Urban Capability Assessment

Proposed Residential Development, Bakali Rd, Forresters Beach

80519020

Prepared for
Terrigal Grosvenor Lodge Pty Ltd

22 December 2020

Cardno
Shaping the Future

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22 December 2020

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Dear John ,

URBAN CAPABILITY ASSESSMENT
PROPOSED RESIDENTIAL DEVELOPMENT - BAKALI ROAD, FORRESTERS BEACH

In 2015 Cardno were engaged by Terrigal Grosvenor Lodge Pty Ltd to prepare an Urban Capability Assessment associated with the planning proposal for the above project.

We note that the existing site has not altered between 2015 and 2020 and that the findings of the Urban Capability Assessment attached to this letter remain valid. We do note that references to Gosford City Council should be replaced with Central Coast Council to reflect changes in the local government authority over the referenced time period.

Yours sincerely,

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1 Introduction

This report presents the results of Urban Capability Assessment (UCA) undertaken by Cardno on the proposed residential subdivision located at Bakali Rd, Forresters Beach.

Cardno has been commissioned by Mr Paul Klumper of TGL Pty Ltd to undertake a UCA for the proposed residential development.

The UCA including preliminary geotechnical and contamination assessments are required by Gosford City Council (GCC) to assist the subdivision design and form part of the Development Application submission.

Preliminary geotechnical investigation comprises subsurface assessment, laboratory testing, and reporting which will provide sufficient information to quantify the construction risks associated with the development.

Preliminary Contamination Assessment aims to identify any contamination risk associated with the site. The investigation and reporting has been undertaken in accordance with NSW EPA Guidelines for Consultants Reporting on Contaminated Sites and State Environmental Planning Policy No 55 (SEPP 55) Remediation of Land [1].

The following information is required to be provided as part of the UCA:

> Indication of the preliminary pavement design and subgrade conditions.

> Preliminary indication of the expected site classification.

> Erodibility and aggressivity assessment.

> Recommendations for earthworks procedures and guidelines.

> Preliminary Contamination Assessment (PCA).

Based on the subdivision layout plans (SLP) prepared by Bannister & Hunter Pty Ltd (Ref No. 55823, dated 11 November 2015) and provided by the client, it is understood that the proposed development comprises the following:

> Overall development in four construction stages.

> Creation a total of 68 residential dwellings and construction of the associated infrastructure.

> Construction of internal access roads.

> Construction of detention basins.

In addition, the following data has been provided to assist the assessment:

> Topographic survey plan (TSP) of the north and north-eastern portion of the site prepared by Bannister & Hunter Pty LTD, Dwg No. 55823S11, dated April 2008.

2 Site Identification

The site currently comprises of eight existing individual parcels which are identified as following:

> Large allotments of Lot 1 to 4 in DP1000694 and Lot 522 in DP1077907

> Smaller allotments of Lot 3 DP101649, Lot 18 DP23283 and Lot 51 DP1028301

The site is irregular in shape and occupies an approximate area of 9.8ha and comprises a combination of rural and residential developments.

The site is bounded by existing rural development and undeveloped land to the west, the Swinger Golf Course to the north, existing residential development and Central Coast Highway to the east and south.

3 Site Condition and Surrounding Environment

The following Features were observed at the time of the site investigation (with the relevant photographs attached in Appendix D) as indicated below:

> Topographically the site is situated within relatively flat to slightly sloping terrain located within the catchment area of Forresters Creek and Wamberal Lagoon.

> Overall the surface comprises gentle west and north-west facing slopes with gradients in order of less than 3˚.

> A north-west south-east trending drainage channel transecting the site and dividing the site into two northern (NP) and southern portion (SP).

> The majority of the eastern portion of NP has been cleared of vegetation with the site surfaces supported by grass cover. An abandoned shed and residential dwelling is located at the vicinity of the eastern boundary of NP. The majority of the NP is undeveloped grazing land with the western portion of NP heavily vegetated.

> The SP of the site comprises four large rural residential dwellings and two smaller residential dwellings along the Central Coast Hwy boundary. The majority of the SP has been cleared of vegetation with scattered mature native trees present in isolated areas.

> Minor modifications to the site natural topography was observed (refer to the Table 3-1 for details).

> Reference to TSP provided and Gosford Council Electronic Mapping topographic database, the elevations across the site ranges from 15m AHD at the north eastern corner to 8m AHD at the north western portion and 10m AHD at the southern corner of the site.

> A large dam is located to the south of the drainage channel at the north-western corner of the SP.

> Surface disturbance at the middle portion of the Lot 4 DP1000694 observed in an approximate circular shape which is expected to be associated with construction of landscaping pond or a farm dam.

> Surface disturbance was also observed within the southern portion of Lot 1 DP 1000694 which is understood to be associated with construction of a farm dam. Based on the discussion with the landlord, the dam has been disused and filled due to incapability in water detention.

The following site features with environmental significance were observed during the site inspection. The locations of areas with environmental significance are shown in Drawing GE-001 attached in Appendix A.

Table 3-1 Observations and Areas with Environmental Significance

Observation Identification (OI) Number (refer to Drawing 1)	Observation	Potential Environmental Risk
1	Fill stockpile	Unknown origin
2	Large fill stockpile with estimated volume of less than 500 m^3, no foreign material observed on the surface	Unknown origin and composition
3	Fill platform	Unknown origin and composition
4	Abandoned residential dwelling and shed	Potential asbestos fibre containing construction material
5	Scattered fibrous material, surface disturbance and demolition refuse	Possible asbestos fibre contamination
6	Stockpiles, covered with vegetation	Unknown fill origin and composition
7	Household refuse items along the drainage channel such as bicycle and bike rim and tyre	Aesthetic
8	Small fill stockpiles along the boundary of the site with existing residential developments along Central Coast Hwy	Unknown fill origin and composition
9	Household refuse and dumping of garden waste along the boundary of the site with existing residential developments along Central Coast Hwy	Aesthetic

In order to provide information regarding the identified AECs, investigation, sampling and limited laboratory analysis were undertaken to further characterised the contamination status of the site. The findings of the assessment has been provided in the following sections.

4 Site History and Background

The review of the site history and background undertaken comprised a review of:

> The published geological data, acid sulphate soils maps and hydrogeology.

> Obtained Section 149 Planning Certificates.

> Title deed searches.

> Historical aerial photos.

> Public records maintained by the NSW EPA regarding notices made under the Contaminated Land Management Act 1997 and licenses issued under the Protection of the Environment (Operations) Act 1997.

4.1 Published Data

4.1.1 Geology

Reference to the Gosford-Lake Macquarie 1:100,000 geological map (geological series sheet 9131 & part sheet 9231) [2] indicates that:

> The southern portion of the site is situated within Patonga Claystone Formation of the Narrabeen Group which is known to comprise red-brown claystone and siltstone and light green-grey fine-grained sandstone.

> The northern portion of the site is situated within Quaternary aged deposits of gravel, sand, silt and clay compositions.

4.1.2 Acid Sulphate Soils

A review of the Gosford City Council Electronic Mapping System acid sulphate risk maps revealed that the site is situated within an area of no known occurrence of Acid Sulphate soils (ASS).

4.1.3 Hydrogeology

A search of the Groundwater Maps of the Department of Primary Industry Office of Water indicated that there were numerous registered groundwater bores located within 1km radius of the site with information from selective bores summarised in Table 4-1. The following bore information has been extracted from available bores within 1.0km radius of the site.

Table 4-1 Registered Groundwater Bores

Bore ID	Approximate Distance from the site	Intended Purpose	Depth of bore m (BGL)	Standing Water level m (BGL)	Subsurface Profile
GW201938	400m south-east	Domestic	18.0	8.0	Sand and clay to 16.0 followed by shale to depth
GW054153	750m north-west	Domestic	18.0	5.7	Clay to 12.0m followed by sandstone
GW201721	870m north-west	Monitoring Bore	15.0	9.1	Fill overlaying Silty clay
GW202283	940m north-west	Monitoring Bore	8.0	6.0	Fill overlaying sandy clay
GW201720	700m north-west	Monitoring Bore	13.5	3.33	Filling to 0.5m followed by clay to 2.25m and silty clay to 13.5
GW051860	600m north	Stock, Domestic	21.0	3.0	Clay to 12.0m followed by shale

Notes:
BGL: Below Ground Level
" – ": no information supplied

The summary of the reports obtained from the NSW Office of Water are attached in Appendix E which provides more information regarding the bores detail.

4.2 Section 149 Planning Certificates

Section 149 certificates for the eight allotments forming the proposed development were obtained from GCC. The review of the S149 certificates are summarised in Table 4-2.

Table 4-2 Review of S149 certificates summary

Identification	Zoning and Land Use	Mine Subsidence within the meaning of Section 15 of Mine Subsidence Compensation ACT 1961	Flood related Controls	Bushfire Prone Land	Contaminated land management ACT 1997 notices under Section 59(2)
Lot 522 DP 1077907	▪ No.7(a) conservation and scenic protection (conservation) ▪ 7(c2) conservation and scenic protection(scenic protection-rural small holdings)	The land has not been proclaimed	No	All parts of the land is shown as bushfire prone on Council's records	No
Lot 1 DP 1000694, Lot 2 DP 1000694, Lot 3 DP 1000694,	7(c2) conservation and scenic protection(scenic protection-rural small holdings)	The land has not been proclaimed	No	All parts of the land is shown as bushfire	No

Lot 4 DP 1000694				prone on Council's records	
Lot 51 DP 1028301, Lot 51 DP 1028301 and Lot 3 DP 101649	7(c2) conservation and scenic protection(scenic protection-rural small holdings	The land has not been proclaimed	No	All parts of the land is shown as bushfire prone on Council's records	No

A copy of the S149 certificates are attached in Appendix E of this report.

4.3 Historic Title Deeds Search

The title deeds search results for five of the eight allotments were supplied by the client which provided limited information about the history of the site ownership. Review of the title deeds search results indicated that:

> Lot 4 DP1000694 has been owned by Versatile Living Pty Ltd.

> Lot 51 DP 1028301, Lot 3 DP 101649, Lot 522 DP 1077907 and Lot 18 DP 23283 have been owned by Terrigal Grosvenor Lodge Pty Ltd (TGL).

In addition, Legal Liaison Searching Services was engaged by Cardno to undertake a title deed search of the remaining three lots.

The search results are contained in Appendix E and are broadly summarised as detailed in the table below.

Table 4-3 Historic Title Search Results

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
As regards the part tinted pink and orange on the attached copy of D.P. 1000694[1] (This part was formerly a road, subsequently closed by notification in Government Gazette dated 15.07.1905)		
10.04.1931 (1931 to 1931)	N.S.W. Realty Co Limited	Vol 4475 Fol 124
29.10.1931 (1931 to 1936)	William Harvey (Retired Manufacturer)	Vol 4475 Fol 124 Now Vol 4515 Fol 200
20.05.1936 (1936 to 1941)	William Hedley Harvey (Furniture Warehouseman) (Transmission Application not investigated)	Vol 4515 Fol 200
10.07.1941 (1941 to 1951)	Otto Oscar Groth (Produce Merchant)	Vol 4515 Fol 200
26.06.1951 (1951 to 1959)	Emma May Jorgensen (Married Woman)	Vol 4515 Fol 200
09.12.1959 (1959 to 1972)	Linda Monica Barrie (Widow) James Albert Barrie (Motor Mechanic) Mervyn Francis Barrie (Motor Mechanic)	Vol 4515 Fol 200 Now Vol 8204 Fol 168
14.06.1972 (1972 to 1972)	James Albert Barrie (Motor Mechanic) Mervyn Francis Barrie (Motor Mechanic)	Vol 8204 Fol 168
29.06.1972 (1972 to 1973)	Kevin Arthur Rubie (Company Representative) Margaret Rose Rubie (Married Woman)	Vol 8204 Fol 168
07.06.1973 (1973 to 1992)	K & M Rubie Pty Limited	Vol 8204 Fol 168 Now Auto Consol 8204-168

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
06.11.1992 (1992 to 1992)	Robert William Polley Anne Patterson Polley Loui Nicholas Mary Nicholas Luigi Cicco Thomas Hope Murrie Donna Leanne Rush John Lisbona Bellhome Pty Limited	Auto Consol 8204-168 Now 1/121549
08.12.1992 (1992 to 1999)	The Park-Forresters Beach Pty Limited	1/121549 Now 3/1000694
As regards the part tinted yellow on the attached copy of D.P. 1000694		
30.12.1913 (1913 to 1920)	N.S.W. Realty Co Limited	Vol 1991 Fol 206
21.12.1920 (1920 to 1943)	William Julian Hosking (Painter) (& His Deceased Estate)	Vol 1991 Fol 206 Now Vol 3148 Fol 215
26.08.1943 (1943 to 1947)	Stanley Robert Dalziell (Turner)	Vol 3148 Fol 215
22.12.1947 (1947 to 1949)	**Thomas Kenneth Griffin (Poultry Farmer)**	Vol 3148 Fol 215
22.07.1949 (1949 to 1954)	Ethel Mary Mullen (Married Woman)	Vol 3148 Fol 215 Now Vol 6573 Fol 235
25.10.1954 (1954 to 1969)	**Albert Gregory (Poultry Farmer)**	Vol 6573 Fol 235
29.07.1969 (1969 to 1969)	Frederick Roy Bononfant (Retired)	Vol 6573 Fol 235
19.12.1969 (1969 to 1974)	Keith Edward Jones (Butcher) Beryl May Jones (Married Woman)	Vol 6573 Fol 235
17.10.1974 (1974 to 1977)	Romon (No. 10) Pty Limited	Vol 6573 Fol 235
27.06.1977 (1977 to 1992)	K & M Rubie Pty Limited	Vol 6573 Fol 235 Now Vol 13395 Fol 214
06.11.1992 (1992 to 1992)	Robert William Polley Anne Patterson Polley Loui Nicholas Mary Nicholas Luigi Cicco Thomas Hope Murrie Donna Leanne Rush John Lisbona Bellhome Pty Limited	Vol 13395 Fol 214
08.12.1992 (1992 to 1999)	The Park-Forresters Beach Pty Limited	Vol 13395 Fol 214 Now

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
		1, 2 & 3/1000694
	Search continued as regards Lot 1 D.P. 1000694	
01.06.1999 (1999 to date)	# Melissa Leigh Hall # Damian Bradley James Scott	1/1000694
	Search continued as regards Lot 2 D.P. 1000694	
18.06.1999 (1999 to date)	# Craig John Horton # Trudy Anna Horton	2/1000694
	Search continued as regards Lot 3 D.P. 1000694	
16.06.1999 (1999 to 2002)	John Stephen Barr Kathryn Jane Barr	3/1000694
30.08.2002 (2002 to date)	# Brendon Robert Briggs # Julie Anne Briggs	3/1000694

Notes:

1- Copy of the plan is attached in Appendix E.

# Denotes current registered proprietors

4.4 Review of the Historical Aerial Photos

A review of a range of aerial photography obtained from NSW Land and Property Information was undertaken with the findings summarised in the following table.

The ability to discern site features was limited due to the relatively small scale and poor resolution of some of the photographs. A summary of observed site features detailed in the reviewed aerial photographs are detailed in Table 4-4 and aerials are attached in Appendix E.

Table 4-4 Aerial Photography Review

Date	Scale	Colour	Observations
May 1954	12000	B & W	**On Site:** ▪ The site is covered with vegetation with the exception of the cleared areas within the north-eastern portion and mid-southern portion of the site. ▪ A residential dwelling and associated shed/garage/farm sheds are present within the eastern portion of the NP. ▪ Five large structures and a number of smaller structures are present along the eastern boundary of the NP. The structures appear to be associated with farming activities. ▪ A number of access tracks are present across the site mainly around the existing structures. **Off Site:** ▪ Lands to the north and west of the site are generally undeveloped. ▪ Central Coast highway is present following the current alignment. ▪ Minor rural developments are present to the east of the Central Coast Highway.
June 1965	12500	B & W	**On Site:** ▪ Conditions are consistent with 1954 photograph. ▪ The conditions within the NP are consistent with 1954 photograph. ▪ Addition of several structures (sheds) at within the SP of the site indicating potentially poultry farming. ▪ A large shed is present along the western boundary of SP at approximate location of current Lot 2 DP 1000694. ▪ The extent of site vegetation clearing similar to 1954 photograph. **Off Site:**

Date	Scale	Colour	Observations
			▪ A number of residential dwellings following the current layouts are present along the Central Coast Hwy to the east of the site. ▪ Increase in the density of the rural developments to the east of the Central Coast Hwy. ▪ Increase in clearing of the lands to the north of the site.
July 1979	16000	B & W	**On Site:** ▪ Conditions are consistent with 1965 photograph. ▪ The conditions within NP are consistent with 1965 photograph. ▪ A residential dwelling has been constructed on Lot 3 DP101649 consistent with the location of surface disturbance observed in OI No. 5 in Table 3-1. ▪ The majority of the industrial farming sheds have been removed within the SP with the exception of one long shed and one smaller along the eastern boundary of NP. ▪ Stockpile of demolition refuse is present within the SP. ▪ Fill platform associated with the large shed footprints is apparent along the western boundary of the NP. The location of the shed and filling correlates to OI No.3 in Table 3-1. **Off Site:** **Similar to the 1965 conditions.** ▪ Appearance of residential developments to the east of the Central Coast Hwy and north of the site. ▪ Increase in the number of residential dwellings along the site eastern boundary adjacent to Central Coast Hwy. ▪ Extensive vegetation clearance immediately east of the Central Coast Hwy.
Aug 1986	16000	Colour	**On Site:** ▪ Conditions are consistent with 1979 photograph. ▪ The Conditions within the SP are consistent with 1979 with the exception of extension of cleared land to the north of the SP. ▪ The formed drainage channel consistent with the present location is constructed separating NP and SP. ▪ The residential dwelling at the north-eastern corner of NP and associated farm shed/garage has been demolished. Two additional residential structures and associated garage are constructed south of the demolished dwelling. The location of one of the dwellings and garage is consistent with OI No.4 of the Table 3-1. **Off Site:** **Similar to the 1979 conditions.** ▪ Increase in the number of residential developments in the area.
May 1996	7000	Colour	**On Site:** ▪ Conditions are consistent with 1986 photograph. ▪ The demolition refuse from previous residential dwelling located at the east of the NP has been removed. The NP conditions are similar to 1986 photograph. ▪ A larger shed of the two remaining sheds within the SP has been removed (one shed remaining). Stockpile of demolition refuse is present at the location of the previous shed. ▪ Residential dwellings have been constructed within Lot 18 DP 23283 and Lot 51 DP 1028301. **Off Site:** **Similar to the 1986 conditions.** ▪ A pump station has been constructed to the west of the site. ▪ Increase in the residential developments density in the area.
June 2005	-	Colour (Google Earth)	▪ The four rural dwelling present at the current site conditions have been constructed. ▪ The site manmade structures are consistent with present. ▪ The dam within the north-western corner of the SP is present on site. ▪ Placement of filling to the east of the Lot 4 DP 1000694 is visible. The location of the fill stockpiles are consistent with the OI No. 02 of the Table 3-1.

Date	Scale	Colour	Observations
			▪ The residential dwelling to the west of the OI No. 4 of the Table 3-1 has been demolished. ▪ A number of stockpiles (not soil) present to the south of the dwelling on the property Lot 1 DP 1000694.
Mar 2015	-	Colour (Nearmap)	**Conditions are consistent with 2005 photograph** ▪ The residential dwelling within the lot 3 DP 1016499 (within the eastern portion of the NP) still present on site. This dwelling did not exist at the time of site investigation and the location correlates with OI No. 5 of Table 3-1. ▪ The stockpiles to the south of the dwelling located on Lot 1 DP 1000694 have been removed.

Based on the review of the available historical aerial photographs, it is understood that the site has generally been used for small scale farming activities with the exception of the several farm sheds constructed within the SP in 50s and 60s with the majority of the sheds were removed in 1979 photograph. Three residential dwelling were constructed within the north-eastern portion of the NP and have been demolished.

There are no evidence that the site has been subject to any significant filling or disturbance with the exception of the filling placed for the construction of the large shed along the western boundary of the site (OI No.03 Table 3-1) and filling placed to the east of the Lot 4 DP 1000694 (OI No.02 Table 3-1).

4.5 Office of Environment & Heritage (EPH) Notices

A search of Department of Environment & Climate Change (DECC) records revealed no notices have been issued for the site under the Contaminated Land Management Act (1997). Under Section 308 of the Protection of the Environment Operations Act (POEO) a public register is required to list licenses, applications, or notices issued by the DECC. A search of the public register for the site did not reveal any licenses, applications, or notices.

5 Investigation Methodology

5.1 Site Investigation

The site investigation was undertaken on 20 and 21 October 2015 and comprised the following:

> Site walkover by an experienced geotechnical engineer to map the site's significant features.

> Drilling of fourteen test bores (TB001 to TB014) by mechanical auger mounted to a 5 tonne excavator to target depth of 2.2m BGL using a solid flight auger. No refusal was encountered in the test bores and they were all advanced to the target depth.

> Dynamic Cone Penetrometer (DCP) testing which was conducted adjacent to selected test bore locations to aid in the assessment of in situ soil strength conditions.

> Engineering assessment and logging of the subsurface profiles encountered by a senior geotechnical engineer from Cardno.

> Sampling of material considered representative of subsurface profile encountered across the site for the purpose of laboratory assessment.

> Backfilling of the holes with excavation spoil materials.

Additional assessment of the site stockpiles were undertaken in addition of the test bores with the results discussed in the section 7.1. The test bores were located to provide coverage of conditions across the site area, with consideration to the future development requirements and historical site features. The testing locations are shown on Drawing GE-002 attached in Appendix A. The locations of all test bores should be considered approximate only.

Engineering logs are contained within Appendix B together with explanatory notes.

5.2 Laboratory Testing

Laboratory testing conducted on selected samples recovered during the fieldwork comprised of the following.

> Six (6) shrink/swell tests carried out on thin wall tube (50 mm diameter) samples to measure the potential for soil volume change.

> Three (3) four-day soaked California Bearing Ratio (CBR) tests to assess subgrade strength.

> Three (3) sets of Particle Size Distribution (PSD) and Atterberg Limits tests to aid in the determination of soil classification;

> Four (4) Emerson class dispersion tests to assess the erodibility potential of the site soils.

> Four (4) soil aggressivity tests including pH, Electrical Conductivity (EC), sulphate, chloride

> Ten (10) soil contamination tests (including duplicate and triplicate QA samples) for eight metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn), organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs), Total Recoverable Hydrocarbons (TRH), BTEX (Benzene, Toluene, Ethyl-benzene and Xylenes), Polycyclic Aromatic Hydrocarbons (PAH), Volatile Organic Compounds (VOC), Polychlorinated Biphenyls (PCB).

> One asbestos ID and one asbestos fibre detections.

> One Trip Blank and Trip Spike for quality assurance.

All geotechnical testing was conducted at Cardno's NATA accredited laboratory with report sheets included in Appendix C. The chemical laboratory testing was dispatched to external NATA accredited laboratories.

5.3 Environmental soil sampling methodology

Environmental sampling was performed according to Cardno standard operating procedures with sampling data recorded on Chain of Custody sheets. Eight discrete soil samples from targeted locations were collected at variable depths across the site along with QA laboratory duplicate and triplicate samples. In addition, laboratory prepared trip blank and trip spike samples were hold accompanying the field samples during the investigation.

The methodology utilised is as follows:

> The use and changing of disposable gloves between each sampling event to prevent cross contamination;

> A Photo Ionisation Detector (PID) was used to screed each sample with the readings recorded on engineering logs;

> Decontamination of all sampling equipment using a 3% solution of phosphate free detergent (Decon 90) and tap water prior to each pit/bore;

> Soil sample storage for all sampling events was via appropriate containers supplied by SGS laboratories;

> Sufficient samples with zero headspace into laboratory prepared sampling jars with the sample details added to the label on the jar.

> The sample jars were preserved in a chilled esky containing ice immediately after sampling and during transport to the laboratories. The laboratory chain of custody documentation was completed and accompanied the samples during shipment.

The majority of the samples were collected at the intrusive testing locations with the sample IDs representing the test pit locations. A plan (Drawings GE-002) showing the location of each environmental sample is attached in Appendix A.

6 Investigation Findings

6.1 Subsurface Conditions

The subsurface conditions encountered in the test bores are summarised in the Table 6-1.

Table 6-1 Subsurface Conditions Summary

Unit	Description	Depth Range (m) BGL	Consistency Range [1]/ Rock Strength	Moisture Condition/ Rock Weathering
TOPSOIL	▪ Generally Comprising Silty SAND	▪ Topsoil was encountered at surface to 0.2 ▪ Topsoil was also encountered below site filling at TB009 and TB011 at 0.25 – 0.8	NA	D-M
FILL	▪ Variable composition of Silty CLAY, Gravelly SAND and Silty SAND. ▪ Encountered in TB003, TB005 and TB009 ▪ Test bores TB005 and TB009 were drilled through the identified filling areas (refer to drawings).	▪ 0 – 0.5 generally ▪ Deeper filling was observed in TB005 were the test bore was drilled on top of the fill platform OI No.02 Table 3-1.	NA	D-M
ALLUVIUM	▪ Various composition was encountered in most of the test bores across the site. ▪ Sandy SILT, Silty CLAY, Clayey SILT and Silty SAND	▪ 0.1 – 0.8	▪ Stiff clays ▪ Medium dense encountered in TP008	M
RESIDUAL	▪ Generally Silty CLAY encountered in all test bores with the exception of Silty CLAY encountered in TB007	▪ 0.2 – 2.2 (maximum depth of investigation)	Generally firm to hard	Ranges from below to above optimum moisture content (SOMC)
Bedrock	SILTSTONE was encountered only in two test bores (TB007 and TB010) drilled along the eastern boundary of the site.	▪ Encountered from 1.9m BGL to the depth of excavation ▪ No drill bit refusal was encountered within the depth of the investigation.	Extremely low	Extremely weathered

Notes:
D= Dry
M= Moist
1- Inferred from Dynamic Cone Penetrometer (DCP) test results and engineering judgement.

Slight seepage was encountered at TB003 drilled at the vicinity of the formed drainage channel with no seepage or groundwater encountered in the remaining test bores. The groundwater table is expected to follow the area topography and flow north/north-westerly towards the lower lying areas and Forresters Creek catchment areas. It should be noted that groundwater levels are likely to fluctuate with variations in climatic and site conditions.

For details of the subsurface conditions encountered, reference should be made to the engineering logs of test bores attached in Appendix B, together with Explanatory Notes.

6.2 Laboratory Test Results

6.2.1 Soil Reactivity and CBR

The results of the laboratory shrink/swell tests undertaken on samples considered representative of site soils are summarised below in Table 6-2.

Table 6-2 Shrink/swell testing results

Hole ID	Depth (m)	Sample Type	Soil Type	Swelling strain (E_{sw}) (%)	Shrinkage strain (E_{sh}) (%)	Shrink/Swell index (I_{ss}) (%)
TB003	0.75 – 1.15	U50	Silty CLAY	0.0	0.9	0.5
TB006	0.4 – 0.6	U50	Silty CLAY	0.0	5.6	3.1
TB006	1.0 – 1.2	U50	Silty CLAY	0.5	3.8	2.3
TB008	0.6 – 0.9	U50	Silty CLAY	0.0	2.9	1.6
TB010	0.5 – 0.74	U50	Silty CLAY	1.3	5.2	3.2
TB010	0.9 – 1.1	U50	Silty CLAY	1.0	3.8	2.4

Notes:
U50: testing undertaken on thin wall tube samples
B: testing undertaken on remoulded disturbed samples

The results of standard compaction and California Bearing Ratio (CBR) testing are summarised below in Table 6-3.

Table 6-3 Laboratory CBR test results

Hole ID	Depth (m)	Soil Type	W (%)	SOMC (%)	SMDD (t/m^3)	Swell (%)	CBR (%)
TB001	1.0 – 1.2	Silty CLAY	24.9	21.0	1.69	3.0	2.0
TP005	1.1 – 2.0	Silty CLAY	24.8	17.0	1.81	2.5	3.5
TB009	0.8 – 1.4	Silty CLAY	24.2	20.5	1.66	2.0	3.5
TP011	0.6 – 1.0	Silty CLAY	23.1	21.5	1.66	5.0	1.5

Notes to table:
W: Field moisture content
SMDD: Standard Maximum Dry Density

CBR testing was undertaken on remoulded specimens compacted to a target 100% standard maximum dry density with a surcharge of 4.5 kg and soaked for four days. Subgrade strength is moisture and density dependent and where the existing subgrade is compacted to less than 100% standard compaction and moistures above SOMC exist, the in situ CBR values may be less than the above tested values.

6.2.2 Soil Property and Classification

Results of material property and classification testing on selected samples of the site soils are summarised below in 0.

Table 6-4 Material property test results

Hole ID	Depth (m)	Soil Type	Passing 2.36 mm	Passing 75 µm	LL (%)	PL (%)	PI (%)	Emerson Class
TB002	0.2 – 0.7	Silty CLAY	99	73	27	15	12	2
TB007	0.6 – 1.0	Sandy CLAY	58	98	38	17	21	2
TB012	0.4 – 0.5	Silty CLAY	84	97	44	14	30	2
TB005	1.1 – 2.0	FILL, Silty CLAY	NT	NT	NT	NT	NT	2

Notes to table:
LL: Liquid Limit
PL: Plastic Limit
PI: Plasticity Index
NT: Not Tested

6.2.1 Soil Aggressivity

Results of soil aggressivity tests on selected samples obtained from the test bores and considered representative of the site soils encountered are summarised below in Table 6-5.

Table 6-5 Soil aggressively testing

Test bore ID	Depth (m)	Soil Type and (Groundwater Condition)	pH(1:2)[2]	EC (dS/m)	Resistivity (Ωcm)[1]	Sulphate (mg/kg)	Chloride (mg/kg)
TB006	0.1 – 0.2	Silty CLAY (Above GW)	5.0	0.05	20000	9.8	8.7
TB008	1.8 – 2.0	Silty CLAY (Above GW)	4.4	0.15	6700	120	9.6
TB012	0.1 – 0.2	Clayey SILT (Above GW)	5.2	0.14	7100	25	48
TB013	0.1 – 0.2	Clayey SILT (Above GW)	5.3	0.17	5900	36	73

Notes to table:
Non Aggressive
Mildly Aggressive
Moderately Aggressive
Severely Aggressive
Very Severely Aggressive
– Not Tested/ Not Applicable
Scale of aggressivity obtained from AS2159 – 2009 [3] for concrete piles in soil
meq/100g: milliequivalent of hydrogen per 100 g of dry soil
1- Aggressivity classification for Steel Piles based on resistivity
2- Exposure classification for concrete piles based on pH, the exposure classification for steel piles are slightly different based on pH values and has been discussed in the respective section of this report

The results of the above soil salinity, sodicity and aggressivity testing are detailed on the Certificate of Analysis attached in Appendix C.

6.2.2 Environmental Laboratory Test Results

Chemical testing was carried out on soil and water samples using SGS Environmental (SGS), which holds current accreditation with the National Association of Testing Authorities, Australia (NATA). The testing of the soil and groundwater was undertaken as a broad scale preliminary assessment. All testing was undertaken within the terms of SGS Laboratories' accreditation.

Copies of the testing laboratory reports are shown in Appendix C. The results of laboratory analysis for inorganic and organic contaminants in the soil samples are summarised in the following tables:

Table 6-6 Results of Laboratory Analysis for Heavy Metals

Location	Date Sampled	Filling (F) / Natural (N)	Material Description			Heavy Metals							
			Secondary Constituent	Primary Constituent	Contaminant Observations	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TB005-1	20/10/2015	F	SILT	CLAY	-	5	0.5	25	5.6	11	<0.01	2.1	13
TB006-1	20/10/2015	N	SILT	SAND	-	3	<0.3	8.8	7.3	38	0.01	1.6	130
TB007-1	20/10/2015	F	GRAVEL	SAND	-	5	0.3	19	14	15	<0.01	15	120
TB008-1	20/10/2015	N	SILT	SAND	-	<3	<0.3	1.4	0.5	<1	<0.01	<0.5	1.7
TB009-1	20/10/2015	F	SILT	SAND	-	<3	<0.3	6.3	1.5	4	<0.01	0.8	43
TB010-1	20/10/2015	N	SAND	SILT	-	4	<0.3	10	3.9	12	0.01	1.6	15
TB011-1	20/10/2015	F	SAND	SILT	With foreign matter	3	<0.3	10	6.1	9	0.01	2.9	40
TB012-1	20/10/2015	N	SILT	CLAY	-	<3	<0.3	4.3	1.9	5	0.01	0.9	6.1
Guideline Values					**SGS PQL**	3	0.3	0	1	1	0.0	1	1
NEPM (2013) HILs for Residential A Land-Use (HIL A)						100	20	100	6000	300	40	400	7400
NSW EPA (2014) General Solid Waste Contaminant Threshold Concentrations (CT1)						100	20	100	NC	100	4	40	NC
NSW EPA (2014) Restricted Solid Waste Contaminant Threshold Concentrations (CT2) [5]						400	80	400	NC	400	16	160	NC

Notes

Residential A - residential land-use with garden/accessible soil (home grown produce <10% fruit and vegetable uptake (no poultry)), also includes childcare centres, preschools and primary schools

1 - The EIL is calculated by summing the ACL and the ABC. In the absence of pH, CEC and/or % clay content testing, the most conservative ACL value from Tables 1B(1) to 1B(3) NEPM (2013) is adopted as the EIL.

2 - Urban residential/public open space is broadly equivalent to the Residential A, Residential B and Recreational C land-use criteria

3 - Generic EIL

4 - EIL is the most conservative ACL value adopted from Table 1B(1) to 1B(3) NEPM 2013 in the absence of pH, CEC and/or % clay content testing

5 - Where the contaminant threshold value set for restricted solid waste (CT2) is exceeded, a TCLP test must be carried out to determine the leachable concentration of that contaminant and the class of waste.

Contaminant Exceedance Indicators:

Bold - Indicates exceedance of NEPM (2013) HIL A criteria values for Residential A Land-use	
	Indicates material is classified as General Solid Waste in accordance with NSW EPA (2014), i.e. > CT1 and ≤ SCC1 and ≤ TCLP1
	Indicates material is classified as Restricted Solid Waste in accordance with NSW EPA (2014), i.e. ≤ CT2 and ≤ SCC2 and ≤ TCLP2
	Indicates material is classified as Hazardous Solid Waste in accordance with NSW EPA (2014), i.e. > SCC2 and > TCLP2

Acronyms:

As	Arsenic
Cd	Cadmium
Cr	Chromium
Cu	Copper
Pb	Lead
Hg	Mercury
Ni	Nickel
Zn	Zinc
NEPM (2013)	National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (ammended April 2013)
NSW DECCW (2009)	NSW DECCW, Waste Classification Guidelines, Part 1: Classifying Waste, 2009
NSW EPA (1994)	NSW EPA, Guidelines for Assessing Service Station Sites, 1994
HIL	Health-based Investigation Levels
EIL	Ecological Investigation Level
ACL	Added Contaminant Limit
ABC	Ambient Background Concentration
NC	No Criteria
NT	Not Tested
ND	Not Detected

Table 6-7 Results of Laboratory Analysis for Laboratory results for TRH, BTEX and Naphthalene

Location	Date Sampled	Filling (F) / Natural (N)	Material Description			TRH						Naphth-alene	BTEX			
			Secondary Constituent	Primary Constituent	Contaminant Observations	C_6 - C_9	C_{10} - C_{36}	F1 C_6 - C_9	F2 > C_{10} - C_{16}	F3 > C_{16} - C_{34}	F4 > C_{34} - C_{40}		Benzene	Toluene	Ethyl Benzene	Total Xylenes
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TB005-1	20/10/2015	F	SILT	CLAY	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB006-1	20/10/2015	N	SILT	SAND	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB007-1	20/10/2015	F	GRAVEL	SAND	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB008-1	20/10/2015	N	SILT	SAND	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB009-1	20/10/2015	F	SILT	SAND	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB010-1	20/10/2015	N	SAND	SILT	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB011-1	20/10/2015	F	SAND	SILT	With foreign matter	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB012-1	20/10/2015	N	SILT	CLAY	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
TB005-1	20/10/2015	F	SILT	CLAY	-	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
Guideline Values					**SGS PQL**	20	110	25	25	90	120	0	0.1	0	0	0
NEPM (2013) HSL A & B - Sand from 0 m to <1 m bgl						NC	NC	45	110	NC	NC	3	0.5	160	55	40
NEPM (2013) HSL A & B - Silt from 0 m to <1 m bgl						NC	NC	40	230	NC	NC	4	0.6	390	NL	95
NEPM (2013) HSL A & B - Clay from 0 m to <1 m bgl						NC	NC	50	280	NC	NC	5	0.7	480	NL	110
NEPM (2013) EIL for Urban Residential/Public Open Space[1]						NC	NC	NC	NC	NC	NC	170 [2]	NC	NC	NC	NC
NEPM (2013) ESL[3] for Urban Residential/Public Open Space[1] - Course Grained Soils						NC	NC	180 *	120 *	300	2,800	NC	50	85	70	105
NEPM (2013) ESL[3] for Urban Residential/Public Open Space[1] - Fine Grained Soils						NC	NC	180 *	120 *	1300	5,600	NC	65	105	125	45
NEPM (2013) Management Limits[4] for Residential, Parkland and Open Space[1] - Course Grained Soils						NC	NC	700	1000	2500	10,000	NC	NC	NC	NC	NC
NEPM (2013) Management Limits[4] for Residential, Parkland and Open Space[1] - Fine Grained Soils						NC	NC	800	1000	3500	10,000	NC	NC	NC	NC	NC
NSW EPA (2014) General Solid Waste Contaminant Threshold Concentrations (CT1)						650	10,000 [5]	NC	NC	NC	NC	NC	10	288	600	1,000
NSW EPA (2014) Restricted Solid Waste Contaminant Threshold Concentrations (CT2) [6]						2,600	40,000 [5]	NC	NC	NC	NC	NC	40	1152	2,400	4,000

Notes

Residential A - residential land-use with garden/accessible soil (home grown produce <10% fruit and vegetable uptake (no poultry)), also includes childcare centres, preschools and primary schools
1 - Urban residential/public open space is broadly equivalent to the Residential A, Residential B and Recreational C land-use criteria
2 - Generic EIL

3 - ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability
4 - Management limits are applied after consideration of relevant ESLs and HSLs
5 - Contaminants only assessed using the SCC (Specific Contaminant Concentration)
6 - Where the contaminant threshold value set for restricted solid waste (CT2) is exceeded, a TCLP test must be carried out to determine the leachable concentration of that contaminant and the class of waste.

Contaminant Exceedance Indicators:

Bold - Indicates exceedance of NEPM (2013) HIL A criteria values for Residential A Land-use

Italics **-** Indicates exceedance of NEPM (2013) EIL/ESL criteria values for Urban Residential/Public Open Space Land-use

Double Underline - Indicates exceedance of NEPM (2013) Management Limits for Residential, Parkland and Open Space Land-use

	Indicates material is classified as General Solid Waste in accordance with NSW EPA (2014), i.e. > CT1 and ≤ SCC1 and ≤ TCLP1
	Indicates material is classified as Restricted Solid Waste in accordance with NSW EPA (2014), i.e. ≤ CT2 and ≤ SCC2 and ≤ TCLP2
	Indicates material is classified as Hazardous Solid Waste in accordance with NSW EPA (2014), i.e. > SCC2 and > TCLP2

Acronyms:

TRH	Total Recoverable Hydrocarbons
BTEX	Benzene, Toluene, Ethyl Benzene, Xylene
NEPM (2013)	National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (ammended April 2013)
NSW DECCW (2009)	NSW DECCW, Waste Classification Guidelines, Part 1: Classifying Waste, 2009
NSW EPA (1994)	NSW EPA, Guidelines for Assessing Service Station Sites, 1994
HIL	Health-based Investigation Levels
HSL	Health Screening Levels
BGL	Below Ground Level
EIL	Ecological Investigation Level
ESL	Ecological Screening Levels
NL	Not Limiting

NC	No Criteria
NT	Not Tested
ND	Not Detected

Table 6-8 Results of Laboratory Analysis for PAHs, OPP, PCB and Phenols

Location	Date Sampled	Filling (F) / Natural (N)	Material Description		PAH			OPP		Total PCB	Phenols
			Primary Constituent	Contaminant Observations	Total	B(a)P	B(a)P TEQ (Upper)	Total	Chlor-pyrifos		
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TB005-1	20/10/2015	F	SILT	CLAY	<0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
TB006-1	20/10/2015	N	SILT	SAND	<0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
TB007-1	20/10/2015	F	GRAVEL	SAND	<0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
TB008-1	20/10/2015	N	SILT	SAND	<0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
TB009-1	20/10/2015	F	SILT	SAND	<0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
TB010-1	20/10/2015	N	SAND	SILT	<0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
TB011-1	20/10/2015	F	SAND	SILT	<0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
TB012-1	20/10/2015	N	SILT	CLAY	0.8	<0.1	<0.3	<3.4	<0.2	<1	<0.5
Guideline Values				**SGS PQL**	0.80	0.10	0.3	3.4	0.2	1.0	1
NEPM (2013) HILs for Residential A Land-Use (HIL A)					300	NC	3	NC	160	1	3,000
NEPM (2013) EIL for Urban Residential/Public Open Space[1]					NC	NC	NC	NC	NC	NC	NC
NEPM (2013) ESL[3] for Urban Residential/Public Open Space[1] - Course Soils					NC	0.7	NC	NC	NC	NC	NC
NEPM (2013) ESL[3] for Urban Residential/Public Open Space[1] - Fine Soils					NC	0.7	NC	NC	NC	NC	NC
NSW EPA (2014) General Solid Waste Contaminant Threshold Concentrations (CT1)					200 [4]	0.8	NC	250 [4]	4	< 50 [4]	288
NSW EPA (2014) Restricted Solid Waste Contaminant Threshold Concentrations (CT2) [5]					800 [4]	3.2	NC	1,000 [4]	16	< 50 [4]	1152

Notes:

Residential A - residential land-use with garden/accessible soil (home grown produce <10% fruit and vegetable uptake (no poultry)), also includes childcare centres, preschools and primary schools

1 - Urban residential/public open space is broadly equivalent to the Residential A, Residential B and Recreational C land-use criteria

2 - Generic EIL

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

4 - Contaminants only assessed using the SCC (Specific Contaminant Concentration)

5 - Where the contaminant threshold value set for restricted solid waste (CT2) is exceeded, a TCLP test must be carried out to determine the leachable concentration of that contaminant and the class of waste.

Contaminant Exceedance Indicators:

Bold - Indicates exceedance of NEPM (2013) HIL A criteria values for Residential A Land-use	
Italics **-** Indicates exceedance of NEPM (2013) EIL/ESL criteria values for Urban Residential/Public Open Space Land-use	
	Indicates material is classified as General Solid Waste in accordance with NSW EPA (2014), i.e. > CT1 and ≤ SCC1 and ≤ TCLP
	Indicates material is classified as Restricted Solid Waste in accordance with NSW EPA (2014), i.e. ≤ CT2 and ≤ SCC2 and ≤ TCLP2
	Indicates material is classified as Hazardous Solid Waste in accordance with NSW EPA (2014), i.e. > SCC2 and > TCLP2

Acronyms:

PAH	Polycyclic Aromatic Hydrocarbons
B(a)P	Benzo(a)Pyrene
TEQ	Toxic Equivalence Quotient
PCB	Polychlorinated Biphenyls
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PQL	Practical Quantitation Limit
NEPM (2013)	National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (ammended April 2013)
NSW DECCW (2009)	NSW DECCW, Waste Classification Guidelines, Part 1: Classifying Waste, 2009
NSW EPA (1994)	NSW EPA, Guidelines for Assessing Service Station Sites, 1994
HIL	Health-based Investigation Levels
EIL	Ecological Investigation Level
ESL	Ecological Screening Levels
NC	No Criteria
NT	Not Tested
ND	Not Detected

Table 6-9 Results of Laboratory Analysis for Organochlorine Pesticides

Location	Date Sampled	Filling (F) / Natural (N)	Material Description		OCP									
			Primary Constituent	Contaminant Observations	Total	DDT+DDE+DDD	DDT	Aldrin + Dieldrin	Chlor-dane	Endo-sulfan	Endrin	Hepta-chlor	HCB	Methoxy-chlor
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP003-1	14/09/2015	F	SAND	With foreign matter	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
TP005-1	14/09/2015	F	SAND	Tr Metal Frag	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
TP006-1	14/09/2015	F	SAND	With foreign matter	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
TP008-1	14/09/2015	F	SAND	With foreign matter	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
TP009-1	14/09/2015	N	SAND	-	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
TP010-1	14/09/2015	N	SAND	-	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
TP011-1	14/09/2015	F	SAND	With foreign matter	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
TP012-1	14/09/2015	N	SAND	-	<3.1	<0.3	<0.1	<0.3	<0.2	<0.3	<0.2	<0.2	<0.1	<0.1
Guideline Values				**SGS PQL**	3.1	0.3	0.1	0.3	0.2	0.2	0.2	0.2	0.1	0.1
NEPM (2013) HILs for Residential A Land-Use (HIL A)					NC	240	NC	6	50	270	10	6	10	300
NEPM (2013) EIL for Urban Residential/Public Open Space[1]					NC	NC	180 [2]	NC	NC	NC	NC	NC	NC	NC
NEPM (2013) ESL[3] for Urban Residential/Public Open Space[1] - Course Soils					NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
NEPM (2013) ESL[3] for Urban Residential/Public Open Space[1] - Fine Soils					NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
NSW EPA (2014) General Solid Waste Contaminant Threshold Concentrations (CT1)					< 50 [4]	NC	NC	NC	NC	60	NC	NC	NC	NC
NSW EPA (2014) Restricted Solid Waste Contaminant Threshold Concentrations (CT2) [5]					< 50 [4]	NC	NC	NC	NC	240	NC	NC	NC	NC

Notes to Table:

Residential A - residential land-use with garden/accessible soil (home grown produce <10% fruit and vegetable uptake (no poultry)), also includes childcare centres, preschools and primary schools

1 - Urban residential/public open space is broadly equivalent to the Residential A, Residential B and Recreational C land-use criteria

2 - Generic EIL

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

4 - Contaminants only assessed using the SCC (Specific Contaminant Concentration)

5 - Where the contaminant threshold value set for restricted solid waste (CT2) is exceeded, a TCLP test must be carried out to determine the leachable concentration of that contaminant and the class of waste.

Contaminant Exceedance Indicators:

Bold - Indicates exceedance of NEPM (2013) HIL A criteria values for Residential A Land-use

Italics **-** Indicates exceedance of NEPM (2013) EIL/ESL criteria values for Urban Residential/Public Open Space Land-use

	Indicates material is classified as General Solid Waste in accordance with NSW EPA (2014), i.e. > CT1 and ≤ SCC1 and ≤ TCLP1
	Indicates material is classified as Restricted Solid Waste in accordance with NSW EPA (2014), i.e. ≤ CT2 and ≤ SCC2 and ≤ TCLP2
	Indicates material is classified as Hazardous Solid Waste in accordance with NSW EPA (2014), i.e. > SCC2 and > TCLP2

Acronyms:

PAH	Polycyclic Aromatic Hydrocarbons
B(a)P	Benzo(a)Pyrene
TEQ	Toxic Equivalence Quotient
PCB	Polychlorinated Biphenyls
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PQL	Practical Quantitation Limit
NEPM (2013)	National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (ammended April 2013)
NSW DECCW (2009)	NSW DECCW, Waste Classification Guidelines, Part 1: Classifying Waste, 2009
NSW EPA (1994)	NSW EPA, Guidelines for Assessing Service Station Sites, 1994
HIL	Health-based Investigation Levels
EIL	Ecological Investigation Level
ESL	Ecological Screening Levels
NC	No Criteria
NT	Not Tested
ND	Not Detected

Table 6-10 Results of Laboratory Analysis for Asbestos in Soil

Sample ID	Asbestos ID	NEPM [4] ACM>7mm	NEPM [4] ACM,7mm or FA/AF	NEPM [4] Asbestos ww%
AS-1	Chrysotile Asbestos Fibres Detected in 3X2mm cement sheet fragment	None	0.0115 g	**0.001**
AS-2	Chrysotile Asbestos Detected	-	-	-
NEPM 2013 HIL A Residential with garden / accessible soil	Asbestos Containing Material (%w/w)		0.01	
	Friable Asbestos (as Asbestos in Soil) (%w/w)		0.001	

Notes to Table

Bold indicates exceedance of Guideline

6.3 Quality Assurance

A duplicate sample QA1 and triplicate sample QA2 were prepared from TB009-1 with the analysis of TPH, BTEX, PAH, OC, OP and 8 heavy metals undertaken on the both quality assurance samples. The duplicate sample were analysed by SGS environmental and the QA2 triplicate sample sent to Envirolab laboratories. The Relative Percentage of Difference (RPD) values between the primary and duplicate samples laboratory analysis results were calculated. According to the Table 6-11, a maximum RPD value of 46% was calculated based on the obtained results for heavy metals. RPD value of 164% has been calculated for Mercury as the two laboratories have different Limit of Reporting (LOR) for this analysis. The RPD values for TPH, BTEX, PAH, OC and OP could not be calculated as the concentrations were below the laboratory limits of reporting.

$$RPD\% = \frac{[\mathrm{Cp} - \mathrm{Cd}]}{\mathrm{Cp} + \mathrm{Cd}} \times 200$$

Where:
Cp = Primary sample
Cd = Duplicate Sample

Table 6-11 Summary of Analytical Results Quality Assurance, results in mg/kg

Analysis	TB009-1	QA1	QA2	RPD% (QD1 and TB009-1)	RPD% (QD2 and TB009-1)	RPD% (QD1 and QD2)
Arsenic	<3	<3	<4	0	29	29
Cadmium	<0.3	<0.3	<0.4	0	29	29
Chromium	6.3	6.5	5	3	23	26
Copper	1.5	1.6	1	6	40	46
Lead	4	4	4	0	0	0
Mercury[2]	<0.01	<0.01	<0.1	0	164	164
Nickel	0.8	0.8	<1	0	22	22
Zinc	43	43	42	0	2	2
TPH, BTEX, PAH, OC, OP, and PCB	ND[1]	ND	ND	ND	ND	ND

Notes to Table

1. ND- Not Detected (under limit of reporting)
2. Disagreement in the results are due to the different LOR of each laboratory

A zero PRD indicates absolute agreement of the results between the first and second detectors while a 200% PRD demonstrates total disagreement in analytical laboratory results. Elevated PRD values are common where concentrations are close to the detection limit.

In addition, SGS Laboratory has undertaken internal quality assurance testing which also involves a review of the QA results and interpretation. Results are contained within the laboratory report sheets and are attached to this report.

In addition, Trip Blank and Trip Spike samples were prepared by SGS laboratory and were hold accompanying other samples during the site investigation. The results of the laboratory testing of the Trip Blank and Trip Spike samples were within the acceptable limits. The Trip Blank recoveries ranged from 92% to 100% which is within the acceptable limit of 60% to 100%.

The review of internal QA indicates that sufficient internal QA was undertaken for most analytes and that, Recovery of Surrogates, Recovery of Spikes, and Relative Percentage Differences for Duplicates, Triplicate results and Holding times where within acceptance criteria as defined by SGS Environmental.

The data obtained from this testing is considered accurate and the results can be relied on to the for the purpose of the preliminary assessment.

7 Comments and Recommendations

7.1 Preliminary Contamination Assessment (PCA)

The objectives of the PCA was to identify any past or present potentially contaminating activities and to provide a preliminary assessment of the overall site contamination. The PCA comprised an assessment of the available historical data, site investigation and limited laboratory analysis.

This section summarises the investigation findings and provides comment and recommendation regarding the contamination state of the site and requirements for further assessment.

7.1.1 Criteria for Contamination Assessment

The current assessment criteria used in NSW to evaluate soil analytical results are based on the NSW DEC Guidelines for the NSW Site Auditor Scheme 2nd Edition 2006 [5] and National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 2013 [4], and was used as the criteria for the assessment of the soil on site. Schedule B (1) Guideline on Investigation Levels for Soil and Groundwater provides limits on investigation concentrations for contaminants based on human health risk and ecological assessment and certain exposure scenarios due to site use.

The proposed site use is residential and therefore the following guidelines have been adopted:

> Health Investigation Levels (HIL) “Residential A”, Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.

7.1.2 Areas of Environmental Concern (AEC)

> Potential contamination from the previous medium scaled industrial farming activities and associated contaminants resulting from removal of the farm structures and large industrial sheds

> Potential contamination of the imported filling used for construction of the building platform of the former farm sheds;

> Potential contamination associated with stockpiles across the site, dumping of household items, and surficial landscape disturbances;

> Potential asbestos contamination from the abandoned residential structure within the eastern portion of the NP.

> Potential asbestos contamination from demolition works of the previous two residential dwellings within the eastern portion of the NP.

Table 3-1 shows the areas with environmental significance observed during the site investigation. The locations of the observations are referenced in Drawings GE-001 attached in Appendix A.

In order to provide preliminary comment on the identified AEC’s a limited program of targeted intrusive testing was undertaken.

The fieldwork was based on observed conditions and comprised surface sampling at targeted locations based on the areas identified by desktop study. Samples were collected at test bore locations with sample IDs showing the test bore numbers and the locations are shown on Drawings GE-002 attached in Appendix A. In addition, the following samples were collected and tested based on the site observations (Refer to the Drawing GE-002 for location):

> AS-1 sample was obtained from the disturbed ground areas resultant from the demolition of the former residential dwelling located at OI No. 5 Table 3-1. The sample was tested for asbestos fibre detections.

> AS-2 sample obtained from small fibrous fragment consistent with the Cementous sheeting used in the abandoned residential dwelling and remaining shed/garage (OI No. 4 Table 3-1) and tested for asbestos detection.

Additional test bores were drilled through the three of the site stockpiles: OI No 1, 6 and 8 to identify the material compositions. The assessment revealed that the assessed stockpiled material generally comprises topsoil of silty compositions with high organic content which did not contain any foreign matter.

7.1.3 Analytical Results

The complete analytical results for soil and water samples are contained in Appendix C. A summary of the results were presented in Section 6.2.2 and presented below:

7.1.3.1 Heavy Metals

Appraisal of the results indicated that the levels of metals within the samples tested were below the threshold limits as detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 2013 [4] “Residential A”.

7.1.3.2 Total Petroleum Hydrocarbon (TPH)

Appraisal of the results indicated PAH’s were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 2013 [4] “Residential A”.

7.1.3.3 Polycyclic Aromatic Hydrocarbon (PAH)

Appraisal of the results indicated PAH’s were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 2013 [4] “Residential A”.

7.1.3.4 Organophosporous & Organochlorine Pesticides (OPP/OCP) & Polychlorinated Biphenyls (PCB)

Appraisal of the results indicated that the levels of OPP, OCP and PCB within the samples tested were below the threshold limits as detailed in National Environment Protection Measure for the Assessment of Site Contamination, 2013 [4] “Residential A”.

7.1.3.5 Asbestos Material

The result of analysis for sample AS-1 obtained from the fibrous material used in the Cementous sheets used in the abandoned residential dwelling and adjacent shed/garage (OI No. 4Table 3-1) for asbestos ID was positive and indicated that the sample contains Chrysotile Asbestos.

The sample obtained from the disturbed areas at the location the former residential structure (AS-2) was tested for detection of Fibrous asbestos (FA) and asbestos fines (AF) and asbestos containing material (ACM). The analysis results indicated that the sample did not contain ACM fragments but contained 0.001 %w/w of AF/FA (<7mm).

7.1.4 Discussion

Review of the historical aerial photographs revealed that numerous sheds associated with farming activity were constructed on site during the 1950s and 1960s. These structures were removed from the site afterwards and the southern portion of the site appears undeveloped until the recent rural developments around 2000 that in general form the current site conditions. Four residential structures and associated farm shed/garages were also constructed within the eastern portion of the NP and three of these structures have been demolished.

Furthermore, the review of the historical title deed searches reveals that Lots 1 and 2 in DP 1000694 and the southern portion of the Lot 3 DP1000594 were owned by a poultry farmer during the period between 1954 and 1969. The presence of sheds in this portion of the site observed in 1954 and 1965 historical aerial photographs coincides with the ownership of the poultry farmer and the sheds were potentially used for chicken farming activities.

There was no evidence that the site has been subject to any significant filling or disturbance with the exception of the filling placed for the construction of the large shed along the western boundary of the site (OI No.03 Table 3-1) and filling placed to the east of the Lot 4 DP 1000694 (OI No.02 Table 3-1).

The areas with environmental significances were identified based on the results of the desktop assessment and site investigation. The targeted sampling and analysis was undertaken to further characterise the contamination status of the identified areas of concern. The following summarises the ideology behind the targeted sampling:

> Sample TB003-1 obtained from surficial filling observed in the test bore.

> Sample TB005-1 from the filling material placed on site and observed in June 2005 aerial photograph (OI No. 02 of the Table 3-1).

> Test bore TB006 was drilled at the location of the site former industrial shed potentially associated with chicken farming activities. Sample TB006-1 was obtained from surface topsoil material to assess the impact of the previous activities on natural soil profile.

> Sample TB008-1 was obtained from the test bore drilled adjacent to the surface disturbances associated with construction of a farm dam within the southern portion of the Lot 1 DP 1000694.

> Test bore TB009 was drilled at the location of the site former large industrial shed fill platform with TB009-1 sample obtained from the fill material.

> Sample TB010-1 was obtained from surficial material at the location of the former residential dwellings located within the eastern portion of the NP.

> Test bore TB011 was drilled at the location of the former dwelling with sample TB011-1 obtained from the surficial filling.

> Sample TB012-1 was obtained at the location of former farm shed associated with demolished former dwelling.

> Sample AS-21 collected from disturbed areas at the location of the former dwelling and AS-2 from fibrous material used in construction of the abandoned dwelling and shed/garage.

The result of the laboratory analysis were recorded below the laboratory limits of reporting (LOR) and/or acceptable thresholds.

Asbestos was detected in the AS-2 sample which indicates that asbestos containing construction material are present in the abandoned residential dwelling and she located within the eastern portion of the NP.

Asbestos fibres (AF/FA) were detected in the sample obtained from surficial soils of the disturbed area at the location of former dwelling OI No. 5 Table 3-1. Presence of asbestos fibres in the soil is judged to be associated with poor demolition practice of the former residential structure.

7.1.5 PCA Conclusion

This report represents the findings of PCA undertaken on the subject site (refer to the Section 2 for site identification details). The site history indicates that the Site has generally been used for farming activities and residential dwellings.

Targeted soil sampling and analysis reported no signs of gross contamination and analytical results concentrations below the adopted criteria.

Asbestos containing construction material has been identified in existing abandoned dwelling and shed/garage shed OI No.4 Table 3-1. In addition, asbestos FA/AF fibres were detected at the location of the former residential dwelling OI No.5 Table 3-1. The following must be undertaken to eliminate the risk associated with the asbestos containing material:

> Removal of the asbestos containing material used in the existing abandoned residential structure and shed/garage OI No.4 Table 3-1 by an accredited hygienist.

> Removal of the asbestos fibre contaminated surficial soils at the location of the former residential structure and validation by an accredited hygienist.

Comparison of the analytical testing undertaken to threshold limits detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [4] “Residential A”, indicates no gross contamination has been identified on the site.

Based on the site inspection, the desktop study and laboratory analysis it is suggested that the overall potential risk of contamination at the site would be low and contamination is not considered to pose a constraint to the proposed development.

7.2 Aggressivity Assessment

This section provides assessment criteria to assess the exposure classification for a steel piles and concrete piles and is considered applicable for other buried concrete structures.

The samples were collected and submitted to a NATA accredited laboratory to be analysed for Resistivity, pH, Sulphate and Chloride to determine the aggressivity potential of the soil with respect to steel piles and buried concrete.

7.2.1 Exposure to Steel Piles

The results were compared to the following Table 6.5.2(C) in Section 6 of Australian Standard (AS) 2159 - 2009: Piling Design and Installation [3]. A soil condition B for low permeability soils (such as silts and clay soils) or all soils above groundwater were adopted for exposure classification criteria.

The classification system is presented in Table 7-1 below.

Table 7-1 Exposure Classification for Steel Piles in Soil

pH	Chlorides (Cl) in Soil (ppm)	Resistivity (Ωcm)	Exposure Classification Soil Condition A	Exposure Classification Soil Condition B
>5	<5,000	>5,000	Non-Aggressive	Non-aggressive
4-5	5,000-20,000	2,000-5,000	Mild	Non-aggressive
3-4	20,000-50,000	1,000-2,000	Moderate	Mild
<3	>50,000	<1,000	Severe	Moderate

Based on the summary of the analytical results presented in Table 6-5 the pH values vary between 4.4 and 5.3 which correlates to an Exposure Classification of all the samples as *non-aggressive*. The chloride results varied are below 5,000 mg/kg, which also classifies all the samples as *Non-aggressive*. The resistivity for the majority of the results are above 5,900 ohm.cm and can be classified as *Non Aggressive*.

7.2.2 Exposure to Concrete Piles

The results were compared to the following Table 6.4.2(C) in Section 6 of Australian Standard (AS) 2159 - 2009: Piling Design and Installation [3].

Based on the soil composition and subsurface profile encountered, Soil Condition B for low permeability soils (such as silts and clay soils) or all soils above groundwater were adopted for exposure classification criteria.

The classification system is presented in Table 7-2 below.

Table 7-2 Exposure Classification for Concrete Piles in Soil

pH	Sulfates (SO_4) in Soil (ppm)	Exposure Classification: Soil Condition A	Exposure Classification: Soil Condition B
>5.5	<5,000	Mild	Non-aggressive
4.5-5.5	5,000-10,000	Moderate	Mild
4-4.5	10,000-20,000	Sever	Moderate
<4	>20,000	Very Severe	Severe

The summary of the analytical results presented in Table 6-5.

On the basis of the sulfate results of the samples collected, all samples can be classified as *non-aggressive*. With consideration to the pH results: samples classified as moderate to non-aggressive.

The indication of the concrete pile exposure classifications are indicated in Table 6-5.

7.3 Geotechnical Assessment

7.3.1 Earthworks

The extent of the earthworks has not been defined at this stage, however, considering the gentle site topography minor modification is expected with the exception of the excavations of proposed detention basins.

Minimal filling is anticipated to be placed on site and will be dependent on the volume of the spoil generated from excavations and final design levels, however, this might be subject to change following the preparation of the earthworks plan considering the excavation surplus material.

7.3.1.1 Site Preparation

Prior to bulk earthworks, the Contractor shall establish, and maintain the integrity of site security to prevent unauthorised access. The site shall be cleared of any foreign matter or unsuitable material including but not limited to:

> vegetation or organic matter;

> topsoil, fill and material heavily affected by roots; and

> any scattered waste or dumped materials (as described in Section 7.1.5 of this report).

Deleterious materials should be disposed of at a licenced waste facility, and stripped topsoils should be stockpiled for re-use where suitable. Topsoil stockpile material presence on site could also be used for landscaping along with the stripped topsoil. Topsoils were generally encountered in the order of 100-200 mm in thickness.

The filling stockpiles encountered at two locations of OI NO. 2 and 3 Table 3-1 would be defined as uncontrolled, not placed in accordance with the requirements specified in Australian Standard AS 3798-2007: Guidelines on Earthworks for Commercial and Residential Structures [6]. This material must be removed and could be used as site filling if required and placed in accordance to the requirements of this report (Section 7.3.3).

Following site preparation including stripping and stockpiling of the topsoil materials, appropriate erosion control and adequate drainage should be maintained as per as GCC guidelines.

7.3.1.2 Drainage and Erosion Control

Prior to earthworks, appropriate site surface drainage and other measures shall be implemented to prevent ponding and scouring during the construction. These measures should include temporary drains, surface grading along with erosion and sediment control, and should be appropriately reinstated following the construction.

Emerson class testing provides an indication of dispersive nature of the site soils and erodibility. The results of Emerson class testing indicated that all the samples (100%) are regarded as susceptible to erosion (Class 2). Good moisture control and compaction is required to use these material where exposed to water. Provision of liner or importation of non-erosion susceptible material for the construction of the detention ponds must be considered.

A significant reduction in the risk of erosion following moisture / density control during the earthworks is expected. Nonetheless, the soils should be covered by a suitable thickness of topsoil to further reduce the risk of erosion. Suitable vegetation protection should be established together with the provision of adequate drainage and where the soils are exposed, other appropriate protection measures should be employed.

All collected stormwater shall be appropriately detained in on-site storage or detention basins and discharged in a controlled manner. This should be conducted in accordance with the GCC requirements.

7.3.2 Excavations

7.3.2.1 Excavatability

The extent of excavations across the site is not available at this stage but is expected to comprise excavation for the detention basins and potentially excavations for the proposed roads to the design subgrade levels.

Variations in the final design levels of the proposed development are likely and as such the following comments regarding the excavatability must be confirmed once the design is completed.

The siltstone bedrock was only encountered in two test bores TB007 and TB010 drilled along the eastern boundary of the site at depths of 2.1 and 1.9m BGL respectively. The siltstone bedrock was assessed to be extremely low strength and extremely affected by weathering processes. The depth of the bedrock to ground surface is expected to increase towards west and north-west.

Excavations to the depths shown on the engineering logs are expected to be readily undertaken using conventional earthmoving equipment such as backhoe and excavator and as such excavatability is not expected to restrict the construction of the development.

Groundwater was encountered in one test bore TB003 at 1.5m BGL which was drilled adjacent to the f drainage channel. Where the depths of the excavations are shallower than the recorded free standing groundwater levels, dewatering is not expected to be required. However, the groundwater level is influenced by climatic changes and rainfall conditions.

7.3.3 Filling

Where filling required, it be placed and compacted in accordance with AS 3798-2007 *Guidelines on Earthworks for Commercial and Residential Development* [6] and the following recommendations.

7.3.3.1 Methodology

It is expected that construction of fill platforms during the bulk earthworks, which would be suitable to support structural loads associated with residential development, would include the following.

> Removal of any existing fill, topsoil or deleterious soils from areas where fill is to be placed. Any unsuitable material to be removed.

> Benching of the exposed subgrade slope in the area where fill is to be placed if slopes are steeper than 8H:1V (approximately 7°).

> Proof rolling of the exposed subgrade to detect any weak or deforming areas of subgrade that should be excavated and replaced with compacted fill.

> Placement of fill in uniform horizontal layers with compaction of each layer to a minimum dry density ratio of 95% Standard Compaction (Australian Standard AS 1289 Clause 5.1.1) at moisture contents of in the order of 90-110% of SOMC or ±2% but generally as close to Standard Optimum Moisture Content (SOMC) as practical. Over compaction should be avoided.

> Within the road alignment, subgrade formation preparation should be in accordance with Section 0.

All fill should be battered at a slope of 2H:1V (or preferably flatter) and temporary erosion control should be provided as per GCC requirements. To prevent erosion in the long term, provision of protection by vegetation and with the provision of adequate drainage is also required. It would be recommended, where possible, to provide batter slopes of 3H:1V for long term maintenance and to reduce the risk of erosion. Where a batter of 2H:1V is not possible, the filling support must be engineer designed.

7.3.4 Footings Recommendations and Founding Conditions

7.3.4.1 Site Classification

It must be noted that the site classification presented hereunder are applicable to residential single dwellings, townhouse or similar structure.

Australian Standard AS 2870-2011 [7] establishes performance requirements and specific designs for common foundation conditions as well as providing guidance on the design of footing systems using engineering principles based on site classifications as defined by the standard.

Reactive sites are sites consisting of clay soils that swell on wetting and shrink on drying, resulting in ground movements that can damage lightly loaded structures. The amount of ground movement is related to the physical properties of the clay and environmental factors such as climate, vegetation and watering. A higher probability of damage can occur on reactive sites where abnormal moisture conditions occur, which is defined in AS 2870.

The laboratory shrink/swell testing conducted indicates that the tested site soils are slightly to moderately reactive with the shrink swell index values ranging between 0.5 to 3.2%. Based on the soil profiles encountered in the test bores, and in accordance with AS 2870-2011, classifications of Class M (Moderately Reactive) is expected for the site in existing conditions subject to placement of all foundations below any uncontrolled filling, topsoil or highly organic alluvial material. Placement of filling on site may result in a higher site classification such as Class H1 (highly reactive).

7.3.5 Pavements

It is understood that the construction of internal access roads are proposed as indicated in the SLP plans by Bannister & Hunter Pty Ltd.

Pavement design has been performed in accordance with the Austroads AGPT02-12 Guide to Pavement Technology [8] with the pavement thickness design provided employing flexible pavement materials.

The pavement design presented in this report an indication only and must be confirmed following the completion of the final subdivision design and provision of the design traffic values by GCC.

7.3.5.1 Design Subgrade

Based on the subsurface conditions encountered in the test bores, subgrade conditions across the site and current conditions (prior to earthworks) are likely to generally comprise residual sandy clays and likely sand, silt and clay alluvial compositions.

The results of the laboratory CBR testing indicate soaked CBR values in the order of 1.5 to 3.0% for the residual clays present at subgrade level (prior to any regrading activities) when compacted to 100% relative density using standard compactive effort.

Based on the results of the laboratory CBR testing a design subgrade CBR of 2.0 and 3% would be recommended for the subgrade material. This is based on the assumption that the subgrade is compacted to 100% standard dry density and incorporating the surcharge load of the future pavement.

7.3.5.2 Design Traffic

Design traffic has been assumed in accordance with the previous experience and must be confirmed by GCC project manager for the final design. The pavement design has been undertaken for Design Traffic of 6 X 10^5 DESA (Design Equivalent Standard Axles) for local roads and 7 X 10^4 DESA for access roads.

7.3.5.3 Pavement Composition

Preliminary pavement designs have been conducted in accordance with Austroads AGPT02-12 *Guide to Pavement Technology Part 2: Pavement Structural Design* [8].

It should be noted that the layer thicknesses detailed are minimum thicknesses regardless of construction tolerances.

Pavement compositions with a clay subgrade are detailed below in Table 7-3.

Table 7-3 Pavement Composition (CBR 10%)

Road Category	Local Roads CBR2%	Local Roads CBR3%	Access Roads CBR2%	Local Roads CBR3%
Wearing Surface (mm)	40 (AC10) (1)	40 (AC10) (1)	40 (AC10) (1)	40 (AC10) (1)
Basecourse (mm)	150	150	150	150
Subbase (mm) (1)	410	300	270	190
Total Thickness (mm)	600	490	460	380
Design Traffic (ESA)	6 X 10^5	6 X 10^5	7 X 10^4	7 X 10^4

Notes to table:
(1) The sub base should be extended beneath the kerb and to a minimum of 150 mm beyond the rear face of the kerb profile.

The requirement for a select layer should be assessed at the time of construction and likely to be required considering the previous experience in the area. This will also be dependent on climatic conditions prior to and during construction and the ability to provide adequate drainage. Considering the high silt layer content of the site material, loss of strength and boggy conditions are likely to occur following a high rainfall period. In-situ stabilisation of the subgrade material or placement of construction platform is likely to be required depending on the weather conditions.

7.3.5.4 Materials and Compaction Specification

Pavement materials and compaction requirements for new pavement construction shall conform to the relevant Council Specifications and the following requirements.

Table 7-4 Pavement material specification and compaction requirements

Pavement Course	Material Specification	Compaction Requirements[1]
Wearing Course	Material complying with Council specifications	As per supplier specifications
Basecourse High quality crushed rock	Material complying with Council specifications and a CBR ≥ 80% and PI<8%	Min 98% Modified (AS1289 5.2.1) or Min 102% Standard (AS1289 5.1.1)
Subbase Subbase quality crushed rock	Material complying with Council specifications and a CBR ≥ 30% PI<12%	Min 98% Modified (AS1289 5.2.1) or Min 102% Standard (AS1289 5.1.1)
Subgrade or replacement (if required)	As defined in Table 7-3	Min 100% Standard (AS1289 5.1.1)

Notes:
1- GCC will require the modified levels

7.3.5.5 Subgrade Preparation

Subgrades should be prepared in accordance with appropriate Council guidelines and the following general recommendations.

> Removal topsoil, highly organic alluvial and filling with excavation (where required) to subgrade formation level, with the spoiling of any deleterious material;

> Elimination of abrupt changes between subgrade conditions, by methods such as selective grading or mixing of material to provide a transition between material types, and moisture/density control of subgrade compaction.

> Proof rolling of the exposed subgrade with a heavy (minimum 10 tonne static) roller with any soft or weak areas detected to be excavated and replaced with a suitable compacted fill or subgrade replacement. To prevent zones of variable permeability, which may trap moisture and lead to subgrade deformation, material of similar consistency to the subgrade should be utilised in the case where localised replacement is required.

> Compaction of the subgrade filling or select shall be to a minimum dry density ratio of 100% Standard Compaction (Australian Standard AS 1289 Clause 5.1.1) in layers of not greater than 250 mm loose thickness and generally within 60-90% of SOMC.

> Protection of the subgrade to prevent any excessive wetting or drying.

It is recommended that trafficking of the subgrade be minimised or avoided (where possible) during construction to prevent the permanent deformation of the subgrade. The boxed road alignment should not be used as a haul road during construction, with footpath areas outside the road alignment offering alternate areas for construction traffic.

7.3.5.6 Expansive Soils

The subgrade site material Liquide Limit ranging from 27 to 44% with the Plasticity Index ranging from 12 to 30% based on the laboratory testing on the site selective soil samples. In addition, based on the onsite assessment and CBR test results swell of 2.0 to 5.0%, it is understood that the subgrade clays have low to very high swell potential as defined in Table 5.2 of Austroads [8]. The subgrade would have substantial potential for volume change due to moisture variations and strategies to minimise volume change as outline in clause 5.3.5 of Austroads [8] should be employed.

The specific considerations in relation to expansive soils should include but not limited to:

> Specification of a moisture content range for preparation of the subgrade;

> The need for subsoil drainage to not be located in the expansive soils;

> The need for a low permeability lower subbase / select layer;

> Recommendation for sealed shoulders and impermeable verge material;

> Recommend appropriate construction techniques; and

> Reduction of the volume expansion potential of the expansive soils by lime stabilisation.

7.3.5.7 Subsoil Drainage

It is recommended that subsoil drainage be installed at subgrade level along both sides of constructed pavements where the road is in cut, to intercept any subsurface flows. Detailing of subsoil drainage should be in accordance with Austroads 2012 [8] taking into consideration the presence of moderately to highly expansive soils.

The subgrade shall be constructed with sufficient cross fall (a minimum of 3%) to assist with any moisture entering the pavement not becoming trapped. The drains should be located below or behind the kerb to

8 Conclusions

Based on the site inspection, the desktop study and limited testing it is suggested that the overall potential risk of contamination at the site would be low and contamination is not considered to pose a constraint to the proposed residential development. Removal of asbestos containing material by an accredited hygienist is required and the affected area must be validated following the removal. Screening and off-site disposal of dumped anthropogenic materials within fill material and localised areas across the site will also be required.

Excavatability is unlikely to provide difficulties to larger excavation equipment and excavation could be undertaken to the depths shown on the engineering logs with conventional equipment.

Based on the soil profiles encountered in the test pits and boreholes, and in accordance with AS 2870-2011, a classifications of Class M Moderately Reactive is expected for the site provided that all the footings are founded below any topsoil or uncontrolled fill. Placement of filling on site may result in a higher site classification such as Class H1 (highly reactive).

Pavement thickness designs for existing subgrade conditions are provided based on the assumed design traffic and expected subgrade conditions in Section 7.3.5 of this report.

9 Limitations

Cardno have performed investigation and consulting services for this project in general accordance with current professional and industry standards. The extent of testing was limited to discrete test locations and variations in ground conditions can occur between test locations that cannot be inferred or predicted.

A geotechnical consultant or qualified engineer shall provide inspections during construction to confirm assumed conditions in this assessment. If subsurface conditions encountered during construction differ from those given in this report, further advice shall be sought without delay.

Cardno, or any other reputable consultant, cannot provide unqualified warranties nor does it assume any liability for the site conditions not observed or accessible during the investigations. Site conditions may also change subsequent to the investigations and assessment due to ongoing use.

This report and associated documentation was undertaken for the specific purpose described in the report and shall not be relied on for other purposes. This report was prepared solely for the use by TGL Pty Ltd and any reliance assumed by other parties on this report shall be at such parties own risk.

References

[1] NSW Government, "State Environmental Planning Policy No 55 - Remediation of Land," July 2014.

[2] Trade & Investment, "Gosford-Lake Macquarie Special," 2015.

[3] Australian Standard AS2159-2009, "Piling - Design & Installation," Standards Australia, 2009.

[4] National Environment Protection (Assessment of Site Contamination) Measure 1999, "Schedule B1 Guidelines on Investigation Levels For Soil and Groundwater," National Environment Protection Council, 16 May 2013.

[5] NSW DEC, "Guidelines for the NSW Site Auditor Scheme (2nd Edition)," Department of Environment and Conservation NSW, April 2006.

[6] Australian Standard AS3798-2007, "Guidelines on Earthworks for Commercial and Residential Structures".

[7] Australian Standard AS2870-2011, "Residential Slabs and Footings," Standards Australia, 2011.

[8] Austroads AGPT02-12, "Guide to Pavement Technology Part 2: Pavement Structural Design".

Proposed Residential Development,
Bakali Rd, Forresters Beach

APPENDIX A

DRAWINGS

Cardno Geotech Solutions
Shaping the Future

DATE PLOTTED: 18 November 2015 11:39 AM BY: AUREZA MOHITI

03 OBSERVATION IDENTIFICATION NUMBER

NORTH

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TGL PTY LTD
URBAN CAPABILITY ASSESSMENT
OBSERVATIONS AND AREAS
WITH ENVIRONMENTAL SIGNIFICANCE
BAKALI RD, FORRESTERS BEACH

Datum	Date	Scale	Size
	16/11/2015	NTS	A3

Drawing Number	Revision
80514013-GE-001	0

XREFs:
CAD File: N:\Projects\8051\FY141000_099_Architects_Planners_Developers\013_Forresters Beach Planning - ST2\Report\Geotechnical\dwg\Site Plan Drawing AM (3).dwg

DATE PLOTTED: 18 November 2015 11:39 AM BY : ALIREZA MOHITI

TESTBORE ID AND LOCATION

NORTH

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TGL PTY LTD
URBAN CAPABILITY ASSESSMENT
OBSERVATIONS AND AREAS WITH ENVIRONMENTAL SIGNIFICANCE
BAKALI RD, FORRESTERS BEACH

Datum	Date	Scale	Size
	16/11/2015	NTS	A3

Drawing Number: 80514013-GE-002
Revision: 0

XREFs:
CAD File: N:\Projects\805\FY14\000_099_Architects_Planners_Developers\013_Forresters Beach Planning - ST2\Report\Geotechnical\dwg\Site Plan Drawing AM (3).dwg

Proposed Residential Development,
Bakali Rd, Forresters Beach

APPENDIX

B

ENGINEERING LOGS

Cardno Geotech Solutions
Shaping the Future

Explanatory Notes

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS1726-1993 Geotechnical Site Investigations. Material descriptions are deduced from field observation or engineering examination, and may be appended or confirmed by in situ or laboratory testing. The information is dependent on the scope of investigation, the extent of sampling and testing, and the inherent variability of the conditions encountered.

Subsurface investigation may be conducted by one or a combination of the following methods.

Method	
Test Pitting: excavation/trench	
BH	Backhoe bucket
EX	Excavator bucket
X	Existing excavation
Natural Exposure: existing natural rock or soil exposure	
Manual drilling: hand operated tools	
HA	Hand Auger
Continuous sample drilling	
PT	Push tube
Hammer drilling	
AH	Air hammer
AT	Air track
Spiral flight auger drilling	
AS	Large diameter short spiral auger
AD/V	Continuous spiral flight auger: V-Bit
AD/T	Continuous spiral flight auger: TC-Bit
Hollow flight auger drilling	
HFA	Continuous hollow flight auger
Rotary non-core drilling	
WS	Washbore (mud drilling)
RR	Rock roller
Rotary core drilling	
HQ	63mm diamond-tipped core barrel
NMLC	52mm diamond-tipped core barrel
NQ	47mm diamond-tipped core barrel
Concrete coring	
DT	Diatube

Sampling is conducted to facilitate further assessment of selected materials encountered.

Sampling method	
Disturbed sampling	
B	Bulk disturbed sample
D	Disturbed sample
ES	Environmental soil sample
Undisturbed sampling	
SPT	Standard Penetration Test sample
U	Thin wall tube ‘undisturbed’ sample
Water samples	
EW	Environmental water sample

Field testing may be conducted as a means of assessment of the in situ conditions of materials.

Field testing	
SPT	Standard Penetration Test (blows/150mm)
HP/PP	Hand/Pocket Penetrometer
Dynamic Penetrometers (generally blows/150mm)	
DCP	Dynamic Cone Penetrometer
PSP	Perth Sand Penetrometer
MC	Moisture Content
VS	Vane Shear
PBT	Plate Bearing Test
PID	Photo Ionization Detector

If encountered, refusal (R) or virtual refusal (VR) of SPT or dynamic penetrometers may be noted.

The quality of the rock can be assessed be the degree of fracturing and the following.

Rock quality description	
TCR	Total Core Recovery (%) (length of core recovered divided by the length of core run)
RQD	Rock Quality Designation (%) (sum of axial lengths of core greater than 100mm long divided by the length of core run)

Notes on groundwater conditions encountered may include.

Groundwater	
Not Encountered	Excavation is dry in the short term
Not Observed	Water level observation not possible
Seepage	Water seeping into hole
Inflow	Water flowing/flooding into hole

Perched groundwater may result in a misleading indication of the depth to the true water table. Groundwater levels are also likely to fluctuate with variations in climatic and site conditions.

Notes on the stability of excavations may include.

Excavation conditions	
Stable	No obvious/gross short term instability noted
Spalling	Material falling into excavation (minor/major)
Unstable	Collapse of the majority, or one or more face of the excavation

Explanatory Notes: General Soil Description

The methods of description and classification of soils used in this report are based on Australian Standard AS1726-1993 Geotechnical Site Investigations. In practice, a material is described as a soil if it can be remoulded by hand in its field condition or in water. The dominant component is shown in upper case, with secondary components in lower case. In general descriptions cover: soil type, plasticity or particle size/shape, colour, strength or density, moisture and inclusions.

In general, soil types are classified according to the dominant particle on the basis of the following particle sizes.

Soil Classification		Particle Size
CLAY		< 0.002mm
SILT		0.002mm 0.075mm
SAND	fine	0.075mm to 0.2mm
	medium	0.2mm to 0.6mm
	coarse	0.6mm to 2.36mm
GRAVEL	fine	2.36mm to 6mm
	medium	6mm to 20mm
	coarse	20mm to 63mm
COBBLES		63mm to 200mm
BOULDERS		> 200mm

Soil types are qualified by the presence of minor components on the basis of field examination or the particle size distribution.

Description	Percentage of minor component
Trace	< 5% in coarse grained soils
	< 15% in fine grained soils
With	5% to 12% in coarse grained soils
	15% to 30% in fine grained soils

The strength of cohesive soils is classified by engineering assessment or field/laboratory testing as follows.

Strength	Symbol	Undrained shear strength
Very Soft	VS	< 12kPa
Soft	S	12kPa to 25kPa
Firm	F	25kPa to 50kPa
Stiff	St	50kPa to 100kPa
Very Stiff	VSt	100kPa to 200kPa
Hard	H	> 200kPa

Cohesionless soils are classified on the basis of relative density as follows.

Relative Density	Symbol	Density Index
Very Loose	VL	< 15%
Loose	L	15% to 35%
Medium Dense	MD	35% to 65%
Dense	D	65% to 85%
Very Dense	VD	> 85%

The moisture condition of soil is described by appearance and feel and may be described in relation to the Plastic Limit (PL) or Optimum Moisture Content (OMC).

Moisture condition and description	
Dry	Cohesive soils: hard, friable, dry of plastic limit. Granular soils: cohesionless and free-running
Moist	Cool feel and darkened colour: Cohesive soils can be moulded. Granular soils tend to cohere
Wet	Cool feel and darkened colour: Cohesive soils usually weakened and free water forms when handling. Granular soils tend to cohere

The plasticity of cohesive soils is defined as follows.

Plasticity	Liquid Limit
Low plasticity	≤ 35%
Medium plasticity	> 35% ≤ 50%
High plasticity	> 50%

The structure of the soil may be described as follows.

Zoning	Description
Layer	Continuous across exposure or sample
Lens	Discontinuous layer (lenticular shape)
Pocket	Irregular inclusion of different material

The structure of soil layers may include: defects such as softened zones, fissures, cracks, joints and root-holes; and coarse grained soils may be described as strongly or weakly cemented.

The soil origin may also be noted if possible to deduce.

Soil origin and description	
Fill	Man-made deposits or disturbed material
Topsoil	Material affected by roots and root fibres
Colluvial	Transported down slopes by gravity
Aeolian	Transported and deposited by wind
Alluvial	Deposited by rivers
Lacustrine	Deposited by lakes
Marine	Deposits in beaches, bays and estuaries
Residual	Developed on weathered rock

The origin of the soil generally cannot be deduced on the appearance of the material only and may be determined based on further geological evidence or other field observation.

Explanatory Notes: General Rock Description

The methods of description and classification of rocks used in this report are based on Australian Standard AS1726-1993 Geotechnical Site Investigations. In practice, if a material cannot be remoulded by hand in its field condition or in water, it is described as a rock. In general, descriptions cover: rock type, grain size, structure, colour, degree of weathering, strength, minor components or inclusions, and where applicable, the defect types, shape, roughness and coating/infill.

Sedimentary rock types are generally described according to the predominant grain size as follows.

Rock Type	Description
CONGLOMERATE	Rounded gravel sized fragments (>2mm) cemented in a finer matrix
SANDSTONE	Sand size particles defined by the following grain sizes: fine 0.06mm to 0.2mm medium 0.2mm to 0.6mm coarse 0.6mm to 2mm
SILTSTONE	Predominately silt sized particles
SHALE	Fine particles (silt or clay) and fissile
CLAYSTONE	Predominately clay sized particles

The classification of rock weathering is described based on definitions in AS1726 and summarised as follows.

Term and symbol		Definition
Residual Soil	RS	Soil developed on rock with the mass structure and substance of the parent rock no longer evident
Extremely weathered	XW	Weathered to such an extent that the rock has 'soil-like' properties
Distinctly weathered	DW	The strength is usually changed and may be highly discoloured. Porosity may be increased by leaching, or decreased due to deposition in pores
Slightly weathered	SW	Slightly discoloured; little or no change of strength from fresh rock
Fresh Rock	FR	The rock shows no sign of decomposition or staining

The rock material strength can be defined based on the point load index as follows.

Term and symbol		Point Load Index I_s50
Extremely low	EL	< 0.03MPa
Very Low	VL	0.03MPa to 0.1MPa
Low	L	0.1MPa to 0.3MPa
Medium	M	0.3MPa to 1MPa
High	H	1MPa to 3MPa
Very High	VH	3MPa to 10MPa
Extremely High	EH	> 10MPa

It is important to note that the rock material strength as above is distinct from the rock mass strength which can be significantly weaker due to the effect of defects.

A preliminary assessment of rock strength may be made using the field guide detailed in AS1726, and this is conducted in the absence of point load testing.

The defect spacing and bedding thickness, measured normal to defects of the same set or bedding, is described as follows.

Definition	Defect Spacing
Thinly laminated	< 6mm
Laminated	6mm to 20mm
Very thinly bedded	20mm to 60mm
Thinly bedded	60mm to 0.2m
Medium bedded	0.2m to 0.6m
Thickly bedded	0.6m to 2m
Very thickly bedded	> 2m

Terms for describing rock and defects are as follows.

Terms			
Joint	JT	Sheared zone	SZ
Bed Parting	BP	Sheared surface	SS
Contact	CO	Seam	SM
Dyke	DK	Crushed Seam	CS
Decomposed Zone	DZ	Infilled Seam	IS
Fracture	FC	Foliation	FL
Fracture Zone	FZ	Vein	VN

The shape and roughness of defects in the rock mass are described using the following terms.

Planarity		Roughness	
Planar	PR	Very Rough	VR
Curved	CU	Rough	RF
Undulating	U	Smooth	S
Irregular	IR	Polished	POL
Stepped	ST	Slickensides	SL

The coating or infill associated with defects in the rock mass are described as follows.

Definition	Description
Clean	No visible coating or infilling
Stain	No visible coating or infilling; surfaces discoloured by mineral staining
Veneer	Visible coating or infilling of soil or mineral substance (<1mm). If discontinuous over the plane; patchy veneer
Coating	Visible coating or infilling of soil or mineral substance (>1mm)

Graphic Symbols Index

Clays


CLAY


Silty CLAY


Sandy CLAY


Gravelly CLAY

Silts


SILT


Clayey SILT


Sandy SILT


Gravelly SILT

Sands


SAND


Clayey SAND


Silty SAND


Gravelly SAND

Gravels


GRAVEL


Clayey GRAVEL


Silty GRAVEL


Sandy GRAVEL

Sedimentary Rock


CONGLOMERATE


BRECCIA


SANDSTONE


SILTSTONE


SHALE


MUDSTONE, CLAYSTONE


COAL


LIMESTONE

Metamorphic Rock


SLATE, PHYLLITE, SHIST


GNEISS


QUARTZITE, MARBLE

Igneous Rock


GRANITE


RHYOLITE


BASALT, DOLERITE


IGNIMBRITE


TUFF, VOLCANIC BRECCIA

Other Soils


TOPSOIL


ORGANIC SOILS


COBBLES, BOULDERS

Fill Strata


FILL


ASPHALT


CONCRETE


ROADBASE


BALLAST

Piezometer Symbols


Screen Section


Casing: sand backfill


Casing: gravel backfill


Casing: spoil backfill


Bentonite Seal


Cement Seal


Spoil Backfill


Cement Backfill

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB001
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
		0.0			TOPSOIL; Silty SAND, fine to coarse grained, pale brown, with organics	M		3		
	0.10m				0.10m					
	TB001-1				Sandy SILT, brown					PID=0.0
	0.20m							10		ALLUVIUM
		0.5				M		6		
								3		HP In-situ = 300 - 400 kPa
								4		
					0.80m					
					Silty CLAY, medium to high plasticity, pale grey mottled red-orange, trace gravel, with silt			5		RESIDUAL
										HP In-situ = 300 - 400 kPa
	1.00m	1.0						7		
	B							6		
	1.20m							11		
								14		
		1.5				MC > PL	VSt - H			
								18		
		2.0			2.20m					
					Testbore TB001 terminated at 2.20 m					
					Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB002
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
		0.0			TOPSOIL; Silty SAND, fine to coarse grained, pale brown, with organics	MC > PL		3		
	0.10m				0.10m					
	TB002-1 0.20m B				Silty CLAY, low plasticity, dark brown-black, with sand			3		PID=0.0
										ALLUVIUM
		0.5				MC > PL	St - VSt	1		
								2		
	0.70m				0.70m			5		
					Silty CLAY, medium to high plasticity, pale grey					RESIDUAL
								5		
		1.0						5		
								7		
								13		
								21		
		1.5				MC > PL	St - F			
					as above, but colour change to pale grey mottled orange					
		2.0								
					2.20m					
					Testbore TB002 terminated at 2.20 m					
					Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB003
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
	0.10m TB003-1	0.0			FILL/TOPSOIL; Gravelly SAND, fine to coarse grained, pale brown, trace brick fragments	M				PID=0.0
	0.20m				0.15m Silty CLAY, medium to high plasticity, dark grey-black					ALLUVIUM
		0.5				MC > PL	F - St			HP In-situ = 100 - 200 kPa
	0.75m U50				0.80m Silty CLAY, medium to high plasticity, pale grey mottled orange					RESIDUAL
	1.15m	1.0								HP In-situ = 100 - 200 kPa
groundwater		1.5				MC > PL	F - St			
		2.0			2.20m Testbore TB003 terminated at 2.20 m Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB004
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
	0.10m TB004-1	0.0			TOPSOIL; Silty SAND, fine to coarse grained, dark brown	M - W				
	0.20m				0.15m Clayey SILT, dark brown/grey	M - W				PID=3.1 ALLUVIUM
		0.5							HP In-situ = 100 - 200 kPa	HP In-situ = 100 - 200 kPa
	0.65m U50				0.70m Silty CLAY, medium to high plasticity, orange mottled pale grey					RESIDUAL
	0.95m	1.0							HP In-situ = 200 - 300 kPa	HP In-situ = 200 - 300 kPa
		1.5				MC - PL	VSt - St			
		2.0			2.00m Testbore TB004 terminated at 2.00 m Target depth				HP In-situ = 300 - 400 kPa	HP In-situ = 300 - 400 kPa
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB005
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa) 100 200 300 400	STRUCTURE & Other Observations
	0.10m TB005-1 0.20m	0.0			FILL; Silty CLAY, low to medium plasticity, brown-red, with gravel and sand					PID=0.0
		0.5				MC < PL				HP In-situ > 500 kPa
					0.95m					
	1.00m TB005-2 1.10m B	1.0			Silty CLAY, medium to high plasticity, pale grey mottled orange-black to brown, trace gravel					PID=0.0
										HP In-situ = 100 - 200 kPa
		1.5				MC > PL	St - F			
	2.00m	2.0			2.20m					
					Testbore TB005 terminated at 2.20 m Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB006
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
	0.10m TB006-1	0.0			TOPSOIL; Silty SAND, fine to coarse grained, dark brown	M - D		8		
	0.20m				0.15m Silty CLAY, low to medium plasticity, pale grey mottled red			10		PID=0.2 RESIDUAL
	0.40m U50							9		
		0.5					VSt - H	6		
	0.60m							7	400	HP In-situ = 400 - 600 kPa
								7		
					as above, but with gravel					
	1.00m U50	1.0						5	200	HP In-situ = 200 - 300 kPa
								7		
	1.20m					MC < PL		17		
		1.5					St - VSt			
		2.0			2.20m Testbore TB006 terminated at 2.20 m Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB007
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa) 100 200 300 400	STRUCTURE & Other Observations
	0.10m TB007-1 0.20m	0.0			FILL; Gravelly SAND, fine to coarse grained, brown, angular gravel	D				PID=0.0
					0.20m Sandy SILT, brown	D				ALLUVIUM
		0.5			0.50m Sandy CLAY, medium plasticity, grey-orange, with sand					RESIDUAL
	0.60m B								✳	HP In-situ = 300 - 400 kPa
	1.00m	1.0				MC < PL	VSt - H			
		1.5			as above, but colour change to pale grey mottled orange-red				✳	HP In-situ = 300 - 400 kPa
		2.0			2.10m SILTSTONE, red-pale grey	XW	EL			
					2.20m Testbore TB007 terminated at 2.20 m Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB008
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
	0.10m	0.0			TOPSOIL; Silty SAND, fine to coarse grained, brown	M				
	TB008-1 0.20m				Silty SAND, fine to coarse grained, brown	M	MD			PID=3.1 ALLUVIUM
		0.5			0.50m Silty CLAY, low to medium plasticity, red mottled pale grey, trace sand					
	0.60m U50									HP In-situ = 200 - 300 kPa
	0.90m	1.0				MC < PL	VSt - H			
		1.5								
	1.80m D				as above, but with sand, trace gravel					HP In-situ > 400 kPa
	2.00m	2.0					H			
					2.20m Testbore TB008 terminated at 2.20 m Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
VH - Very high
EH - Extremely high

ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB009
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
	0.10m TB009-1 QA1 & QA2 0.20m	0.0			FILL; Silty SAND, fine to coarse grained, brown	M		2		PID=0.0
					0.25m FILL; Silty CLAY, medium plasticity, orange-red (sitewon)	MC > PL	F - St	1 4		HP In-situ = 200 kPa
		0.5			0.50m TOPSOIL, Clayey SILT, dark grey	W		3 5		
	0.80m B				0.80m Silty CLAY, low to medium plasticity, pale grey mottled orange-red			3		RESIDUAL
		1.0						9 10		HP In-situ = 300 - 400 kPa
	1.40m							8 10		
		1.5				MC > PL	VSt - H	11		
		2.0			2.20m Testbore TB009 terminated at 2.20 m Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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RS - Residual soil
XW - Extremely weathered
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SW - Slightly weathered
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See Explanatory Notes for details of abbreviations & basis of descriptions.

CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB010
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa) 100 200 300 400	STRUCTURE & Other Observations
	TB010-1	0.0			TOPSOIL; Sandy SILT, dark brown	D				PID=0.3
	0.20m				0.20m					
					Silty CLAY, medium plasticity, orange-red					RESIDUAL
										HP In-situ = 200 - 300 kPa
	0.50m	0.5				MC > PL	VSt - St			
	U50									
	0.74m									HP In-situ = 200 - 300 kPa
	0.90m									
	U50	1.0								
	1.10m									
					as above, but colour change to pale grey mottled red					HP In-situ = 300 - 400 kPa
		1.5				MC < PL	VSt - H			
					1.90m					
					SILTSTONE, red mottled pale grey	XW	EL			
		2.0			2.20m					
					Testbore TB010 terminated at 2.20 m					
					Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
D - Dry
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W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
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CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB011
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
	0.10m TB011-1 0.20m	0.0			FILL; Clayey Sandy SILT, dark brown, with gravel, contains brick fragments, plastic, metal scrap			12		PID=0.0
					0.25m TOPSOIL; Sandy SILT, dark brown			12		
						MC < PL	F - VSt	11		
		0.5			0.50m Silty CLAY, medium plasticity, orange-red			3		RESIDUAL
	0.60m B							2		HP In-situ = 100 - 200 kPa
								2		
	1.00m	1.0						3		
					as above, but colour change to pale grey mottled red			4		
								6		HP In-situ = 400 - 500 kPa
						MC > PL	H	21		
		1.5								
		2.0			2.20m Testbore TB011 terminated at 2.20 m Target depth					
		2.5								
		3.0								

MOISTURE & GROUNDWATER
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▼ - Water level

SAMPLES & FIELD TESTS
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CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB012
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
		0.0			TOPSOIL; Sandy SILT, dark brown	M				ALLUVIUM
	0.10m				0.10m					
	TB012-1 0.20m D 0.30m				Clayey SILT, black	MC < PL				PID=0.1
					0.35m					
	0.40m B 0.50m				Silty CLAY, medium plasticity, orange-red, trace of sand					RESIDUAL
		0.5								HP In-situ = 300 - 400 kPa
		1.0			as above, but colour change to pale grey mottled red	MC < PL	VSt - H			HP In-situ > 300 kPa
		1.5								
		2.0			2.20m					
					Testbore TB012 terminated at 2.20 m Target depth					
		2.5								
		3.0								

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CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB013
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
	0.10m	0.0			TOPSOIL; Sandy SILT, dark brown 0.10m					
	TB013-1 0.20m D 0.30m				Clayey SILT, black	M				PID=0.0 ALLUVIUM
	0.40m TP013-2				0.40m Silty CLAY, medium plasticity, pale grey mottled orange					RESIDUAL
		0.5								HP In-situ = 200 - 300 kPa
		1.0				MC > PL	St - VSt			
					as above, but colour change to pale grey					HP In-situ = 300 - 400 kPa
		1.5				MC < PL	VSt - H			
		2.0			2.20m					
					Testbore TB013 terminated at 2.20 m Target depth					
		2.5								
		3.0								

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ROCK STRENGTH
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ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh rock

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CARDNO LTD

TESTBORE LOG

CLIENT : TGL Pty Ltd
PROJECT : Urban Capability Assessment
LOCATION : Bakali Road, Forrsters Beach, NSW

HOLE NO : TB014
PROJECT REF : 80514013-04
SHEET : 1 OF 1

EQUIPMENT TYPE : 5t Excavator | METHOD : 300mm Auger
DATE EXCAVATED : 20/10/15 | LOGGED BY : AM | CHECKED BY : AM
LOCATION : See Drawing for location

GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, plasticity or particle characteristic, colour Rock Type, grain size, colour Secondary and minor components	MOISTURE / WEATHERING	CONSISTENCY / REL DENSITY / ROCK STRENGTH	DYNAMIC PENETROMETER	HAND PENETRO-METER (kPa)	STRUCTURE & Other Observations
		0.0			TOPSOIL; Silty SAND, fine to coarse grained, brown	M				
	0.10m				0.10m					
	TB014-1 0.20m				Clayey SILT, black	M				PID=0.0 ALLUVIUM
					0.40m					
					Silty CLAY, medium plasticity, pale grey mottled orange					RESIDUAL
		0.5								HP In-situ = 100 - 200 kPa
		1.0				MC > PL	St - H			
		1.5			as above, but colour change to pale grey					HP In-situ = 200 - 300 kPa
		2.0				MC < PL	VSt			
					2.20m					
		2.5			Testbore TB014 terminated at 2.20 m Target depth					
		3.0								

MOISTURE & GROUNDWATER
D - Dry
M - Moist
W - Wet
OMC - Optimum MC
PL - Plastic Limit
▶— - Water seepage/inflow
▼ - Water level

SAMPLES & FIELD TESTS
U - Undisturbed Sample
D - Disturbed Sample
ES - Environmental sample
B - Bulk Disturbed Sample
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer

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

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

ROCK STRENGTH
EL - Extremely low
VL - Very low
L - Low
M - Medium
H - High
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ROCK WEATHERING
RS - Residual soil
XW - Extremely weathered
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SW - Slightly weathered
FR - Fresh rock

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CARDNO LTD

Proposed Residential Development,
Bakali Rd, Forresters Beach

APPENDIX

C

LABORATORY TEST RESULTS

Cardno Geotech Solutions
Shaping the Future

Cardno Geotech Solutions
ABN: 95 001 145 035
Address:
Unit 4, 5 Arunga Drive
Beresfield NSW 2322

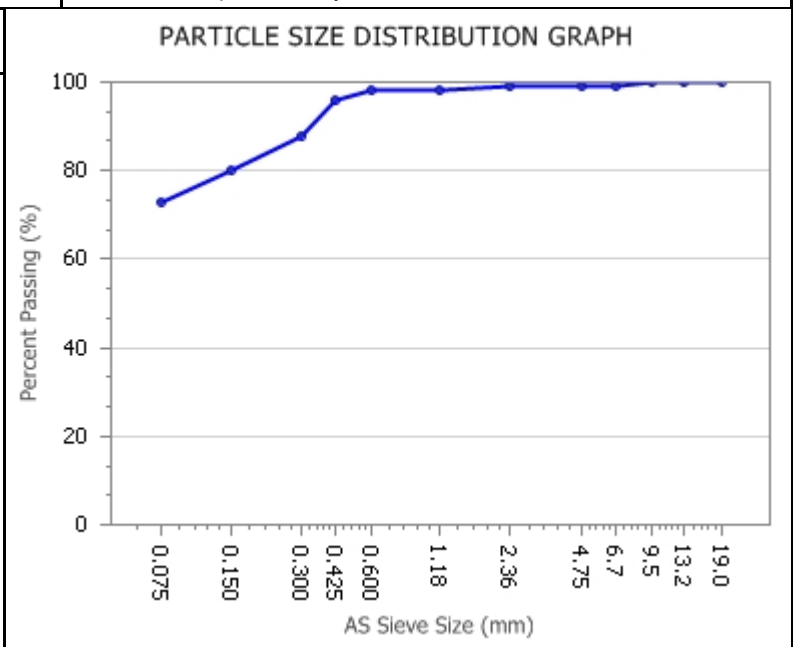
Laboratory: Geotech Solutions Newcastle
Phone: 02 4949 4300 Fax: 02 4966 0485
Email: james.young@cardno.com.au

QUALITY OF MATERIALS REPORT

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2352-2
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	16/11/2015 Page 1 of 3

Test Procedures	AS1289.3.6.1, AS1289.3.1.1, AS1289.3.2.1, AS1289.2.1.1, AS 1289.3.3.1			
Sample Number	15689/S/8836	Bore No.		TB002
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Type		Bulk
Date Sampled	20/10/2015	Sample Depth	m	0.20-0.70
Sampled By	Alireza Mohiti			
Date Tested	09/11/2015	Material Source		In situ
Att. Drying Method	Oven Dried	Material Type		-
Atterberg Preparation	Dry Sieved	Material Description		Silty CLAY, dark brown/black

AS Sieve (mm)	Specification Minimum	Percent Passing (%)	Specification Maximum
19.0		**100**	
13.2		**100**	
9.5		**100**	
6.7		**99**	
4.75		**99**	
2.36		**99**	
1.18		**98**	
0.600		**98**	
0.425		**96**	
0.300		**88**	
0.150		**80**	
0.075		**73**	



Test Result	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)		**27**	
Plastic Limit (%)		**15**	
Plastic Index (%)		**12**	
Linear Shrinkage (%)			
Linear Shrinkage Defects			

Test Result	Specification Minimum	Result	Specification Maximum
0.075/0.425 Fines Ratio		**0.76**	
PI x 0.425 Ratio (%)		**1152.0**	
LS x 0.425 Ratio (%)		**-**	
Particle Size Dist. Moisture Content (%)		20.2	

Remarks: Re-Issued Report Replaces Report No 15689/R/2352-1.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025

Accreditation Number: 15689

Approved Signatory: Geoffrey Edwards
Form ID: W85MCRep Rev 1

Cardno Geotech Solutions
ABN: 95 001 145 035
Address:
Unit 4, 5 Arunga Drive
Beresfield NSW 2322

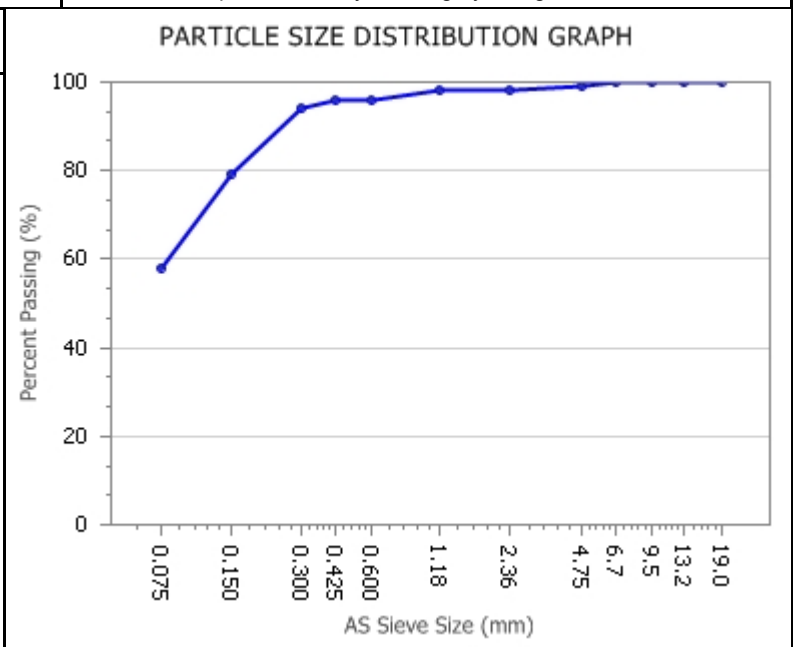
Laboratory: Geotech Solutions Newcastle
Phone: 02 4949 4300 Fax: 02 4966 0485
Email: james.young@cardno.com.au

QUALITY OF MATERIALS REPORT

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2352-2
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	16/11/2015 Page 2 of 3

Test Procedures	AS1289.3.6.1, AS1289.3.1.1, AS1289.3.2.1, AS1289.2.1.1, AS 1289.3.3.1			
Sample Number	15689/S/8838	Bore No.		TB007
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Type		Bulk
Date Sampled	20/10/2015	Sample Depth	m	0.60-1.00
Sampled By	Alireza Mohiti			
Date Tested	09/11/2015	Material Source		In situ
Att. Drying Method	Oven Dried	Material Type		-
Atterberg Preparation	Dry Sieved	Material Description		Sandy CLAY, grey orange

AS Sieve (mm)	Specification Minimum	Percent Passing (%)	Specification Maximum
19.0		**100**	
13.2		**100**	
9.5		**100**	
6.7		**100**	
4.75		**99**	
2.36		**98**	
1.18		**98**	
0.600		**96**	
0.425		**96**	
0.300		**94**	
0.150		**79**	
0.075		**58**	



Test Result	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)		**38**	
Plastic Limit (%)		**17**	
Plastic Index (%)		**21**	
Linear Shrinkage (%)			
Linear Shrinkage Defects			

Test Result	Specification Minimum	Result	Specification Maximum
0.075/0.425 Fines Ratio		**0.60**	
PI x 0.425 Ratio (%)		**2016.0**	
LS x 0.425 Ratio (%)		-	
Particle Size Dist. Moisture Content (%)		20.3	

Remarks: Re-Issued Report Replaces Report No 15689/R/2352-1.

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Accreditation Number: 15689

Approved Signatory: Geoffrey Edwards
Form ID: W85MCRep Rev 1

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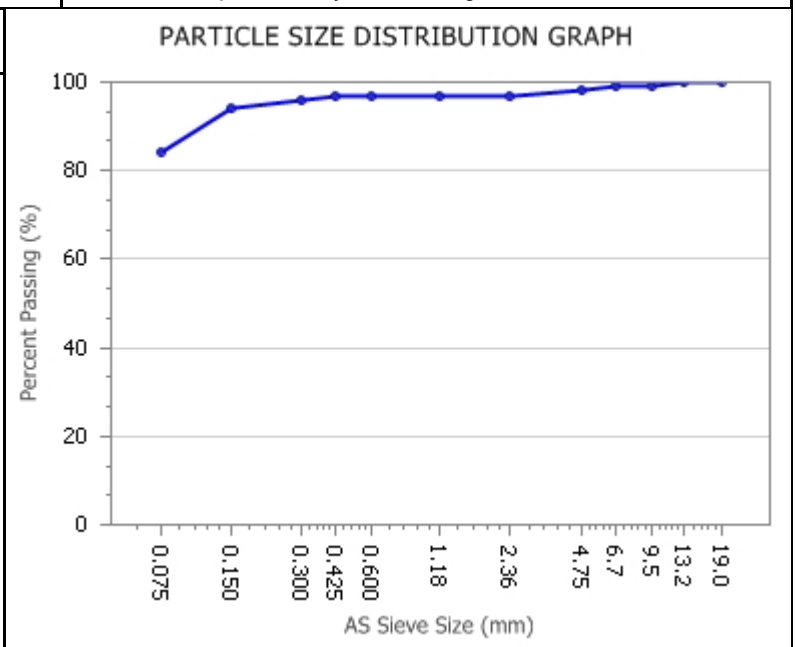
QUALITY OF MATERIALS REPORT

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2352-2
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	16/11/2015 Page 3 of 3

Test Procedures	AS1289.3.6.1, AS1289.3.1.1, AS1289.3.2.1, AS1289.2.1.1, AS 1289.3.3.1			
Sample Number	15689/S/8841	Bore No.		TB012
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Type		Bulk
Date Sampled	20/10/2015	Sample Depth	m	0.40-0.50
Sampled By	Alireza Mohiti			
Date Tested	09/11/2015	Material Source		In situ
Att. Drying Method	Oven Dried	Material Type		-
Atterberg Preparation	Dry Sieved	Material Description		Silty CLAY, orange/red

AS Sieve (mm)	Specification Minimum	**Percent Passing (%)**	Specification Maximum
19.0		**100**	
13.2		**100**	
9.5		**99**	
6.7		**99**	
4.75		**98**	
2.36		**97**	
1.18		**97**	
0.600		**97**	
0.425		**97**	
0.300		**96**	
0.150		**94**	
0.075		**84**	



Test Result	Specification Minimum	**Result**	Specification Maximum
Liquid Limit (%)		**44**	
Plastic Limit (%)		**14**	
Plastic Index (%)		**30**	
Linear Shrinkage (%)			
Linear Shrinkage Defects			

Test Result	Specification Minimum	**Result**	Specification Maximum
0.075/0.425 Fines Ratio		**0.87**	
PI x 0.425 Ratio (%)		**2910.0**	
LS x 0.425 Ratio (%)		**-**	
Particle Size Dist. Moisture Content (%)		17.2	

Remarks	Re-Issued Report Replaces Report No 15689/R/2352-1.

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EMERSON CLASS NUMBER REPORT

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2353-2
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	16/11/2015 Page 1 of 1

Test Procedures:	AS1289.3.8.1

Sample Number		15689/S/8836	15689/S/8837	15689/S/8838	15689/S/8841
ID / Client ID		-	-	-	-
Lot Number		-	-	-	-
Date / Time Sampled		20/10/2015	20/10/2015	20/10/2015	20/10/2015
Material Source		In situ	In situ	In situ	In situ
Material Type		-	-	-	-
Sampling Method		AS1289.1.2.1 Cl 6.5.3	AS1289.1.2.1 Cl 6.5.3	AS1289.1.2.1 Cl 6.5.3	AS1289.1.2.1 Cl 6.5.3
Water Type		Distilled	Distilled	Distilled	Distilled
Water Temperature (C°)		25	25	25	25
Bore No.		TB002	TB005	TB007	TB012
Sample Type	m	Bulk	Bulk	Bulk	Bulk
Sample Depth	m	0.20-0.70	1.10-2.00	0.60-1.00	0.40-0.50
Soil Description		Silty CLAY, dark brown/black	Silty CLAY, pale grey mott orange/	Sandy CLAY, grey orange	Silty CLAY, orange/red
Emerson Class Number		**2**	**2**	**2**	**2**

Remarks	Re-Issued Report Replaces Report No 15689/R/2353-1.

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SHRINK SWELL INDEX

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2354-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 1 of 6

Test Procedures:	AS1289.7.1.1, AS1289.2.1.1	Bore No.		TB006
Sample Number	15689/S/8842	Sample Type		U50
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Depth	m	0.40-0.60
Date Sampled	20/10/2015			
Sampled By	Alireza Mohiti	Material Source		In situ
Date Tested	28/10/2015	Material Type		-

Soil Description:	Silty CLAY, grey mottled red		
Cracking / Crumbling:	Major/None		
Estimated Inert Inclusions (%):	5.00	Swell Pre-Soak Moisture Content (%)	32.1
Shrinkage Moisture Content (%):	33.3	Swell Post-Soak Moisture Content (%)	32.9

Shrinkage Strain (%)	5.6	Shrink / Swell Index	3.1
Swell Strain (%)	0.0		

Remarks

NATA

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Form ID: W21Rep Rev 1

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SHRINK SWELL INDEX

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2354-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 2 of 6

Test Procedures:	AS1289.7.1.1, AS1289.2.1.1	Bore No.		TB006
Sample Number	15689/S/8843	Sample Type		U50
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Depth	m	1.00-1.20
Date Sampled	20/10/2015			
Sampled By	Alireza Mohiti	Material Source		In situ
Date Tested	28/10/2015	Material Type		-

Soil Description:	Silty CLAY, grey mottled red		
Cracking / Crumbling:	Major/Moderate		
Estimated Inert Inclusions (%):	5.00	Swell Pre-Soak Moisture Content (%)	33.6
Shrinkage Moisture Content (%):	25.7	Swell Post-Soak Moisture Content (%)	37.0

Shrinkage Strain (%)	3.8	Shrink / Swell Index	2.3
Swell Strain (%)	0.5		

Remarks

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SHRINK SWELL INDEX

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2354-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 3 of 6

Test Procedures:	AS1289.7.1.1, AS1289.2.1.1	Bore No.		TB010
Sample Number	15689/S/8844	Sample Type		U50
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Depth	m	0.50-0.74
Date Sampled	20/10/2015			
Sampled By	Alireza Mohiti	Material Source		In situ
Date Tested	28/10/2015	Material Type		-

Soil Description:	Silty CLAY, orange/red		
Cracking / Crumbling:	Moderate/None		
Estimated Inert Inclusions (%):	5.00	Swell Pre-Soak Moisture Content (%)	25.3
Shrinkage Moisture Content (%):	24.6	Swell Post-Soak Moisture Content (%)	29.5

Shrinkage Strain (%)	5.2	Shrink / Swell Index	3.2
Swell Strain (%)	1.3		

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SHRINK SWELL INDEX

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2354-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 4 of 6

Test Procedures:	AS1289.7.1.1, AS1289.2.1.1	Bore No.		TB010
Sample Number	15689/S/8845	Sample Type		U50
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Depth	m	0.90-1.10
Date Sampled	20/10/2015			
Sampled By	Alireza Mohiti	Material Source		In situ
Date Tested	28/10/2015	Material Type		-

Soil Description:	Silty CLAY, pale grey mottled red		
Cracking / Crumbling:	Major/None		
Estimated Inert Inclusions (%):	0.00	Swell Pre-Soak Moisture Content (%)	23.0
Shrinkage Moisture Content (%):	26.6	Swell Post-Soak Moisture Content (%)	30.1

Shrinkage Strain (%)	3.8	Shrink / Swell Index	2.4
Swell Strain (%)	1.0		

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SHRINK SWELL INDEX

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2354-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 5 of 6

Test Procedures:	AS1289.7.1.1, AS1289.2.1.1	Bore No.		TB003
Sample Number	15689/S/8846	Sample Type		U50
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Depth	m	0.75-1.15
Date Sampled	20/10/2015			
Sampled By	Alireza Mohiti	Material Source		In situ
Date Tested	28/10/2015	Material Type		-

Soil Description:	Silty CLAY, dark grey black		
Cracking / Crumbling:	Moderate/Minor		
Estimated Inert Inclusions (%):	5.00	Swell Pre-Soak Moisture Content (%)	19.7
Shrinkage Moisture Content (%):	21.1	Swell Post-Soak Moisture Content (%)	20.7

Shrinkage Strain (%)	0.9	Shrink / Swell Index	0.5
Swell Strain (%)	0.0		

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SHRINK SWELL INDEX

Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2354-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 6 of 6

Test Procedures:	AS1289.7.1.1, AS1289.2.1.1	Bore No.		TB008
Sample Number	15689/S/8847	Sample Type		U50
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Depth	m	0.60-0.90
Date Sampled	20/10/2015			
Sampled By	Alireza Mohiti	Material Source		In situ
Date Tested	28/10/2015	Material Type		-

Soil Description:	Silty CLAY, red mottled pale grey		
Cracking / Crumbling:	Minor/None		
Estimated Inert Inclusions (%):	0.00	Swell Pre-Soak Moisture Content (%)	20.4
Shrinkage Moisture Content (%):	20.6	Swell Post-Soak Moisture Content (%)	22.7

Shrinkage Strain (%)	2.9	Shrink / Swell Index	1.6
Swell Strain (%)	0.0		

Remarks

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CALIFORNIA BEARING RATIO REPORT

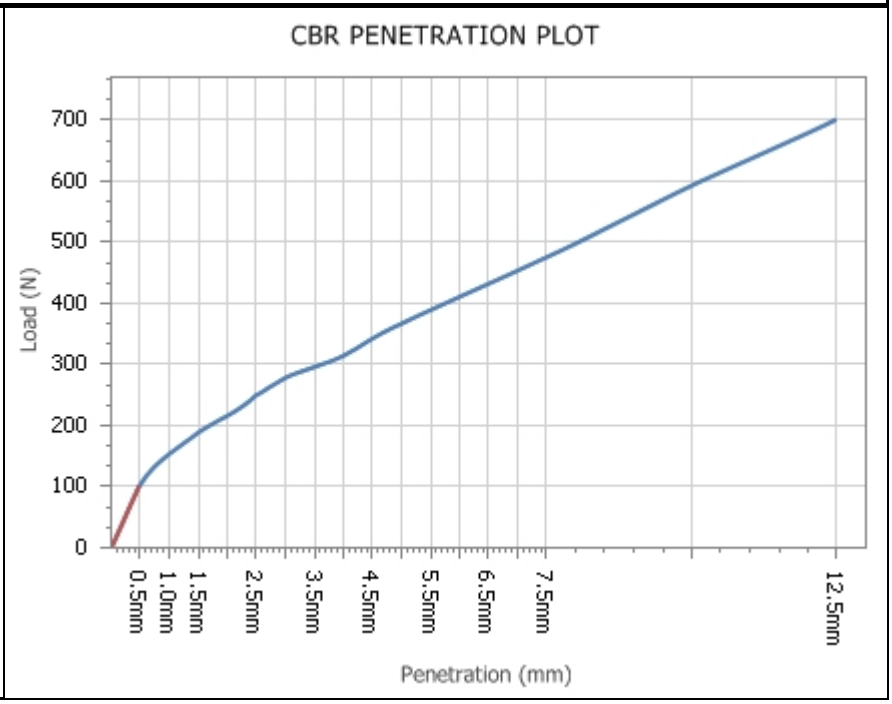
Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2371-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 1 of 4

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1

		Sample Location		
Sample Number	15689/S/8835	Bore No.		TB001
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Type		Bulk
Date Sampled	20/10/2015	Sample Depth	m	1.00-1.20
Sampled By	Alireza Mohiti			
Date Tested	10/11/2015			
Material Source	In situ	Material Limit Start		-
Material Type	-	Material Limit End		-
Client Reference	-	Compactive Effort		Standard

Material Description	Silty CLAY, pale grey mottled red/orange

Maximum Dry Density (t/m³):	1.69
Optimum Moisture Content (%):	21.0
Field Moisture Content (%):	24.9
Sample Percent Oversize (%)	0.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	100
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.69
Placement Dry Density Ratio (%):	100.0
Placement Moisture Content (%):	20.6
Placement Moisture Ratio (%):	98.5
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.64
Moisture (top 30mm) After Soak (%)	25.8
Moisture (remainder) After Soak (%)	22.4
CBR Swell (%):	3.0
Minimum CBR Specification (%):	-
CBR Value @ 5.0mm (%):	**2.0**



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CALIFORNIA BEARING RATIO REPORT

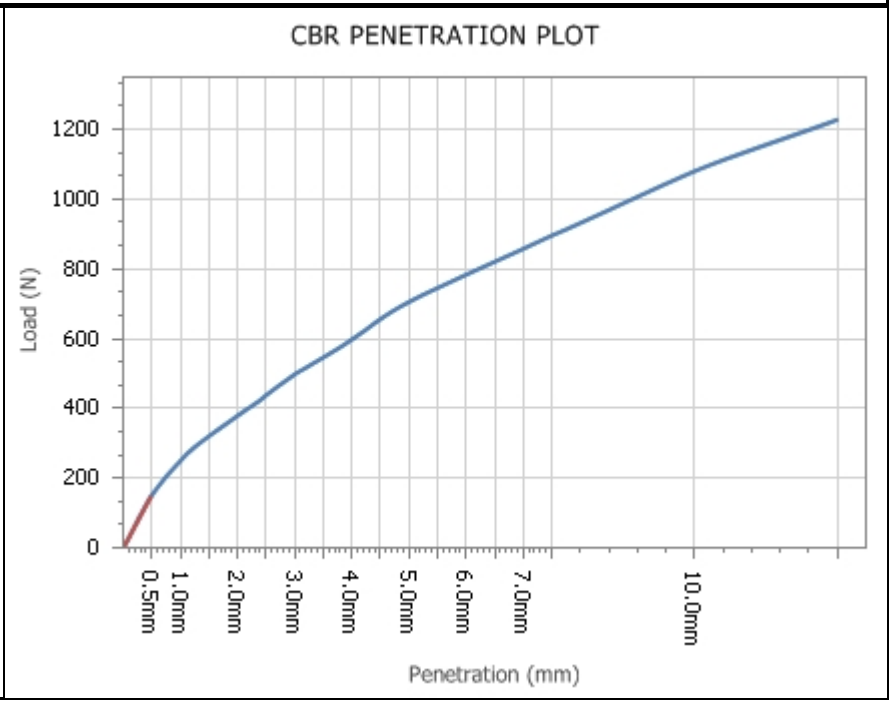
Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2371-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 2 of 4

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1

		Sample Location		
Sample Number	15689/S/8837	Bore No.		TB005
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Type		Bulk
Date Sampled	20/10/2015	Sample Depth	m	1.10-2.00
Sampled By	Alireza Mohiti			
Date Tested	10/11/2015			
Material Source	In situ	Material Limit Start		-
Material Type	-	Material Limit End		-
Client Reference	-	Compactive Effort		Standard

Material Description	Silty CLAY, pale grey mott orange/black to brown

Maximum Dry Density (t/m³):	1.81
Optimum Moisture Content (%):	17.0
Field Moisture Content (%):	24.8
Sample Percent Oversize (%)	0.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	100
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.82
Placement Dry Density Ratio (%):	100.5
Placement Moisture Content (%):	17.3
Placement Moisture Ratio (%):	102.0
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.77
Moisture (top 30mm) After Soak (%)	22.4
Moisture (remainder) After Soak (%)	17.9
CBR Swell (%):	2.5
Minimum CBR Specification (%):	-
CBR Value @ 5.0mm (%):	**3.5**



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CALIFORNIA BEARING RATIO REPORT

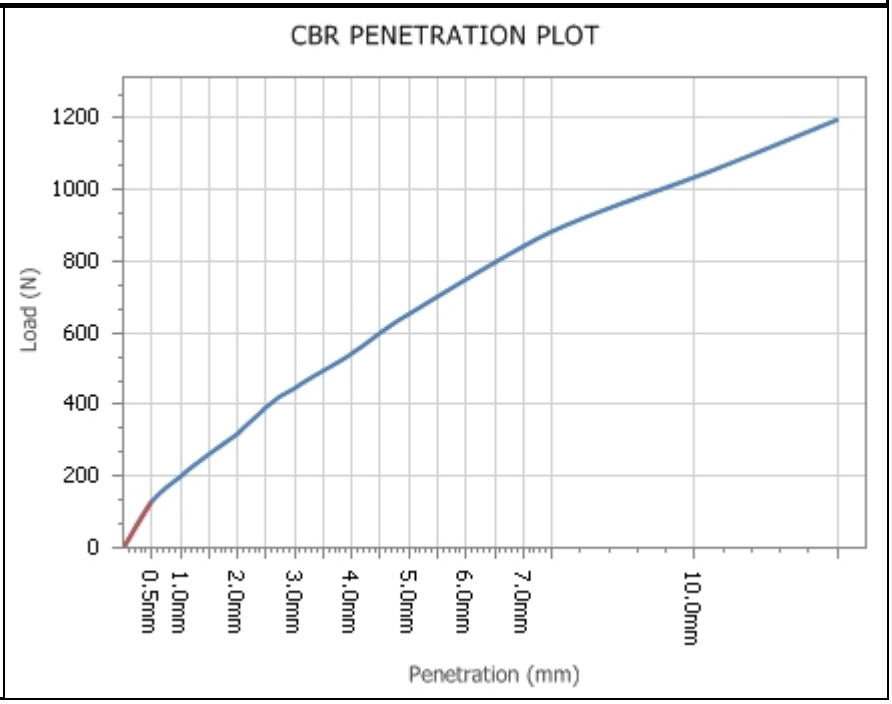
Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2371-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 3 of 4

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1

		Sample Location		
Sample Number	15689/S/8839	Bore No.		TB009
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Type		Bulk
Date Sampled	20/10/2015	Sample Depth	m	0.80-1.40
Sampled By	Alireza Mohiti			
Date Tested	10/11/2015			
Material Source	In situ	Material Limit Start		-
Material Type	-	Material Limit End		-
Client Reference	-	Compactive Effort		Standard

Material Description	Silty CLAY, pale grey mottled orange-red

Maximum Dry Density (t/m³):	1.66
Optimum Moisture Content (%):	20.5
Field Moisture Content (%):	24.2
Sample Percent Oversize (%)	2.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	100
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.65
Placement Dry Density Ratio (%):	100.0
Placement Moisture Content (%):	20.8
Placement Moisture Ratio (%):	101.5
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.62
Moisture (top 30mm) After Soak (%)	27.8
Moisture (remainder) After Soak (%)	22.8
CBR Swell (%):	2.0
Minimum CBR Specification (%):	-
CBR Value @ 5.0mm (%):	**3.5**



Remarks

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025

Accreditation Number: 15689

Approved Signatory: Joseph Stallard
Form ID: W7Rep Rev 1

Cardno Geotech Solutions
Shaping the Future

Cardno Geotech Solutions
ABN: 95 001 145 035

Address:
Unit 4, 5 Arunga Drive
Beresfield NSW 2322

Laboratory: Geotech Solutions Newcastle
Phone: 02 4949 4300 Fax: 02 4966 0485

Email: james.young@cardno.com.au

CALIFORNIA BEARING RATIO REPORT

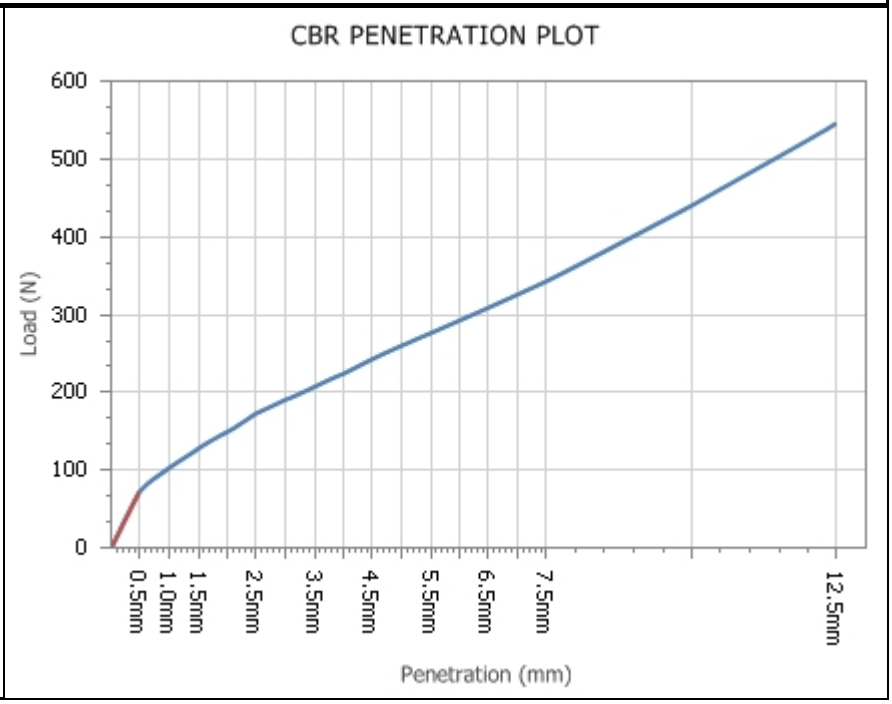
Client:	Terrigal Grosvenor Lodge Pty Ltd	Report Number:	15689/R/2371-1
Client Address:	41 The Entrance Road, The Entrance	Project Number:	15689/P/2891
Project:	Urban Capability Assessment	Lot Number:	
Location:	Bakali Road, Forresters Beach	Internal Test Request:	15689/T/1711
Component:		Client Reference/s:	
Area Description:		Report Date / Page:	17/11/2015 Page 4 of 4

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1

		Sample Location		
Sample Number	15689/S/8840	Bore No.		TB011
Sampling Method	AS1289.1.2.1 Cl 6.5.3	Sample Type		Bulk
Date Sampled	20/10/2015	Sample Depth	m	0.60-1.00
Sampled By	Alireza Mohiti			
Date Tested	10/11/2015			
Material Source	In situ	Material Limit Start		-
Material Type	-	Material Limit End		-
Client Reference	-	Compactive Effort		Standard

Material Description	Silty CLAY. orange/red

Maximum Dry Density (t/m³):	1.66
Optimum Moisture Content (%):	21.5
Field Moisture Content (%):	23.1
Sample Percent Oversize (%)	0.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	100
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.66
Placement Dry Density Ratio (%):	100.5
Placement Moisture Content (%):	21.9
Placement Moisture Ratio (%):	102.0
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.58
Moisture (top 30mm) After Soak (%)	31.7
Moisture (remainder) After Soak (%)	23.3
CBR Swell (%):	5.0
Minimum CBR Specification (%):	-
CBR Value @ 5.0mm (%):	**1.5**



Remarks

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025

NATA

Accreditation Number: 15689

Approved Signatory: Joseph Stallard
Form ID: W7Rep Rev 1

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Alireza Mohiti
Client	CARDNO GEOTECH SOLUTIONS PTY LTD
Address	34/205-207 Albany Street North Gosford NSW 2250
Telephone	61 2 4320 1000
Facsimile	61 2 4324 3251
Email	alireza.mohiti@cardno.com.au
Project	**80514013**
Order Number	**80514013**
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE145132 R0**
Date Received	22/10/2015
Date Reported	28/10/2015

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in soil sample using trace analysis technique as per AS 4964-2004.

Sample #1: Asbestos found in 3x2mm cement sheet fragment in >2 to <7mm fraction.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin .

SIGNATORIES

Yusuf Kuthpudin
Asbestos Analyst

Fibre ID in bulk materials [AN602] Tested: 28/10/2015

PARAMETER	UOM	LOR	AS-2 MATERIAL - 21/10/2015 SE145132.002
Asbestos Detected	No unit	-	Yes

Gravimetric Determination of Asbestos in Soil [AN605] Tested: -

PARAMETER	UOM	LOR	AS-1 SOIL - 21/10/2015 SE145132.001
Total Sample Weight*	g	1	**985**
ACM in >7mm Sample*	g	0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	**0.0115**
AF/FA in <2mm Sample*	g	0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	**0.001**
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	**0.001**
Fibre Type*	No unit	-	CRY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN605	This technique gravimetrically determines the mass of Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free fibres which are only observed by standard trace analysis as per AN 602.
AN605	AMO = Amosite CRY = Chrysotile CRO = Crocidolite
AN605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Alireza Mohiti
Client	CARDNO GEOTECH SOLUTIONS PTY LTD
Address	34/205-207 Albany Street North Gosford NSW 2250
Telephone	61 2 4320 1000
Facsimile	61 2 4324 3251
Email	alireza.mohiti@cardno.com.au
Project	**80514013**
Order Number	**80514013**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE145132 R0**
Date Received	22 Oct 2015
Date Reported	28 Oct 2015

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in soil sample using trace analysis technique as per AS 4964-2004.

Sample #1: Asbestos found in 3x2mm cement sheet fragment in >2 to <7mm fraction.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Yusuf Kuthpudin
Asbestos Analyst

ANALYTICAL REPORT

RESULTS

Fibre ID in bulk materials — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification
SE145132.002	AS-2	Other	40x40x4mm cement sheet fragment	21 Oct 2015	Chrysotile Asbestos Detected

METHOD SUMMARY

SE145132 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

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Client	CARDNO GEOTECH SOLUTIONS PTY LTD
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Email	alireza.mohiti@cardno.com.au
Project	**80514013**
Order Number	**80514013**
Samples	13

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE145133 R0**
Date Received	22/10/2015
Date Reported	28/10/2015

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Ly Kim Ha
Organic Section Head

VOC's in Soil [AN433/AN434] Tested: 25/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011	Trip Blank SOIL - 20/10/2015 SE145133.012
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6

PARAMETER	UOM	LOR	Trip Spike SOIL - 20/10/2015 SE145133.013
Benzene	mg/kg	0.1	[92%]
Toluene	mg/kg	0.1	[100%]
Ethylbenzene	mg/kg	0.1	[98%]
m/p-xylene	mg/kg	0.2	[98%]
o-xylene	mg/kg	0.1	[99%]
Naphthalene	mg/kg	0.1	-
Total Xylenes*	mg/kg	0.3	-
Total BTEX*	mg/kg	0.6	-

Volatile Petroleum Hydrocarbons in Soil [AN433/AN434/AN410] Tested: 25/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 23/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 23/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8

Speciated Phenols in Soil [AN420] Tested: 23/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2	<2

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2

OC Pesticides in Soil [AN400/AN420] Tested: 23/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 23/10/2015 (continued)

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 23/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

PCBs in Soil [AN400/AN420] Tested: 23/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1

pH in soil (1:2) [AN101] Tested: 27/10/2015

PARAMETER	UOM	LOR	TB008 (1.8-2.0) SOIL - 20/10/2015 SE145133.001	TB013-1 SOIL - 20/10/2015 SE145133.002	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004
pH (1:2)	pH Units	-	**4.4**	**5.3**	**5.2**	**5.0**

Conductivity (1:2) in soil [AN106] Tested: 27/10/2015

PARAMETER	UOM	LOR	TB008 (1.8-2.0) SOIL - 20/10/2015 SE145133.001	TB013-1 SOIL - 20/10/2015 SE145133.002	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004
Conductivity (1:2) @25 C*	µS/cm	1	150	170	140	50
Resistivity (1:2)*	ohm cm	-	6700	5900	7100	20000

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography [AN245] Tested: 26/10/2015

PARAMETER	UOM	LOR	TB008 (1.8-2.0) SOIL - 20/10/2015 SE145133.001	TB013-1 SOIL - 20/10/2015 SE145133.002	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004
Chloride	mg/kg	0.25	9.6	73	48	8.7
Sulphate	mg/kg	0.5	120	36	25	9.8

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 27/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Arsenic, As	mg/kg	3	<3	3	5	<3	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.5	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	4.3	8.8	25	6.3	10
Copper, Cu	mg/kg	0.5	1.9	7.3	5.6	1.5	3.9
Lead, Pb	mg/kg	1	5	38	11	4	12
Nickel, Ni	mg/kg	0.5	0.9	1.6	2.1	0.8	1.6
Zinc, Zn	mg/kg	0.5	6.1	130	13	43	15

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Arsenic, As	mg/kg	3	<3	3	5	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.3	<0.3
Chromium, Cr	mg/kg	0.3	6.5	10	19	1.4
Copper, Cu	mg/kg	0.5	1.6	6.1	14	0.5
Lead, Pb	mg/kg	1	4	9	15	<1
Nickel, Ni	mg/kg	0.5	0.8	2.9	15	<0.5
Zinc, Zn	mg/kg	0.5	43	40	120	1.7

Mercury in Soil [AN312] Tested: 27/10/2015

PARAMETER	UOM	LOR	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007
Mercury	mg/kg	0.01	**0.01**	**0.01**	<0.01	<0.01	**0.01**

PARAMETER	UOM	LOR	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010	TB008-1 SOIL - 20/10/2015 SE145133.011
Mercury	mg/kg	0.01	<0.01	**0.01**	<0.01	<0.01

Moisture Content [AN002] Tested: 25/10/2015

PARAMETER	UOM	LOR	TB008 (1.8-2.0) SOIL - 20/10/2015 SE145133.001	TB013-1 SOIL - 20/10/2015 SE145133.002	TB012-1 SOIL - 20/10/2015 SE145133.003	TB006-1 SOIL - 20/10/2015 SE145133.004	TB005-1 SOIL - 20/10/2015 SE145133.005
% Moisture	%w/w	0.5	19	20	13	9.9	17

PARAMETER	UOM	LOR	TB009-1 SOIL - 20/10/2015 SE145133.006	TB010-1 SOIL - 20/10/2015 SE145133.007	QA1 SOIL - 20/10/2015 SE145133.008	TB011-1 SOIL - 20/10/2015 SE145133.009	TB007-1 SOIL - 20/10/2015 SE145133.010
% Moisture	%w/w	0.5	9.8	14	11	12	16

PARAMETER	UOM	LOR	TB008-1 SOIL - 20/10/2015 SE145133.011	Trip Blank SOIL - 20/10/2015 SE145133.012
% Moisture	%w/w	0.5	6.2	<0.5

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:2 and the pH determined and reported on the extract after 1 hour extraction (pH 1:2) or after 1 hour extraction and overnight aging (pH (1:2) aged). Reference APHA 4500-H+.
AN106	Conductivity : Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:2 and the EC determined and reported on the extract basis after the 1 hour extraction (EC(1:2)) or after the 1 hour extraction and overnight aging (EC(1:2) aged). Reference APHA 2510 B.
AN106	Resistivity of the extract is reported on the extract basis and is the reciprocal of conductivity. Salinity and TDS can be calculated from the extract conductivity and is reported back to the soil basis.
AN245	Anions by Ion Chromatography: A water sample or extract is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

STATEMENT OF QA/QC PERFORMANCE

SE145133 R0

CLIENT DETAILS

Contact	Alireza Mohiti
Client	CARDNO GEOTECH SOLUTIONS PTY LTD
Address	34/205-207 Albany Street North Gosford NSW 2250
Telephone	61 2 4320 1000
Facsimile	61 2 4324 3251
Email	alireza.mohiti@cardno.com.au
Project	**80514013**
Order Number	**80514013**
Samples	13

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE145133 R0**
Date Received	22 Oct 2015
Date Reported	28 Oct 2015

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	13 Soil	Type of documentation received	COC
Date documentation received	22/10/2015	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE145133 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Conductivity (1:2) in soil

Method: ME-(AU)-[ENV]AN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB008 (1.8-2.0)	SE145133.001	LB088261	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015
TB013-1	SE145133.002	LB088261	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015
TB012-1	SE145133.003	LB088261	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015
TB006-1	SE145133.004	LB088261	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015	27 Oct 2015

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
TB006-1	SE145133.004	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
TB005-1	SE145133.005	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
TB009-1	SE145133.006	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
TB010-1	SE145133.007	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
QA1	SE145133.008	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
TB011-1	SE145133.009	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
TB007-1	SE145133.010	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015
TB008-1	SE145133.011	LB088240	20 Oct 2015	22 Oct 2015	17 Nov 2015	27 Oct 2015	17 Nov 2015	28 Oct 2015

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB008 (1.8-2.0)	SE145133.001	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB013-1	SE145133.002	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB012-1	SE145133.003	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB006-1	SE145133.004	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB005-1	SE145133.005	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB009-1	SE145133.006	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB010-1	SE145133.007	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
QA1	SE145133.008	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB011-1	SE145133.009	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB007-1	SE145133.010	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
TB008-1	SE145133.011	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015
Trip Blank	SE145133.012	LB088089	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	30 Oct 2015	28 Oct 2015

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB010-1	SE145133.007	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
QA1	SE145133.008	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB010-1	SE145133.007	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
QA1	SE145133.008	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

HOLDING TIME SUMMARY

SE145133 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB010-1	SE145133.007	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
QA1	SE145133.008	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB010-1	SE145133.007	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
QA1	SE145133.008	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

pH in soil (1:2)

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB008 (1.8-2.0)	SE145133.001	LB088260	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	28 Oct 2015	27 Oct 2015
TB013-1	SE145133.002	LB088260	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	28 Oct 2015	27 Oct 2015
TB012-1	SE145133.003	LB088260	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	28 Oct 2015	27 Oct 2015
TB006-1	SE145133.004	LB088260	20 Oct 2015	22 Oct 2015	27 Oct 2015	27 Oct 2015	28 Oct 2015	27 Oct 2015

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB008 (1.8-2.0)	SE145133.001	LB088190	20 Oct 2015	22 Oct 2015	27 Oct 2015	26 Oct 2015	23 Nov 2015	28 Oct 2015
TB013-1	SE145133.002	LB088190	20 Oct 2015	22 Oct 2015	27 Oct 2015	26 Oct 2015	23 Nov 2015	28 Oct 2015
TB012-1	SE145133.003	LB088190	20 Oct 2015	22 Oct 2015	27 Oct 2015	26 Oct 2015	23 Nov 2015	28 Oct 2015
TB006-1	SE145133.004	LB088190	20 Oct 2015	22 Oct 2015	27 Oct 2015	26 Oct 2015	23 Nov 2015	28 Oct 2015

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB010-1	SE145133.007	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
QA1	SE145133.008	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
TB006-1	SE145133.004	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
TB005-1	SE145133.005	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
TB009-1	SE145133.006	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
TB010-1	SE145133.007	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
QA1	SE145133.008	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
TB011-1	SE145133.009	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
TB007-1	SE145133.010	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015
TB008-1	SE145133.011	LB088227	20 Oct 2015	22 Oct 2015	17 Apr 2016	27 Oct 2015	17 Apr 2016	28 Oct 2015

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB010-1	SE145133.007	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

HOLDING TIME SUMMARY

SE145133 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA1	SE145133.008	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088018	20 Oct 2015	22 Oct 2015	03 Nov 2015	23 Oct 2015	02 Dec 2015	28 Oct 2015

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB010-1	SE145133.007	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
QA1	SE145133.008	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
Trip Blank	SE145133.012	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
Trip Spike	SE145133.013	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB012-1	SE145133.003	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB006-1	SE145133.004	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB005-1	SE145133.005	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB009-1	SE145133.006	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB010-1	SE145133.007	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
QA1	SE145133.008	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB011-1	SE145133.009	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB007-1	SE145133.010	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
TB008-1	SE145133.011	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
Trip Blank	SE145133.012	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015
Trip Spike	SE145133.013	LB088081	20 Oct 2015	22 Oct 2015	03 Nov 2015	25 Oct 2015	04 Dec 2015	28 Oct 2015

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	99
	TB006-1	SE145133.004	%	60 - 130%	96
	TB005-1	SE145133.005	%	60 - 130%	97
	TB009-1	SE145133.006	%	60 - 130%	92
	TB010-1	SE145133.007	%	60 - 130%	97
	QA1	SE145133.008	%	60 - 130%	100
	TB011-1	SE145133.009	%	60 - 130%	99
	TB007-1	SE145133.010	%	60 - 130%	98
	TB008-1	SE145133.011	%	60 - 130%	100

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	84
	TB006-1	SE145133.004	%	60 - 130%	84
	TB005-1	SE145133.005	%	60 - 130%	88
	TB009-1	SE145133.006	%	60 - 130%	86
	TB010-1	SE145133.007	%	60 - 130%	80
	QA1	SE145133.008	%	60 - 130%	84
	TB011-1	SE145133.009	%	60 - 130%	84
	TB007-1	SE145133.010	%	60 - 130%	80
	TB008-1	SE145133.011	%	60 - 130%	82
d14-p-terphenyl (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	104
	TB006-1	SE145133.004	%	60 - 130%	106
	TB005-1	SE145133.005	%	60 - 130%	110
	TB009-1	SE145133.006	%	60 - 130%	110
	TB010-1	SE145133.007	%	60 - 130%	100
	QA1	SE145133.008	%	60 - 130%	108
	TB011-1	SE145133.009	%	60 - 130%	108
	TB007-1	SE145133.010	%	60 - 130%	104
	TB008-1	SE145133.011	%	60 - 130%	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TB012-1	SE145133.003	%	70 - 130%	84
	TB006-1	SE145133.004	%	70 - 130%	84
	TB005-1	SE145133.005	%	70 - 130%	88
	TB009-1	SE145133.006	%	70 - 130%	86
	TB010-1	SE145133.007	%	70 - 130%	80
	QA1	SE145133.008	%	70 - 130%	84
	TB011-1	SE145133.009	%	70 - 130%	84
	TB007-1	SE145133.010	%	70 - 130%	80
	TB008-1	SE145133.011	%	70 - 130%	82
d14-p-terphenyl (Surrogate)	TB012-1	SE145133.003	%	70 - 130%	104
	TB006-1	SE145133.004	%	70 - 130%	106
	TB005-1	SE145133.005	%	70 - 130%	110
	TB009-1	SE145133.006	%	70 - 130%	110
	TB010-1	SE145133.007	%	70 - 130%	100
	QA1	SE145133.008	%	70 - 130%	108
	TB011-1	SE145133.009	%	70 - 130%	108
	TB007-1	SE145133.010	%	70 - 130%	104
	TB008-1	SE145133.011	%	70 - 130%	104
d5-nitrobenzene (Surrogate)	TB012-1	SE145133.003	%	70 - 130%	80
	TB006-1	SE145133.004	%	70 - 130%	90
	TB005-1	SE145133.005	%	70 - 130%	86
	TB009-1	SE145133.006	%	70 - 130%	88
	TB010-1	SE145133.007	%	70 - 130%	78
	QA1	SE145133.008	%	70 - 130%	82
	TB011-1	SE145133.009	%	70 - 130%	80
	TB007-1	SE145133.010	%	70 - 130%	78
	TB008-1	SE145133.011	%	70 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	99
	TB006-1	SE145133.004	%	60 - 130%	96
	TB005-1	SE145133.005	%	60 - 130%	97
	TB009-1	SE145133.006	%	60 - 130%	92
	TB010-1	SE145133.007	%	60 - 130%	97
	QA1	SE145133.008	%	60 - 130%	100
	TB011-1	SE145133.009	%	60 - 130%	99
	TB007-1	SE145133.010	%	60 - 130%	98
	TB008-1	SE145133.011	%	60 - 130%	100

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	TB012-1	SE145133.003	%	70 - 130%	96
	TB006-1	SE145133.004	%	70 - 130%	95
	TB005-1	SE145133.005	%	70 - 130%	93
	TB009-1	SE145133.006	%	70 - 130%	91
	TB010-1	SE145133.007	%	70 - 130%	91
	QA1	SE145133.008	%	70 - 130%	90
	TB011-1	SE145133.009	%	70 - 130%	93
	TB007-1	SE145133.010	%	70 - 130%	90
	TB008-1	SE145133.011	%	70 - 130%	88
d5-phenol (Surrogate)	TB012-1	SE145133.003	%	50 - 130%	78
	TB006-1	SE145133.004	%	50 - 130%	77
	TB005-1	SE145133.005	%	50 - 130%	76
	TB009-1	SE145133.006	%	50 - 130%	86
	TB010-1	SE145133.007	%	50 - 130%	87
	QA1	SE145133.008	%	50 - 130%	89
	TB011-1	SE145133.009	%	50 - 130%	84
	TB007-1	SE145133.010	%	50 - 130%	94
	TB008-1	SE145133.011	%	50 - 130%	90

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	94
	TB006-1	SE145133.004	%	60 - 130%	90
	TB005-1	SE145133.005	%	60 - 130%	90
	TB009-1	SE145133.006	%	60 - 130%	94
	TB010-1	SE145133.007	%	60 - 130%	96
	QA1	SE145133.008	%	60 - 130%	93
	TB011-1	SE145133.009	%	60 - 130%	96
	TB007-1	SE145133.010	%	60 - 130%	92
	TB008-1	SE145133.011	%	60 - 130%	95
	Trip Blank	SE145133.012	%	60 - 130%	94
	Trip Spike	SE145133.013	%	60 - 130%	105
d4-1,2-dichloroethane (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	81
	TB006-1	SE145133.004	%	60 - 130%	90
	TB005-1	SE145133.005	%	60 - 130%	87
	TB009-1	SE145133.006	%	60 - 130%	73
	TB010-1	SE145133.007	%	60 - 130%	86
	QA1	SE145133.008	%	60 - 130%	81
	TB011-1	SE145133.009	%	60 - 130%	79
	TB007-1	SE145133.010	%	60 - 130%	87
	TB008-1	SE145133.011	%	60 - 130%	80
	Trip Blank	SE145133.012	%	60 - 130%	86
	Trip Spike	SE145133.013	%	60 - 130%	77
d8-toluene (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	89
	TB006-1	SE145133.004	%	60 - 130%	103
	TB005-1	SE145133.005	%	60 - 130%	98
	TB009-1	SE145133.006	%	60 - 130%	80
	TB010-1	SE145133.007	%	60 - 130%	96
	QA1	SE145133.008	%	60 - 130%	92
	TB011-1	SE145133.009	%	60 - 130%	88

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	TB007-1	SE145133.010	%	60 - 130%	95
	TB008-1	SE145133.011	%	60 - 130%	87
	Trip Blank	SE145133.012	%	60 - 130%	99
	Trip Spike	SE145133.013	%	60 - 130%	83
Dibromofluoromethane (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	76
	TB006-1	SE145133.004	%	60 - 130%	88
	TB005-1	SE145133.005	%	60 - 130%	83
	TB009-1	SE145133.006	%	60 - 130%	72
	TB010-1	SE145133.007	%	60 - 130%	84
	QA1	SE145133.008	%	60 - 130%	79
	TB011-1	SE145133.009	%	60 - 130%	75
	TB007-1	SE145133.010	%	60 - 130%	86
	TB008-1	SE145133.011	%	60 - 130%	78
	Trip Blank	SE145133.012	%	60 - 130%	86
	Trip Spike	SE145133.013	%	60 - 130%	122

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	94
	TB006-1	SE145133.004	%	60 - 130%	90
	TB005-1	SE145133.005	%	60 - 130%	90
	TB009-1	SE145133.006	%	60 - 130%	94
	TB010-1	SE145133.007	%	60 - 130%	96
	QA1	SE145133.008	%	60 - 130%	93
	TB011-1	SE145133.009	%	60 - 130%	96
	TB007-1	SE145133.010	%	60 - 130%	92
	TB008-1	SE145133.011	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	81
	TB006-1	SE145133.004	%	60 - 130%	90
	TB005-1	SE145133.005	%	60 - 130%	87
	TB009-1	SE145133.006	%	60 - 130%	73
	TB010-1	SE145133.007	%	60 - 130%	86
	QA1	SE145133.008	%	60 - 130%	81
	TB011-1	SE145133.009	%	60 - 130%	79
	TB007-1	SE145133.010	%	60 - 130%	87
	TB008-1	SE145133.011	%	60 - 130%	80
d8-toluene (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	89
	TB006-1	SE145133.004	%	60 - 130%	103
	TB005-1	SE145133.005	%	60 - 130%	98
	TB009-1	SE145133.006	%	60 - 130%	80
	TB010-1	SE145133.007	%	60 - 130%	96
	QA1	SE145133.008	%	60 - 130%	92
	TB011-1	SE145133.009	%	60 - 130%	88
	TB007-1	SE145133.010	%	60 - 130%	95
	TB008-1	SE145133.011	%	60 - 130%	87
Dibromofluoromethane (Surrogate)	TB012-1	SE145133.003	%	60 - 130%	76
	TB006-1	SE145133.004	%	60 - 130%	88
	TB005-1	SE145133.005	%	60 - 130%	83
	TB009-1	SE145133.006	%	60 - 130%	72
	TB010-1	SE145133.007	%	60 - 130%	84
	QA1	SE145133.008	%	60 - 130%	79
	TB011-1	SE145133.009	%	60 - 130%	75
	TB007-1	SE145133.010	%	60 - 130%	86
	TB008-1	SE145133.011	%	60 - 130%	78

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB088240.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB088018.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB088018.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	122

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB088018.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB088018.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	92
		2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	122

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB088018.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB088018.001		Phenol	mg/kg	0.5	<0.5
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
		2-chlorophenol	mg/kg	0.5	<0.5
		2,4-dimethylphenol	mg/kg	0.5	<0.5
		2,6-dichlorophenol	mg/kg	0.5	<0.5
		2,4-dichlorophenol	mg/kg	0.5	<0.5
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5
		2-nitrophenol	mg/kg	0.5	<0.5
		4-nitrophenol	mg/kg	1	<1
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
		Pentachlorophenol	mg/kg	0.5	<0.5
		2,4-dinitrophenol	mg/kg	2	<2
		4-chloro-3-methylphenol	mg/kg	2	<2
	Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	95
		d5-phenol (Surrogate)	%	-	76

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB088227.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB088018.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB088018.001	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB088081.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	90
		d4-1,2-dichloroethane (Surrogate)	%	-	99
		d8-toluene (Surrogate)	%	-	93
		Bromofluorobenzene (Surrogate)	%	-	96
	Totals	Total BTEX*	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB088081.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	90
		d4-1,2-dichloroethane (Surrogate)	%	-	99
		d8-toluene (Surrogate)	%	-	93

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.007	LB088240.014	Mercury	mg/kg	0.01	0.01	0.02	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.004	LB088089.011	% Moisture	%w/w	0.5	9.9	8.9	41	10
SE145139.002	LB088089.022	% Moisture	%w/w	0.5	18	18	36	4
SE145150.006	LB088089.033	% Moisture	%w/w	0.5	19.2644483362	18.75	35	3
SE145150.013	LB088089.041	% Moisture	%w/w	0.5	12.7819548872	12.0331950207	38	6

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.147	30	2
SE145139.001	LB088018.030		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145139.001	LB088018.030		p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.168	30	13

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.014		Dichlorvos	mg/kg	0.5	<0.5	0.02	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.01	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.01	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0.02	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.02	200	0
			Methidathion	mg/kg	0.5	<0.5	0.03	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.41	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.53	30	2
SE145139.001	LB088018.023		Dichlorvos	mg/kg	0.5	<0.5	0.01	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.01	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.01	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.02	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.42	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.54	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.014	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthene	mg/kg	0.1	<0.1	0	200	0
		Fluorene	mg/kg	0.1	<0.1	0	200	0
		Phenanthrene	mg/kg	0.1	<0.1	0	200	0
		Anthracene	mg/kg	0.1	<0.1	0	200	0
		Fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Pyrene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
		Chrysene	mg/kg	0.1	<0.1	0	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
		Total PAH	mg/kg	0.8	<0.8	0.02	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.014	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.39	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.41	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.53	30	2
SE145139.001	LB088018.023		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0	200	0
			Anthracene	mg/kg	0.1	<0.1	0	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Pyrene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0	200	0
			Chrysene	mg/kg	0.1	<0.1	0	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.42	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.54	30	0

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.013		Arochlor 1016	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.147	30	2
SE145139.001	LB088018.022		Arochlor 1016	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.168	30	13

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.012		Phenol	mg/kg	0.5	<0.5	0	200	0
			2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	0	200	0
			3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	0	200	0
			Total Cresol	mg/kg	1.5	<1.5	0	200	0
			2-chlorophenol	mg/kg	0.5	<0.5	0	200	0
			2,4-dimethylphenol	mg/kg	0.5	<0.5	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Speciated Phenols in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.012		2,6-dichlorophenol	mg/kg	0.5	<0.5	0	200	0
			2,4-dichlorophenol	mg/kg	0.5	<0.5	0	200	0
			2,4,6-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
			2-nitrophenol	mg/kg	0.5	<0.5	0	200	0
			4-nitrophenol	mg/kg	1	<1	0	200	0
			2,4,5-trichlorophenol	mg/kg	0.5	<0.5	0	200	0
			2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	0	200	0
			Pentachlorophenol	mg/kg	0.5	<0.5	0	200	0
			2,4-dinitrophenol	mg/kg	2	<2	0	200	0
			4-chloro-3-methylphenol	mg/kg	2	<2	0	200	0
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	4.4	4.43	30	0
			d5-phenol (Surrogate)	mg/kg	-	1.8	1.61	30	11

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.010	LB088227.014		Arsenic, As	mg/kg	3	5	5	51	4
			Cadmium, Cd	mg/kg	0.3	0.3	0.3	118	1
			Chromium, Cr	mg/kg	0.3	19	18	33	2
			Copper, Cu	mg/kg	0.5	14	16	33	10
			Lead, Pb	mg/kg	1	15	15	37	4
			Nickel, Ni	mg/kg	0.5	15	15	33	1
			Zinc, Zn	mg/kg	0.5	120	120	32	3
SE145150.004	LB088227.024		Cadmium, Cd	mg/kg	0.3	0.25829350290.3426953856		130	13
			Chromium, Cr	mg/kg	0.3	26.266223753921.1552618514		32	22
			Copper, Cu	mg/kg	0.5	4.14785855692.7285745693		45	41
			Lead, Pb	mg/kg	1	37.138726318650.397924752		30	26
			Zinc, Zn	mg/kg	0.5	14.829731651212.3640449752		45	18

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088018.014		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE145139.001	LB088018.023		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088081.026	Monocyclic	Benzene	mg/kg	0.1	<0.1	0.01	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	0.01	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	0	200	0
			m/p-xylene	mg/kg	0.2	<0.2	0	200	0
			o-xylene	mg/kg	0.1	<0.1	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.06	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	4.52	50	14
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	4.77	50	18
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.33	50	1

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088081.026	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.22	50	12
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	0	200	0
			Total BTEX*	mg/kg	0.6	<0.6	0.02	200	0
SE145164.004	LB088081.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	4.1	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.5	50	9
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.2	50	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.5	50	4
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE145133.011	LB088081.026		TRH C6-C10	mg/kg	25	<25	3.49	200	0
			TRH C6-C9	mg/kg	20	<20	3.29	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	4.52	30	14
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	4.86	30	19
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.33	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.22	30	12
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	3.48	200	0
SE145164.004	LB088081.025		TRH C6-C10	mg/kg	25	<0	0	200	0
			TRH C6-C9	mg/kg	20	<0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	4.07	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.52	30	9
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.15	30	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.54	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<0	0	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088240.002	Mercury	mg/kg	0.01	0.20	0.2	70 - 130	101

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088018.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	96
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	98
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	93
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	93
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	99
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	91
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	95

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088018.002		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	74
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	92
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	87
		Ethion	mg/kg	0.2	1.6	2	60 - 140	81
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088018.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	105
		Acenaphthylene	mg/kg	0.1	4.2	4	60 - 140	104
		Acenaphthene	mg/kg	0.1	4.2	4	60 - 140	104
		Phenanthrene	mg/kg	0.1	4.2	4	60 - 140	105
		Anthracene	mg/kg	0.1	4.5	4	60 - 140	112
		Fluoranthene	mg/kg	0.1	4.5	4	60 - 140	114
		Pyrene	mg/kg	0.1	4.3	4	60 - 140	107
		Benzo(a)pyrene	mg/kg	0.1	4.9	4	60 - 140	122
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088018.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	99

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088190.002	Chloride	mg/kg	0.25	NA	40	70 - 130	107
	Sulphate	mg/kg	0.5	NA	40	70 - 130	104

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088018.002		Phenol	mg/kg	0.5	0.8	1	70 - 130	80
		2,4-dichlorophenol	mg/kg	0.5	0.8	1	70 - 130	75
		2,4,6-trichlorophenol	mg/kg	0.5	0.9	1	70 - 130	90
		Pentachlorophenol	mg/kg	0.5	0.7	1	70 - 130	70
	Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	4.8	5	40 - 130	97
		d5-phenol (Surrogate)	mg/kg	-	1.6	2	40 - 130	81

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088227.002	Arsenic, As	mg/kg	3	48	50	80 - 120	97
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	101
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	100
	Copper, Cu	mg/kg	0.5	51	50	80 - 120	102

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Recoverable Metals in Soil by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088227.002		Lead, Pb	mg/kg	1	50	50	80 - 120	99
		Nickel, Ni	mg/kg	0.5	50	50	80 - 120	99
		Zinc, Zn	mg/kg	0.5	51	50	80 - 120	102

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088018.002		TRH C10-C14	mg/kg	20	39	40	60 - 140	98
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	95
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	78
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	40	40	60 - 140	100
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	88
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	70

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088081.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	82
	Aromatic	Toluene	mg/kg	0.1	2.4	2.9	60 - 140	82
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	74
		m/p-xylene	mg/kg	0.2	4.5	5.8	60 - 140	77
		o-xylene	mg/kg	0.1	2.2	2.9	60 - 140	76
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	5	60 - 140	97
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	89

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB088081.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	85
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	71
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	5	60 - 140	97
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	89
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	102

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE145078.023	LB088240.004	Mercury	mg/kg	0.01	0.20	0.05196198402	0.2	72

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE145133.003	LB088018.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	90
			Aldrin	mg/kg	0.1	<0.1	0.2	95
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	89
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	92
			Endrin	mg/kg	0.2	<0.2	0.2	96
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	76
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	-	95

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE145133.003	LB088018.004		Dichlorvos	mg/kg	0.5	<0.5	2	110
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	93
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	96
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	91
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE145133.003	LB088018.004	Naphthalene	mg/kg	0.1	<0.1	4	107
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	106
		Acenaphthene	mg/kg	0.1	<0.1	4	103
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	4	100
		Anthracene	mg/kg	0.1	<0.1	4	106
		Fluoranthene	mg/kg	0.1	<0.1	4	112

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE145133.003	LB088018.004		Pyrene	mg/kg	0.1	<0.1	4	105
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	115
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	86
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	96

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE145133.003	LB088018.004		Arochlor 1016	mg/kg	0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	<0.2	0.4	92
			Arochlor 1262	mg/kg	0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	-	97

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE145098.003	LB088227.004	Cadmium, Cd	mg/kg	0.3	48	0.78540879729	50	94

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE145133.003	LB088018.004		TRH C10-C14	mg/kg	20	<20	40	108
			TRH C15-C28	mg/kg	45	<45	40	108
			TRH C29-C36	mg/kg	45	<45	40	78
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	40	108
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	98
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE145133.003	LB088081.004	Monocyclic	Benzene	mg/kg	0.1	1.9	<0.1	2.9	67
		Aromatic	Toluene	mg/kg	0.1	2.1	<0.1	2.9	71
			Ethylbenzene	mg/kg	0.1	2.0	<0.1	2.9	69
			m/p-xylene	mg/kg	0.2	4.4	<0.2	5.8	75
			o-xylene	mg/kg	0.1	2.1	<0.1	2.9	73
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	3.8	-	91
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.0	-	92
			d8-toluene (Surrogate)	mg/kg	-	5.4	4.5	-	108
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	4.7	-	117

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE145133.003	LB088081.004	Totals	Total Xylenes*	mg/kg	0.3	6.5	<0.3	-	-
			Total BTEX*	mg/kg	0.6	12	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE145133.003	LB088081.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	82
			TRH C6-C9	mg/kg	20	<20	<20	23.2	77
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	3.8	-	91
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.0	-	92
			d8-toluene (Surrogate)	mg/kg	-	5.4	4.5	-	108
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	4.7	-	117
		VPH F	Benzene (F0)	mg/kg	0.1	1.9	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	107

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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CERTIFICATE OF ANALYSIS 136251

Client:

Cardno Geotech Solutions
PO Box 4224
Edgeworth
NSW 2285

Attention: Alireza Mohiti

Sample log in details:

Your Reference:	**80514013**		
No. of samples:	1 soil		
Date samples received / completed instructions received	22/10/15	/	22/10/15

Analysis Details:

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

Report Details:

Date results requested by: / Issue Date:	29/10/15	/	27/10/15
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date extracted	-	23/10/2015
Date analysed	-	24/10/2015
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	104

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date extracted	-	23/10/2015
Date analysed	-	23/10/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100
Surrogate o-Terphenyl	%	86

PAHs in Soil		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date extracted	-	23/10/2015
Date analysed	-	24/10/2015
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	94

Organochlorine Pesticides in soil		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date extracted	-	23/10/2015
Date analysed	-	24/10/2015
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	110

Organophosphorus Pesticides		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date extracted	-	23/10/2015
Date analysed	-	24/10/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	110

PCBs in Soil		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date extracted	-	23/10/2015
Date analysed	-	24/10/2015
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	110

Acid Extractable metals in soil		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date prepared	-	23/10/2015
Date analysed	-	26/10/2015
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	5
Copper	mg/kg	1
Lead	mg/kg	4
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	42

Moisture		
Our Reference:	UNITS	136251-1
Your Reference	----------	QA2
Date Sampled	----------	20/10/2015
Type of sample		soil
Date prepared	-	23/10/2015
Date analysed	-	26/10/2015
Moisture	%	9.1

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
Date analysed	-			24/10/2015	[NT]	[NT]	LCS-3	24/10/2015
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-3	110%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-3	110%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-3	116%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-3	107%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-3	108%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-3	110%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-3	112%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	115	[NT]	[NT]	LCS-3	113%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
Date analysed	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	107%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	99%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	93%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	107%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	99%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	93%
Surrogate o-Terphenyl	%		Org-003	91	[NT]	[NT]	LCS-3	102%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
Date analysed	-			24/10/2015	[NT]	[NT]	LCS-3	24/10/2015
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	96%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	109%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	98%
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	97%
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	103%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	123%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	LCS-3	111%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	92	[NT]	[NT]	LCS-3	97%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
Date analysed	-			24/10/2015	[NT]	[NT]	LCS-3	24/10/2015
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	92%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	89%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	96%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	94%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	95%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	87%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	98%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	98%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	91%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-3	97%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	110	[NT]	[NT]	LCS-3	128%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
Date analysed	-			24/10/2015	[NT]	[NT]	LCS-3	24/10/2015
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-3	100%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-3	99%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-3	117%
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-3	104%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-3	119%
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-3	110%
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-3	74%
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-008	110	[NT]	[NT]	LCS-3	128%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
Date analysed	-			24/10/2015	[NT]	[NT]	LCS-3	24/10/2015
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-3	114%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	110	[NT]	[NT]	LCS-3	112%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			23/10/2015	[NT]	[NT]	LCS-3	23/10/2015
Date analysed	-			26/10/2015	[NT]	[NT]	LCS-3	26/10/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-3	113%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-3	107%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	107%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	107%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	108%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-3	119%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	105%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	107%

Report Comments:

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

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

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

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

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

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

Proposed Residential Development,
Bakali Rd, Forresters Beach

APPENDIX

D

SITE PHOTOGRAPHS

Cardno Geotech Solutions
Shaping the Future

Photograph 1: OI 1 Table 3-1 of Report, Fill Stockpile

Photograph 2: OI 2 Table 3-1 of large fill stockpile

Photograph 3: OI 4 Table 3-1 of Report, abandoned residential dwelling

Photograph 4: OI 5 Table 3-1 of Report, scattered fibrous material

Photograph 5: OI 6 Table 3-1 of Report, Stockpile covered with vegetation

Photograph 6: OI 9 Table 3-1 of Report, household refuse and garden waste

Proposed Residential Development,
Bakali Rd, Forresters Beach

APPENDIX

E

HISTORICAL DATA

Cardno Geotech Solutions
Shaping the Future

GROUNDWATER DATA

NSW Office of Water
Work Summary

GW202283

Licence: 20BL172870 **Licence Status:** ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method:
Owner Type: Local Govt

Commenced Date: **Final Depth:** 8.00 m
Completion Date: 25/06/2012 **Drilled Depth:** 10.50 m

Contractor Name: NEALINGS DRILLING
Driller: Unkown Unknown
Assistant Driller:

Property: N A 140 BELLEVUE ROAD TUMBI UMBI 2261 NSW **Standing Water Level:** 6.000
GWMA: **Salinity:**
GW Zone: **Yield:**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTH	NORTH.31	11A//8857
Licensed:			

Region: 20 - Hunter **CMA Map:** 9131-2S
River Basin: 211 - MACQUARIE - TUGGERAH LAKES **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6303332.0 **Latitude:** 33°23'59.1"S
Elevation Source: Unknown **Easting:** 356452.0 **Longitude:** 151°27'23.1"E

GS Map: - **MGA Zone:** 0 **Coordinate Source:** GIS - Geographic Information System

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		Hole	Hole	0.00	10.50	0			(Unknown)
1		Annulus	Concrete	0.00	0.05		50		
1		Annulus	Bentonite	0.05	0.50		50		
1		Annulus	Waterworn/Rounded	0.50	8.00		50		Graded
1		Backfill	Bentonite	8.00	10.50				
1	1	Casing		0.00	8.00	50			Seated
1	1	Opening	Slots	1.00	8.00	50		1	

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)

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	7.20	7.20	Fill; Sandy Silt, medium, grey to black, high organic content	Fill	
7.20	10.50	3.30	Sandy Clay; medium, subrounded, low plasticity, red mottled white, natural	Sandy Clay	

Remarks

25/06/2012: Form A Remarks:
Nat Carling, 25-June-2012; All details were provided by consultant on logs & location map.

***** End of GW202283 *****

NSW Office of Water
Work Summary

GW201721

Licence: 20BL172870 **Licence Status:** ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method: Auger - Solid Flight
Owner Type: Local Govt

Commenced Date:
Completion Date: 16/04/2009
Final Depth: 15.00 m
Drilled Depth: 15.00 m

Contractor Name:
Driller: Unkown Unknown
Assistant Driller:

Property: N A 140 BELLEVUE ROAD TUMBI UMBI 2261 NSW
GWMA:
GW Zone:
Standing Water Level: 9.100
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTH	NORTH.31	11A//8857
Licensed:			

Region: 20 - Hunter
River Basin: 211 - MACQUARIE - TUGGERAH LAKES
Area/District:
CMA Map: 9131-2S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6303240.0
Easting: 356411.0
Latitude: 33°24'02.0"S
Longitude: 151°27'21.5"E

GS Map: - **MGA Zone:** 0 **Coordinate Source:** GPS - Global Positioning System

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		Hole	Hole	0.00	15.00	100			Auger - Solid Flight
1		Annulus	Drill Cuttings	0.00	11.00	100	50		PL:Poured/Shovelled
1		Annulus	Bentonite	11.00	11.50	100	50		PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	11.50	15.00	100	50		Graded, PL:Poured/Shovelled
1	1	Casing		0.00	15.00	50			Seated on Bottom
1	1	Opening	Slots	12.00	15.00	50		1	()

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)

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Fill; brown, sandy topsoil, with rock fragments (200mm)	Fill	
1.00	2.25	1.25	Silty Clay; red/light grey	Silty Clay	
2.25	5.25	3.00	Silty Clay; red/light grey, increasing moisture	Silty Clay	
5.25	7.25	2.00	Silty Clay; light grey, with ironstone fragments	Silty Clay	
7.25	8.25	1.00	Silty Clay; red/light grey, slightly increasing moisture	Silty Clay	
8.25	15.00	6.75	Silty Clay; reddish brown, medium moisture	Silty Clay	

Remarks

16/04/2009: Form A Remarks:
Nat Carling, 3-May-2012; All details were provided on consultants log.

***** End of GW201721 *****

NSW Office of Water
Work Summary

GW054153

Licence: 20BL113627
Licence Status: ACTIVE

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore open thru rock
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 01/02/1981
Final Depth: 18.00 m
Drilled Depth: 18.00 m

Contractor Name:
Driller:
Assistant Driller:

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

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTH	NORTH.031	L3 DP26237 (8)
Licensed:	NORTHUMBERLAND	KINCUMBER	Whole Lot 3//26237

Region: 10 - Sydney South Coast
CMA Map: 9131-2S
River Basin: 211 - MACQUARIE - TUGGERAH LAKES
Grid Zone:
Scale:
Area/District:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6303359.0
Easting: 356736.0
Latitude: 33°23'58.3"S
Longitude: 151°27'34.1"E

GS Map: -
MGA Zone: 0
Coordinate Source:

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	P.V.C.	0.00	12.00	155			Driven into Hole

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)
12.00	14.00	2.00	(Unknown)	5.70		0.48			

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Soil	Soil	
2.00	12.00	10.00	Clay	Clay	
12.00	18.00	6.00	Sandstone Shale Water Supply	Sandstone	

Remarks

***** End of GW054153 *****

NSW Office of Water
Work Summary

GW201938

Licence: 20BL170953
Licence Status: ACTIVE

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary Mud
Owner Type: Private

Commenced Date:
Completion Date: 22/03/2007
Final Depth: 18.00 m
Drilled Depth: 18.00 m

Contractor Name:
Driller: Lloyd Norman Whitsed
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level: 8.000
Salinity:
Yield: 0.250

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTH	NORTH.31	255//225178
Licensed:			

Region: 20 - Hunter
River Basin: 211 - MACQUARIE - TUGGERAH LAKES
Area/District:
CMA Map: 9131-2S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6302010.0
Easting: 357145.0
Latitude: 33°24'42.3"S
Longitude: 151°27'49.2"E

GS Map: -
MGA Zone: 0
Coordinate Source: GIS - Geographic

Information System

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		Hole	Hole	0.00	18.00	175			Rotary Mud
1		Annulus	Waterworn/Rounded	3.00	18.00	175	125		Graded
1	1	Casing	Pvc Class 9	0.00	18.00	125			Seated on Bottom, Glued
1	1	Opening	Slots - Vertical	11.00	17.00	125		1	PVC Class 9, SL: 6.0mm, A: 1.50mm

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)
9.00	11.00	2.00	Unknown	8.00	17.00	0.25			

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	9.00	9.00	Sand	Sand	
9.00	10.00	1.00	Sand & organics - lost circulation - water cloudy	Sand	
10.00	14.00	4.00	Clay, heavy & Sand	Sand	
14.00	16.00	2.00	Clay, red	Clay	
16.00	18.00	2.00	Shale	Shale	

Remarks

22/03/2007: Form A Remarks:
Nat Carling, 15-May-2012; Coordinates based on location map provided with the Form-A.

***** End of GW201938 *****

NSW Office of Water
Work Summary

GW201720

Licence: 20BL172870 **Licence Status:** ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method: Auger - Solid Flight
Owner Type: Local Govt

Commenced Date:
Completion Date: 16/04/2009
Final Depth: 13.50 m
Drilled Depth: 13.50 m

Contractor Name:
Driller: Unkown Unknown
Assistant Driller:

Property: N A 140 BELLEVUE ROAD TUMBI UMBI 2261 NSW
GWMA:
GW Zone:
Standing Water Level: 3.330
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTH	NORTH.31	1130//787305
Licensed:			

Region: 20 - Hunter
River Basin: 211 - MACQUARIE - TUGGERAH LAKES
Area/District:
CMA Map: 9131-2S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6303152.0
Easting: 356496.0
Latitude: 33°24'04.9"S
Longitude: 151°27'24.7"E

GS Map: - **MGA Zone:** 0 **Coordinate Source:** GPS - Global Positioning System

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		Hole	Hole	0.00	13.50	100			Auger - Solid Flight
1		Annulus	Drill Cuttings	0.00	10.00	100	50		PL:Poured/Shovelled
1		Annulus	Bentonite	10.00	10.50	100	50		PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	10.50	13.50	100	50		Graded, PL:Poured/Shovelled
1	1	Casing		0.00	13.50	50			Seated on Bottom
1	1	Opening	Slots	11.00	13.50	50		1	()

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)

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	Fill; light brown sandy soil	Fill	
0.50	2.25	1.75	Clay; red/light grey, with ironstone fragments	Clay	
2.25	3.75	1.50	Silty Clay; red/grey, medium moisture	Silty Clay	
3.75	6.75	3.00	Silty Clay; red/light grey, increasing moisture	Silty Clay	
6.75	13.50	6.75	Silty Clay; reddish brown, high moisture	Silty Clay	

Remarks

16/04/2009: Form A Remarks:
Nat Carling, 3-May-2012; All details were provided on consultants log.

***** End of GW201720 *****

NSW Office of Water
Work Summary

GW051860

Licence: 20BL110868
Licence Status: ACTIVE

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 01/11/1979
Final Depth: 12.00 m
Drilled Depth: 21.00 m

Contractor Name:
Driller:
Assistant Driller:

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

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTH	NORTH.031	L4 DP26237 (8)
Licensed:	NORTHUMBERLAND	KINCUMBER	Whole Lot 4//26237

Region: 10 - Sydney South Coast
CMA Map: 9131-2S
River Basin: 211 - MACQUARIE - TUGGERAH LAKES
Grid Zone:
Scale:
Area/District:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6303370.0
Easting: 356802.0
Latitude: 33°23'58.0"S
Longitude: 151°27'36.7"E

GS Map: -
MGA Zone: 0
Coordinate Source:

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		Backfill	Backfill	12.00	21.00	155			
1	1	Casing	P.V.C.	0.00	12.00	125			
1	1	Opening	Slots - Vertical	6.00	12.00	125		1	Mechanically Slotted, A: 3.00mm

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)
1.00	11.00	10.00	Unconsolidated	3.00		0.06			

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Soil	Soil	
1.00	12.00	11.00	Clay Water Bearing	Clay	
12.00	21.00	9.00	Shale	Shale	

Remarks

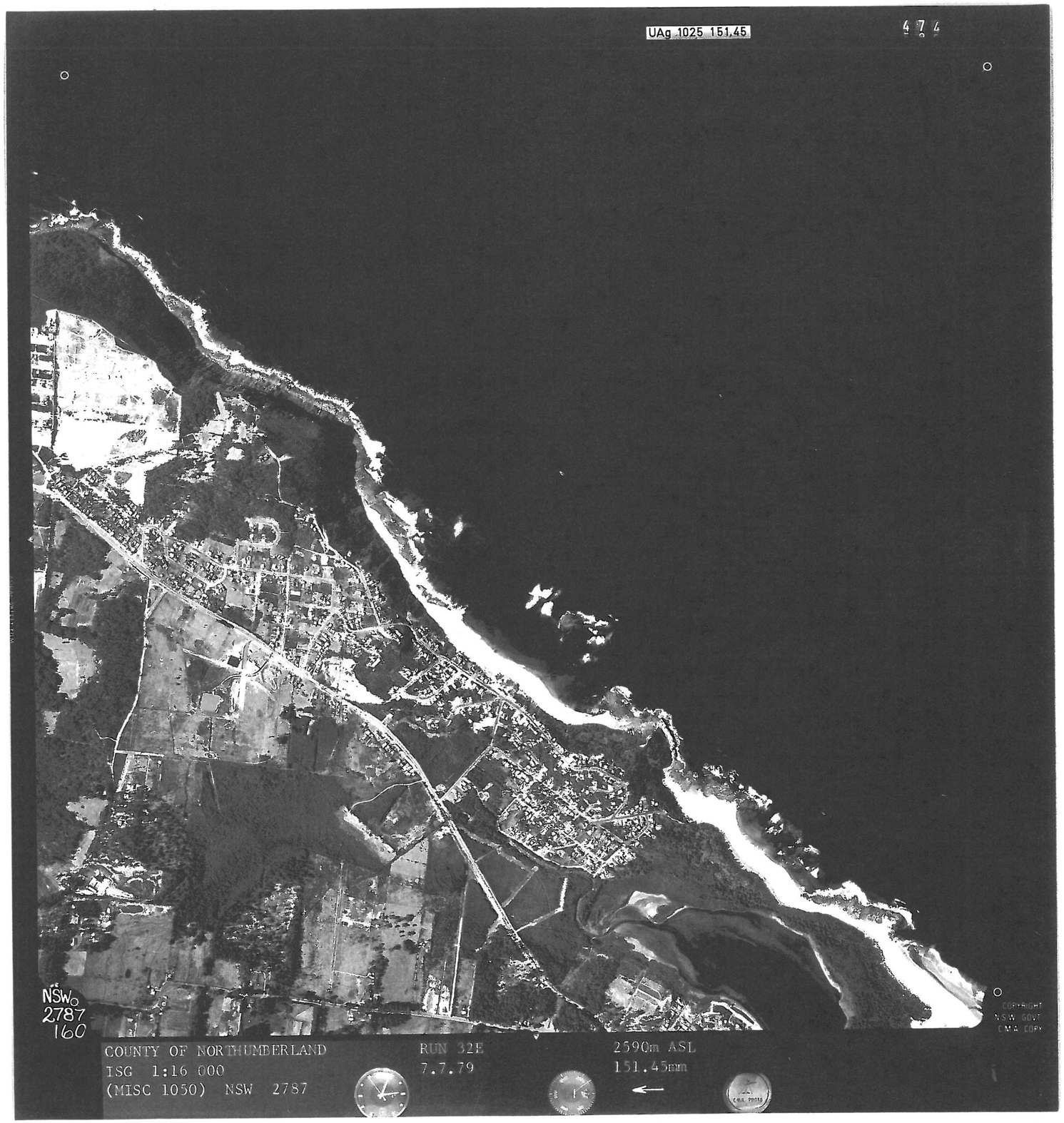
***** End of GW051860 *****

HISTORICAL AERIAL PHOTOGRAPHS

1954 PHOTOGRAPH

1965 PHOTOGRAPH

1979 PHOTOGRAPH



1986 PHOTOGRAPH

30/05/96


2005 PHOTOGRAPH
Forresters Beach NSW
Maas Parade
Henrys Rd
The Entrance Rd
Image © 2015 DigitalGlobe

S149 CERTIFICATES

Gosford City Council

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www.twitter.com/gosford_council

ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	140005
Certificate Date:	11 November 2015
Address:	985 The Entrance Road FORRESTERS BEACH
Lot Description:	LOT: 3 DP: 101649
Parish:	Kincumber
County:	Northumberland
Assessment No:	515017
Receipt No:	
Parcel No:	429
Applicants Reference:	LOT: 3 DP: 101649
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

No.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The property is adjacent to a State Road under the control of Roads and Maritime Services (RMS) and may be affected by an existing road widening scheme.

Enquiries regarding this matter should in the first instance be directed to the RMS Hunter Regional Office Property Enquiries Officer on 49240240. Project or study specific information enquiries should be directed to the RMS's Central Coast Office on 4379 7001.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS
(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

No.

15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

No.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

No.

17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

No.

18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

Nil

19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

The following additional information is issued under Section 149(5) of the *Environmental Planning and Assessment Act, 1979*

Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

If this land adjoins land or roads over which there is an easement for services to drain water, to drain sewage or where services, drainage, sewerage or other utilities have been installed and easements have not been created, foundations may be required such as will ensure the stability of any improvements on the subject land against any influence from use of the easement or installations over the adjoining land or roads.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

Gosford City Council

PO Box 21
Gosford NSW 2250
DX 7211 Gosford

Telephone 02 4325 8222
Facsimile 02 4323 2477

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www.twitter.com/gosford_council

ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	140004
Certificate Date:	11 November 2015
Address:	959 The Entrance Road FORRESTERS BEACH
Lot Description:	LOT: 18 DP: 23283
Parish:	Kincumber
County:	Northumberland
Assessment No:	702662
Receipt No:	
Parcel No:	17636
Applicants Reference:	LOT: 18 DP: 23283
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

No.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The property is adjacent to a State Road under the control of Roads and Maritime Services (RMS) and may be affected by an existing road widening scheme.

Enquiries regarding this matter should in the first instance be directed to the RMS Hunter Regional Office Property Enquiries Officer on 49240240. Project or study specific information enquiries should be directed to the RMS's Central Coast Office on 4379 7001.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS
(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

No.

15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

No.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

No.

17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

No.

18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

Nil

19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

The following additional information is issued under Section 149(5) of the *Environmental Planning and Assessment Act, 1979*

Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

If this land adjoins land or roads over which there is an easement for services to drain water, to drain sewage or where services, drainage, sewerage or other utilities have been installed and easements have not been created, foundations may be required such as will ensure the stability of any improvements on the subject land against any influence from use of the easement or installations over the adjoining land or roads.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

Gosford City Council

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www.twitter.com/gosford_council

ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	140002
Certificate Date:	11 November 2015
Address:	145 Bakali Road FORRESTERS BEACH
Lot Description:	LOT: 1 DP: 1000694
Parish:	Kincumber
County:	Northumberland
Assessment No:	759977
Receipt No:	
Parcel No:	83803
Applicants Reference:	LOT: 1 DP: 1000694
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

No.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The land is not affected by Road Widening Proposals.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

No.

15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

No.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

No.

17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

No.

18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

Nil

19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

The following additional information is issued under Section 149(5) of the *Environmental Planning and Assessment Act, 1979*

Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

If this land adjoins land or roads over which there is an easement for services to drain water, to drain sewage or where services, drainage, sewerage or other utilities have been installed and easements have not been created, foundations may be required such as will ensure the stability of any improvements on the subject land against any influence from use of the easement or installations over the adjoining land or roads.

Landscaping plans are required to accompany applications for each lot developed. The landscaping plan shall comprise predominantly native species indigenous to the local area. The landscaping plan shall be submitted to Council's Development Unit for approval prior to application approval. Where trees and scrubs are to be removed they shall be replaced at a ratio of 2:1.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

Gosford City Council

PO Box 21
Gosford NSW 2250
DX 7211 Gosford

Telephone 02 4325 8222
Facsimile 02 4323 2477

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www.twitter.com/gosford_council

ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	140003
Certificate Date:	11 November 2015
Address:	957 The Entrance Road FORRESTERS BEACH
Lot Description:	LOT: 51 DP: 1028301
Parish:	Kincumber
County:	Northumberland
Assessment No:	786260
Receipt No:	
Parcel No:	86998
Applicants Reference:	LOT: 51 DP: 1028301
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

No.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The property is adjacent to a State Road under the control of Roads and Maritime Services (RMS) and may be affected by an existing road widening scheme.

Enquiries regarding this matter should in the first instance be directed to the RMS Hunter Regional Office Property Enquiries Officer on 49240240. Project or study specific information enquiries should be directed to the RMS's Central Coast Office on 4379 7001.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

No.

15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

No.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

No.

17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

No.

18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

Nil

19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

The following additional information is issued under Section 149(5) of the *Environmental Planning and Assessment Act, 1979*

Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

If this land adjoins land or roads over which there is an easement for services to drain water, to drain sewage or where services, drainage, sewerage or other utilities have been installed and easements have not been created, foundations may be required such as will ensure the stability of any improvements on the subject land against any influence from use of the easement or installations over the adjoining land or roads.

Landscaping plans are required to accompany applications for each lot developed. The landscaping plan shall comprise predominantly native species indigenous to the local area. The landscaping plan shall be submitted to Council's Development Unit for approval prior to application approval. Where trees and scrubs are to be removed they shall be replaced at a ratio of 2:1.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

Gosford City Council

PO Box 21
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DX 7211 Gosford

Telephone 02 4325 8222
Facsimile 02 4323 2477

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www.gosford.nsw.gov.au
www.facebook.com/GosfordCityCouncil
www.twitter.com/gosford_council

ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	140000
Certificate Date:	11 November 2015
Address:	137 Bakali Road FORRESTERS BEACH
Lot Description:	LOT: 3 DP: 1000694
Parish:	Kincumber
County:	Northumberland
Assessment No:	759995
Receipt No:	
Parcel No:	83805
Applicants Reference:	LOT: 3 DP: 1000694
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

No.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The land is not affected by Road Widening Proposals.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

No.

15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

No.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

No.

17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

No.

18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

Nil

19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

The following additional information is issued under Section 149(5) of the *Environmental Planning and Assessment Act, 1979*

Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

If this land adjoins land or roads over which there is an easement for services to drain water, to drain sewage or where services, drainage, sewerage or other utilities have been installed and easements have not been created, foundations may be required such as will ensure the stability of any improvements on the subject land against any influence from use of the easement or installations over the adjoining land or roads.

Landscaping plans are required to accompany applications for each lot developed. The landscaping plan shall comprise predominantly native species indigenous to the local area. The landscaping plan shall be submitted to Council's Development Unit for approval prior to application approval. Where trees and scrubs are to be removed they shall be replaced at a ratio of 2:1.

This land has been identified as containing Estuarine Paperbark Scrub Forest. This community may qualify as the endangered ecological community Swamp Sclerophyll Forest on Coastal Floodplains as listed under Part 3 Schedule 1 of the Threatened Species Conservation Act 1995. The presence of this vegetation community may restrict the development potential of the land. The nature and extent of any threatened species or cultural heritage constraints should be determined following an assessment of the land by a qualified and experienced ecologist/consultant.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

Gosford City Council

PO Box 21
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ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	140001
Certificate Date:	11 November 2015
Address:	143 Bakali Road FORRESTERS BEACH
Lot Description:	LOT: 2 DP: 1000694
Parish:	Kincumber
County:	Northumberland
Assessment No:	759986
Receipt No:	
Parcel No:	83804
Applicants Reference:	LOT: 2 DP: 1000694
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

No.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The land is not affected by Road Widening Proposals.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

No.

15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

No.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

No.

17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

No.

18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

Nil

19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

The following additional information is issued under Section 149(5) of the *Environmental Planning and Assessment Act, 1979*

Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

If this land adjoins land or roads over which there is an easement for services to drain water, to drain sewage or where services, drainage, sewerage or other utilities have been installed and easements have not been created, foundations may be required such as will ensure the stability of any improvements on the subject land against any influence from use of the easement or installations over the adjoining land or roads.

Landscaping plans are required to accompany applications for each lot developed. The landscaping plan shall comprise predominantly native species indigenous to the local area. The landscaping plan shall be submitted to Council's Development Unit for approval prior to application approval. Where trees and scrubs are to be removed they shall be replaced at a ratio of 2:1.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

Gosford City Council

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www.twitter.com/gosford_council

ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	139999
Certificate Date:	11 November 2015
Address:	139 Bakali Road FORRESTERS BEACH
Lot Description:	LOT: 4 DP: 1000694
Parish:	Kincumber
County:	Northumberland
Assessment No:	760000
Receipt No:	
Parcel No:	83806
Applicants Reference:	LOT: 4 DP: 1000694
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

No.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The land is not affected by Road Widening Proposals.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

No.

15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

No.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

No.

17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

No.

18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

Nil

19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No.

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

The following additional information is issued under Section 149(5) of the *Environmental Planning and Assessment Act, 1979*

Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

If this land adjoins land or roads over which there is an easement for services to drain water, to drain sewage or where services, drainage, sewerage or other utilities have been installed and easements have not been created, foundations may be required such as will ensure the stability of any improvements on the subject land against any influence from use of the easement or installations over the adjoining land or roads.

Landscaping plans are required to accompany applications for each lot developed. The landscaping plan shall comprise predominantly native species indigenous to the local area. The landscaping plan shall be submitted to Council's Development Unit for approval prior to application approval. Where trees and scrubs are to be removed they shall be replaced at a ratio of 2:1.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

Gosford City Council

PO Box 21
Gosford NSW 2250
DX 7211 Gosford

Telephone 02 4325 8222
Facsimile 02 4323 2477

goscity@gosford.nsw.gov.au
www.gosford.nsw.gov.au
www.facebook.com/GosfordCityCouncil
www.twitter.com/gosford_council

ABN 78 303 458 861

Cardno NSW Pty Ltd - Gosford
Se34 207 Albany Street North
GOSFORD NSW 2250

PLANNING CERTIFICATE

This Planning Certificate is issued in accordance with Section 149 of the *Environmental Planning and Assessment Act, 1979*

Certificate No:	139998
Certificate Date:	11 November 2015
Address:	987-991 The Entrance Road FORRESTERS BEACH
Lot Description:	LOT: 522 DP: 1077907
Parish:	Kincumber
County:	Northumberland
Assessment No:	515008
Receipt No:	
Parcel No:	91194
Applicants Reference:	LOT: 522 DP: 1077907
Applicants Email:	

Part 2 - Environmental Planning and Assessment Regulation 2000

1 NAMES OF RELEVANT PLANNING INSTRUMENTS and DCPS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Interim Development Order 122 gazetted 30/03/79 (as amended)

Specific Site State Environmental Planning Policies

State Environmental Planning Policy No. 71 - Coastal Protection

General Site State Environmental Planning Policies

ZONE 7(a) CONSERVATION AND SCENIC PROTECTION (CONSERVATION)UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development) 2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

ZONE 7(c2) CONSERVATION AND SCENIC PROTECTION (SCENIC PROTECTION - RURAL SMALL HOLDINGS) UNDER INTERIM DEVELOPMENT ORDER NO.122
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Major Development)2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 62 - Sustainable Aquaculture
State Environmental Planning Policy No. 55 - Remediation of Land
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 44 - Koala Habitat Protection
State Environmental Planning Policy No. 36 - Manufactured Home Estates
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 30 - Intensive Agriculture
State Environmental Planning Policy No. 21 - Caravan Parks
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 1 - Development Standards
State Regional Planning Policy No. 9 - Extractive Industry (No 2-1995)

(2) 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 the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Gosford Development Control Plan 2013

2 ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) to (d) is the zoning of the land and the land use table for each of the zones listed, including existing and proposed Local Environmental Plans in landuse tables.

Zone No.7(a) Conservation and Scenic Protection (Conservation) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: agriculture; bed and breakfast accommodation; dams; dwelling-houses; roads;
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

Zone No.7(c2) Conservation and Scenic Protection (Scenic Protection-Rural Small Holdings) under Interim Development Order No.122
DEVELOPMENT PERMISSIBLE WITHOUT CONSENT
Development (other than exempt development) for the purpose of: agriculture; home occupations; recreation areas.
Exempt development.
DEVELOPMENT PERMISSIBLE WITH CONSENT
Development (other than exempt development) for the purpose of: animal establishments; bed and breakfast accommodation; child care centres; dams; dual occupancies-attached; dwelling-houses; educational establishments; home industries; horse establishments; places of public worship; plant nurseries; roads; roadside stalls; utility installations; veterinary hospitals.
Subdivision.
PROHIBITED DEVELOPMENT
Any purpose other than those permissible with or without consent.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land, if so, the minimum land dimensions so fixed,

7(a) Conservation & Scenic Protection (Conservation) under Interim Development Order No.122

Clause 22(1) of Interim Development Order No 122 requires that a dwelling house may only be erected on an allotment of land having an area of not less than 40 hectares.

Clause 22(2) of Interim Development Order No 122 requires where the erection of a dwelling house on an allotment of land having an area of less than 40 hectares that the allotment was;
(a) in existence before 18 February 1977 and was not held in the same ownership as any adjoining allotments at that date or
(b) created after 18 February 1977 otherwise than under 20.

Clause 22(3) to (5) of Interim Development Order No 122 requires where the erection of a dwelling house on an allotment of land having an area of less than 40 hectares and which was one of a number of adjoining allotments held in the same ownership as at the 18 February 1977 is subject to the provisions of Section 29 of the Environmental Planning and Assessment Act 1979.

(f) whether the land includes or comprises critical habitat,

None

(g) whether the land is in a conservation area (however described),

No.

(h) whether an item of environmental heritage (however described) is situated on the land.

No.

2A ZONING AND LAND USE UNDER SEPP (SYDNEY REGIONAL GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Rural Housing Code

Complying development under the Rural Housing Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Housing Alterations Code

Complying development under the Housing Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

General Development Code

Complying development under the General Development Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Subdivision Code

Complying development under the Subdivision Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Demolition Code

Complying development under the Demolition Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

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 the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

Fire Safety Code

Complying development under the Fire Safety Code may be carried out on the land under Clauses 1.17A & 1.19. This information needs to be read in conjunction with the whole of the SEPP.

4 COASTAL PROTECTION

The Council has not been notified that by the relevant NSW Government Department that the land is affected by Sections 38 and 39 or Parts 4C, 4D of the Coastal Protection Act, 1979.

Further Council has not been notified that annual charges apply under 4B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

4A Information relating to beaches and coasts

(1) whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No.

(2) (a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

None.

4B Annual Charges for coastal protection services under *Local Government Act 1993*

None

5 MINE SUBSIDENCE

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

6 ROAD WIDENING AND ROAD RE-ALIGNMENT

Whether or not the land is affected by any road widening or road alignment.

The property is adjacent to a State Road under the control of Roads and Maritime Services (RMS) and may be affected by an existing road widening scheme.

Enquiries regarding this matter should in the first instance be directed to the RMS Hunter Regional Office Property Enquiries Officer on 49240240. Project or study specific information enquiries should be directed to the RMS's Central Coast Office on 4379 7001.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS
(No, unless a message is listed below)

Chapter 6.4 of Gosford Development Control Plan (Geotechnical Requirements) applies to the land and the land may be subject to slip. When considering a development application, each circumstance will be considered and development may be restricted.

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Is development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling house or residential flat buildings (excluding group homes or seniors housing) subject to flood related development controls.

No.

Is development on the land or part of the land for any other purpose subject to flood related development controls.

No.

8 LAND RESERVED FOR ACQUISITION

No.

9 CONTRIBUTION PLANS

None.

9A BIODIVERSITY CERTIFIED LAND

Is the land biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)?

No.

10 BIOBANKING AGREEMENTS

Is land to which a biobanking agreement under Part 7A of the *Threatened Special Conservation Act 1995* relates.

No.

11 BUSHFIRE PRONE LAND

All or part of the land is shown as bush fire prone on Council's records. Further details of any applicable restrictions on development of the land may be obtained from the Duty Building Surveyor on (02) 4325 8222.

12 PROPERTY VEGETATION PLANS

Has Council been notified by the person or body that approved the plan that the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies?

No.

13 ORDERS UNDER TREES (DISPUTE BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 DIRECTIONS UNDER PART 3A

If there is 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, a statement to that effect identifying the provision that does not have effect.

No.

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

15(a) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (SENIORS HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

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15(b) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CLAUSE 18 (2) OF STATE ENVIRONMENTAL PLANNING POLICY (HOUSING FOR SENIORS OR PEOPLE WITH A DISABILITY) 2004 AFTER 11 OCTOBER 2007?

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16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

No.

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

17(1) IS COUNCIL AWARE OF A CURRENT SITE COMPATIBILITY CERTIFICATE (AFFORDABLE RENTAL HOUSING) IN RESPECT OF PROPOSED DEVELOPMENT ON THE LAND?

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17(2) ARE THERE ANY CONDITIONS IMPOSED BY A CONSENT AUTHORITY IN TERMS OF CL 17 (1) OR 37 (1) OF STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009?

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18 PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

None

(2) The date of any subdivision order that applies to the land.

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19 SITE VERIFICATION CERTIFICATE

There is no current site verification certificate, of which the Council is aware in respect of the land.

Note

1 *CONTAMINATED LAND MANAGEMENT ACT 1997* NOTICES UNDER SECTION 59(2)

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

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(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

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(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

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(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

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2 NATION BUILDING AND JOB PLAN (STATE INFRASTRUCTURE DELIVERY) ACT 2009 EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE ACT.

No.

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Landscaping plans are required to accompany applications for each lot developed. The landscaping plan shall comprise predominantly native species indigenous to the local area. The landscaping plan shall be submitted to Council's Development Unit for approval prior to application approval. Where trees and scrubs are to be removed they shall be replaced at a ratio of 2:1.

This land has been identified as containing Estuarine Paperbark Scrub Forest. This community may qualify as the endangered ecological community Swamp Sclerophyll Forest on Coastal Floodplains as listed under Part 3 Schedule 1 of the Threatened Species Conservation Act 1995. The presence of this vegetation community may restrict the development potential of the land. The nature and extent of any threatened species or cultural heritage constraints should be determined following an assessment of the land by a qualified and experienced ecologist/consultant.

A notice has been served to connect the premises to the sewer.

A Tree Preservation Order applies to all trees having a height exceeding 3 metres from the ground and certain other native species (including River Mangrove and Grey Mangrove) irrespective of height.

Land subject to Interim Development Order 122 Clearing (including the underscrubbing) of vacant land is prohibited. The clearing of vacant land (including underscrubbing) is not and cannot be considered as a specific action for which development consent can be given. Clearing (including underscrubbing) is only permitted in association with lawful consent (such as a previous approval by Council or the court). Min.No:71/98

Note: This Certificate is issued without Alteration and Erasure.

TITLE DEED SEARCH

Legal Liaison Searching Services

ABN: 52832569710
Ph: 02 9233 5800
Fax: 02 9221 2827

Level 4, 70 Castlereagh Street,
Sydney 2000
PO Box 2513 Sydney NSW 2001
DX 1019 Sydney

Summary of Owners Report

LPI **Sydney**

Address: - Bakali Road, Forresters Beach

Description: - Lots 1 2 & 3 D.P 1000694

As regards the part tinted pink on the attached copy of D.P. 1000694

This part was formerly a road, subsequently closed by notification in Government Gazette dated 15.07.1905

The first title to issue was in 1931

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
10.04.1931 (1931 to 1931)	N.S.W. Realty Co Limited	Vol 4475 Fol 124
29.10.1931 (1931 to 1936)	William Harvey (Retired Manufacturer)	Vol 4475 Fol 124 Now Vol 4515 Fol 200
20.05.1936 (1936 to 1941)	William Hedley Harvey (Furniture Warehouseman) (Transmission Application not investigated)	Vol 4515 Fol 200
10.07.1941 (1941 to 1951)	Otto Oscar Groth (Produce Merchant)	Vol 4515 Fol 200
26.06.1951 (1951 to 1959)	Emma May Jorgensen (Married Woman)	Vol 4515 Fol 200
09.12.1959 (1959 to 1972)	Linda Monica Barrie (Widow) James Albert Barrie (Motor Mechanic) Mervyn Francis Barrie (Motor Mechanic)	Vol 4515 Fol 200 Now Vol 8204 Fol 168
14.06.1972 (1972 to 1972)	James Albert Barrie (Motor Mechanic) Mervyn Francis Barrie (Motor Mechanic)	Vol 8204 Fol 168
29.06.1972 (1972 to 1973)	Kevin Arthur Rubie (Company Representative) Margaret Rose Rubie (Married Woman)	Vol 8204 Fol 168
07.06.1973 (1973 to 1992)	K & M Rubie Pty Limited	Vol 8204 Fol 168 Now Auto Consol 8204-168
06.11.1992 (1992 to 1992)	Robert William Polley Anne Patterson Polley Loui Nicholas Mary Nicholas Luigi Cicco Thomas Hope Murrie Donna Leanne Rush John Lisbona Bellhome Pty Limited	Auto Consol 8204-168 Now 1/121549
08.12.1992 (1992 to 1999)	The Park-Forresters Beach Pty Limited	1/121549 Now 3/1000694

As regards the part tinted orange on the attached copy of D.P. 1000694

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
30.03.1914 (1914 to 1931)	N.S.W. Realty Co Limited	Vol 2010 Fol 248
29.10.1931 (1931 to 1936)	William Harvey (Retired Manufacturer)	Vol 2010 Fol 248 Now Vol 4515 Fol 200
20.05.1936 (1936 to 1941)	William Hedley Harvey (Furniture Warehouseman) (Transmission Application not investigated)	Vol 4515 Fol 200
10.07.1941 (1941 to 1951)	Otto Oscar Groth (Produce Merchant)	Vol 4515 Fol 200
26.06.1951 (1951 to 1959)	Emma May Jorgensen (Married Woman)	Vol 4515 Fol 200
09.12.1959 (1959 to 1972)	Linda Monica Barrie (Widow) James Albert Barrie (Motor Mechanic) Mervyn Francis Barrie (Motor Mechanic)	Vol 4515 Fol 200 Now Vol 8204 Fol 168
14.06.1972 (1972 to 1972)	James Albert Barrie (Motor Mechanic) Mervyn Francis Barrie (Motor Mechanic)	Vol 8204 Fol 168
29.06.1972 (1972 to 1973)	Kevin Arthur Rubie (Company Representative) Margaret Rose Rubie (Married Woman)	Vol 8204 Fol 168
07.06.1973 (1973 to 1992)	K & M Rubie Pty Limited	Vol 8204 Fol 168 Now Auto Consol 8204-168
06.11.1992 (1992 to 1992)	Robert William Polley Anne Patterson Polley Loui Nicholas Mary Nicholas Luigi Cicco Thomas Hope Murrie Donna Leanne Rush John Lisbona Bellhome Pty Limited	Auto Consol 8204-168 Now 1/121549
08.12.1992 (1992 to 1999)	The Park-Forresters Beach Pty Limited	1/121549 Now 3/1000694

As regards the part tinted yellow on the attached copy of D.P. 1000694

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
30.12.1913 (1913 to 1920)	N.S.W. Realty Co Limited	Vol 1991 Fol 206
21.12.1920 (1920 to 1943)	William Julian Hosking (Painter) (& His Deceased Estate)	Vol 1991 Fol 206 Now Vol 3148 Fol 215
26.08.1943 (1943 to 1947)	Stanley Robert Dalziell (Turner)	Vol 3148 Fol 215
22.12.1947 (1947 to 1949)	Thomas Kenneth Griffin (Poultry Farmer)	Vol 3148 Fol 215
22.07.1949 (1949 to 1954)	Ethel Mary Mullen (Married Woman)	Vol 3148 Fol 215 Now Vol 6573 Fol 235
25.10.1954 (1954 to 1969)	Albert Gregory (Poultry Farmer)	Vol 6573 Fol 235

ABN: 52832569710
Ph: 02 9233 5800
Fax: 02 9221 2827

Level 4, 70 Castlereagh Street,
Sydney 2000
PO Box 2513 Sydney NSW 2001
DX 1019 Sydney

Search continued as regards the part tinted yellow on the attached copy of D.P. 1000694

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
29.07.1969 (1969 to 1969)	Frederick Roy Bononfant (Retired)	Vol 6573 Fol 235
19.12.1969 (1969 to 1974)	Keith Edward Jones (Butcher) Beryl May Jones (Married Woman)	Vol 6573 Fol 235
17.10.1974 (1974 to 1977)	Romon (No. 10) Pty Limited	Vol 6573 Fol 235
27.06.1977 (1977 to 1992)	K & M Rubie Pty Limited	Vol 6573 Fol 235 Now Vol 13395 Fol 214
06.11.1992 (1992 to 1992)	Robert William Polley Anne Patterson Polley Loui Nicholas Mary Nicholas Luigi Cicco Thomas Hope Murrie Donna Leanne Rush John Lisbona Bellhome Pty Limited	Vol 13395 Fol 214
08.12.1992 (1992 to 1999)	The Park-Forresters Beach Pty Limited	Vol 13395 Fol 214 Now 1, 2 & 3/1000694

Search continued as regards Lot 1 D.P. 1000694

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
01.06.1999 (1999 to date)	# Melissa Leigh Hall # Damian Bradley James Scott	1/1000694

# Denotes current registered proprietors

Easements: -

- 04.05.1999 Restrictions in the use of land (affecting part marked (R) on D.P. 1000694)
- 04.05.1999 Restrictions in the use of land (affecting part marked (S) on D.P. 1000694)
- 04.05.1999 Restrictions in the use of land (D.P. 1000694)

Leases: - NIL

Search continued as regards Lot 2 D.P. 1000694

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
18.06.1999 (1999 to date)	# Craig John Horton # Trudy Anna Horton	2/1000694

# Denotes current registered proprietors

Easements: -

- 04.05.1999 Right of Carriageway 10.5. metres wide and variable D.P. 1000694)
- 04.05.1999 Easement for Services 3, 6 and 10.5 metres wide and variable D.P. 1000694)
- 04.05.1999 Restrictions in the use of land (affecting part marked (R) on D.P. 1000694)
- 04.05.1999 Restrictions in the use of land (affecting part marked (S) on D.P. 1000694)
- 04.05.1999 Restrictions in the use of land (D.P. 1000694)
- 04.05.1999 Easement for Water Supply 3 and 10.5 metres wide and variable D.P. 1000694)

Leases: - NIL

Search continued as regards Lot 3 D.P. 1000694

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
16.06.1999 (1999 to 2002)	John Stephen Barr Kathryn Jane Barr	3/1000694
30.08.2002 (2002 to date)	# Brendon Robert Briggs # Julie Anne Briggs	3/1000694

# Denotes current registered proprietors

Easements: -

- 15.12.1983 Easement to Drain Water 6 metres wide (T 732471)
- 04.05.1999 Right of Carriageway 10.5 metres wide and variable D.P. 1000694)
- 04.05.1999 Easement for Services 3, 6 and 10.5 metres wide and variable D.P. 1000694)
- 04.05.1999 Restrictions in the use of land (affecting part marked (R) on D.P. 1000694)
- 04.05.1999 Restrictions in the use of land (D.P. 1000694)

Leases: - NIL

Yours Sincerely
Mark Groll
10 November 2015
(Ph: 0412 199 304)

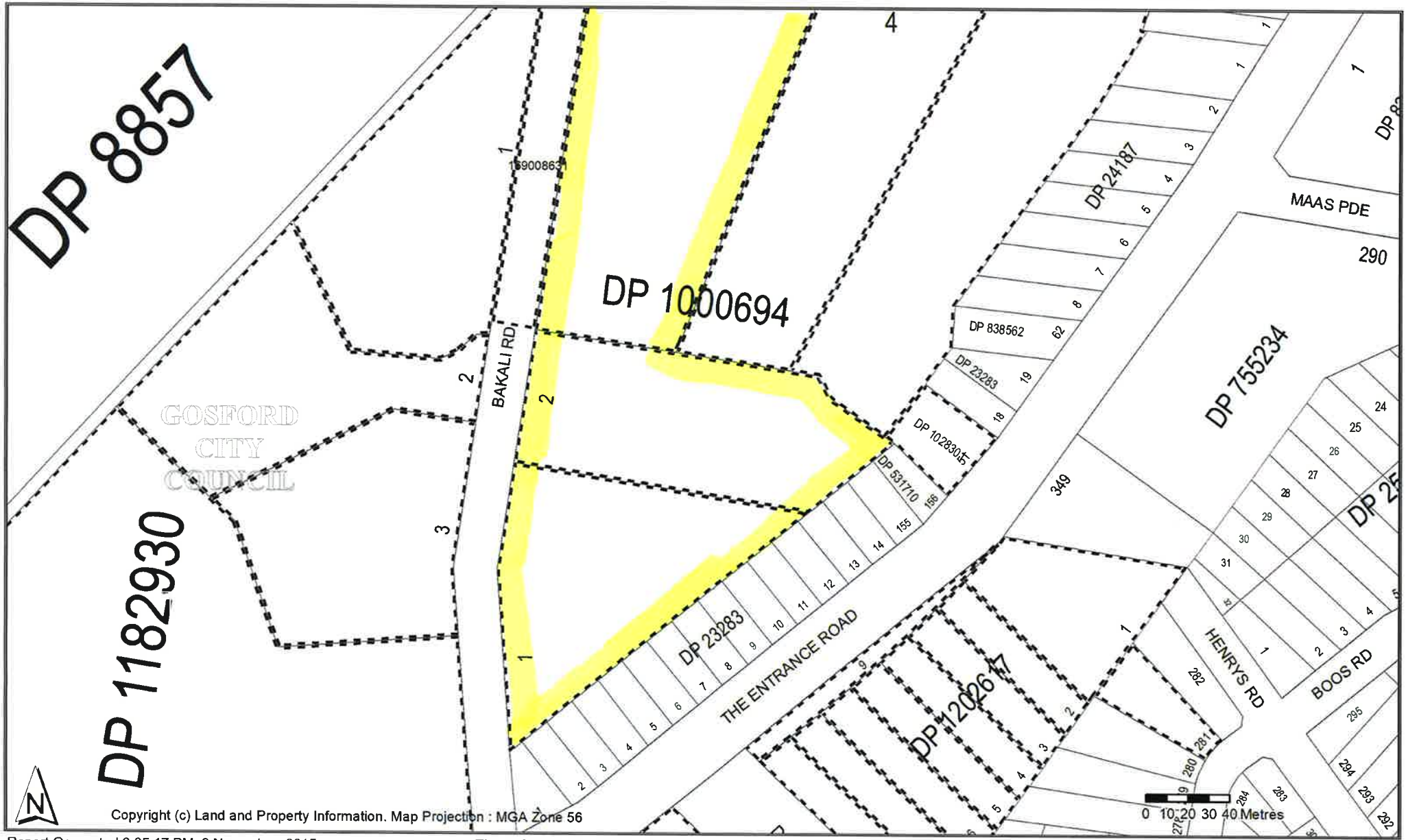
Land & Property Information

Cadastral Records Enquiry Report

Ref : surv:scim-grollm

Requested Parcel : Lot 2 DP 1000694 **Identified Parcel :** Lot 2 DP 1000694

Locality : FORRESTERS BEACH **LGA :** GOSFORD **Parish :** KINCUMBER **County :** NORTHUMBERLAND



Report Generated 3:05:17 PM, 9 November, 2015

This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

Land & Property Information

Cadastral Records Enquiry Report

Ref : surv:scim-grollm

Requested Parcel : Lot 3 DP 1000694

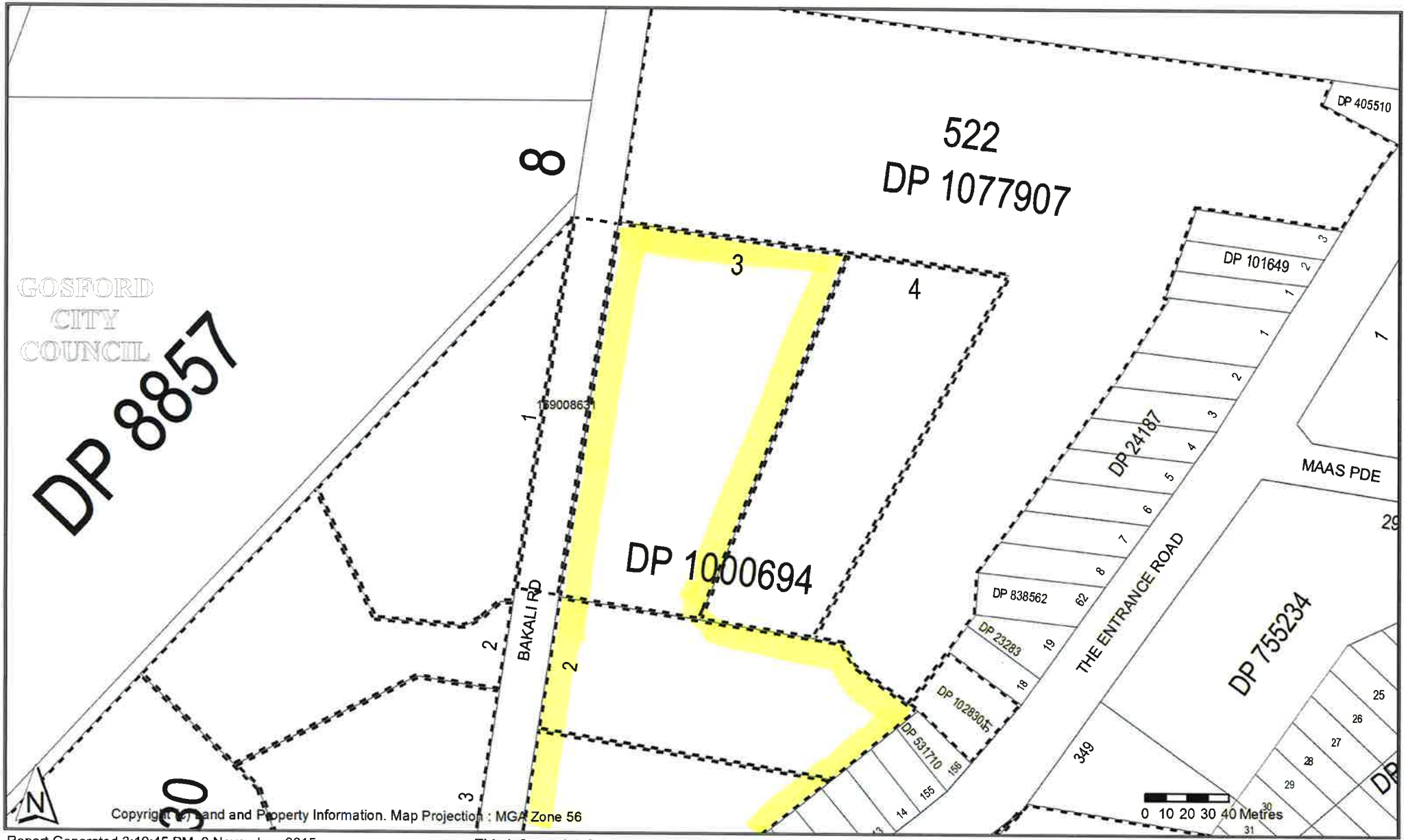
Identified Parcel : Lot 3 DP 1000694

Locality : FORRESTERS BEACH

LGA : GOSFORD

Parish : KINCUMBER

County : NORTHUMBERLAND



Report Generated 3:19:45 PM, 9 November, 2015

This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

PLAN FORM 2

Plan Drawing only to appear in this space

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

THE COMMON SEAL OF THE PARK FORRESTERS BEACH PTY LTD WAS AFFIXED IN ACCORDANCE WITH ITS ARTICLES OF ASSOCIATION IN THE PRESENCE OF:

BENEDICT A.C. ATKINSON
DIRECTOR

THOMAS J. ATKINSON
DIRECTOR / SECRETARY

Signed for and on behalf of ST. GEORGE BANK LIMITED by ... and ... its duly constituted Attorneys ... under Power of Attorney Registered No. 125 Book 4162 ... within document.

Crown Lands Office Approval
PLAN APPROVED .... Authorised Officer
Land District ....
Paper No ....
Field Book .... pages

Council Certificate
I hereby certify that:
(a) the requirements of the Local Government Act 1919 (other than the requirements for the registration of plans) and
(b) the requirements of Part 3 Division 2 of the Hunter Water Board (Corporatisation) Act 1991
have been complied with by the applicant in relation to the proposed SUBDIVISION
(Insert 'new road', 'subdivision' or 'consolidation' (of) set out herein)
Subdivision No. 5670
Date 7-4-99
(Signature) ....
General Manager / Authorised Person
Council File No. DA 32.4558

* This part of certificate to be deleted where the application is only for a consolidation (a) or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

* Delete if inapplicable

SURVEYOR'S REFERENCE: 8395UR

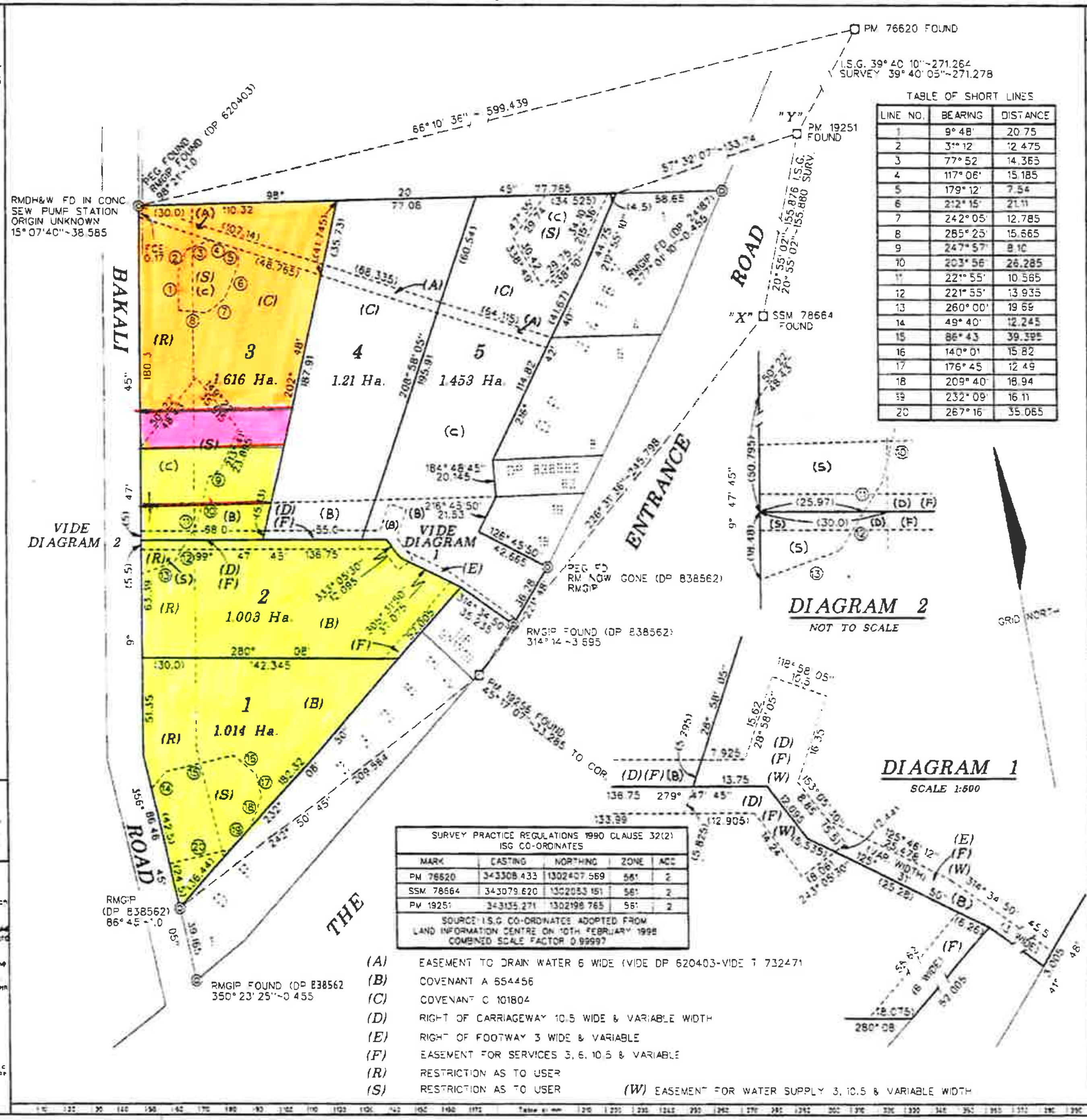


TABLE OF SHORT LINES

LINE NO.	BEARING	DISTANCE
1	9° 48'	20.75
2	3° 12'	12.475
3	77° 52'	14.365
4	117° 06'	15.185
5	179° 12'	7.54
6	212° 15'	21.11
7	242° 05'	12.785
8	285° 25'	15.665
9	247° 57'	8.10
10	203° 56'	26.285
11	221° 55'	10.565
12	221° 55'	13.935
13	260° 00'	19.69
14	49° 40'	12.245
15	86° 43'	39.395
16	140° 01'	15.82
17	176° 45'	12.49
18	209° 40'	18.94
19	232° 09'	16.11
20	267° 16'	35.065

SURVEY PRACTICE REGULATIONS 1990 CLAUSE 32(2)
ISG CO-ORDINATES

MARK	EASTING	NORTHING	ZONE	ACC
PM 76620	343308.433	1302407.569	56/1	2
SSM 78664	343079.620	1302053.151	56/1	2
PM 19251	343135.271	1302198.765	56/1	2

SOURCE: I.S.G. CO-ORDINATES ADOPTED FROM LAND INFORMATION CENTRE ON 10TH FEBRUARY 1998
COMBINED SCALE FACTOR 0.99997

(A) EASEMENT TO DRAIN WATER 6 WIDE (VIDE DP 620403-VIDE T 732471)
(B) COVENANT A 654456
(C) COVENANT C 101804
(D) RIGHT OF CARRIAGEWAY 10.5 WIDE & VARIABLE WIDTH
(E) RIGHT OF FOOTWAY 3 WIDE & VARIABLE
(F) EASEMENT FOR SERVICES 3, 6, 10.5 & VARIABLE
(R) RESTRICTION AS TO USER
(S) RESTRICTION AS TO USER
(W) EASEMENT FOR WATER SUPPLY 3, 10.5 & VARIABLE WIDTH

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

DP1000694

Registered 4-5-1999
CA No 5474 OF 7-4-1999
Title System: TORRENS
Purpose: SUBDIVISION
Ref Map: U3697-6
Last Plan: DP 838562

PLAN OF SUBDIVISION OF LOT 61 DP 838562

Lengths are in metres. Reduction Ratio 1:1500

L.G.A. GOSFORD
Locality: FORRESTERS BEACH
Parish: KINCUMBER
County: NORTHUMBERLAND

This is sheet 1 of my plan in ... sheets
(Delete if inapplicable)

I, BARRY EARL CHARLES HUNT of BARRY HUNT ASSOCIATES, P.O. BOX 144 BAY VILLAGE NSW 2261, a surveyor registered under the Surveyors Act 1929 as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulations 1990 and was completed on 11TH MARCH 1999

Signature ....
Surveyor registered under Surveyors Act 1929 as amended
Datum line of Azimuth: "X" – "Y"
ZONE SUBURBAN

Plans used in preparation of survey/compilation
DP 838562 DP 24187
DP 879083 DP 23283

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT, 1919 IT IS INTENDED TO CREATE:-

1. RIGHT OF CARRIAGEWAY 10.5 WIDE & VARIABLE WIDTH
2. RIGHT OF FOOTWAY 3 WIDE & VARIABLE WIDTH
3. EASEMENT FOR SERVICES 3, 6, 10.5 & VARIABLE WIDTH
4. RESTRICTION ON THE USE OF LAND (R)
5. RESTRICTION ON THE USE OF LAND (S)
6. RESTRICTION ON THE USE OF LAND
7. RESTRICTION ON THE USE OF LAND
8. EASEMENT FOR WATER SUPPLY

PLAN AMENDED IN L.T.O. AT SURVEYORS REQUEST 3-5-99

PLAN FORM 2

Plan Drawing only to appear in this space

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

THE COMMON SEAL OF THE PARK FORRESTERS BEACH PTY. LTD. WAS AFFIXED IN ACCORDANCE WITH ITS ARTICLES OF ASSOCIATION IN THE PRESENCE OF:

BENEDICT A.C. ATKINSON
DIRECTOR

THOMAS J. ATKINSON
DIRECTOR / SECRETARY

SIGNED for and on behalf of ST. GEORGE BANK LIMITED
BY ..... AND .....
a duly constituted Attorneys who HEREBY DECLARE that at the time of execution by them of this ... have no notice of the revocation of the Power of Attorney Registered No. 125 Book 4152 under the authority of which they have executed the within document.

Crown Lands Office Approval
PLAN APPROVED ..... Authorised Officer
Land District .....
Paper No. .....
Field Book ..... pages .....

Council Certificate
I hereby certify that-
(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans) and
*[the requirements of Part 3 Division 7 of the Water Board Act, 1987, or Part 5 Division 7 of the Hunter Water Board (Corporatisation) Act, 1991]
have been complied with by the applicant in relation to the proposed SUBDIVISION (insert "new road", "subdivision" or "consolidation (of)" as set out herein)
Subdivision No. 5474
Date 7-4-99
(Signature) ..... General Manager / Authorised Person
Council File No. DA 22.458

* This part of certificate to be deleted where the application is only for a consolidation (of) or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

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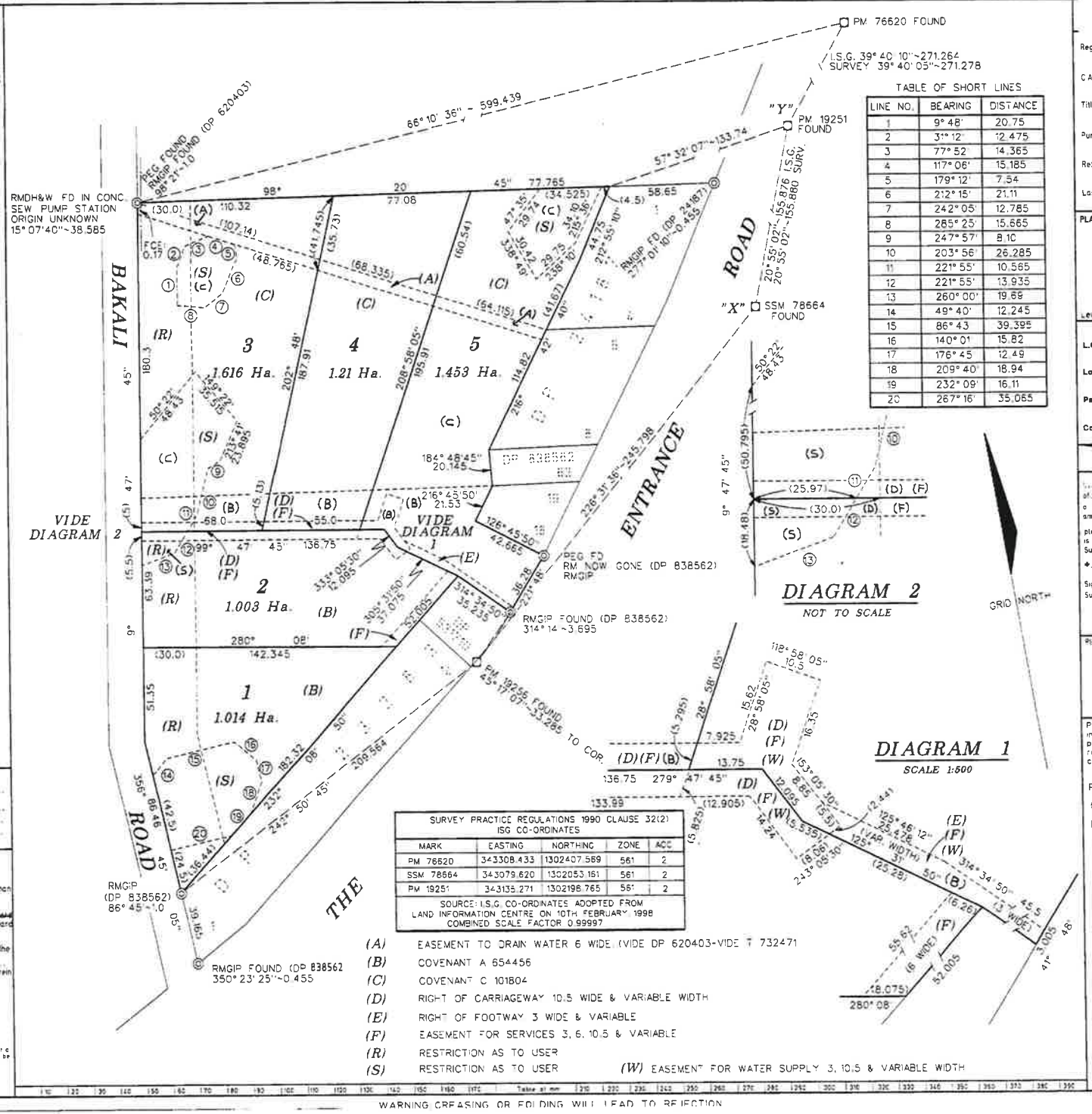
SURVEYOR'S REFERENCE: 839SUR



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SURVEY PRACTICE REGULATIONS 1990 CLAUSE 32(2) ISG CO-ORDINATES

MARK	EASTING	NORTHING	ZONE	ACC
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SSM 78664	343079.620	1302053.161	561	2
PM 19251	343135.271	1302198.765	561	2

SOURCE: I.S.G. CO-ORDINATES ADOPTED FROM LAND INFORMATION CENTRE ON 10TH FEBRUARY, 1998 COMBINED SCALE FACTOR 0.99997

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(B) COVENANT A 654456
(C) COVENANT C 101804
(D) RIGHT OF CARRIAGEWAY 10.5 WIDE & VARIABLE WIDTH
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WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

DP1000694

Registered 4-5-1999
CA No 5474 OF 7-4-1999
Title System TORRENS
Purpose SUBDIVISION
Ref Map U3697-6
Last Plan DP 838562

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Lengths are in metres. Reduction Ratio 1:1500

L.G.A. GOSFORD
Locality: FORRESTERS BEACH
Parish: KINCUMBER
County: NORTHUMBERLAND

This is sheet 1 of my plan in ... sheets
(Delete if inapplicable)

I, BARRY ERIC CHARLES HUNT of C/- BARRY HUNT & ASSOCIATES of P.O. BOX 164 BAY VILLAGE NSW 2261 a surveyor registered under the Surveyors Act, 1929 as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulations 1990 and was completed on 11TH MARCH 1999

Signature .....
Surveyor registered under Surveyors Act 1929 as amended
Datum line of Azimuth "X"~"Y"
* insert date of survey
ZONE SUBURBAN

Plans used in preparation of survey/compilation
DP 838562 DP 24187
DP 879083 DP 23283

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8. EASEMENT FOR WATER SUPPLY

PLAN AMENDED IN L.T.O. AT SURVEYORS REQUEST 3-5-99

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
9/11/2015 3:14PM

FOLIO: AUTO CONSOL 8204-168

Recorded	Number	Type of Instrument	C.T. Issue
2/6/1992		CONSOL HISTORY RECORD CREATED FOR AUTO CONSOL 8204-168 PARCELS IN CONSOL ARE: 5/24187, 7-8/24187, 1/121549.	
6/11/1992	E876831	DISCHARGE OF MORTGAGE	
6/11/1992	E876834	TRANSFER	
6/11/1992	E876835	MORTGAGE	EDITION 1
3/12/1992		1/121549 EXCISED	
8/12/1992	E924050	DISCHARGE OF MORTGAGE	
8/12/1992	E924051	TRANSFER	EDITION 2
4/1/1993	I19939	DEPARTMENTAL DEALING	EDITION 3
9/9/1994	U603868	TRANSFER	
9/9/1994	U603869	MORTGAGE	EDITION 4
19/9/1994	U603868	7/24187 EXCISED	
20/9/1994	U634104	DEPARTMENTAL DEALING	EDITION 5
5/10/1994	U668770	8/24187 EXCISED	
5/10/1994	U668770	5/24187 EXCISED	
5/10/1994	U668770	PARCELS EXCISED. CONSOL BROKEN UP	

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

**ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.*

RP13

TRANSFER

Real Property Act, 1900

E 876834 G

only

Office of State Revenue use only

$2-

B

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

FOLIO IDENTIFIER AUTO-CONSOL 8204-168
VOLUME 4490 FOLIO 138, VOLUME 13395 FOLIO 214
FOLIO IDENTIFIER 2/706892, FOLIO IDENTIFIER 62/747931
FOLIO IDENTIFIER 4/8857, FOLIO IDENTIFIER 3/45580.

(B) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone
45A	NATIONAL AUSTRALIA BANK LIMITED National Australia Bank Limited 255 George Street, Sydney 237-1111 FAX 237-1284 REFERENCE (max. 15 characters): 45A P08404

(C) **TRANSFEROR** K. & M. RUBIE PTY LIMITED (ACN 000 870 155)

(D) acknowledges receipt of the consideration of $2,600,000.00

and as regards the land specified above transfers to the transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. W17226 2. 3.

(F) **TRANSFEREE**

SEE ANNEXURE A

(G) as joint tenants/tenants in common

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATE** 24.9.92

Signed in my presence by the transferor who is personally known to me.

Duly executed by the Vendor K & M Rubie Pty Limited by its duly authorised

Signature of Witness

Attorney Kevin R Shirlaw pursuant to

Name of Witness (BLOCK LETTERS)

Power of Attorney Book 3873 No 637.

Address of Witness

X Signature of Witness

X NEIL R. CUSSEN
Name of Witness (BLOCK)

1 MARKET ST, SYDNEY
Address of Witness

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

SOLICITOR FOR ~~Signature of~~ Transferee (PAUL V. WAKIM)

☞ INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE

CHECKED BY (office use only)

6-11

2R

B

THIS IS THE ANNEXURE "A" TO THE TRANSFER BY K. & M. RUBIE PTY. LIMITED AS TRANSFEROR OF THE LAND COMPRISED IN THE FOLLOWING TITLES.

1. FOLIO IDENTIFIER AUTO-CONSOL 8204-168
2. VOLUME 4490 FOLIO 138,
3. FOLIO IDENTIFIER 2/706892
4. FOLIO IDENTIFIER 4/8857
5. VOLUME 13395 FOLIO 214
6. FOLIO IDENTIFIER 62/747931
7. FOLIO IDENTIFIER 3/45580

TRANSFEREE

4490-138

13395-214

ROBERT WILLIAM POLLEY and ANNE PATTERSON POLLEY both of 4 Whitfield Avenue, Ashfield as joint tenants as to an undivided one-fifth share, as tenant in common with — 2/10

LOUI NICHOLAS and MARY NICHOLAS both of 16 Florida Avenue, Ermington, as joint tenants as to an undivided one-fifth share, as tenant in common with — 2/10

LUIGI CICCO of 1/8 Eastbourne Road, Homebush, as to an undivided one-tenth share, as tenant in common with — 1/10

THOMAS HOPE MURRIE of 37A Copeland Road, Beecroft, as to an undivided one-tenth share, as tenant in common with — 1/10

DONNA LEANNE RUSH, of 37A Copeland Road, Beecroft, as to an undivided one-tenth share, as tenant in common with — 1/10

JOHN LISBONA, of 49 Broome Street, Maroubra, as to an undivided one-tenth share, as tenant in common with — 1/10

BELLHOME PTY LIMITED (ACN 056 418 252) C/- Murrie & Co, Accountants, 2 O'Connell Street, Parramatta, as to an undivided two-tenths share. — 2/10

Legal Liaison Services

Legal Liaison Services hereby certifies that the information contained in this document has been provided electronically by the Registrar General.

Information provided through Tri-Search an approved LPI*NSW* Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
9/11/2015 3:10PM

FOLIO: 1/121549

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 8204 FOL 168

Recorded	Number	Type of Instrument	C.T. Issue
28/5/1992	DP121549	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
2/6/1992		CONVERTED TO AUTO CONSOL 8204-168	CONSOL CREATED CT NOT ISSUED
3/12/1992		EXCISED FROM AUTO CONSOL 8204-168	
8/12/1992	E924050	DISCHARGE OF MORTGAGE	
8/12/1992	E924052	TRANSFER	EDITION 2
4/1/1993	I19939	DEPARTMENTAL DEALING	EDITION 3
5/5/1994	DP838562	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

**ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.*

RP13

TRANSFER

Real Property Act, 1900

E 924052 A

B

Office of State Re

D

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

Part Volume 8204 Folio 168 being Lot 1 in Deposited Plan 121549 and the whole of Volume 13395 Folio 214

(B) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone
249H	Dibbs Crowther and Osborne DX 101 Sydney Tel: 290 8220 REFERENCE (max. 15 characters): DJS

(C) **TRANSFEROR**

ROBERT WILLIAM POLLEY, ANNE PATTERSON POLLEY, LOUI NICHOLAS, MARY NICHOLAS, LUIGI CICCO, THOMAS HOPE MURRIE, DONNA LEANNE RUSH, JOHN LISBONA AND BELLHOME PTY LIMITED ACN 056 418 252

(D) acknowledges receipt of the consideration of $440,000.00

and as regards the land specified above transfers to the transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. ..... 2. ..... 3. .....

(F) **TRANSFEREE**

T

THE PARK-FORRESTERS BEACH PTY LIMITED ACN 056 986 282 of C/- Saccasan Baily Roy, 4th Floor, 55 York Street, Sydney.

(G) ~~as joint tenants/tenants in common~~

OVER

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATE OF EXECUTION** 18th November 1992

Signed in my presence by the transferor who is personally known to me.

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address of Witness

SEE ANNEXURE "A" HERETO

..... 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

..... Signature of Transferee's Solicitor

DAVID JAMES SHARPE

CHECKED BY (office use only)

☞ **INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE**

B

THIS IS THE ANNEXURE "A" TO THE TRANSFER BY POLLEY, NICHOLAS, CICCO, MURRIE, RUSH, LISBONA & BELLHOME PTY LTD AS TRANSFERORS AND THE PARK-FORRESTERS BEACH PTY LIMITED AS TRANSFEREES.

.....
ROBERT WILLIAM POLLEY

.....
ANNE PATTERSON POLLEY

.....
LOUI NICHOLAS

.....
SIGNATURE OF WITNESS

.....
MARY NICHOLAS

PAUL VINCENT WARREN SOLICITOR.
.....
NAME OF WITNESS

.....
LUIGI CICCO

42A HIBISCUS ST FORRESTDALE
.....
ADDRESS OF WITNESS

.....
THOMAS HOPE MURRIE

.....
DONNA LEANNE RUSH

.....
JOHN LISBONA

THE COMMON SEAL OF BELLHOME PTY LIMITED (ACN 056 418 252) was hereunto affixed by Order of the Board in the presence of

BELLHOME PTY. LIMITED A.C.N. 056 418 252 Common Seal

.....
DIRECTOR

.....
SECRETARY

RP 88A
1988

OFFICE USE ONLY B E924052

REGISTRATION DIRECTION ANNEXURE

Use this side only for First and Second Schedule directions

DO NOT USE BOTH SIDES OF THE FORM

FIRST SCHEDULE DIRECTIONS

(A) FOLIO IDENTIFIER	(B) DIRECTION	(C) NAME
1/121549 13395-214	S	THE PARK-FORRESTERS BEACH PTY LIMITED

SECOND SCHEDULE AND OTHER DIRECTIONS

(D) FOLIO IDENTIFIER	(E) DIRECTION	(F) NOTFN TYPE	(G) DEALING NUMBER	(H) DETAILS
1/121549	OFF	EA	F688378	

CANCELLED W

CERTIFICATE OF TITLE

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

TORRENS TITLE Register 61-62/838562

Vol. 1 13395214

Crown Grant Vol.1273 Fol.205

Prior Title Vol.6953 Fol.47

9 8 1977

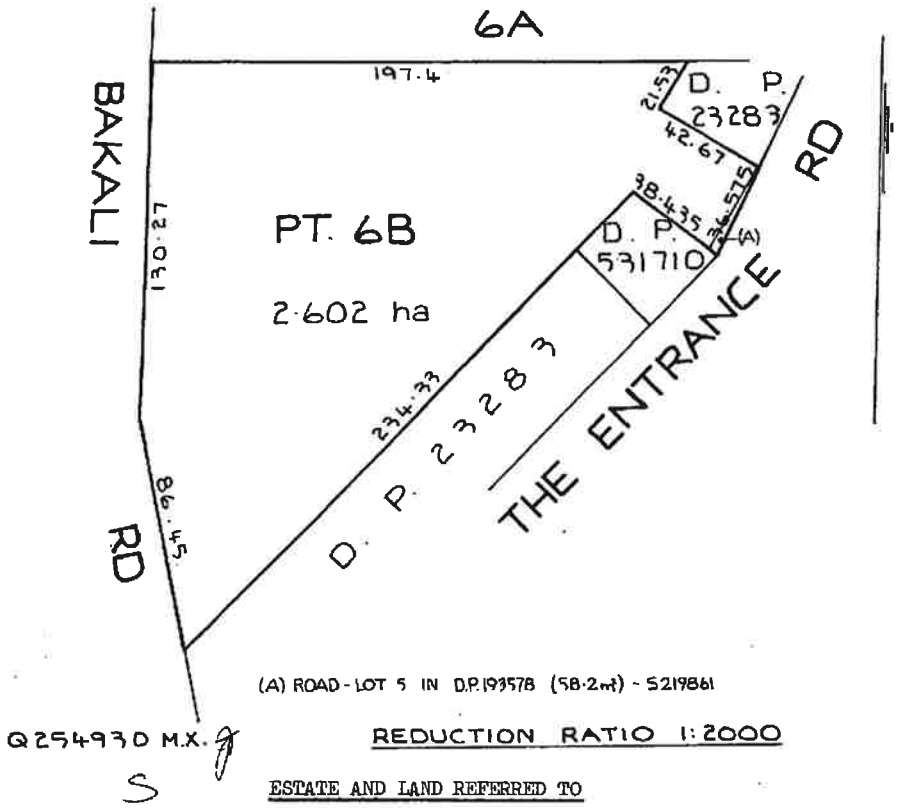
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Registrar General.

(Page 1) Vol. 13395 Fol. 214

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



(A) ROAD - LOT 5 IN D.P.193578 (58.2m²) - S219861

Q254930 M.X.

REDUCTION RATIO 1:2000

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in the part of Lot 6B in Deposited Plan 8857 shown in the plan hereon in the Shire of Gosford Parish of Kincumber and County of Northumberland. EXCEPTING THEREOUT the minerals reserved by the Crown Grant.

FIRST SCHEDULE

~~K. and M. RU[illegible] PTY. LIMITED.~~

SECOND SCHEDULE

GRM

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. A654456P Covenant. CV
3. ~~Q254930 Mortgage to Remon (No.10) Pty. Limited.~~ Discharged R401758

Vol. 13395 Fol. 214

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Robert William Petty and Anne Patterson Petty as joint tenants in 2/10 share Lou Nicholas and Mary Nicholas as joint tenants in 2/10 share, Luigi Cicco in 1/10 share, Thomas Hope Menzies in 1/10 share Donna Leanne Rush in 1/10 share, John Lisbone in 1/10 share and Bellthorne Pty Limited in 2/10 share as tenants in common by Transfer E81883 Registered 6.11.1992.					
The Park-Forresters Beach Pty Limited. by Transfer E924052 Registered 8-12-1992					

R A401758 R
R578906
Pt being lot 5 DP.. Resumed for Rd Gaz 10.10.80 Fol.
S170564
S219861 N/R part
S906881 m
W879735 dm
Y895108 M
E876831 DM
34 T
35 M
E9240... (struck through)
E9240... (struck through)
E924052 T
DP838562

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT NUMBER	DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
~~Mortgage~~	~~R578906~~	~~------~~	~~to Arthur Horsfield of Pearl Beach, Retired~~	~~14-2-1980~~		Discharged	S170564	
S219861 Notice of Resumption			The land so indicated in the plan hereon being lot 5 in DP193578 is now public road. Registered 1-5-1981.					
~~S906881~~	~~Mortgage to A.I.F.C. Leasing~~		~~Nominees Pty Limited. Registered 17-3-1982~~			Discharged	W879735	
~~Y895108~~	~~MORTGAGE TO NATIONAL~~		~~AUSTRALIA BANK LIMITED. REGISTERED 20.3.1990~~				E876831	

DP/SP 838562 Registered 4-5-1994
This folio is cancelled as to whole/part upon creation of computer folios for lots 61, 62 in the abovementioned plan.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Legal Liaison Services

Legal Liaison Services hereby certifies that the information contained in this document has been provided electronically by the Registrar General.

Information provided through Tri-Search an approved LPI*NSW* Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
9/11/2015 3:10PM

FOLIO: 61/838562

First Title(s): VOL 1273 FOL 205 VOL 4475 FOL 124
Prior Title(s): 1/121549 VOL 13395 FOL 214

Recorded	Number	Type of Instrument	C.T. Issue
5/5/1994	DP838562	DEPOSITED PLAN	FOLIO CREATED EDITION 1
21/7/1997	3253310	MORTGAGE	EDITION 2
4/5/1999	DP1000694	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

**ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.*

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
9/11/2015 3:07PM

FOLIO: 1/1000694

First Title(s): VOL 1273 FOL 205
Prior Title(s): 61/838562

Recorded	Number	Type of Instrument	C.T. Issue
4/5/1999	DP1000694	DEPOSITED PLAN	FOLIO CREATED EDITION 1
1/6/1999	5869181	DISCHARGE OF MORTGAGE	
1/6/1999	5869182	TRANSFER	EDITION 2
25/2/2000	6597085	MORTGAGE	EDITION 3

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

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Legal Liaison Services

Legal Liaison Services hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act.

Information provided through Tri-Search an approved LPI*NSW* Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/1000694

SEARCH DATE	TIME	EDITION NO	DATE
9/11/2015	3:06 PM	3	25/2/2000

LAND

LOT 1 IN DEPOSITED PLAN 1000694
AT FORRESTERS BEACH
LOCAL GOVERNMENT AREA GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1000694

FIRST SCHEDULE

MELISSA LEIGH HALL
DAMIAN BRADLEY JAMES SCOTT
AS TENANTS IN COMMON IN EQUAL SHARES (T 5869182)

SECOND SCHEDULE (7 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A654456 COVENANT
3 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
4 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART SHOWN DESIGNATED (R) IN THE TILE DIAGRAM
5 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART DESIGNATED (S) IN THE TITLE DIAGRAM
6 DP1000694 RESTRICTION(S) ON THE USE OF LAND
7 6597085 MORTGAGE TO AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED

NOTATIONS

NOTE: THE CERTIFICATE OF TITLE FOR THIS FOLIO OF THE REGISTER DOES NOT INCLUDE SECURITY FEATURES INCLUDED ON COMPUTERISED CERTIFICATES OF TITLE ISSUED FROM 4TH JANUARY, 2004. IT IS RECOMMENDED THAT STRINGENT PROCESSES ARE ADOPTED IN VERIFYING THE IDENTITY OF THE PERSON(S) CLAIMING A RIGHT TO DEAL WITH THE LAND COMPRISED IN THIS FOLIO.
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
9/11/2015 3:07PM

FOLIO: 2/1000694

First Title(s): VOL 1273 FOL 205
Prior Title(s): 61/838562

Recorded	Number	Type of Instrument	C.T. Issue
4/5/1999	DP1000694	DEPOSITED PLAN	FOLIO CREATED EDITION 1
18/6/1999	5912286	DISCHARGE OF MORTGAGE	
18/6/1999	5912287	TRANSFER	
18/6/1999	5912288	MORTGAGE	EDITION 2
19/5/2010	AF499392	DISCHARGE OF MORTGAGE	
19/5/2010	AF499393	MORTGAGE	EDITION 3

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 2/1000694

SEARCH DATE	TIME	EDITION NO	DATE
9/11/2015	3:06 PM	3	19/5/2010

LAND

LOT 2 IN DEPOSITED PLAN 1000694
AT FORRESTERS BEACH
LOCAL GOVERNMENT AREA GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1000694

FIRST SCHEDULE

CRAIG JOHN HORTON
TRUDY ANNA HORTON
AS JOINT TENANTS (T 5912287)

SECOND SCHEDULE (12 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A654456 COVENANT
3 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
4 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
5 DP1000694 RIGHT OF FOOTWAY 3 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
6 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
7 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
8 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART SHOWN DESIGNATED (R) IN THE TILE DIAGRAM
9 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART DESIGNATED (S) IN THE TITLE DIAGRAM
10 DP1000694 RESTRICTION(S) ON THE USE OF LAND
11 DP1000694 EASEMENT FOR WATER SUPPLY 3,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
12 AF499393 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
9/11/2015 3:08PM

FOLIO: 3/1000694

First Title(s): VOL 1273 FOL 205 VOL 4475 FOL 124
Prior Title(s): 61/838562

Recorded	Number	Type of Instrument	C.T. Issue
4/5/1999	DP1000694	DEPOSITED PLAN	FOLIO CREATED EDITION 1
16/6/1999	5907218	DISCHARGE OF MORTGAGE	
16/6/1999	5907219	TRANSFER	EDITION 2
8/9/1999	6171417	MORTGAGE	EDITION 3
30/8/2002	8911295	DISCHARGE OF MORTGAGE	
30/8/2002	8911296	TRANSFER	
30/8/2002	8911297	MORTGAGE	
30/8/2002	8911298	MORTGAGE	EDITION 4

*** END OF SEARCH ***

forresters PRINTED ON 9/11/2015

**ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.*

5907219L

97-01T

Licence Number
010CN/0214/95

TRANSFER

Real Property Act, 1900

Office of Sta

N.S.W. STAMP DUTY
200598 4003 04 8007718826/03 $2.00

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.

If appropriate, specify the share transfered.

61/838562(PART)
NOW BEING FOLIO IDENTIFIER 3/1000694

(B) **LODGED BY**

L.T.O Box	
147R	Aubrey Brown Partners DX 7305 Wyong (02) 4332 8077 Reference : [redacted]:80 8401 : BLRR

(C) **TRANSFEROR** THE PARK FORRESTERS BEACH PTY LIMITED ACN 056 986 282

(D) acknowledges receipt of the consideration of $260,000.00..... and as regards the land specified above transfers to the Transferee an estate in fee simple.

(E) subject to the following **ENCUMBRANCES 1.**

(F) **TRANSFEREE**

T — JOHN STEPHEN BARR AND KATHRYN JANE BARR

(G) **Tenancy:** Joint Tenants

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900

DATED 21/5/1999

Signed in my presence by the Transferor who is personally known to me.

The Park Forresters Beach Pty Limited ACN 056 986 282 was hereto affixed in the presence of:

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

Signature of director/secretary

THE PARK FORRESTERS BEACH PTY. LIMITED
Seal
Common
A.C.N. 056 986 282

Signature of ~~Transferor~~ director

Signed in my presence by the Transferee who is personally known to me.

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

Solicitor for Transferee - Gordon William Popple

CHECKED BY (office use only)

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 3/1000694

SEARCH DATE	TIME	EDITION NO	DATE
9/11/2015	3:06 PM	4	30/8/2002

LAND

LOT 3 IN DEPOSITED PLAN 1000694
AT FORRESTERS BEACH
LOCAL GOVERNMENT AREA GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1000694

FIRST SCHEDULE

BRENDON ROBERT BRIGGS
JULIE ANNE BRIGGS
AS JOINT TENANTS (T 8911296)

SECOND SCHEDULE (13 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C101804 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
3 A654456 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
4 T732471 EASEMENT TO DRAIN WATER 6 METRES WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
5 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
6 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
7 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
8 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
9 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART SHOWN DESIGNATED (R) IN THE TILE DIAGRAM
10 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART DESIGNATED (S) IN THE TITLE DIAGRAM
11 DP1000694 RESTRICTION(S) ON THE USE OF LAND
12 8911297 MORTGAGE TO AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED
13 8911298 MORTGAGE TO AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED

END OF PAGE 1 - CONTINUED OVER

Legal Liaison Services

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 3/1000694 PAGE 2

NOTATIONS

NOTE: THE CERTIFICATE OF TITLE FOR THIS FOLIO OF THE REGISTER DOES NOT INCLUDE SECURITY FEATURES INCLUDED ON COMPUTERISED CERTIFICATES OF TITLE ISSUED FROM 4TH JANUARY, 2004. IT IS RECOMMENDED THAT STRINGENT PROCESSES ARE ADOPTED IN VERIFYING THE IDENTITY OF THE PERSON(S) CLAIMING A RIGHT TO DEAL WITH THE LAND COMPRISED IN THIS FOLIO.
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PLAN FORM 2

Plan Drawing only to appear in this space

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

THE COMMON SEAL OF THE PARK FORRESTERS BEACH PTY. LTD WAS AFFIXED IN ACCORDANCE WITH ITS ARTICLES OF ASSOCIATION IN THE PRESENCE OF:

BENEDICT A.C. ATKINSON
DIRECTOR

THOMAS J. ATKINSON
DIRECTOR / SECRETARY

SIGNED for and on behalf of ST. GEORGE BANK LIMITED by ... AND ... its duly constituted Attorneys who HEREBY DECLARE that at the time of execution by them of this ... they have no notice of the revocation of the Power of Attorney Registered No. 125 Book 4162 under the authority of which they have just executed the within document.

Crown Lands Office Approval

PLAN APPROVED ......
Authorised Officer
Land District ......
Paper No ......
Field Book ...... pages

Council Certificate

I hereby certify that-
(a) the requirements of the Local Government Act 1919 (other than the requirements for the registration of plans) and
~~*(b) the requirements of Part 3 Division 7 of the ... Water Board Act 1987, or Part 5 Division 2 of the Hunter Water Board (Corporatisation) Act 1991~~
have been complied with by the applicant in relation to the proposed SUBDIVISION
(insert "new road", "subdivision" or "consolidation (of)") set out herein
Subdivision No 5474
Date 7-4-99
(Signature) ......
~~General Manager~~ / Authorised Person
Council File No DA 32456

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd

* Delete if inapplicable

SURVEYOR'S REFERENCE: 8395UR

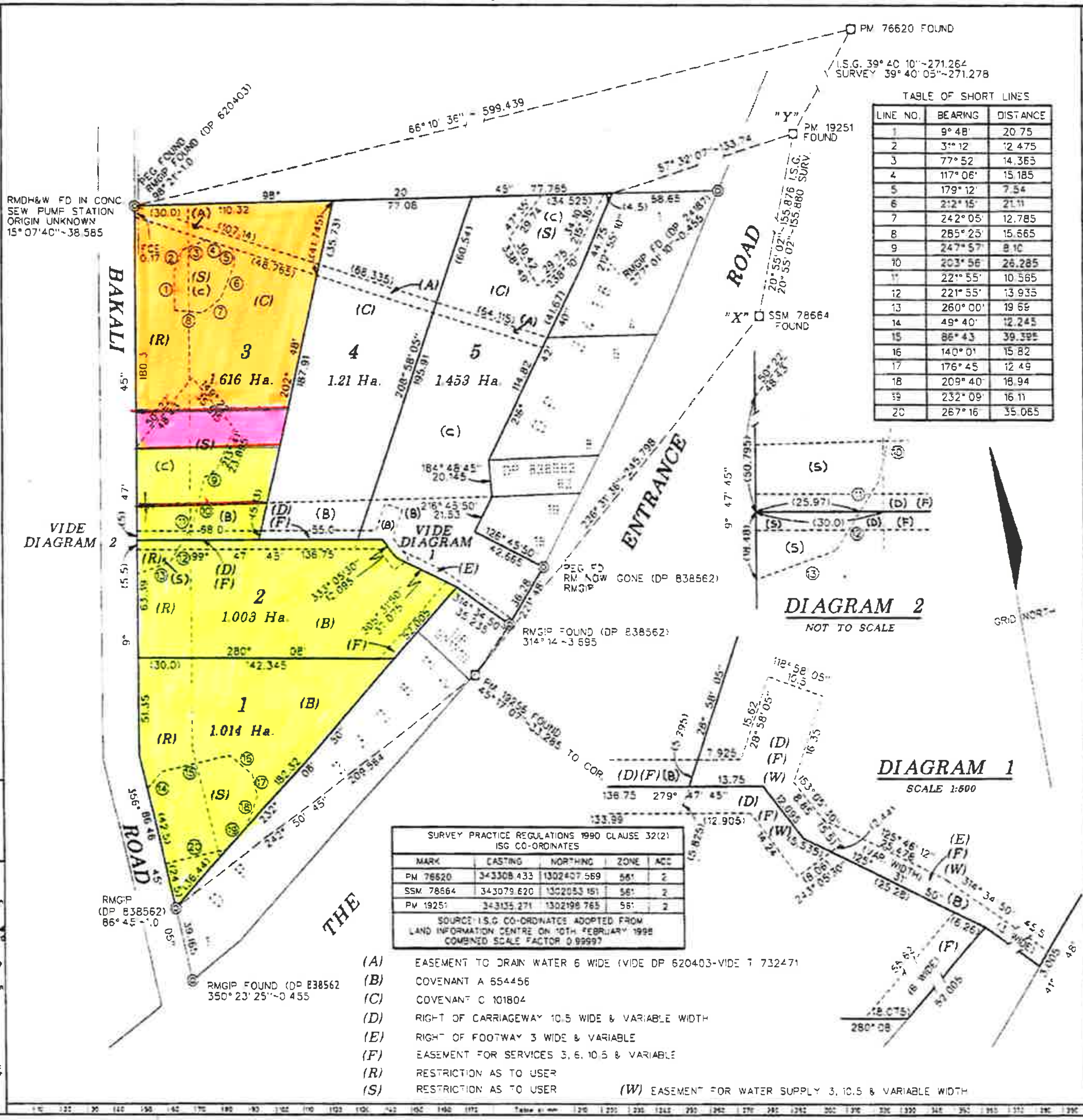

TABLE OF SHORT LINES

LINE NO.	BEARING	DISTANCE
1	9° 48'	20.75
2	3° 12'	12.475
3	77° 52'	14.365
4	117° 06'	15.185
5	179° 12'	7.54
6	212° 15'	21.11
7	242° 05'	12.785
8	285° 25'	15.665
9	247° 57'	8.10
10	203° 56'	26.285
11	221° 55'	10.565
12	221° 55'	13.935
13	260° 00'	19.69
14	49° 40'	12.245
15	86° 43'	39.395
16	140° 01'	15.82
17	176° 45'	12.49
18	209° 40'	18.94
19	232° 09'	16.11
20	267° 16'	35.065

SURVEY PRACTICE REGULATIONS 1990 CLAUSE 32(2)
ISG CO-ORDINATES

MARK	EASTING	NORTHING	ZONE	ACC
PM 76620	343308.433	1302407.569	56/1	2
SSM 78664	343079.620	1302053.151	56/1	2
PM 19251	343135.271	1302198.765	56/1	2

SOURCE: I.S.G. CO-ORDINATES ADOPTED FROM LAND INFORMATION CENTRE ON 10TH FEBRUARY 1998
COMBINED SCALE FACTOR 0.99997

(A) EASEMENT TO DRAIN WATER 6 WIDE (VIDE DP 620403-VIDE T 732471)
(B) COVENANT A 654456
(C) COVENANT C 101804
(D) RIGHT OF CARRIAGEWAY 10.5 WIDE & VARIABLE WIDTH
(E) RIGHT OF FOOTWAY 3 WIDE & VARIABLE
(F) EASEMENT FOR SERVICES 3, 6, 10.5 & VARIABLE
(R) RESTRICTION AS TO USER
(S) RESTRICTION AS TO USER
(W) EASEMENT FOR WATER SUPPLY 3, 10.5 & VARIABLE WIDTH

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

DP1000694

Registered 4-5-1999

CA No 5474 OF 7-4-1999

Title System TORRENS

Purpose SUBDIVISION

Ref Map U3697-6

Last Plan DP 838562

PLAN OF SUBDIVISION OF LOT 61 DP 838562

Lengths are in metres. Reduction Ratio 1:1500

L.G.A. GOSFORD

Locality: FORRESTERS BEACH

Parish: KINCUMBER

County: NORTHUMBERLAND

~~This is sheet 1 of my plan in ... sheets~~ (Delete if inapplicable)

I, BARRY ERIC CHARLES HUNT of C/- BARRY HUNT ASSOCIATES of P.O. BOX 144 BAY VILLAGE NSW 2261, a surveyor registered under the Surveyors Act 1929 as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulations 1990 and was completed on 11TH MARCH 1999

Signature ......
Surveyor registered under Surveyors Act 1929 as amended
Datum line of Azimuth "X" - "Y"
* Insert date of survey
ZONE SUBURBAN

Plans used in preparation of survey/compilation
DP 838562 DP 24167
DP 879083 DP 23283

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT, 1919 IT IS INTENDED TO CREATE:-

1. RIGHT OF CARRIAGEWAY 10.5 WIDE & VARIABLE WIDTH
2. RIGHT OF FOOTWAY 3 WIDE & VARIABLE WIDTH
3. EASEMENT FOR SERVICES 3, 6, 10.5 & VARIABLE WIDTH
4. RESTRICTION ON THE USE OF LAND (R)
5. RESTRICTION ON THE USE OF LAND (S)
6. RESTRICTION ON THE USE OF LAND
7. RESTRICTION ON THE USE OF LAND
8. EASEMENT FOR WATER SUPPLY

PLAN AMENDED IN L.T.O. AT SURVEYORS REQUEST 3-5-99

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 4/1000694

SEARCH DATE	TIME	EDITION NO	DATE
27/10/2014	12:07 PM	5	24/10/2014

LAND

LOT 4 IN DEPOSITED PLAN 1000694
AT FORRESTERS BEACH
LOCAL GOVERNMENT AREA GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1000694

FIRST SCHEDULE

VERSATILE LIVING PTY LIMITED (T AI980929)

SECOND SCHEDULE (10 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C101804 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
3 A654456 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
4 T732471 EASEMENT TO DRAIN WATER 6 METRES WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
5 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
6 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
7 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
8 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
9 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART DESIGNATED (S) IN THE TITLE DIAGRAM
10 DP1000694 RESTRICTION(S) ON THE USE OF LAND

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PRINTED ON 27/10/2014

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 51/1028301

SEARCH DATE	TIME	EDITION NO	DATE
30/10/2014	3:53 PM	6	15/11/2012

LAND

LOT 51 IN DEPOSITED PLAN 1028301
AT FORRESTERS BEACH
LOCAL GOVERNMENT AREA GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1028301

FIRST SCHEDULE

TERRIGAL GROSVENOR LODGE PTY LIMITED (T AD272087)

SECOND SCHEDULE (12 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A654456 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
3 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
4 DP1000694 RIGHT OF FOOTWAY 3 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
5 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
6 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED
7 DP1000694 RESTRICTION(S) ON THE USE OF LAND
7870972 VARIATION OF RESTRICTION DP1000694
8 DP1000694 EASEMENT FOR WATER SUPPLY 3,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
9 DP1028301 EASEMENT TO DRAIN SEWAGE OVER EXISTING LINE OF PIPES APPURTENANT TO THE LAND ABOVE DESCRIBED
10 DP1028301 EASEMENT FOR SERVICES 3 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
11 DP1028301 RIGHT OF FOOTWAY 3 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
12 AH369317 MORTGAGE TO SECURE FUNDING PTY LTD

END OF PAGE 1 - CONTINUED OVER

PRINTED ON 30/10/2014

FOLIO: 51/1028301 PAGE 2

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PRINTED ON 30/10/2014

BOX 1W
(AD272087)

NEW SOUTH WALES

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900

TORRENS TITLE

REFERENCE TO FOLIO OF THE REGISTER	
IDENTIFIER 3/101649	
EDITION	DATE OF ISSUE
4	18/7/2007
CERTIFICATE AUTHENTICATION CODE	
YDHI-I5-3FV9	

I certify that the person described in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set forth in that Schedule) in the land within described subject to such exceptions, encumbrances, interests and entries as appear in the Second Schedule and to any additional entries in the Folio of the Register.

REGISTRAR GENERAL

LAND

LOT 3 IN DEPOSITED PLAN 101649
AT FORRESTERS BEACH
LOCAL GOVERNMENT AREA: GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM: DP101649

FIRST SCHEDULE

TERRIGAL GROSVENOR LODGE PTY LIMITED (T AD272087)

SECOND SCHEDULE
---

1. LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2. C20279 COVENANT

**** END OF CERTIFICATE ****

 1965075

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 522/1077907

SEARCH DATE	TIME	EDITION NO	DATE
3/5/2013	9:52 AM	3	23/5/2011

LAND

LOT 522 IN DEPOSITED PLAN 1077907
AT FORRESTERS BEACH
LOCAL GOVERNMENT AREA GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1077907

FIRST SCHEDULE

TERRIGAL GROSVENOR LODGE PTY LIMITED (T AG146253)

SECOND SCHEDULE (17 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C20279 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
3 C101804 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
4 AA842085 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
5 A654456 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
6 T732471 EASEMENT TO DRAIN WATER 6 METRES WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
7 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
8 DP1000694 RIGHT OF CARRIAGEWAY 10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE PART SHOWN SO BENEFITED IN THE TITLE DIAGRAM
9 DP1000694 RIGHT OF FOOTWAY 3 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
10 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
11 DP1000694 EASEMENT FOR SERVICES 3,6,10.5 METRES WIDE AND VARIABLE APPURTENANT TO THE PART SHOWN SO BENEFITED IN THE TITLE DIAGRAM
12 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART DESIGNATED (S) IN THE TITLE DIAGRAM
7870972 VARIATION OF RESTRICTION DP1000694
13 DP1000694 RESTRICTION(S) ON THE USE OF LAND AFFECTING THE PART

END OF PAGE 1 - CONTINUED OVER

7358 PRINTED ON 3/5/2013

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 522/1077907 PAGE 2

SECOND SCHEDULE (17 NOTIFICATIONS) (CONTINUED)

		SHOWN SO BURDENED IN THE TITLE DIAGRAM
14	DP1000694	EASEMENT FOR WATER SUPPLY 3,10.5 METRES WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
15	DP1028301	EASEMENT TO DRAIN SEWAGE OVER EXISTING LINE OF PIPES AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
16	DP1028301	EASEMENT FOR SERVICES 3 METRE(S) WIDE AND VARIABLE APPURTENANT TO THE PART SHOWN SO BENEFITED IN THE TITLE DIAGRAM
17	DP1028301	RIGHT OF FOOTWAY 3 METRE(S) WIDE AND VARIABLE APPURTENANT TO THE PART SHOWN SO BENEFITED IN THE TITLE DIAGRAM

NOTATIONS

UNREGISTERED DEALINGS: T AH702607.

*** END OF SEARCH ***

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LPI NSW
Information

Search Date: **03-May-2013**

Cost Summary

Our Ref#	Search Type	Search Reference	Client Ref#	Total Cost	Total GST
2778667	Title Search	522/1077907	7358	10.14	0.93
			REPORT TOTAL:	**10.14**	**0.93**

*** * * END OF REPORT * * ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 18/23283

SEARCH DATE	TIME	EDITION NO	DATE
30/10/2014	3:56 PM	6	15/11/2012

LAND

LOT 18 IN DEPOSITED PLAN 23283
LOCAL GOVERNMENT AREA GOSFORD
PARISH OF KINCUMBER COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP23283

FIRST SCHEDULE

TERRIGAL GROSVENOR LODGE PTY LIMITED (T AD272087)

SECOND SCHEDULE (3 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 A654456 COVENANT
3 AH369317 MORTGAGE TO SECURE FUNDING PTY LTD

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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