHS FOREST.
1:200
20.725
180° 12"
BOUNDARY

Graham Alcock Giles Tribe Pty Ltd

C S Graham B Arch FRAIA
F J Alcock ARAIA
D J Giles B Arch ARAIA
A R Tribe B Arch Dip T&CP FRAIA MRAPI
B J Woodmansey HNC Bldg (UK)
F J B Johnston B Arch ARAIA

Architects and Town Planners

4 Bond Street Mosman NSW 2088
PO Box 596 Spit Junction NSW 2088
Telephone 02 960 3399
Facsimile 02 969 5874

6th February 1987

Ref No. 8723

STATEMENT OF ENVIRONMENTAL EFFECTS

Re: Warehouse/Offices Unit B
Lot 15, Frenchs Forest Road

1. General

There are no deleterious environmental effects attributable to this development.

2. Traffic/Parking/Access

Vehicle access is proposed via the main estate road. Off street car parking is provided in accordance with Council's code.

A loading dock is provided, with adequate turning areas for large delivery vehicles. It is anticipated that approximately four deliveries will be made to the site each day.

3. Neighbourhood Amenity

Noise: no noise generating equipment is proposed in this development.

Aesthetics: the building envelope will be unaltered.

Operation: 8.30 a.m. to 5.00 p.m. (Monday to Friday)

4. Wastes and Effluents

Normal refuse generated by the use will be stored and disposed of in accordance with Council's requirements. Wastes will be gathered and disposed of via a new arrestor pit, thence to the sewer. All work will be to the satisfaction of the MWS & DB.

GRAHAM ALCOCK GILES TRIBE PTY. LTD.

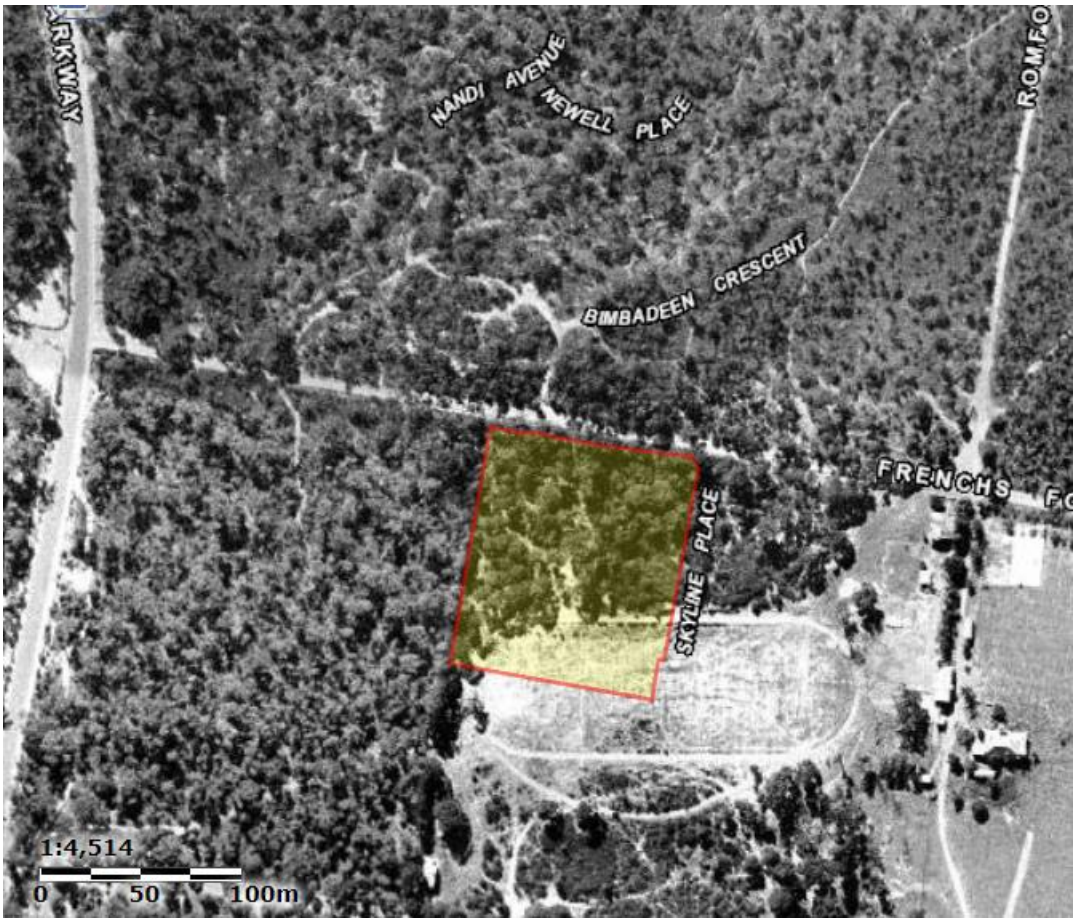
APPENDIX M: AERIAL PHOTOGRAPHS

Historical Aerial Photographs

E1100-2

5 Skyline Place, Frenchs Forest NSW

1943:


NANDI AVENUE
NEWELL PLACE
BIMBADEEN CRESCENT
SKYLINE PLACE
FRENCHS
1:4,514
0 50 100m

1970:

1991:

Current (Six Maps):

APPENDIX N: LAND TITLE SEARCH

Direct Info
Quick and easy online

Plan Inquiry

05/12/2016 11:47 AM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - PLAN INQUIRY

Plan Number: SP49558

Plan Purpose: STRATA PLAN

Title System: TORRENS COMPILATION

First Lot: 1 Last Lot: 5

No. of Sheets: 5

Plan Registration Date: 7/6/1995

Surveyor: ANTHONY PAUL BRUNSKILL

Surveyor Reference: 9495S

Council: *NORTHERN BEACHES
Council: WARRINGAH

Approval Date: 16/3/1995 Approval Number: 1437/95

County: CUMBERLAND Parish: MANLY COVE

* indicates council has altered since plan registration

*** END OF SEARCH ***

E1100 Frenchs Forest PRINTED ON 5/12/2016

Direct Info
Quick and easy online

Document Inquiry

05/12/2016 11:46 AM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - DOCUMENT INQUIRY

Document Number: SP49558

Document Type: STRATA PLAN

Document Status: ACTION COMPLETE

Document Status Date: 7/6/1995

Lodged By: 77L PETER CORNELIUS & PARTNERS

Date Lodged: 4/4/1995

Affected Titles: 15/732494

*** END OF SEARCH ***

E1100 Frenchs Forest PRINTED ON 5/12/2016

152

Appn. No. 10244

Reference to last certificate

Vol. 4501 Fol. 233

New South Wales.

41163 10.34

[CERTIFICATE OF TITLE.]

ORDER NO.C303041

RESIDUE AFTER NOTICE OF RESUMPTION NO. C266695

REGISTER BOOK.

Vol. 4668 Fol. 105

CANCELLED

CHARLOTTE HELEN MACINTYRE, of Scone, Widow, by virtue of Certificate of Title Volume 4501 Folio 233 now surrendered as to Residue after Notice of Resumption No.C266695 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in that piece of land situated in the Shire of Warringah Parish of Manly Cove, and County of Cumberland containing Twenty five acres three roods twenty four perches or thereabouts, as shown in the Plan hereon and thereon edged red, being part of lots 14, 15 and 16 in Deposited Plan No. 3392, and being also part of 200 acres (Portion 52 of Parish) originally granted to Simeon Henry Pearce and James Pearce by Crown Grant dated the 23rd day of February 1854. Together with by way of inclusion such mines or deposits under the 9 perches edged blue in the plan hereon as were comprised in the said Grant and are excepted from Notice of Resumption No.C266695 by the operation of Section 141 of the Public Works Act 1912.

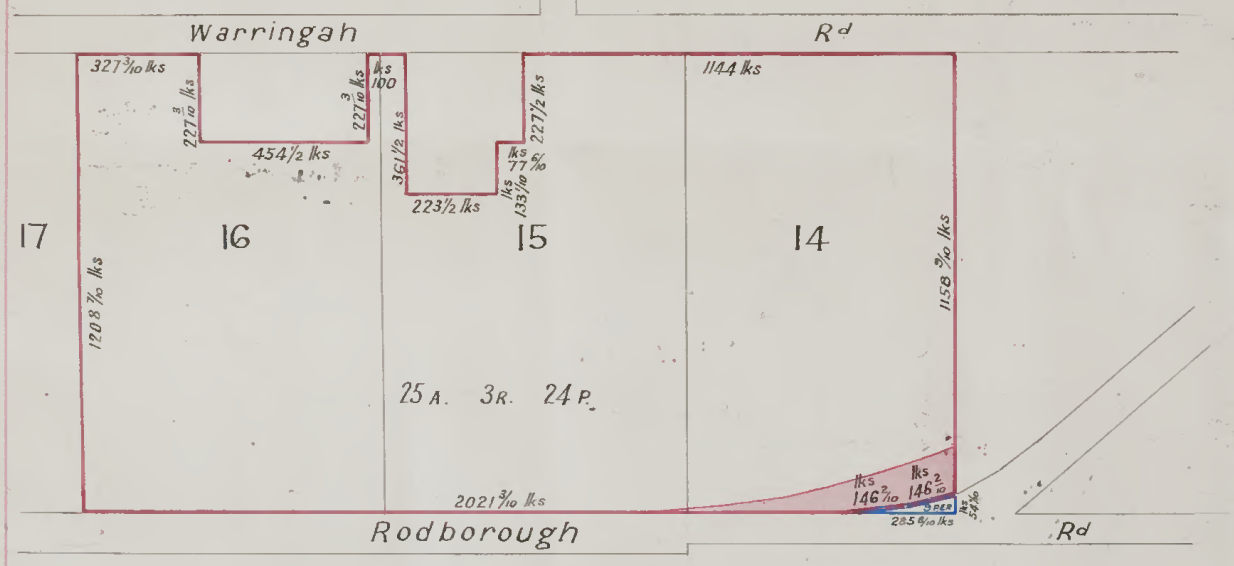
In witness whereof I have hereunto signed my name and affixed my Seal, this fourteenth day of January 1935.

Signed in the presence of Hancedgard

Ron W. Willis

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES



C303041

SCALE 4 Chains to one inch.

NOTIFICATION REFERRED TO

No. F584548 TRANSFER dated 30th November 1951 from the said Charlotte Helen Macintyre to Charles William Hopkins of Doonside Grazier Elsie Mabel Hopkins his wife and Joyce Anderson wife of Alexander Anderson of Doonside as joint tenants not the land within described

Produced and entered 4th December 1951 at 3 to 4 pt 3 o'clock in the after noon.

REGISTRAR GENERAL

No G 249508 NOTICE OF RESUMPTION

By notice in Government Gazette No. 103 dated 9th July 1954 the COMMISSIONER FOR MAIN ROADS in pursuance of Sec. 27 E (6) of the Main Roads Act 1924-1954 acquired the right to restrict the user of the land colored pink in the plan hereon. Produced 25th February 1955 and entered 3rd August 1955 at 12 o'clock noon.

REGISTRAR GENERAL.

No G 237361. CAVEAT dated 4th February 1955

Produced 4th February 1955 and entered 23rd June 1955 at 12 o'clock noon. as regards part.

Registrar General

No G 197432 TRANSFER dated 23rd November 1954 from the said Charles William Hopkins Elsie Mabel Hopkins and Joyce Anderson to Northern Forests Development Company Pty. Limited of part (subject to Covenant) of the land within described

Produced 24th November 1954 and entered 24th October 1955 at 12 o'clock in the noon.

REGISTRAR GENERAL.

391
G323860

The previous Transfer No. G197432 contains a restrictive covenant
Dated 24th October, 1955

J. Wells
Registrar-General

No. G323860 TRANSFER dated 27th June 1955
from the said Northern Forests Development Company Pty Limited to Charles William Hopkins, Elsie Mabel Hopkins and Joyce Anderson as joint tenants of part of the land within described
Produced 1st July 1955 and entered 24th October 1955
at 12 o'clock ~~in the~~ noon.
~~As to land in this transfer this~~ Certificate ~~cancelled and new Certificate issued Vol. Fol.~~

J. Wells
Registrar General.

As to part
this Deed is cancelled and new Certificate of Title issued
Vol 7038 Fol. 178
Vide OC202201

J. Wells
Registrar General.

As to the residue
this Deed is cancelled and new Certificate of Title issued
Vol 7038 Fol. 179
Vide OC338614 & Tf. G197432

J. Wells
Registrar General.

G237361 6460485 ? Fol 114 Plex R
NR G249508 Pl.

Appn. No. 10244

Reference to last Certificates

Vol. 3589 Fol. 172 and 173.

83549 2.29

New South Wales

[CERTIFICATE OF TITLE.]

REGISTER BOOK.

VOL. 4501 FOL. 232

CANCELLED

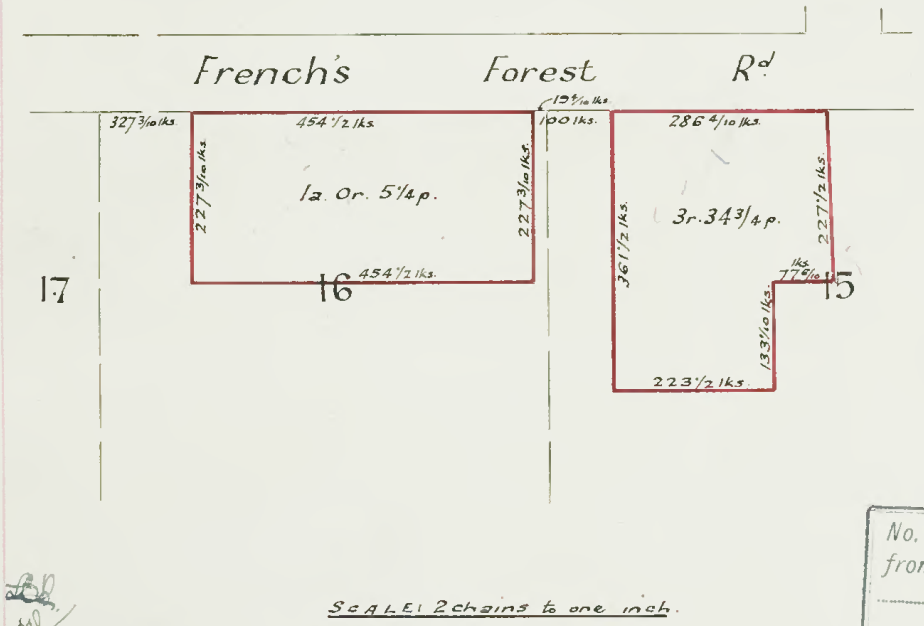
Sidney Arthur Walsh, of Manly, Manufacturer, Transferee under Instrument of Transfer No. C. 78031 is now the proprietor of an Estate in fee simple

subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in Those pieces of land situated in the Shire of Warringah Parish of Manly Cove, and County of Cumberland containing Three roods thirty four and three quarters perches or thereabouts being part of Lot 15 and One acre five and one quarter perches or thereabouts being part of Lot 16 in Deposited Plan No. 3392 Which said pieces of land are shown in the Plan hereon and therein edged red and are also shown in Plan annexed to the said Instrument of Transfer No. C 78031 being also parts of 200 acres (Portion 52 of Parish) originally granted to Simeon Henry Pearce and James Pearce by Crown Grant dated the 23rd day of February 1854.

In witness whereof I have hereunto signed my name and affixed my Seal, this Twenty first day of September 19 31.

Signed in the presence of Hazegard

Acting Registrar General.



C78031

SCALE: 2 chains to one inch.

Notification referred to

No. C 147377 MORTGAGE dated 26th October 1932
from the said Sidney Arthur Walsh to Thomas Jenkins
of Redfern Methodist Minister

Produced and entered 31st October 1932
at 34 minutes past 12 o'clock in the after noon.

Acting REGISTRAR GENERAL.

No. C 286076 MORTGAGE dated 27th June 1934
from the said Sidney Arthur Walsh

to BANK OF NEW SOUTH WALES

Produced and entered 8th October 1934
at 44 minutes past 10 o'clock in the fore noon.

REGISTRAR GENERAL

No. C 297641 DISCHARGE of within mortgage
C 147377 Dated 20th November 1934

Produced and entered 26th November 1934
at 8 minutes to past 11 o'clock in the fore noon.

REGISTRAR GENERAL.

2137177 DISCHARGE of within mortgage
No. C286016 dated 14th May 1942
Produced and entered 23rd June 1942
at 58 mts pt 2 o'clock in the after noon.

REGISTRAR GENERAL.

No. F364589 MORTGAGE dated 4th December 1950
from the said Sidney Arthur Walsh to the
Burwood Nos 1 Hawn Penrith Co-operative
Building Society Limited

Produced 1st December 1950 and entered 14th February 1951
at 12 o'clock ~~in the~~ noon.

J. Wells
REGISTRAR GENERAL.

No. G 218194
F 364589 DISCHARGE of within mortgage
dated 23rd December 1954
Produced 24th December 1954 and entered 24th December 1954
at 12 mts pt 1 o'clock in the after noon.

J. Wells
REGISTRAR GENERAL.

No. G 218195 TRANSFER dated 23rd December 1954
from the said Sidney Arthur Walsh to
Northern Forests Development Company
Pty. Limited
of the land within described
Produced and entered 24th December 1954
at 12 mts pt 1 o'clock in the after noon.

J. Wells
REGISTRAR GENERAL.

No. G323860 TRANSFER dated 27th June 1955
from the said Northern Forests Development Company Pty
Limited to Charles William Hopkins, Elsie Mabel
Hopkins and Joyce Anderson as joint tenants of part
of the land within described
Produced 1st July 1955 and entered 24th October 1955
at 12 o'clock ~~in the~~ noon.

~~As to the whole of this Certificate is cancelled and new Certificate issued~~
~~Vol. Fol.~~

J. Wells
REGISTRAR GENERAL.

As to part
this Deed is cancelled and new Certificate of Title issued
Vol 7038 Fol. 178
Ide 4 Lots OG 202201
G 327860
Registrar General

As to the residue
this Deed is cancelled and new Certificate of Title issued
Vol 7038 Fol. 179
Ide OG 338614
Registrar General

F364589 MD
G323860 Lot B A
G338614 O Res

202

Primary Appn. No. 10244

Reference to Last Title s

Vol. 4501 Fol. 232
" 4668 " 105

New South Wales.

[CERTIFICATE OF TITLE.]

REGISTER BOOK.
VOL. 7038 FOL. 179

Issued on Order No.G338614 (part)
and request for consolidation

CANCELLED R

NORTHERN FORESTS DEVELOPMENT COMPANY PTY. LIMITED is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Shire of Warringah Parish of Manly Cove , and County of Cumberland shown in the plan hereon and therein edged red and also shown as to part as Lot A in plan lodged with Transfer No.G323860 being Lot 16 and part of Lot 15 in Deposited Plan No.3392 and being also part of Portion 52 granted to Simeon Henry Pearce and James Pearce on 23rd February 1854.

In witness whereof I have hereunto signed my name and affixed my Seal, this Twenty-first day of October , 19 55.

Signed in the presence of G.W. Moss

J. Wells
Registrar-General

K571671

No. K571671 NOTICE OF RESUMPTION
Electricity Commission of New South Wales
FOR TRANSMISSION LINE
is the proprietor of an easement affecting that part of the land within described shown as Var. Width on the plan hereon, freed from all other interests.
Entered 2nd May 1967
Registrar General.

Caveat G760372 by Southland Provident Finance Pty Limited.
Registered 12-7-1978
Registrar General.

Withdrawn G792929 28-7-1978

Caveat Q966883 by Anka (Contractors) Pty. Limited
Registered 27-11-1978

Withdrawn S142925 25-11-1980

REGISTRAR GENERAL

G338614

Area 13ac.1rd. 19¼ per
Scale: 4 chains to one inch

NOTIFICATION REFERRED TO

Covenant contained in Transfer No.G197432 affecting the part of the land above described formerly comprised in Certificate of Title Volume 4668 Folio 105.

J. Wells
Registrar General.

The interest of the Council of the Shire of Warringah addition to existing in the ~~road~~ shown on D. P. 208676 & 208676 s
Entered 2/5/1962.
Registrar General

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

90867—2 11:54 K 2006—1 A. H. PETTIFER, GOVERNMENT PRINTER.

CAVEAT ~~S155037~~ S155037 by Myer Shopping Centres Pty. Limited
Registered 11-12-1980

Lapsed 5449667 12-5-1981

REGISTRAR GENERAL

REGISTERED PROPRIETOR Myer Shopping Centres Proprietary Limited by Transfer 5449667 Registered 12-5-1981

REGISTRAR GENERAL

V258926 Caveat by MIRVAC PTY. LIMITED
Registered 24-7-1984.

Lapsed V562187 8.2.1985

REGISTRAR GENERAL

REGISTERED PROPRIETOR Mirvac Pty. Limited
by Transfer V562187. Registered 8.2.1985

Interests created pursuant to Section 888 Conveyancing Act, 1919, by the registration of DP 718814
Registered 26.11.1985.

The interest of the Council of the Local Government Area in the public road dedicated in DP 718814
Registered 26.11.1985.

DP 718814 Registered 26-11-1985
This folio is cancelled as to whole/~~part~~ upon creation of computer folios for lots 11 to 13 ex. road in the abovementioned plan.

The residue of land in this folio comprises
road.

7038-179

179

V5449667 TR
V258926 "
V562187 Tf
DP 718814 &
W553351X

Historical Search

05/12/2016 12:01 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

5/12/2016 12:01PM

FOLIO: 13/718814

First Title(s): OLD SYSTEM
Prior Title(s): VOL 7038 FOL 179

Recorded	Number	Type of Instrument	C.T. Issue
27/11/1985	DP718814	DEPOSITED PLAN	FOLIO CREATED EDITION 1
4/12/1985	W91570	DEPARTMENTAL DEALING	EDITION 2
9/12/1985	W53351	CAVEAT	
6/2/1986	W188138	CAVEAT	
20/3/1986	DP731209	DEPOSITED PLAN	FOLIO CANCELLED
27/8/1997		AMENDMENT: LOCAL GOVT AREA	

*** END OF SEARCH ***

E1100 Frenchs Forest PRINTED ON 5/12/2016

Direct Info
Quick and easy online

Historical Search

05/12/2016 11:59 AM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

5/12/2016 11:59AM

FOLIO: 14/731209

First Title(s): OLD SYSTEM
Prior Title(s): 13/718814

Recorded	Number	Type of Instrument	C.T. Issue
18/3/1986	DP731209	DEPOSITED PLAN	FOLIO CREATED EDITION 1
26/3/1986	W261099	CAVEAT	
1/5/1986	W301517	WITHDRAWAL OF CAVEAT	
9/5/1986	DP732494	DEPOSITED PLAN	FOLIO CANCELLED
27/8/1997		AMENDMENT: LOCAL GOVT AREA	

*** END OF SEARCH ***

E1100 Frenchs Forest PRINTED ON 5/12/2016

RP 13

STAMP DUTY

[redacted]

N.S.W. STAMP DUTIES OFFICE 16 $1 STAMP DUTY IS PAYABLE ON THIS INSTRUMENT

W370912

TRANSFER

REAL PROPERTY ACT, 1900

T 3 3 of 3 X

$ 33

23/3

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
FOLIO IDENTIFIER 15/732494	WHOLE	FRENCHS FOREST

DESCRIPTION OF LAND Note (a)

TRANSFEROR Note (b)

LEDA HOLDINGS PTY. LIMITED of 5th Floor, 98 Alfred Street, Milsons Point

ESTATE Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 2,900,000.00 and transfers an estate in fee simple in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

STATE SUPERANNUATION BOARD of 1 Margaret Street, Sydney

OFFICE USE ONLY

5

TENANCY Note (e)

as joint tenants/tenants in common

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES 1. ..... 2. ..... 3. .....

DATE 4th June 1986

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION Note (g)

Signed in my presence by the transferor who is personally known to me

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

..... Signature of Transferor

THE COMMON SEAL of LEDA HOLDINGS PTY. LIMITED was hereunto affixed by authority of the Board of Directors in the presence of:

LEDA HOLDINGS PTY. LIMITED Common Seal

Director

Secretary

Signed in my presence by the transferee who is personally known to me

Note (g)

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

Executed by STATE SUPERANNUATION BOARD by being signed, sealed and delivered by its Attorney STEPHEN JOHN HOWARD (who hereby states that at the time of executing this instrument he had no notice of revocation of Power of Attorney Registered No. 812 Book 3652 under the authority of which he executes the same) in the presence of:

..... Signature of Transferee

S. J. Howard

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY STATE SUPERANNUATION BOARD 1 MARGARET ST SYDNEY

Delivery Box Number 814 C

LOCATION OF DOCUMENTS

CT	OTHER	
✓		Herewith.
		In L.T.O. with
		Produced by

OFFICE USE ONLY

Checked	Passed	REGISTERED - -19	Secondary Directions		
CAE.					
Signed	Extra Fee	13 JUN 1986	Delivery Directions	CT	LP

RP 13

STAMP DUTY

[redacted]

OFFICE USE ONLY

W370911

TRANSFER

REAL PROPERTY ACT, 1900

T 3 2 of 3 X

$ 33

R 2/3

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
~~Volume 7038 Folio 179~~ now known as FOLIO IDENTIFER 15/732494	WHOLE ~~PART ONLY BEING LOT 15 IN NEW SUBDIVISION~~	French's Forest

DESCRIPTION OF LAND Note (a)

TRANSFEROR Note (b)

MIRVAC PTY LIMITED

ESTATE Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 2,481,000.00 and transfers an estate in fee simple in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

LEDA HOLDINGS PTY. LIMITED of 98 Alfred Street, Milsons Point

OFFICE USE ONLY

S.

TENANCY Note (e)

as joint tenants/tenants in common

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES 1. ..... 2. ..... 3. .....

DATE 30th May, 1986.

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION Note (g)

Signed in my presence by the transferor who is personally known to me

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

EXECUTED in my presence by MIRVAC PTY. LIMITED by being signed sealed and delivered by NEVILLE MEW who is personally known to me and who certifies he has no notice of Revocation of the Power of Attorney registered in the office of the Registrar General No. 682 Book 3577 under the authority of which this document is executed.

..... Signature of Witness

GRAEME MEEK Name of Witness (BLOCK LETTERS)

..... Signature of Transferor

Signed in my presence by the transferee who is personally known to me

Note (g)

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

Solicitor for ~~XXXXX~~ Signature of Transferee J.H. HUGHES

14-5-86

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY STATE SUPERANNUATION BOARD
1 MARGARET ST
SYDNEY

Delivery Box Number 814C

LOCATION OF DOCUMENTS	CT	OTHER
Herewith.	✓	
In L.T.O. with		
Produced by		

OFFICE USE ONLY

Checked	Passed	REGISTERED - -19	Secondary Directions	
CAZ CC		13 JUN 1986		
Signed	Extra Fee		Delivery Directions	

KP13

TRANSFER

Real Property Act, 1900

E 375039 Y

Office o

$2.00

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

Folio Identifier 15/732494

(B) **LODGED BY**

L.T.O. Box
~~599D~~
45A

NATIONAL AUSTRALIA BANK LIMITED
National Australia Bank House
255 George Street, Sydney
237 - 1111 FAX 237 - 1284
National Australia Bank
45A

(C) **TRANSFEROR** STATE AUTHORITIES SUPERANNUATION BOARD

(D) acknowledges receipt of the consideration of $7,100,000.00

and as regards the land specified above transfers to the transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. LEASES X 169044, 4449561, 4909089, E28218 AND E 270447

(F) **TRANSFEREE**

T

(G)

A.I. McLEAN PTY LIMITED ACN 000 404 295
of 5 Ridgemont Close, West Pennant Hills

as joint tenants/tenants in common

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATE OF EXECUTION** 13th MARCH 1992

Signed in my presence by the transferor who is personally known to me.

DBlakey
Signature of Witness
Darlene Blakey
L19, 83 Clarence St.
Sydney Clerk/Sec.
Name of Witness (BLOCK LETTERS)

Address of Witness

Executed by STATE AUTHORITIES SUPERANNUATION BOARD by its Attorney KELLY RHODES who hereby states that at the time of executing this instrument he had no notice of the revocation of Power of Attorney Registered Book 3852 No. 966 under the authority of which he executes the same in the presence of:

KRhodes
Signature of Transferor

Signed in my presence by the transferee who is personally known to me.

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

Robert C Minter
Signature of Transferee

Robert C Minter
Solicitor for Transferee

☞ **INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE**

CHECKED BY (office use only)

Historical Search

05/12/2016 11:51 AM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

5/12/2016 11:51AM

FOLIO: 15/732494

First Title(s): OLD SYSTEM
Prior Title(s): 14/731209

Recorded	Number	Type of Instrument	C.T. Issue
13/5/1986	DP732494	DEPOSITED PLAN	FOLIO CREATED EDITION 1
13/6/1986	W370910	WITHDRAWAL OF CAVEAT	
13/6/1986	W370911	TRANSFER	
13/6/1986	W370912	TRANSFER	EDITION 2
17/11/1987	X169044	LEASE	EDITION 3
9/6/1988	X549904	LEASE	EDITION 4
3/8/1988	X737989	LEASE	EDITION 5
22/11/1988	X987566	APPLICATION FOR REPLACEMENT CERTIFICATE OF TITLE	
22/11/1988	X987567	REQUEST	EDITION 6
5/7/1989	Y449561	LEASE	EDITION 7
21/7/1989	Y478581	LEASE	EDITION 8
29/9/1989	Y619835	LEASE	EDITION 9
21/5/1990	Y909089	LEASE	EDITION 10
19/11/1991	E28218	LEASE	EDITION 11
18/2/1992	E174284	REQUEST	EDITION 12
25/2/1992	E270447	LEASE	EDITION 13
8/4/1992	E375039	TRANSFER	EDITION 14
30/11/1993	I835896	CHANGE OF NAME	
30/11/1993	I835897	VARIATION OF LEASE	EDITION 15

18/1/1994 I954194 SUB-LEASE

7/6/1995 SP49558 STRATA PLAN FOLIO CANCELLED

END OF PAGE 1 - CONTINUED OVER

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

5/12/2016 11:51AM

FOLIO: 15/732494 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
27/8/1997		AMENDMENT: LOCAL GOVT AREA	

*** END OF SEARCH ***

E1100 Frenchs Forest PRINTED ON 5/12/2016

FORM 1

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

*OFFICE USE ONLY

COUNCIL'S CERTIFICATE

The Council of ~~the *City, *Municipality, *Shire of~~ WARRINGAH having satisfied itself that the requirements of the Strata Titles Act, 1973 (other than the requirements for the registration of plans) have been complied with, approves of the proposed
* strata plan
* ~~strata plan of subdivision~~
illustrated herein.
*~~Council does not object to the encroachment of the building beyond the alignment of~~

*This approval is given on the condition that lot(s)

~~is/are subject to the restriction on user referred to in section 26 of the~~ Strata Titles Act, 1973.

Date 16·3·95

Subdivision No. 1437/95

Council Clerk.

*Complete, or delete if inapplicable.

SURVEYOR'S CERTIFICATE

I, ANTHONY PAUL BRUNSKILL

of BRUNSKILL M°CLENAHAN & ASSOC. PTY. LTD.

a surveyor registered under the Surveyors Act 1929, hereby certify that:

(1) any wall, the inner surface or any part of which corresponds substantially with any line shown on the accompanying floor plan as a boundary of a proposed lot, exists;

(2) any floor or ceiling, the upper or under surface or any part of which forms a boundary of a proposed lot, shown in the accompanying floor plan exists;

(3) any wall, floor, ceiling or structural cubic space, by reference to which any boundary of a proposed lot shown in the accompanying floor plan is defined exists;

(4) any building containing proposed lots erected on the land shown on the accompanying location plan and each proposed lot shown on the accompanying floor plan are wholly within the perimeter of the parcel *except to the extent that:

~~*(a) the building encroaches on a public place;~~

~~*(b) the building encroaches on land other than a public place, in respect of which encroachment an appropriate easement~~

~~*has been created by registered~~
~~*is to be created under section 88B of the Conveyancing Act 1919~~

* (5) the survey information recorded in the accompanying location plan is accurate

Signature

Date 17·11·94

* Delete if inapplicable
† State whether dealing or plan, and quote registered number

This is sheet 1 of my Plan in 5 sheets.

PLAN OF SUBDIVISION OF LOT 15 ~ D.P. 732494

L.G.A. ~~Mun./Shire City~~ : WARRINGAH Locality : FRENCHS FOREST

Parish : MANLY COVE County : CUMBERLAND

Reduction Ratio 1: 500 Lengths are in metres

STRATA PLAN 49558

Registered : 7.6.1995

C.A. : No. 1437/95 OF 16.3.1995

Purpose : STRATA PLAN

Ref. Map : U1860-5#

Last Plan : DP 732494

Name of, and *address for service of notices on, the body corporate
*Address required on original strata plan only.

THE PROPRIETORS –
STRATA PLAN N° 49558
N° 5 SKYLINE PLACE
FRENCHS FOREST, 2086

Signatures, seals and statements of intention to create easements, restrictions on the use of land or positive covenants.

J.P. McLean

Dir & Secy.

SEE 2/ SHEET

LESSEES CONSENTS FURNISHED 2/6/95

10 20 30 40 50 60 Table of mm 100 110 120 130 140 150 160

SURVEYOR'S REFERENCE: 9495S "CHECKLIST"

Plan Drawing only to appear in this space

Plan Drawing only to appear in this space

N 45 0M 45 00 N

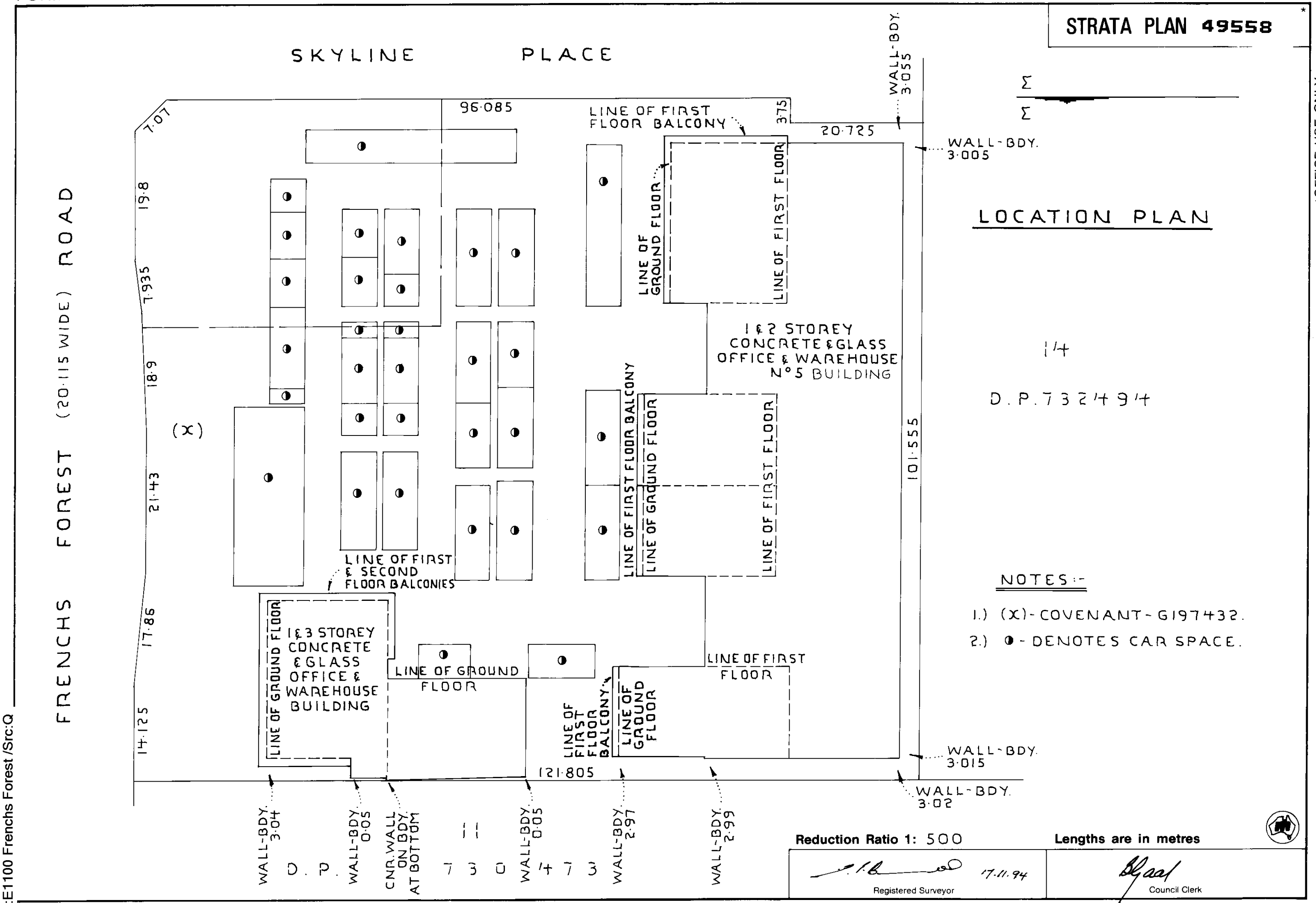
FORM 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Sheet No. 2 of 5 Sheets

STRATA PLAN 49558

*OFFICE USE ONLY



LOCATION PLAN

14

D.P. 732494

NOTES:-

1.) (X) - COVENANT - G197432.

2.) ◑ - DENOTES CAR SPACE.

Reduction Ratio 1: 500 **Lengths are in metres**

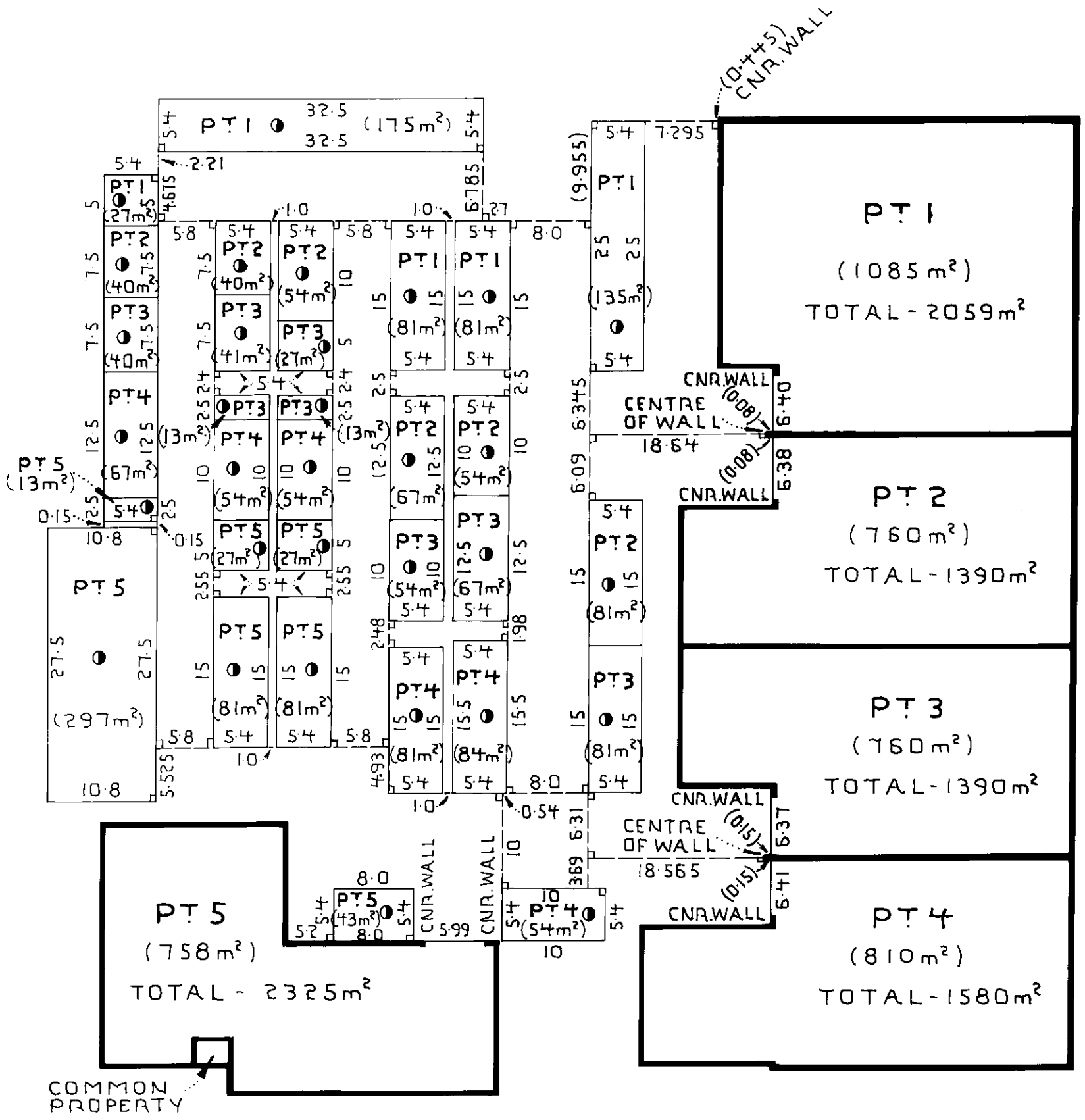
17.11.94
Registered Surveyor

Council Clerk

SURVEYOR'S REFERENCE: 9495S "CHECKLIST"

STRATA PLAN 49558

*OFFICE USE ONLY



GROUND FLOOR PLAN

NOTES :-

1.) AREAS ARE APPROXIMATE AND ONLY TO BE USED FOR THE PURPOSES OF THE STRATA TITLES ACT 1973.

2.) ⌞ DENOTES A RIGHT ANGLE.

3.) ◑ - DENOTES CAR SPACE.

4.) THE STRATUM OF THE CAR SPACES EXTEND 3M. ABOVE THEIR RESPECTIVE CONCRETE HARDSTANDS.

Reduction Ratio 1: 500 **Lengths are in metres**

17.11.94
Registered Surveyor

Council Clerk

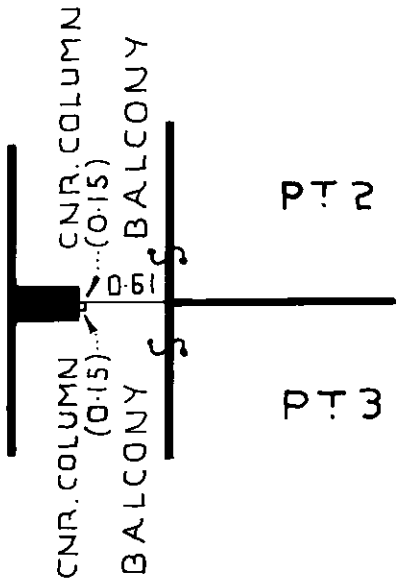
SURVEYOR'S REFERENCE: 9495S "CHECKLIST"

STRATA PLAN 49558

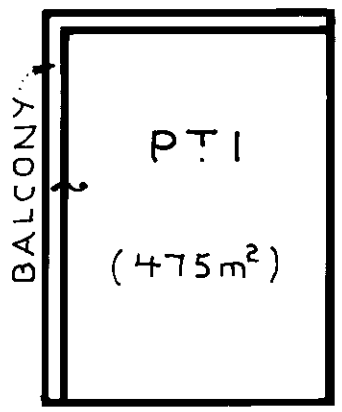
*OFFICE USE ONLY

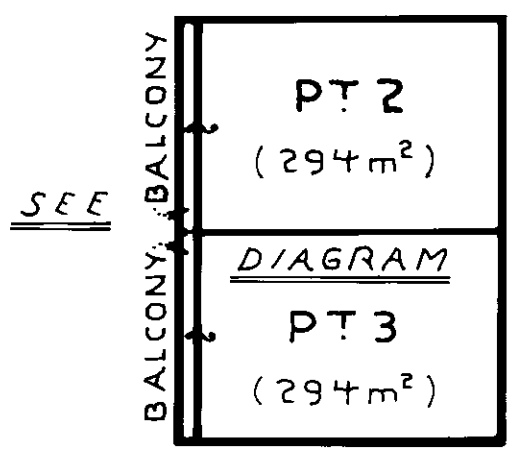
DIAGRAM

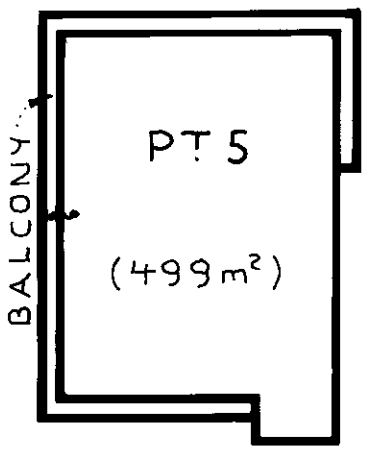
NOT TO SCALE

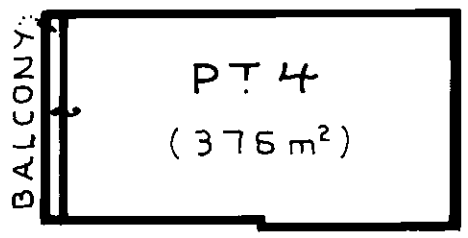


FIRST FLOOR PLAN









NOTES :-

1.) AREAS ARE APPROXIMATE AND ONLY TO BE USED FOR THE PURPOSES OF THE STRATA TITLES ACT 1973.

2.) THE STRATUM OF THE BALCONIES EXTEND 3M. ABOVE THE UPPER SURFACE OF THEIR RESPECTIVE CONCRETE FLOORS EXCEPT WHERE COVERED.

3.) ⌐ DENOTES A RIGHT ANGLE.

Reduction Ratio 1: 500 **Lengths are in metres**

17.11.94
Registered Surveyor

Council Clerk

SURVEYOR'S REFERENCE: 94955 "CHECKLIST" 4

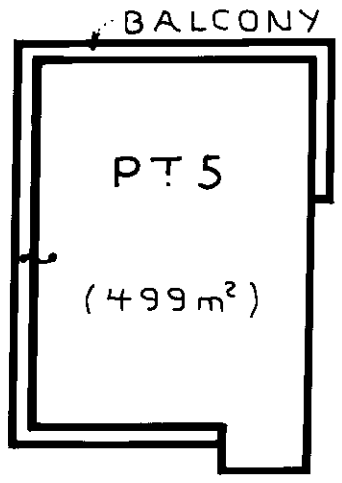
STRATA PLAN 49558 *

*OFFICE USE ONLY

SECOND FLOOR PLAN

Σ
Σ

SCHEDULE OF UNIT ENTITLEMENT	
LOTS	UNIT ENTITLEMENT
1	235
2	159
3	159
4	181
5	266
AGGREGATE	1000



NOTES :-

1.) AREAS ARE APPROXIMATE AND ONLY TO BE USED FOR THE PURPOSES OF THE STRATA TITLES ACT 1973.

2.) THE STRATUM OF THE BALCONY EXTENDS 3M. ABOVE THE UPPER SURFACE OF ITS CONCRETE FLOOR EXCEPT WHERE COVERED.

Reduction Ratio 1: 500 **Lengths are in metres**

17.11.94
Registered Surveyor

Council Clerk

SURVEYOR'S REFERENCE: 9495S "CHECKLIST"

APPENDIX O: PLANNING CERTIFICATES

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Jack Prail
20 Young Street

Reference:
Date: 09/04/2019
Certificate No. ePLC2019/2028

Address of Property: 5 Skyline Place FRENCHS FOREST NSW 2086
Description of Property: Lot CP SP 49558

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

Warringah Local Environmental Plan 2011

1.1b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy 1—Development Standards
State Environmental Planning Policy 19 – Bushland in Urban Areas
State Environmental Planning Policy 21 – Caravan Parks
State Environmental Planning Policy 30 – Intensive Agriculture
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 62—Sustainable Aquaculture
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 (Miscellaneous Consent Provisions) 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
Sydney Regional Environmental Plan No 20-Hawkesbury-Nepean River (No 2-1997)
State Environmental Planning Policy No 44-Koala Habitat Protection
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)

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

Review of State Environmental Planning Policy 44 – Koala Habitat Protection
State Environmental Planning Policy No 64— Advertising and Signage (Amendment No 3)
Draft State Environmental Planning Policy (Environment)
Draft State Environmental Planning Policy (Primary Production and Rural Development)
Draft Amendment to State Environmental Planning Policy (Affordable Rental Housing) 2009

1.2 b) Draft Local Environmental Plans

Planning Proposal - Ralston Avenue (Belrose) (PEX2013/0003)

Applies to land: Lot 1 DP 1139826, Ralston Avenue, Belrose

Outline: Amends WLEP 2000 and WLEP 2011 to:

- Rezone land on Ralston Avenue Belrose from Locality C8 - Belrose North to part R2 Low Density Residential, part RE1 Public Recreation and part E3 Environmental Conservation.
- Introduce subdivision lot size and height of building controls to land proposed to be zoned R2 Low Density Residential.

Council resolution: 25 November 2014

Gateway Determination: 28 January 2015

Planning Proposal - Dee Why Town Centre Planning Controls (PEX2018/0002)

Applies to land: Dee Why Town Centre (boundaries identified within the Planning Proposal)

Outline: Amends WLEP 2011 to:

- Increase maximum permissible building heights
- Introduce floor space ratio controls
- Provide development standards in relation to car parking, building setbacks and building proportion
- Identify additional “Key Sites”
- Implement a delivery mechanism for key infrastructure and public domain improvements

Council resolution: 23 September 2014

Gateway Determination: 1 April 2015 amended 22 September 2016

1.3 Development Control Plans

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

Warringah Development Control Plan 2011

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.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone B7 Business Park

1 Objectives of zone

• To provide a range of office and light industrial uses.

• To encourage employment opportunities.

• To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.

• To create business park employment environments of high visual quality that relate favourably in architectural and landscape treatment to neighbouring land uses and to the natural environment.

• To minimise conflict between land uses in the zone and adjoining zones and ensure the amenity of adjoining or nearby residential land uses.

2 Permitted without consent

Nil

3 Permitted with consent

Centre-based child care facilities; Garden centres; Hardware and building supplies; Light industries; Neighbourhood shops; Office premises; Passenger transport facilities; Respite day care centres; Roads; Self-storage units; Take away food and drink premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4

4 Prohibited

Advertising structures; Agriculture; Air transport facilities; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat sheds; Business premises; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Forestry; Freight transport facilities;

Function centres; Heavy industrial storage establishments; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Marinas; Mooring pens; Moorings; Open cut mining; Places of public worship; Port facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Restricted premises; Retail premises; Rural industries; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Waste or resource management facilities; Water recreation structures; Wharf or boating facilities; Wholesale supplies

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 *Warringah Local Environmental Plan 2011* 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

Complying Development under the Housing Code may be carried out on all of the land.

b) Rural Housing Code

Complying Development under the Rural Housing Code may be carried out on all of the land.

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 2019.

d) Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

e) Housing Alterations Code

Complying Development under the Housing Alterations Code may be carried out on all of the land.

f) General Development Code

Complying Development under the General Development Code may be carried out on all of the land.

g) Commercial and Industrial Alterations Code

Complying Development under the Commercial and Industrial Alterations Code may be carried out on all of the land.

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

Complying Development under the Commercial and Industrial (New Buildings and Additions) Code may be carried out on all of the land.

i) Container Recycling Facilities Code

Complying Development under the Container Recycling Facilities Code may be carried out on all of the land.

j) Subdivisions Code

Complying Development under the Subdivisions Code may be carried out on all of the land.

k) Demolition Code

Complying Development under the Demolition Code may be carried out on all of the land.

l) Fire Safety Code

Complying Development under the Fire Safety Code may be carried out on all of the land.

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:

Bush Fire Prone Land
This land is identified on a Bush Fire Prone Land map certified by the Commissioner of the NSW Rural Fire Service as being bush fire prone land. The requirements of the NSW Rural Fire Service document *Planning for Bush Fire Protection* apply to this land. For further information please contact the Warringah Pittwater District Rural Fire Service.

Draft Northern Beaches Bush Fire Prone Land Map (BFPLM) 2018
This land is identified as bush fire prone land on the Draft Northern Beaches Bush Fire Prone Land Map 2018. The Northern Beaches BFPLM will supersede the Warringah BFPLM 2016, Pittwater BFPLM 2013 and Manly BFPLM 2010 from the date of its Certification by the Commissioner of the NSW Rural Fire Service. Please refer to the project page on Council's website for more information.

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 not subject to flood related development controls.

(2) Development on the land or part of the land for any other purpose is not 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 27 of the Act.

9. Contribution plans

The following applies to the land:

Northern Beaches Contributions Plan 2018

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 bush fire prone land.

Draft Northern Beaches Bush Fire Prone Land Map 2018
Some of the land is 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

ePLC2019/2028

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

As part of ongoing NSW Planning Reforms, the Greater Sydney Commission is preparing six District plans for Sydney in consultation with local Councils. Northern Beaches LGA is part of the North District Plan. More information about the NSW Planning Reforms is available at the NSW Department of Planning (website: www.planning.nsw.gov.au).

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

Planning Proposal - rezone deferred land within the Oxford Falls Valley & Belrose North area
Applies to land: Land within the B2 Oxford Falls Valley and C8 Belrose North localities of WLEP 2000 and land zoned E4 Environmental Living under WLEP 2011 at Cottage Point (Boundaries

identified within the Planning Proposal)

Outline: Amends WLEP 2000 and WLEP 2011 to:

- Transfer the planning controls for land within the B2 Oxford Falls Valley and C8 Belrose North localities of WLEP 2000 into the best fit zones and land use controls under WLEP 2011
- Rezone the majority of the subject land to E3 Environmental Management under WLEP 2011
- Rezone smaller parcels of land to E4 Environmental Living, RU4 Primary Production Small Lots, SP2 Infrastructure, SP1 Special Activities, R5 Large Lot Residential and R2 Low Density Residential under WLEP 2011
- Include various parcels of land as having additional permitted uses under Schedule 1 of WLEP 2011

Council resolution: 24 February 2015

Planning Proposal - 28 Lockwood Avenue, Belrose

Applies to land: 28 Lockwood Avenue, Belrose

Outline: Amends WLEP 2011 to:

- Permit additional land uses of 'residential flat building' and 'multi dwelling housing' on that part of the land fronting Lockwood Avenue only
- Prohibit the granting of development consent for a residential flat building or multi-dwelling housing on the land unless a minimum Floor Space Ratio of 0:5:1 is provided on the site for commercial premises.

Council resolution: 28 November 2017

Planning Proposal - Freshwater Village Carpark Reclassification

Applies to land: Oliver Street carpark and Lawrence Street carpark, Freshwater

Outline: Amends WLEP 2011 to:

- Amend Schedule 4 Part 1 to include reference to the land
- Amend LZN_010 map to change the zoning from RE1 - Public Recreation to SP2 - Infrastructure
- Amend HOB_010 map to implement a maximum height of building of 3 metres.

Council resolution: 27 November 2018

Additional Information Applying To The Land

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

Nil

General Information

Threatened Species

Many threatened species identified under the *Biodiversity Conservation Act 2016* (NSW) and Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) are found within the former Local Government Area of Warringah (now part of Northern Beaches). Council's Natural Environment unit can be contacted to determine whether any site specific information is available for this property. Records of threatened flora and fauna are also available from the NSW Office of Environment and Heritage's Atlas of NSW Wildlife database: <http://www.bionet.nsw.gov.au>

Potential threatened species could include:

(a) threatened species as described in the final determination of the scientific committee to list endangered and vulnerable species under Schedule 1 of the *Biodiversity Conservation Act 2016*, and/or

(b) one or more of the following threatened ecological communities as described in the final determination of the scientific committee to list the ecological communities under Schedule 2 of the *Biodiversity Conservation Act 2016*:

- Duffys Forest Ecological Community in the Sydney Basin Bioregion
- Swamp Sclerophyll Forest on Coastal Floodplain
- Coastal Saltmarsh of the Sydney Basin Bioregion
- Swamp Oak Floodplain Forest
- Bangalay Sand Forest of the Sydney Basin Bioregion
- Themeda grasslands on Seacliffs and Coastal Headlands
- Sydney Freshwater Wetlands in the Sydney Basin Bioregion
- Coastal Upland Swamp in the Sydney Basin Bioregion
- River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Bush fire
Certain development may require further consideration under section 79BA or section 91 of the Environmental Planning and Assessment Act 1979, and section 100B of the Rural Fires Act, 1997 with respect to bush fire matters. Contact NSW Rural Fire Service.

Aboriginal Heritage
Many Aboriginal objects are found within the Local Government Area. It is prudent for the purchaser of land to make an enquiry with the Office of Environment and Heritage as to whether any known Aboriginal objects are located on the subject land or whether the land has been declared as an Aboriginal place under the *National Parks and Wildlife Act 1974* (NSW). The carrying out of works may be prevented on land which is likely to significantly affect an Aboriginal object or Aboriginal place. For information relating to Aboriginal sites and objects across NSW, contact: Aboriginal Heritage Information Management System (AHIMS) on (02) 9585 6345 or email **AHIMS@environment.nsw.gov.au**. Alternatively visit http://www.environment.nsw.gov.au/licences/AboriginalHeritageInformationManagementSystem.htm.

Coastal Erosion
Information available to Council indicates coastal erosion may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps of the Warringah coastline. Council's Natural Environment Unit can be contacted for further information.

Ray Brownlee PSM
Chief Executive Officer
09/04/2019

APPENDIX P: SAFEWORKS RECORDS

NSW GOVERNMENT | SafeWork NSW

SafeWork NSW
92-100 Donnison Street, Gosford, NSW, 2250
Locked Bag 2906, Lisarow, NSW, 2252 |
Customer Service Centre 13 10 50
licensing@safework.nsw.gov.au | www.safework.nsw.gov.au

Our Ref: 2003/022078
Your Ref: Michael Silk

5 December 2016

Attention: Michael Silk
Benviron Group
3/112 Fairfield Street
FAIRFIELD EAST NSW 2165

Dear Mr Silk

RE SITE1 & 5 Skyline Place, Franches Forest

I refer to your site search request received by SafeWork NSW on 9 November 2016 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above mentioned premises.

For further information or if you have any questions, please call our Customer Service Centre on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely,

Sally Anderson obo Brent Jones
Customer Service Officer
Customer Service Centre - Operations
SafeWork NSW