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Report

Geotechnical Investigation
Proposed Redevelopment
Armidale High School, Butler Street
Armidale NSW

Prepared for
NBRS Architecture
Level 3, 4 Glen Street
MILSONS POINT NSW 2061

Ref: JG17064B-r2
October 2018

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12th October 2018

Our Ref: JG17064C-r2

NBRS Architecture
Level 3, 4 Glen Street
MILSONS POINT NSW 2061

Attention: Mr Andrew Duffin

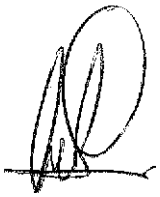
Dear Sir,

Re Geotechnical Investigation Report
Proposed Redevelopment
Armidale High School, Butler Street, Armidale

We are pleased to submit our Geotechnical investigation report for the Proposed Redevelopment for the above site.

Should you have any queries, please contact the undersigned.

Yours faithfully
GeoEnviro Consultancy Pty Ltd



Solern Liew CPEng NER
Director

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TABLE OF CONTENTS

Section Page

LIST OF DRAWINGS

LIST OF APPENDICES

1. INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed redevelopment of Armidale High School in Armidale, as shown on the attached Drawing No 1. The investigation was commissioned by Mr Andrew Duffin of NBRS Architecture following our fee proposal referenced PG17304A dated 27th July 2017.

This geotechnical investigation was undertaken in conjunction with our contamination investigation report referenced in our report JG17064C-r1 dated 12th October 2018.

We understand that the department proposes to consolidate the students from the Duval High School to the Armidale High School and new school buildings are proposed for Armidale High School to accommodate the additional students. At this stage, details of the proposed redevelopment of Armidale High School are not available and we have assumed that the proposed new buildings will be of low to medium rise (ie not exceeding 4 storeys) and the proposed buildings will be situated in the vicinity of the existing school buildings.

The purpose of this investigation was to assess the subsurface ground conditions including fill and groundwater conditions and based on the information provided, to provide the following information;

- Subsurface conditions and provide recommendations on geotechnical issues considered relevant to the proposed development as follows;
    - Site preparations, fill construction and earthworks specification to AS3798 -Guildelines on Earthworks for Commercial and Residential Sites.
    - Retaining wall design parameters including lateral earth pressure coefficients, Ka, Ko and Kp
    - Slope batter design; temporary and permanent
    - Foundation design parameters including suitable footings, allowable bearing capacities and estimated settlement
    - Assessment on Earthquake site soil class to AS170.4
    - Assessment on soil reactivity to AS2870
    - Recommendations on pavement subgrade preparation and pavement design
- Assessment on soil salinity and aggressiveness for durability design.

2. SCOPE OF WORK

2.1 Geotechnical Investigation

The scope of work for geotechnical investigation included;

- Drilling boreholes at nine nominated locations (ie BH 1 to BH 9) to a maximum depth of about 7.0m below existing ground surface or to refusal depths on sandstone bedrock.
- Standard penetration testing (SPT) and hand penetrometer testing to assess the insitu strength of the subsurface profiles.
- Visual soil classification and assessment of insitu material.
- Soil sampling and laboratory testing in our NATA accredited laboratory to assess soil properties and subgrade characteristics.

2.2 Salinity and Soil Aggressiveness Assessment

The salinity assessment was performed in general conformance with our understanding of the guidelines prepared by the Department of Land and Water Conservation (Reference 7) and the Salinity Code of Practice prepared by Western Sydney Regional Organisation Council (Reference 8). The scope of work conducted consisted of:

- Soil sampling from the geotechnical boreholes at varying depths across the site.
- Laboratory analysis to aid assessment of chemical properties and this included pH, Electrical Conductivity, Chloride, Sulphate and Resistivity

3. SITE INFORMATION

3.1 Site Locality and Description

Armidale High School is situated on the north-western corner of Butler Street and Kentucky Street and south of the railway corridor in Armidale. The site is roughly L-shaped with an approximate 370m frontage to Butler Street and 630m frontage to Kentucky Street. Mann Street forms the northern boundary and Stephen Street and Barry Street form the western boundary. Total site area is about 18 hectares.

School buildings up to four-storey high occupy the eastern portion of the school premises with the remaining portions of the site consisting of playing fields and open space with a small dam on the south western corner.

The school is situated within a residential area with residential properties to north, west and south. The Armidale arboretum is located to the south of the school and industrial/commercial properties are situated about 500m north-west of the school.

3.2 Site Topography, Geological and Hydrogeology

Armidale High School is situated in the northern tablelands of Armidale. Ground surface within the school premises slopes down in a general direction to the north east at angles of between 3 and 6 degrees with some relatively steeper slopes of up to 12 degrees on the south eastern portion.

Based on Google Earth, the school building area is at about 1010m to 1021m above sea level with the highest point of the school at about 1030m above sea level on the south eastern corner and the lowest point of the school at about 1003m on the north eastern corner. The slope gradient is relatively gentler on the western portion of the site with ground surface levels ranging from 1006 to 1017m above sea level.

Ground surface within the school building area has been modified by cut and fill up to 3m to create the school building platforms, playing courts and car parks. Some benching of the playing fields/open space areas by cut and fill was also carried out.

The 1:1,000,000 Geology of New South Wales (Reference 2) indicates the site to be underlain by gravel, sand, clay, poorly consolidated conglomerate, sandstone and siltstone.

Groundwater is expected to flow west into Martins Gully which is situated about 2km west of the site. We expect permanent groundwater table to be at a significant depth (i.e. in excess of 3m from ground surface). Infiltration of surface water through subsurface ground is expected to limited due to the impervious nature of residual soil.

Our search of the NSW Department Infrastructure, Planning and Natural Resources groundwater database for the region found no available data points within 1km from the site.

4. SITE HISTORY, RECORDS AND DATA

A desktop study of site history involving a review of Council's Section 149 certificates, NSW EPA search, land title search, groundwater search and aerial photographs was carried out in order to establish previous landuse and to assess site contamination. Reference should be made to Appendix B for details of the seaches.

The following is a summary of the historical and data searches;

4.1 Aerial Photographs

The following is a summary of the observations made from the review of historical aerial photos;

Year	Description
1962	The Armidale High School premises was formed with the majority of the school buildings constructed towards the eastern portion of the property. An oval was constructed north of the school buildings with the remainder western portion of the property vacant. The railway line to the north and residential properties to the north and east were constructed. The southern property appeared to have been vacant land with some residential and industrial properties to the west.
1970	There was no significant change within the school premises or Subject Site since the 1960s with some minor market gardening towards the south-western corner of the property. The region and surrounding properties remained the same since the 1960s.

Year	Description
1979	There was little to no change within Armidale High School, or the surrounding properties or region.
1994	The school buildings towards the eastern portion of the property remained the same since the 1960s with some minor agricultural activities appeared to the west of the school buildings. There was a slight increase in residential properties to the south of the school with an increase in industrial activity about 500m north-west of the school premises.

4.2 Land Title Searches – Historic Landuse

Description of historical information on the previous owners of the site was obtained from NSW Land & Property Information (LPI). The information can often be linked to possible land uses and provides an indication of potential contamination on the site.

The following is a summary of information obtained of current and previous proprietors.

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
08.03.1918 (1918 to 1995)	Dedicated for Public High School Site	Government Gazette
22.03.1918	Within Reserve No. 1477 from Occupation under any Miners Right or Business Licence	Government Gazette
21.07.1995 (1995 to Date)	# Minister for Education and Training (Acquired by compulsory acquisition (just terms compensation) act 1991, for the purposes of the Education Reform Act)	Government Gazette Now 1/49/758032

4.3 NSW EPA Records

A search of NSW OEH contaminated land register and licensing register indicate the site to have no records kept under the Contaminated Land Management Act 1997 and Environmentally Hazardous Chemical Act 1985. Refer to Appendix B for details of the NSW EPA search.

4.4 Council Section 149 (2) Certificate

A copy of the Section 149 (2) certificate was obtained from Armidale Regional Council to determine conditions applicable to the site in relation to the Contaminated Land Management Act 1997 and Contaminated Land Management Amendment Act 2009. Reference may be made to the certificate attached in Appendix B.

The certificate indicates the following;

- The site is not within land declared to be an investigation area or remediation site under Part 3 of that Act.
- The site is not subject to an investigation order or a remediation order within the meaning of the Act
- The site is not the subject of a voluntary investigation proposal (or voluntary remediation proposal) the subject of the Environmental Protection Authority's agreement under Section 19 or 26 of that Act.
- The site is not the subject of a site audit statement within the meaning of Part 4 of that Act.

5. INVESTIGATION METHODOLOGY

5.1 Field Investigation

The field work for the investigation was carried out on the 4th and 5th November 2017 and consisted of drilling boreholes at nine nominated locations (BH 1 to BH 9) as shown on the attached Drawing No 1.

Prior to borehole drilling, underground services checks were carried out using available drawing provided by Dial-Before-You-Dig. An underground services locator equipped with an electromagnetic device was engaged as an extra precautionary measure to reduce risk of damage to underground services caused by boreholes drilling.

The boreholes were drilled using a truck mounted Edson 3000 drill rig equipped for site investigation purposes. The boreholes were drilled using continuous flight augers attached to a V-bit through topsoil, fill and into natural soil and in some boreholes into sandstone bedrock using a Tungsten Carbide (TC) bit to depths varying from 2.3m to 7.0m below existing ground surface.

To assess the strength of the subsurface sandy soil, Standard Penetration Tests (SPT) were carried out in the boreholes. The SPT tests involved driving a split tube steel spoon into the ground using a standard weight (ie 63.5kg) hammer and measuring the penetration resistance in number of blow counts per 150mm penetration. Hand penetrometer tests were carried out the SPT split tube clayey samples in order to augment the SPT test results.

The boreholes were observed for groundwater during and upon completion of the borehole drilling.

The site investigation was carried out in general accordance with our Work Methodology Statement (File JG17061A-L1 Rev 0 dated 28th September 2017) monitored on a full-time basis by our geotechnical engineer who was responsible for locating the boreholes, carrying out insitu field testing and recording the subsurface profiles encountered. Upon completion of the investigation, the boreholes were backfilled with drilling spoil. Details of the subsurface profiles are summarised on the Borehole Reports in Appendix A of this report.

5.2 Laboratory Analysis

Geotechnical

Two subgrade samples were taken from the Subject Site and were tested for 4-days soaked California Bearing Ratio (CBR) in our NATA accredited laboratory to assess the pavement subgrade characteristics.

Two "Undisturbed" U_{50} soil samples and three "Disturbed" soil samples were taken from the site to our NATA accredited laboratory for Shrink-Swell Index and Atterberg Limit testing to aid assessment of soil reactivity to moisture variation and soil characteristics.

The laboratory test results are presented in Appendix C of this report.

Salinity and Soil Aggressiveness

To assess the likely impact of soil salinity to the proposed development, the following laboratory analysis was carried out;

- pH
- Electrical Conductivity (EC)
- Chloride (Cl)
- Sulphate ($S0_4$)
- Resistivity

The soil analysis was performed by Envirolab Services Pty Ltd, a laboratory accredited by the National Association of Testing Authorities (NATA). The analytical results and methods employed are presented in the Laboratory Test Report in Appendix D.

6. SUBSURFACE CONDITIONS

Reference should be made to the attached Borehole Reports in Appendix A for subsurface profiles encountered in the boreholes. The following is a summary of the subsurface profiles encountered in the boreholes during the investigation;

Topsoil and Topsoil/Fill

Topsoil and Topsoil/Fill were encountered on the surface in all boreholes consisting predominantly of Clayey Silt of low liquid limit. The thickness of the topsoil was found to have thickness of 200mm to 400mm.

Fill

Fill was encountered beneath the topsoil/fill in BH 1, 5 and 9 comprising of low to medium plasticity Silty Clay and Gravelly Silty Clay. The fill was found to have thickness ranging from 0.2m to 1.4m and generally assessed to be dry to moist. The fill was assessed to be poorly compacted.

Natural Soil

Underlying the topsoil and fill, natural soil was found in all boreholes at depths ranging from 0.2m to 1.4m. The natural soil was found to consist predominantly of medium to high plasticity Silty Clay and Gravelly Silty Clay with the inclusion of gravel and sand. Some low to medium plasticity Silty Clay was encountered in some boreholes and in BH 7 at a depth of 1.4m below existing ground surface, dense Gravelly Clay with ironstone cobbles were encountered. Based on the SPT and hand penetrometer test results, the natural clayey soil was generally found to be very stiff and dry to moist in the upper profiles and becoming hard and dry at lower depths.

With the exception of BH 7, interbedded Siltstone and clay was encountered in all boreholes at depths ranging from 2.2m to 3.8m below existing ground surface and this stratum was assessed to be extremely low strength (ie for siltstone) with soil-like properties or of hard consistency (ie for soil).

Bedrock

Extremely low to very low strength siltstone was encountered in BH 2 to 5 at depths ranging from 4.0m to 6.0m below existing ground surface. Low to medium strength sandstone was encountered in BH 1, 6, 8 and 9 at depths ranging from 2.7m to 3.8m below existing ground surface.

Groundwater

Groundwater was not encountered in any of the boreholes during or shortly after completion of the site investigation.

7. RESULTS OF THE INVESTIGATION

7.1 Salinity

7.1.1 Guidelines

Salinity refers to the presence of excess salt in the environment and is able to occur if salts which are naturally found in soil or groundwater mobilise, allowing capillary rise and evaporation to concentrate the salt at the upper subsurface soil profile. Such movements are caused by changes in the natural water cycle. In urban areas, the processes which cause salinity are intensified by the increased volumes of water added to the natural system from irrigation of gardens, lawn and parks and from leaking infrastructures (eg pipes, sewer, stormwater, etc) and pool.

Saline soil may have adverse impact on development such as;

- Damage to buildings and houses caused by deterioration of bricks, mortar and concrete when salt drawn up into capillaries of bricks and mortar expands resulting in spalling.
- Deterioration of concrete kerbs and gutters as a result of chemical reaction between concrete and sulphates.
- High chloride content in the soil may result in corrosion of steel reinforcement and buried metal structures.
- Damage to underground pipes and infrastructures.
- Water logging of ground surface due to sealing effect of sodic and dispersive soil.
- Loss of vegetation cover and plants due to high salt content resulting in retardation of plants.

In recognition of the potential adverse impact of salinity to development, the Western Sydney Regional Organisation of Councils Ltd has drafted a Salinity Code of Practice (Reference 9) to address the issue of salinity. It was acknowledged in the Code that salinity problems can change substantially over time and it is difficult to predict exactly where salinity will occur and how it will respond to the changing environment conditions.

The fundamental criterion for assessing soil salinity is based on Electrical Conductivity (Reference 8).

Class	EC_e (ds/m)
Non-Saline	<2
Slightly Saline	2-4
Moderately Saline	4-8
Very Saline	8-16
Highly Saline	>16

In addition to the above, the presence of Sulphate and Chloride in the soil has the potential to cause high soil aggressivity to concrete and steel structures, in particular if the structures are in direct contact with the soil. The following is a measure of soil aggressivity to concrete based on the Australian Standard (Reference10).

Sulfate expressed as SO_3		PH	Chloride in water (ppm)	Soil conditions A*	Soil conditions B#
In Soil (ppm)	In Groundwater (ppm)				
<5000	<1000	>5.5	<6000	Mild	Non-aggressive
5000-10000	1000-3000	4.5-5.5	6000-12000	Moderate	Mild
10000-20000	3000-10000	4-4.5	12000-30000	Severe	Moderate
>20000	>10000	<4	>30000	Very Severe	Severe

Approximate 100ppm of SO4=80ppm of SO3
* Soil condition A = High permeability soils (eg sands and gravels) which is below groundwater
# Soil conditions B = Low permeability soils (eg silts and clays) and all soils above groundwater

The following is a measure of soil aggressivity to steel piles based on the Australian Standard (Reference 10).

pH	Chlorides (Cl)		Resistivity Ohm.cm	Soil conditions A*	Soil conditions B#
	In Soil Ppm	In water ppm			
>5	<5000	<1000	>5000	Non-aggressive	Non-aggressive
4-5	5000-20000	1000-10000	2000-5000	Mild	Non-aggressive
3-4	20000-50000	10000-20000	1000-2000	Moderate	Mild
<3	>50000	>20000	<1000	Severe	Moderate

* Soil condition A = High permeability soils (eg sands and gravels) which is below groundwater
# Soil conditions B = Low permeability soils (eg silts and clays) and all soils above groundwater

7.1.2 Laboratory Test Results

The following is a summary of the laboratory test results. For details refer to the laboratory test reports in Appendix D;

BH	Depth	pH	EC	Factor	ECe	Cl^-	SO_4	Resistivity
BH 1	0.00-0.20	7.1	0.03	10	0.28	10	<10	36000
BH 2	0.30-0.50	6.7	0.01	8	0.09	10	<10	93000
BH 3	0.80-1.00	7.6	0.11	7.5	0.83	95	<10	9300
BH 4	0.20-0.40	7.9	0.08	8.5	0.71	10	22	12000
BH 5	0.80-1.00	7.5	0.05	8.5	0.45	10	23	19000
BH 6	1.00-1.45	7.1	0.04	8	0.30	36	<10	27000
BH 7	0.80-1.00	7.2	0.04	8	0.28	<10	26	28000
BH 8	0.20-0.40	7.5	0.19	8	1.52	33	240	5300
BH 8	2.50-2.95	7.5	0.02	8.5	0.13	<10	<10	68000
BH 9	0.10-0.20	6.8	0.04	10	0.44	10	<10	23000

Note: EC – Electrical Conductivity (dS/m)
EC_e-Electrical Conductivity (dS/m)
CEC – Cation Exchange Capacity (cmol+/kg)
ESP – Exchangeable Sodium Percentage (%)
Resistivity – ohm/cm
CL – Chloride (mg/kg)
SO4- Sulphate (mg/kg)

7.2 Geotechnical

For details of the laboratory test results, refer to the laboratory test reports in Appendix D of this report. The following is a summary of the laboratory test results;

California Bearing Ratio

Sample	Maximum Dry Density (t/m^3)	Optimum Moisture Content (%)	Field Moisture Content (%)	CBR %
BH 6 (0.4-1.0m)	1.53	26.0	20.0	6.0
BH 9 (0.6-1.2m)	1.52	26.5	25.5	7.0

Shrink-Swell Index

Sample	Shrinkage (%)	Swell (%)	Shrink-Swell Index (%/pF)
BH 2 (0.5-0.8m)	0.5	0.3	0.4
BH 7 (0.5-0.75m)	5.3	0.1	3.0

Atterberg Limits

Sample	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)	Moisture Content (%)
BH 1 (1.0-1.4m)	54	17	37	14.5	17.0
BH 2 (3.6-4.0m)	58	37	21	9.0	26.5
BH 5 (2.5-2.95m)	62	30	32	12.5	28.5
BH 8 (0.6-1.0m)	42	17	25	12.0	17.0

8. ASSESSMENT AND RECOMMENDATIONS

8.1 Geotechnical Issues

8.1.1 Site Preparation and Building Platform Preparation

We anticipate that some site preparation and earthworks including cut and fill will be required for the proposed school buildings. Our borehole investigation revealed the site to be generally underlain by topsoil overlying natural clayey soil overlying bedrock consisting of siltstone and sandstone.

Some fill was encountered in BH 1, 5 and 9 comprising of low to medium plasticity Silty Clay and Gravelly Silty Clay. The insitu fill would be classified as "uncontrolled" in accordance to AS3798-2007 as the fill was assessed to be loose based on the insitu testing.

Typical earthworks and building platform preparation should include the following;

- Clearing of site vegetation and stripping of topsoil/organic and any "uncontrolled" fill layers to expose the natural clayey soil. The topsoil and organic layer may be reused on site in landscaping and any surplus topsoil would need to be disposed off-site.
- The excavated areas should be proof rolled using a minimum 10 tonne vibrating roller to delineate soft and heaving areas. Any soft or heaving areas observed during proof rolling should be excavated and recompacted to a minimum 98% Standard Maximum Dry Density at ±2% Optimum Moisture.
- All fill beneath pavements should be controlled and compacted in layers not exceeding 250mm thickness compacted to the above specified compaction level. Any imported fill should be of good quality material such as ripped shale or sandstone with a maximum particle size of 75mm.
- Earthworks should be closely monitored by a geotechnical consultant and should include field density testing of fill at an appropriate frequency and level of supervision as detailed in AS3798 -2007 (Referenced 13). Fill placed and compacted in accordance with AS3798 may be classified as "Controlled" fill.

Our general comments on suitable bearing material and reusability of onsite soil are as follows;

- The topsoil and topsoil/fill encountered on the surface in the boreholes are not considered suitable to support permanent structures such as pavements, slabs and buildings and therefore should be excavated and removed. The topsoil and topsoil/fill may be reused in future landscaping areas (eg earth mounds and footpaths).
- Any fill encounter during construction would be classified as "Uncontrolled" fill in accordance with the definition outlined in AS 3798 and is therefore not suitable to support permanent structures such as pavements, slabs and buildings with shallow footings.
- Fill containing foreign inclusion (eg rubbish and building waste) or chemical contaminants (if encountered) are not considered suitable for reuse without treatment or remedial works.
- The underlying natural clayey soil, siltstone and sandstone are generally considered suitable for reuse as structural fill provided the fill is well graded with maximum particle size of not greater than 75mm.

8.1.2 Shoring and Retaining Structures

Site excavation will not require shoring if;

- The excavation is situated at least 1.5 times the depth of excavation away from building structures or services present at time of construction.
- The excavation is adequately battered to the recommended batter slopes outlined in Section 7.3.3

If shoring is required, a soldier pier wall system may be adopted and this system will involve drilling of bored or CFA piles at regular spaced intervals to form a line of soldier piles and shotcreting of the area between the soldier piles after each excavation stage. For soldier pile system, shotcrete infill should be reinforced and designed to span laterally between the soldiers. It should cover the full height of the exposed excavation face to minimise the risk of potential problems associated with degradation and weathering of the face.

For excavation situated within the zone of influence of buildings or structures, a rigid wall system such as a contiguous pile wall arrangement should be adopted in order to prevent potential undermining of existing footings causing damage. Construction of the contiguous pile wall would involve drilling a continuous line of bored or continuous flight auger (CFA) piles along the length of the excavation to form a concrete wall.

Soldier piles and contiguous piles should be taken down to the full height of the excavation and should be socketed a minimum of 0.5m below proposed excavation level (including footing excavations) and into Siltstone/sandstone or to adequate depths of embedment into hard clay to provide toe restraint.

Shoring wall may be temporarily restrained by internal bracing or designed as a cantilever system for the short term before building floor slabs are constructed to provide permanent restraints.

For retaining wall which will be propped by floor slabs or fixed at the top, thus limiting deflection, an "at-rest" lateral earth pressure coefficient (K_o) should be adopted. For other retaining walls designed as "cantilevered" or gravity walls, an "active" lateral earth pressure coefficient (K_a) may be adopted. For toe resistance, an active lateral pressure coefficient (K_p) may be adopted. We recommend the following design parameters be adopted in preliminary design;

Material	**Bulk Density (kN/m^3)**	**K_a**	**K_o**	**K_p**	**Effective Cohesion, C' (kPa)**	**Effective Friction Angle (deg)**
Compacted Fill	17.5	0.35	0.65	-	2	20
Natural clay	20.0	0.30	0.5	2.0	5	20
Siltstone	22.0	0.2	0.3	2.5	10	25
Sandstone	24.0	0.10	0.15	4.0	20	30

Permanent subsurface drains should be provided at the back of the retaining wall, or half hydrostatic ground water pressures should be taken into account in the design. Surcharge due to adjacent structures, construction loads and sloping backfill should be taken into account in the design

8.1.3 Slope Modification and Batter Slopes

For all unretained cut and fill, the following batter slopes may be adopted for preliminary design;

Material	Temporary	Permanent
Fill and topsoil (Landscape)	1V : 1.5H	1V : 3H
Natural Clay and Interbedded Siltstone	1V: 1H	1V : 2H
Weathered Siltstone	1V : 0.5 to 1H	1V : 1H
Sandstone	1V : 0.25 H	1V : 0.5H

Steeper batter slopes may be adopted for sandstone batters subject to inspection and further by geotechnical engineer during excavation works.

8.1.4 Footings

Details of the proposed development are not available and we expect the proposed school buildings will be up to four-storey high.

Our borehole investigation revealed the site to be generally underlain by topsoil overlying very stiff to hard natural Silty Clay with interbedded Siltstone and Clay at typically between 2.2m to 3.8m below existing ground surface.

Siltstone was encountered at depths between 4.0m and 6.0m in the boreholes drilled on the southern portion of the school premises. Sandstone bedrock was encountered on the northern lower portion of the school premises at depths ranging from 2.7m to 3.8m below existing ground surface.

Based on the results of the investigation, our recommendations on allowable bearing capacity and founding depths of footings are as follows;

Minimum Founding Depths	**Foundation Material**	**Allowable Bearing Capacities**	**Allowable Shaft Adhesions** *1
1.0m below surface	Natural Very Stiff Clay	150kPa	-
2.5m below surface and 0.5m into natural clay	Natural Very Stiff Clay	250kPa	15kPa
4.0m below surface and 0.5m into Siltstone/Clay	Interbedded Siltstone and Clay	450kPa	15kPa
6.0m below surface and 0.5m into Siltstone	Extremely Weathered Siltstone	600kPa	15kPa
0.3m into Sandstone	Sandstone	1000 kPa	80 kPa

Note: *1 Shaft adhesion is only applicable for deep pier footings and should ignore the upper 1.0m of the pier to allow for ground disturbance and weathering

All footings should be taken through topsoil and fill and founded on natural clay, siltstone or sandstone. For deep pier footings, grout injected piles or Continuous Flight Auger (CFA) piles may be considered suitable.

Bored piles may be considered suitable if the piles are above the groundwater and should this pile system be adopted, some trial piles should be carried out to further assess the groundwater conditions. Adoption of bored pile system should allow for additional costs associated with concreting by "Tremie" methods and use of temporary liners,

Care should be taken to ensure the footings are cleaned of loose or remoulded debris prior to concreting. Footing construction should be supervised and monitored by a suitably qualified geotechnical engineer in order to confirm the above design parameters.

The proposed footings should be designed to accommodate reactive soil proportioned to a Class 'H2' (Highly Reactive) site in accordance to AS2870 "Residential Slabs and Footings".

8.1.5 Pavement Design

Pavement subgrade preparation for access roads and car parks should include the following;

- Stripping of the topsoil and any "uncontrolled" fill to expose natural clay.
- Boxing of pavement subgrade to proposed design level.
- Proof rolling of the base of the excavation with a heavy vibrating roller (minimum 10 tonne).
- Any soft areas identified during rolling should be further excavated and replaced with ripped sandstone fill.
- The excavated clay material may be reused as filling beneath pavements subject to moisture reconditioning. Alternatively, imported good quality fill such as ripped sandstone having a maximum particle size of 75mm may be used.
- The fill material should be compacted in layers not exceeding 250mm loose thickness compacted to a minimum 98% Standard Maximum Dry Density (SMDD) at close to Optimum Moisture Content.
- The upper 300mm of the fill material forming the pavement subgrade should be compacted to a minimum 100% SMDD.

The subgrade preparation and pavement construction should be closely monitored by a geotechnical consultant and should include field density testing of the pavement material at an appropriate frequency and level of supervision as detailed in AS 3798 -2007.

Our laboratory test results indicate the pavement subgrade to have CBR values of 6% and 7%. For preliminary pavement design, we consider a design CBR value of 4% was adopted in our pavement design.

In the absence of design traffic loading for the proposed roads, the following pavement design options may be adopted based on assumed design traffic loadings (ie Equivalent Standard Axle (ESA)

Material	**Assumed ESA**		
	5 x 10^4	**3 x 10^5**	**1 x 10^6**
Asphaltic Concrete (AC10)	25mm	40mm	50mm
Primer Seal			
DGB20 Base Course	150mm	150mm	150mm
Crushed Sandstone Subbase Course	195mm	240mm	270mm
Total	**370mm**	**430mm**	**470mm**

The pavement design assumes the subgrade and pavement materials to be compacted to the following Minimum Dry Density Ratios (AS1289 5.1.1, 5.2.1);

Material	**Relative Densities**	**Compactive Effort**
Base Course	98%	Modified
Sub-Base Course	98%	Modified
Subgrade	100%	Standard

8.1.7 Earthquake Design

Based on AS1170.4-2007 "Structural Design Actions – Part 4: Earthquake actions in Australia", the site has a Hazard Factor (Z) of 0.06 and a site sub-soil class of C_e may be adopted for the Subject Site.

8.2 Salinity Issues

We understand that the proposed development may include minor cut and fill for the proposed building platform to design levels. At this stage, details of the bulk earthworks levels are not known. The laboratory test results indicate the insite soil to be Non Saline with EC values ranging from 0.09 dS/m to 1.52 dS/m.

The subsurface soil was found to have low concentrations of Sulphate however in an environment with the lowest pH being 6.7, the soil is considered to be Non-aggressive to buried concrete structures and therefore the site may be classified as "Class A1" in accordance to Table 5.2 of AS2870-2011 "Residential Slabs and Footings". The subsurface soil was found to have low concentrations of Chloride and with the resistivity value of 5300 Ohm/cm, the site was assessed to be Non-aggressive to buried steel structures.

We recommend the following salinity management be adopted as a minimum:

- A high impact waterproof membrane, not just a vapour proof membrane, should be lain under house slabs (refer to NSW Building Code of Australia). The waterproof membrane must be extended to the outside face of the external edge beam up to the finishing ground level, as detailed in the Building Code of Australia (BCA).
- For masonry building construction, the damp proof course must consist of poly-ethylene or poly-ethylene coated metal and correctly placed in accordance with BCA. Ground levels immediately adjacent to masonry walls must be kept below the damp proof course.
- Concrete piers and footings should be constructed using a minimum Class 32MPa concrete, or sulphur resisting concrete with a water cement ratio of 0.5.
- Concrete footings should have a minimum cover to reinforcement of 50mm from unprotected ground and 40mm from a membrane in contact with the ground.
- Use Copper or non-metallic pipes instead of galvanised iron.
- Slabs must be vibrated and cured for a minimum 3 days.
- Admixtures for waterproofing and /or corrosion prevention may be used.

Reference should be made to the following for detail durability design for concrete and steel structures;

- Australian Standard, AS 3600 -2009 “Concrete Structures”
- Australian Standard, AS 2159-2009 “Piling – Design and Installation”
- Australian Standard, AS 2870-2011 “Residential Slabs and Footings

9. LIMITATIONS

The interpretation and recommendations submitted in this report are based on a limited number of boreholes. There is no investigation which is thorough enough to determine all site conditions and anomalies, no matter how comprehensive the investigation program is as site data is derived from extrapolation of limited test locations. The nature and extent of variations between test locations may not become evident until construction.

Groundwater conditions are only briefly examined in this investigation. The groundwater conditions may vary seasonally or as a consequence of construction activities on or adjacent to the site.

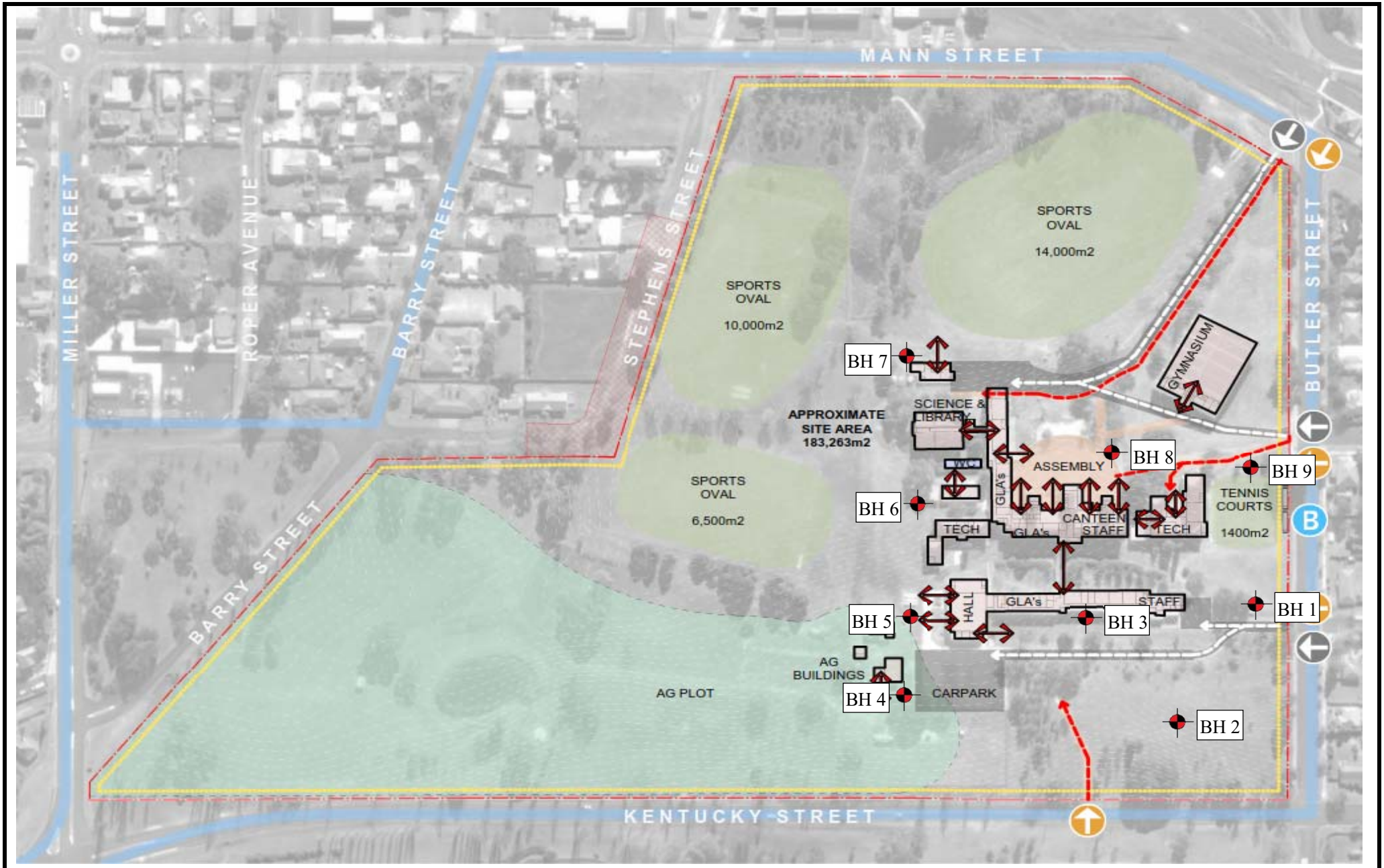
In view of the above, the subsurface soil and rock conditions between the test locations may be found to be different or interpreted to be different from those expected. If such differences appear to exist, we recommend that this office be contacted without delay.

The statements presented in these documents are intended to advise you of what should be your realistic expectations of this report, and to present you with recommendations on how to minimise the risks associated with the ground works for this project. The document is not intended to reduce the level of responsibility accepted by GeoEnviro Consultancy Pty Ltd, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing. Attached in Appendix F are documents entitled "Important Information about Your Environmental Site Assessment" and Explanatory Notes in conjunction with which this report must be read, as it details important limitations regarding the investigation undertaken and this report.

C:\\17JOB\064\JG17064C-r2
12/10/2018 12:39 PM

REFERENCES

1. *1:1,000,000 Geology of New South Wales– Geological Series Sheet 2*
2. *Australian & New Zealand Guidelines for the Assessment and Management of Contaminated Sites, Australian and New Zealand Conservation Council and National Health and Medical Research Council, 1992.*
3. *Assessment of Orchard and Market Garden Contamination - Contaminated Sites Discussion Paper, NSW EPA 1999.*
4. *Health Based Soil Investigation Levels, National Environmental Health Forum Monographs Soil Series No. 1 – 1996*
5. *National Environment Protection (Assessment of Site Contamination) Measure 1999(including updated Schedule B1 – 2013*
6. *Guidelines for Assessment Service Station Sites – NSW EPA 1994*
7. *Guidelines for the NSW Auditor Scheme, NSW EPA*
8. *Department of Land and Water Conservation – "Site Investigation for Urban Salinity".2002*
9. *Salinity Code of Practice – Western Sydney Regional Organisation of Councils Ltd – 2002*
10. *What do all the numbers mean? A guide for the interpretation of soil test results. – Department of Conservation and Land Management, 1992*
11. *Australian Standard, AS 2159-2009 "Piling – Design and Installation"*
12. *Australian Standard, AS 3600 -2009 "Concrete Structures"*
13. *Australian Standard, AS 3798 - 2007"Bulk Earthworks for Commercial and Residential Site"*
14. *Part 1 – Classifying Waste – 2014, NSW DEC*
15. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 – ANZECC.*
16. *Australian Standard, AS 3798 - 2007"Bulk Earthworks for Commercial and Residential Site"*



Legend

Borehole

GeoEnviro Consultancy

Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia

Tel: (02) 96798733 Fax: (02) 96798744

Drawn By: AT	Date: 20/11/17	NBRS Architecture Armidale High School Borehole Location Plan	
Checked By: SL	Date: 20/11/17		
Revision By:	Date:		
Scale: Not to Scale	A3	Project No: JG17064A	Drawing No: 1

APPENDIX A

Borehole Reports

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 1

Client: NBRS Architecture

Job no: JG17064A

Project: Proposed School Buildings

Date: 4/11/17

Location: Armidale High School

Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -

Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - B I T	N I L	D R Y	DG				Topsoil: Clayey Silt: low liquid limit, brown	D			
							Fill: Silty Clay: low plasticity, brown with fine grained gravel	D			
							Topsoil : Clayey Silt: low liquid limit, brown grey	D			
				1.0		CL-Cl	Silty Clay: low to medium plasticity, brown with trace of fine grained gravel	D			Fill?
			6,10,14 N=24			Cl	Silty Clay: medium plasticity, brown with fine grained gravel and fine to coarse grained sand		H	>600	
				2.0							
						Cl	Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown	D	H		Soil-like Properties
				3.0							V-bit refusal at 3.2m
T C			17/120mm N>17				Sandstone: fine grained, extremely weathered, low strength, grey brown				SPT refusal at 3.12m
				4.0							TC bit refusal at 4.0m
							End of BH 1 at 4.0m				
				5.0							
				6.0							
				7.0							
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 2

Client: NBRS Architecture

Job no: JG17064A

Project: Proposed School Buildings

Date: 4/11/17

Location: Armidale High School

Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -

Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - B I T	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown				
			4,4,5 N=9	1.0		CI -CH	Gravelly Silty Clay: medium to high plasticity, brown and red brown with ironstone gravel and coarse grained sand	M	H	450	Fill?
				2.0		CI	Silty Clay: medium plasticity, brown and grey with fine to coarse grained sand	M	H	490 520	
			4,7,11 N=18	3.0		CI-CH	Silty Clay: medium to high plasticity, brown grey with ironstone gravel bands	D-M	H	490 540	
			10,12,18 N=30	4.0		CI	Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown	D	H	>600	Soil-like properties Slow drillilng
			7,15,22 N=37	6.0			Siltstone: extremely weathered and extremely low to very low strength, grey and pale grey		H	>600	
							End of BH 2 at 6.0m				
				7.0							
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 3

Client: NBRS Architecture

Job no: JG17064A

Project: Proposed School Buildings

Date: 4/11/17

Location: Armidale High School

Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -

Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - B I T	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
						CH	Gravelly Silty Clay: high plasticity, brown with fine to medium grained gravel	D-M			Fill?
			4,7,14 N=21	1.0		CI-CH	Silty Clay: medium to high plasticity, grey and brown with trace of ironstone gravel bands	D	H	>600	
				2.0		CI	Silty Clay: medium plasticity, grey with trace of fine grained sand and ironstone gravel bands				
			6,13,19 N=32	3.0		CI	Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown	D	H	>600	Soil-like properties
			6,21,30 N=51	4.0			Siltstone: extremely weathered and extremely low strength, grey and pale grey		H	>600	
				5.0							
				6.0							
				7.0			End of BH 3 at 7.0m				
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 4

Client: NBRS Architecture
Job no: JG17064A
Project: Proposed School Buildings
Date: 4/11/17
Location: Armidale High School
Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -
Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - B I T	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
			DG			CI	Silty Clay: medium plasticity, dark brown	D			Fill?
				1.0							
			3,7,10 N=17						H	>600	
						CI-CH	Silty Clay: medium to high plasticity, brown with some gravel				
				2.0							
							As above but grey and brown with trace of fine grained gravel bands				
			6,9,15 N=24						H	>600	
				3.0		CI	Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown	D			Soil-like properties
											Slow drillilng
				4.0							
			5,10,16 N=26						H	>600	
				5.0			Siltstone: extremely weathered and extremely low to very low strength, grey and pale grey				
			5,10,16 N=26						H	>600	
				6.0			End of BH 4 at 6.0m				
				7.0							
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 5

Client: NBRS Architecture
Job no: JG17064A
Project: Proposed School Buildings
Date: 4/11/17
Location: Armidale High School
Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -
Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - B I T	N I L	D R Y					Topsoil/Fill: Clayey Silt, low liquid limit, brown with grave	D			
			DG 3,4,7 N=11	1.0			Fill: Gravelly Silty Clay: medium plasticity, brown	D	H	>600	Appeared poorly compacted
				2.0		CI	Silty Clay: medium plasticity, brown dark brown	D-M	H	480	
			3,7,11 N=18	3.0		CI-CH	As above but medium to high plasicity grey brown with trace of fine grained gravel and sand	D	H	>600	
			6,10,17 N=27	4.0		CI	Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown	D	H	>600	Soil- like properties Slow drillilng
				5.0							
				6.0			Siltstone: extremely weathered and extremely low to very low strength, grey and pale grey				
				7.0			End of BH 5 at 7.0m				
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 6

Client: NBRS Architecture

Job no: JG17064A

Project: Proposed School Buildings

Date: 4/11/17

Location: Armidale High School

Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -

Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - BIT	NIL	DRY					Topsoil: Clayey Silt: low liquid limit, brown	D			
						CH	Silty Clay: high plasticity, brown dark brown and red	D			
							As above but brown with fine grained gravel and medium to coarse grained sand				
			6,10,13 N=23	1.0					H	>600	
				2.0		CL-CI	Silty Clay: low to medium plasticity, grey/pale brown with fine grained sand				
			13,20 / 110mm N>20	3.0			Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown				Soil-like properties SPT bouncing at 2.76m V-bit refusal at 3.3m
TC							Sandstone: fine grained, extremely weathered, low to medium strength, grey brown				
				4.0							TC-bit refusal at 4.0m
							End of BH 6 at 4.0m				
				5.0							
				6.0							
				7.0							
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 7

Client: NBRS Architecture

Job no: JG17064A

Project: Proposed School Buildings

Date: 4/11/17

Location: Armidale High School

Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -

Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - BIT	NIL	DRY					Topsoil: Clayey Silt: low liquid limit, brown				
						CH	Silty Clay: high plasticity, brown and red				
				1.0		CI	Silty Clay: medium plasticity, brown				
			4,11,20 /60mm N>31								SPT bouncing at 1.36m
							Gravelly Clay with ironstone cobbles , red brown				V-bit refusal at 1.6m
TC				2.0			Siltstone/Sandstone: fine grained, low strength extremely weathered , grey brown and dark red				TC-bit refusal at 2.3m
							End of BH 7 at 2.3m				
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 8

Client: NBRS Architecture
Job no: JG17064A
Project: Proposed School Buildings
Date: 4/11/17
Location: Armidale High School
Logged by: SG

Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -
Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
							Topsoil: Clayey Silt: low liquid limit, brown	D			
V - B I T	N I L	D R Y	DG			CI -CH	Silty Clay: medium to high plasticity, brown	D-M			
							As above but with fine grained gravel	M			
				1.0					VSt - H	350 410	
			5,6,8 N=14								
				2.0		CL-CI	Gravelly Silty Clay: low to medium plasticity, brown with fine to medium grained gravel	D-M			
			5,11,15 N=26	3.0					H	590 >600	
						CI	Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown	D			Soil-like properties V-bit refusal at 3.7m
T C				4.0			Sandstone: brown, low to medium strength, distinctly weatheredm grey brown				TC-bit refusal at 4.6m
							End of BH 8 at 4.6m				
				5.0							
				6.0							
				7.0							
				8.0							

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 9

Client: NBRS Architecture
Job no: JG17064A
Project: Proposed School Buildings
Date: 4/11/17
Location: Armidale High School
Logged by: SG

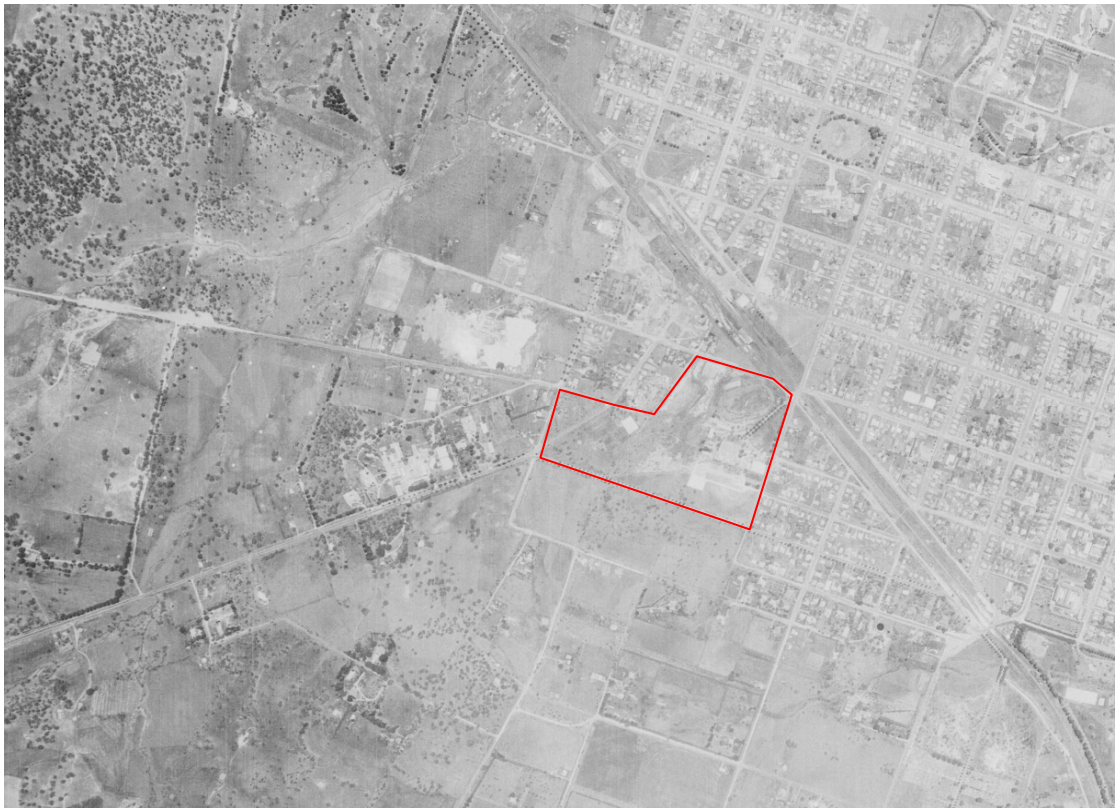
Drill Model and Mounting: Edson 3000 | Slope: 90° | R.L. Surface: -
Hole Diameter: 100mm | Bearing: Vertical | Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V - B I T	N I L	D R Y					Topsoil/Fill: Clayey Silt: low liquid limit, brown	D-M			
							Fill: Silty Clay: low to medium plasticity, dark brown	M			
			3,5,7 N=12	1.0		CI -CH	Silty Clay: medium to high plasticity, brown with fine ironstone gravel	M	VSt	220 290	
				2.0		CI	Interbedded Siltstone and Clay: medium plasticity extremely weathered and extremely low strength siltstone, grey and grey brown	D			Soil-like properties V-bit refusal at 2.7m
T C			10,18 / 30mm N>18	3.0			Sandstone: brown, low to medium strength, distinctly weathered, grey brown				SPT bouncing at 2.68m TC-bit refusal at 3.6m
							End of BH 9 at 3.6m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							

APPENDIX B

Aerial Photos, Land Titles, EPA Searches, Groundwater Bores & Section 149(2)

Aerial Photos



1962

1970

1979

1994

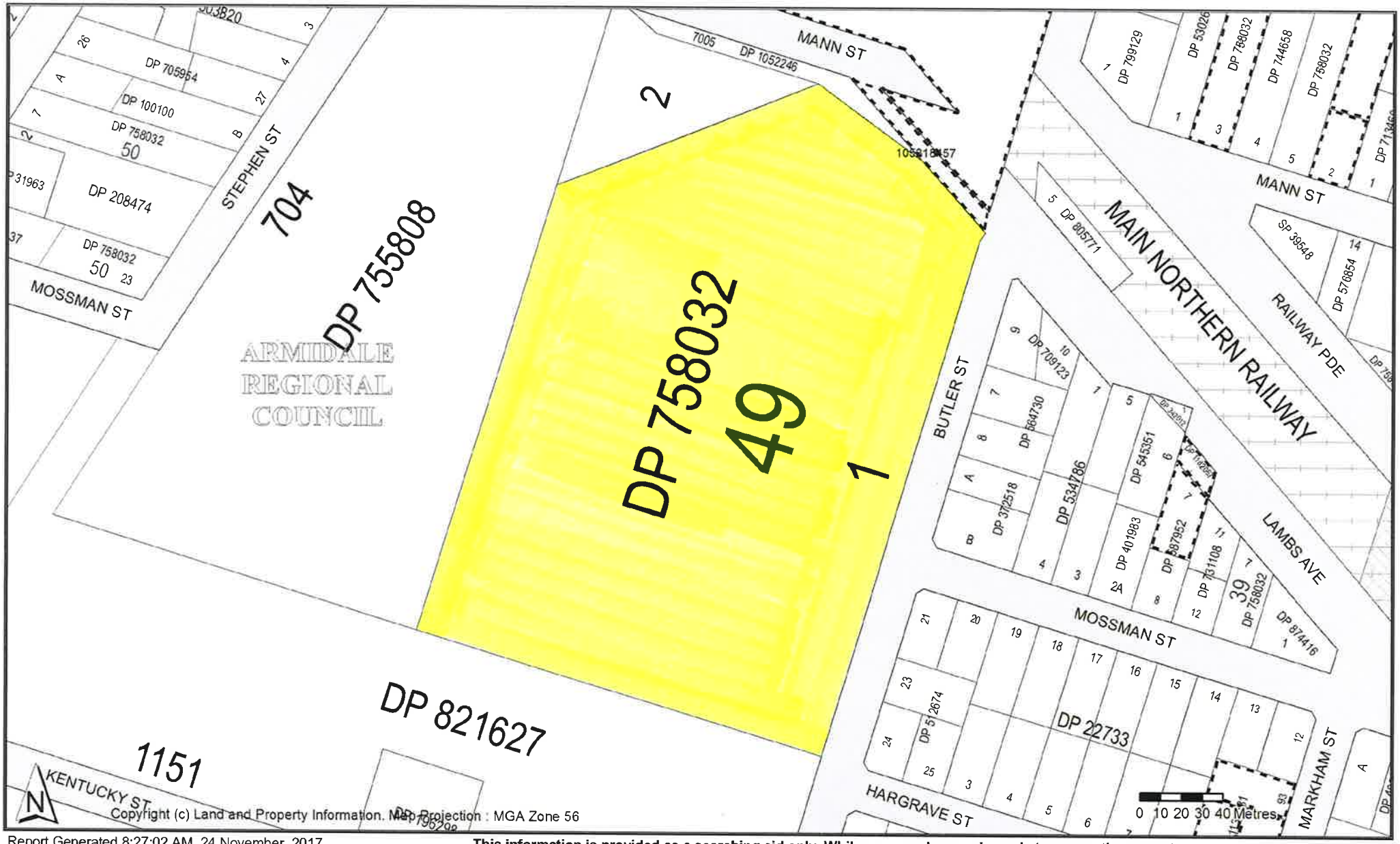
Land Title Searches

NSW Land & Property Information

Cadastral Records Enquiry Report

Requested Parcel : Lot 1 Section 49 DP 758032 **Identified Parcel** : Lot 1 Section 49 DP 758032

Locality : ARMIDALE **LGA** : ARMIDALE REGIONAL **Parish** : ARMIDALE **County** : SANDON



Report Generated 8:27:02 AM, 24 November, 2017

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.

ARMIDALE
MUNICIPALITY

Within City boundaries renotified 8th November 1918

17-5365

PLAN OF ALLOTMENT 1 OF SECTION 49
CITY OF ARMIDALE

County of Sandon : Parish of Armidale

LAND DISTRICT OF ARMIDALE — LAND BOARD DISTRICT OF ARMIDALE

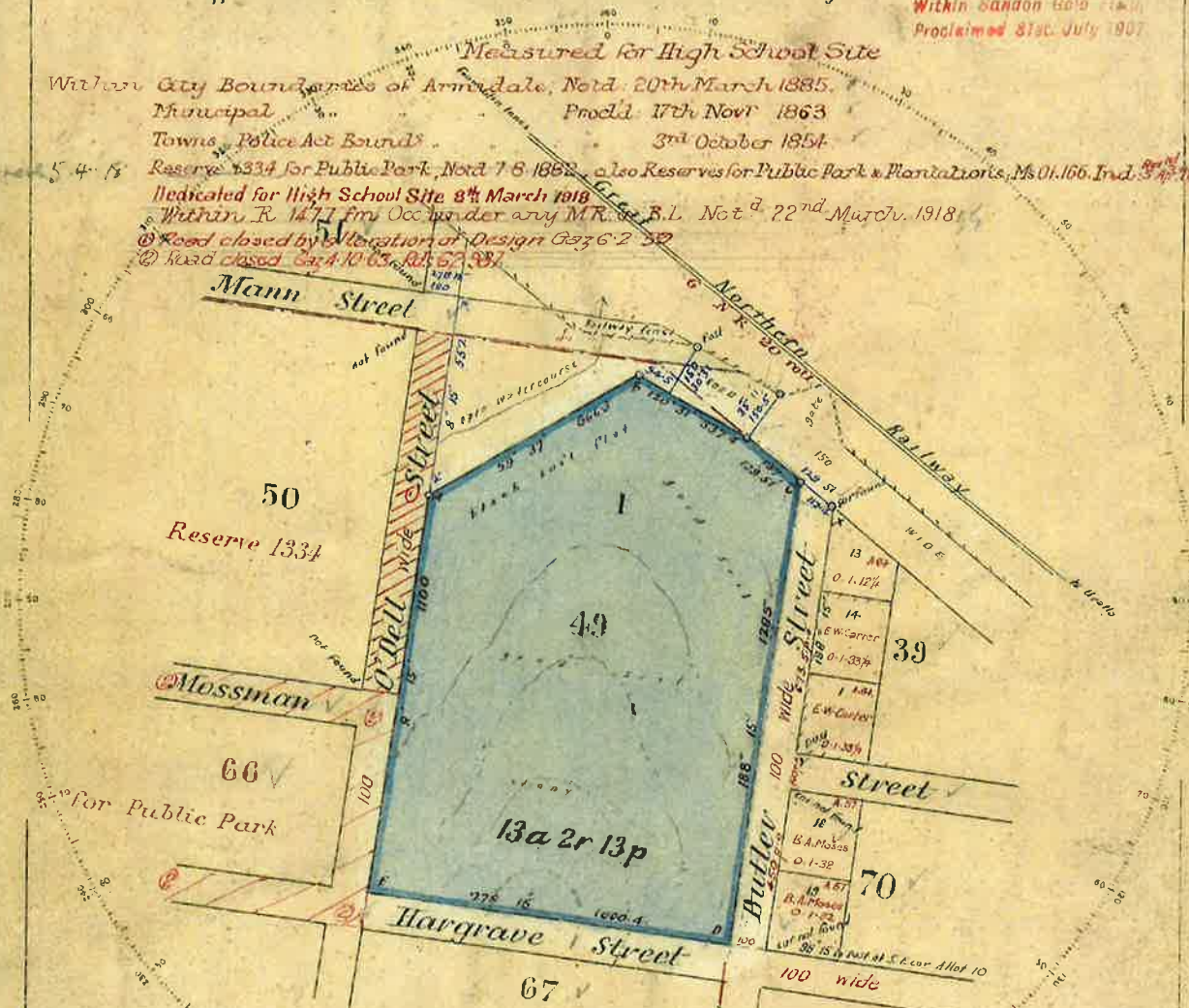
Resumed Area No — Pastoral Holding, Eastern Division.

Applied for under the — Section of the Crown Lands Act of 1 — by

Within Sandon Gold Field Proclaimed 31st July 1907

Measured for High School Site

Within City Boundaries of Armidale, Notd 20th March 1885.
Municipal " " " Procld 17th Novr 1863
Towns Police Act Bounds " " 3rd October 1854
Reserve 1334 for Public Park, Notd 7.8.1882 ... also Reserves for Public Park & Plantations, Ms 01.166. Ind. 3rd Nov 18
Dedicated for High School Site 8th March 1918
Within R. 1477 fm Occ under any MR. or B.L. Notd 22nd March 1918
① Road closed by Alienation of Design Gaz 6.2.32
② Road closed Gaz 4.10.63 p.1632



Noted: 7th August 1882

PLAN MICROFILMED
NO ADDITIONS OR AMENDMENTS TO BE MADE

Azimuth taken from X.Y.
Notes Year
Field Book Vol. 1917 Folio

Reference to Corners

Corner	Bearing	From	Links	Ft on Rec
A		Stake		49
B		Stake		49
C		Stake		49
D		Stake		49
E		Stake		49

Reference to Traverse

Line	Bearing	Distance

I hereby certify that I in person made and on the 17 October 1917 completed the survey represented on this plan on which are written the bearings and lengths of the lines measured by me and I declare that the survey has been executed in accordance with the regulations published for the guidance of licensed Surveyors and the practice of the Department of Lands.

Licensed Surveyor

Transmitted to the District Surveyor with my letter of 30th October — No 1917. 25

Voucher No 1.25 Passed £ 11-16-7 [illegible]
Calculation Book No 6243 folio 16 [illegible] 26-11-17
Checked and Charted [illegible] 26-11-17
Examined [illegible]
Plan approved } 28th Nov: 1917 [illegible]

Value of Improvements

Scale 20 Chains to an Inch

A.93.1354

[5197]

Department of Lands,
Sydney, 8th March, 1918.

NOTIFICATION OF DEDICATION OF LANDS FOR PUBLIC PURPOSES UNDER THE CROWN LANDS CONSOLIDATION ACT, 1913.

AN abstract of the intended dedication of the various areas of Crown Land described in the Schedule hereto, for the public purposes therein mentioned, having been duly laid before both Houses of Parliament of the State of New South Wales, in accordance with the provisions of the 24th section of the Crown Lands Consolidation Act, 1913, it is hereby notified that the various areas of Crown Lands hereinbefore mentioned, and as more particularly described in the Schedule hereto, are hereby dedicated for the respective public purposes specified in connection therewith.

[Ms. 1918-797]

W. G. ASHFORD, Minister for Lands.

SCHEDULE.

List No. 1 of 1918.

Place.	County.	Portion	Allotment.	Section	Locality.	Area.	Purpose of intended Dedication.	No. of Papers.	Cat. No. of Plan.
						a. r. p.		Rds.	
Adamstown ...	Northumberland.	...	.....	...	Parish of Newcastle ...	0 0 18	Public Road	1917-98-2 ...	R. 13154-1603
Adamstown and Hamilton.	Northumberland.	...	.....	...	Parish of Newcastle ...	1 2 30	Public Road	do ...	R. 13118-1603
								Ms.	
Armidale	Sandon ...	...	1	49	City of Armidale ...	18 2 18	Public High School Site	1917-9942 ...	A. 93-1354
Baryulgil	Drake ...	147	.....	...	Parish of Yulgilbar ...	1 1 25	Public School Site ...	9036 ...	D. 1298-1743
Beckom	Bourke ...	...	2 to 5, and lane south of and adjoining allotment 2.	7	Village of Beckom ...	1 0 19½	Public School Site (Addition).	9001 ...	Beckom 10
								Rds.	
Cocked Hat Creek, near Cockie Creek.	Northumberland.	...	.....	...	Parish of Kahibah ...	9 3 10	Public Road	1916-970-11...	Ms. 2083 Md.
Coonabarrabran ...	Gowen ...	...	.....	...	Parish of Coonabarrabran.	0 3 10	Public Road	541- 5...	R. 13824-1603
								Ms.	
Findon Creek ...	Rous	80	.....	...	Parish of Findon ...	3 0 0	Public School Site ...	1916-813 ...	R. 7778-1760
								Rds.	
Gallymont (near) ...	Bathurst ...	...	.....	...	Parish of Somers ...	1 2 0 (being the surface land of such area and 100 feet below same, and no more).	Public Road	1916-721-18...	R. 13137-1603
								Ms.	
Glenariff	Cowper ...	2	.....	...	Parish of Hastly ...	5 0 0	Public School Site ...	1917-8499 ...	C. 406-1823
Grubben	Mitchell ...	158	.....	...	Parish of Edgehill ...	2 0 0	Public School Site ...	1918- 132 ...	M. 2997-1888
								Rds.	
Hogarth's Range ...	Richmond ...	...	.....	...	Parish of Mongogarie...	5 0 0	Public Road	1916-254 ...	R. 12966-1603
Holbrook	Goulburn ...	...	.....	...	Parish of Holbrook ...	81 0 0	Public Road	1916-54-3 ...	H. 13006-1603
								Ms.	
Kitchener	Northumberland.	...	.....	17	Village of Kitchener ...	8 3 14	Public School Site ...	1917-8212 ...	Kitchener 9
Lade Vale	King ...	214	.....	...	Parish of Mundoonen	2 0 0	Public School Site ...	9032 ...	K. 6402-1905
Milvale	Bland ...	147	.....	...	Parish of Geraldra ...	1 0 0	Public School Site ...	8800 ...	B. 4051-1906
								Rds.	
New Lambton ...	Northumberland.	...	.....	...	Parish of Newcastle ...	0 0 32	Public Road	1917-98-2 ...	R. 13151-1603
New Lambton ...	Northumberland.	...	.....	...	Parish of Newcastle ...	0 0 32	Public Road	98-2 ...	R. 13152-1603
New Lambton ...	Northumberland.	...	.....	...	Parish of Newcastle ...	4 2 32	Public Road	98-2 ...	R. 13119-1603
Peat's Ferry road ...	Northumberland.	...	.....	...	Parish of Narara ...	1 3 0	Public Road	1916-456-25...	R. 12906-1603
								Ms.	
Pokataroe	Benarba ...	47	.....	...	Parish of Kamilaroi ...	3 3 3	Public School Site ...	1917-9629 ...	B. 2809-1909
								Ms.	
Rocky River... ...	Sandon ...	534	.....	...	Parish of Uralla ...	0 0 39½	Public School Site (Addition).	1918-76 ...	S. 4272-1440
Sydney (Newtown-road and Cleveland-street).	Cumberland	...	.....	...	City of Sydney	0 0 4½	Public Road	1917-9770 ...	C. 14-2068
The Briars	King ...	183	.....	...	Parish of Mundoonen...	2 0 0	Public School Site ...	9031 ...	K. 6901-1905
								Rds.	
Waratah	Northumberland.	...	.....	...	Parish of Newcastle ...	0 0 23	Public Road	1917-98-2 ...	R. 13150-1603
Waratah	Northumberland.	...	.....	...	Parish of Newcastle ...	1 2 30	Public Road	427-4 ...	R. 12973-1603
Werombi	Camden ...	...	.....	...	Parish of Weromba ...	0 2 0	Public Road	1916-419-13...	R. 12854-1603
Wollar	Phillip ...	...	.....	...	Parish of Wollar ...	2 0 0	Public Road	1917-152-4 ...	R. 12856-1603
								Ms.	
Yaven Creek ...	Wynyard ...	97	.....	...	Parish of Mate	2 0 0	Public School Site ...	1917-7412 ...	W. 5283-2129

[5881]

Western Land Board Office,
Sydney, 8th March, 1918.

DETERMINATION OF RENTAL OF LEASE ISSUED UNDER THE PROVISIONS OF THE WESTERN LANDS ACTS.

IT is hereby notified that, in pursuance of the provisions of section 19 of the "Western Lands Act of 1901," the Commissioners constituting the Western Land Board have determined the Rental of the Lease specified in the following Schedule at the rate per acre and for the period therein mentioned.

C. J. McMASTER, Chief Commissioner.
HUGH LANGWELL, Commissioner.
S. W. MOORE, Commissioner.

SCHEDULE.

No. of Western Lands Lease.	No. and Class of Lease under Crown Lands Acts, or Western Lands Acts.	Name of Registered Holder.	Area.	Annual Rental per Acre.	Total Annual Rental.	Period for which rent has been determined.	
						From	To
2079	New lease,—section 32 ...	Edward Frederick Smith ...	Acres. 20,480	d. 1.0 100	£ s. d. 8 10 8	1 July, 1916	30 June, 1920

NOTICES TO APPLICANTS FOR LEASES FOR MINING, &c.—*continued.*

RENTS are due and owing, &c.—*continued.*

No.	Name.	Portion No.	Locality. County.	Locality. Parish.	Area. a.	r.	p.	Application No.
	MINERAL LEASES (COAL AND SHALE), MINING ACT, 1906.							
326	The Great Northern Coal Co., Ltd.	20	Northumberland ...	Aetlalong	40	0	0	East Maitland 52-91
404	E. Kelly and another	ML 21, 22.	do	Awaba and Mulbring.	258	2	30	Newcastle 118-164
	MINING PURPOSES LEASES, MINING ACT, 1906.							
86	G. Young	SB	Drake	West Fairfield ...	0	0	27½	Drake 1-81
123	Bourke's Hill Tin Sluicing Co. N.L.	ML 88	Gough	Scone	2	0	0	Emmaville 10-178
133	J. M. Dodd	GL 89	Clarendon	South Gundagai ...	0	0	12½	Gundagai 4-66
154	G. Markham	ML 478	Hardinge	Swinton	0	2	21	Tingha 15-347
156	The Edith Mining Co. Ltd. ...	" 24	Clive	Rockvale	10	0	0	Torrington 3-35
204	The Great Northern Coal Co. Ltd.	" 49, 53, 54, & 55.	Northumberland ...	Cessnock	38	1	20	East Maitland 37-126, 38-127, 39-128, and 40-129.
	DREDGING LEASES, MINING ACT, 1906.							
186	W. A. Lamb and another... ...	PML 15	Goulburn	Vautier	81	1	35	Germanton 1-10
278	L. R. Litchfield	ML 5	Hardinge	Swinton	9	3	27	Tingha 90-393
304	A. J. Welman	" 41	do	Swinton and Cope's Creek.	44	1	14	" 105-486
307	A. T. Brissett	" 8	do	Swinton	27	1	29	" 101-437
326	C. D. Fraser	GL 72	Dampier	Gulph and Nerrigundah.	22	3	20	Nerrigundah 5-57
327	A. J. Welman	ML 36	Hardinge	Cope's Creek ...	23	0	16	Tingha 109-445
328	J. Tonking	GL 170	Wynyard	Adelong	9	3	23	Adelong 12-135

J. C. L. FITZPATRICK, Secretary for Mines.

[5570]

Department of Mines,
Sydney, 22nd March, 1918.

REVOCATION OF RESERVE No. 383, AND PART OF GENERAL RESERVATION MADE UNDER SECTION 26, MINING ACT, 1874, AND RESERVATION OF AN AREA FROM OCCUPATION UNDER ANY MINER'S RIGHT OR BUSINESS LICENSE, PARISH ARMIDALE, COUNTY SANDON, IN LIEU THEREOF.

HIS Excellency the Governor, with the advice of the Executive Council, on the recommendation of the Minister, directs it to be notified that, in pursuance of the provisions of section 14 (3) Mining Act, 1906, Reserve No. 383, made under section 26, Mining Act, 1874, notified 14th October, 1882, in the first Schedule hereunder described; and so much of General Reservation, under the said section and Act, notified 12th February, 1901, which is embraced in the second Schedule, shall be revoked, and they are hereby revoked accordingly; and that the land in the third Schedule hereunder described shall be and it is hereby exempted from occupation under any miner's right or business license in lieu thereof.

[Ms. 1918-1,508-149]

J. C. L. FITZPATRICK, Minister for Mines.

Land District.	Division.	Reserve No.	Purpose.	Date of Notification.	County.	Parish.	Holding.	Area.	Part revoked.	Papers No.
			FIRST SCHEDULE.							
.....	.....	383	From occupation for mining purposes under any miner's right or business license.	14 Oct., 1882	Sandon ...	Armidale.	.....	Acres. 9,300 (about).	The whole	Ms. 1918-1,108.
			SECOND SCHEDULE.							
.....	.....	General reserve covering all lands reserved for public purposes (within any city, town, or village) within a proclaimed goldfield.	From occupation for residence or business purposes under any miner's right or business license.	12 Feb., 1901	Sandon ...	Armidale.	.....	.....	Those parts within the boundaries of the city of Armidale.	Ms. 1918-1,108.

THIRD SCHEDULE.

EASTERN DIVISION.

LAND DISTRICT OF ARMIDALE, DUMARESQ SHIRE.

DESCRIPTION.

No. 1,477. County of Sandon, parish of Armidale. The Crown Lands within the boundaries of the city and suburban lands of Armidale.

[5569]

Department of Mines,
Sydney, 22nd March, 1918.

RESERVE FROM ALIENATION FOR MINING OR MINING PURPOSES, PARISH OF WAMBAT, COUNTY OF HARDEN.

HIS Excellency the Governor, with the advice of the Executive Council, on the recommendation of the Minister, and with the concurrence of the Secretary for Lands, directs it to be notified that, in pursuance of the provisions of section 106 of the Mining Act, 1906, the Crown Lands hereunder described shall be exempted from alienation and reserved for mining or mining purposes, and they are hereby exempted from alienation and reserved for mining or mining purposes accordingly.

[1918-1,810-140 Misc.]

J. C. L. FITZPATRICK, Minister for Mines.

EASTERN DIVISION.

LAND DISTRICT OF YOUNG, AND DEMONDRILLE SHIRE.

No. 1,476 (M.). County of Harden, parish of Wambat, containing an area of about 75 acres; The Crown Lands bounded by portions 51, 434, 471, and 432, and R. 1,048 (M) for mining or mining purposes, notified 7th October, 1907.

Parish of Wallangulla: Lightning Ridge Public School

Allotment 2, section 6, D.P. 758612 of 1.335 hectares — Reserved (R46340) for Public School purposes. *Government Gazette*, 22nd February 1911.

Allotment 1, section 6, D.P. 758612 of 8094 square metres — Dedicated for Public School site. *Government Gazette*, 12th July 1911.

Lot 80, D.P. 820480 of 6071 square metres — Reserved (r46340) for Public School site (addition). *Government Gazette*, 22nd February 1974.

Parish of Weilmoringle: Weilmoringle Public School

Lot 4, D.P. 752007 of 8094 square metres — Dedicated for Public School purposes. *Government Gazette* 18th May 1962.

Lot 6, D.P. 752007 of 1.032 hectares — Reserved (R86470) for Public School purposes. *Government Gazette*, 20th October 1967.

Lot 7, D.P. 752007 of 1948 square metres — Reserved (R86816) for Public School purposes. *Government Gazette*, 2nd August 1968.

EDUCATION REFORM ACT 1990

Land Acquisition (Just Terms Compensation) Act 1991

Notice of Compulsory Acquisition of Land for Public School

THE Minister for Education and Training, with the approval of His Excellency the Governor, declares by delegate that the land described in the Schedule below is acquired by compulsory process under the provisions of the Land Acquisition (Just Terms Compensation) Act 1991, for the purposes of the Education Reform Act.

Dated at Sydney, this 10th day of July 1995.

JOHN AQUILINA, M.P.,
Minister for Education and Training.

SCHEDULE

Parish of Armidale: Armidale High School

Allotments 1 and 2, section 49, D.P. 758032 of 5.942 hectares — Dedicated for Public High School site, Lot 704, D.P. 755808 of 4.378 hectares — Dedicated for Public School purposes (addition) and Lot 1151, D.P. 821627 of 4.562 hectares — Dedicated for Public High School (addition). *Government Gazette*, 8th March 1918.

Allotment 1, section 161, D.P. 758032 of 3.121 hectares — Dedicated for Public School purposes. *Government Gazette*, 28th November 1924.

Parish of Armidale: Ben Venue Public School

Lot 758, D.P. 755808 of 1.619 hectares — Dedicated for Public School site. *Government Gazette*, 1st November 1929.

Parish of Armidale: Drummond Memorial Public School

Allotments 10–15, Section 59, D.P. 758032 of 1.138 hectares — Dedicated for Public School site. *Government Gazette*, 19th January 1884.

Allotments 17 — 19 section 59, D.P. 758032 of 5691 square metres — Dedicated for Public School site (addition). *Government Gazette*, 26th October 1928.

Allotments 1–5, and 20 section 59, D.P. 758032 of 1.214 hectares and Lot 1153, D.P. 820551 of 728.4 square metres — Dedicated for Public School. *Government Gazette*, 21st April, 1950.

Parish of Armidale: Armidale City Public School

Allotment 7, section 30, D.P. 758032 of 3288 square metres — Dedicated for Public School site. *Government Gazette*, 19th January 1884.

Allotment 3, section 30, D.P. 758032 of 2023 square metres — Dedicated for Public School site. *Government Gazette* 19th January 1895.

Allotment 4, section 30, D.P. 758032 of 1012 square metres — Dedicated for Public School site. *Government Gazette*, 9th January 1897.

Lot 1146, D.P. 821025 of 671.1 square metres — Dedicated for Public School site. *Government Gazette*, 8th October 1898.

Allotment 8, section 30, D.P. 758032 of 2049 square metres — Dedicated for Public School. *Government Gazette*, 17th November 1939.

Allotment 9, section 30, D.P. 758032 of 1555 square metres — Dedicated for Public School site. *Government Gazette*, 1st October 1954.

Allotment 6, section 30, D.P. 758032 of 7221 square metres — Dedicated for Public School. *Government Gazette*, 30th September 1960.

EDUCATION REFORM ACT 1990

Land Acquisition (Just Terms Compensation) Act 1991

Notice of Compulsory Acquisition of Land for Public School

THE Minister for Education and Training, with the approval of His Excellency the Governor, declares by delegate that the land described in the Schedule below is acquired by compulsory process under the provisions of the Land Acquisition (Just Terms Compensation) Act 1991, for the purposes of the Education Reform Act.

Dated at Sydney, this 10th day of July 1995.

JOHN AQUILINA, M.P.,
Minister for Education and Training.

SCHEDULE

Parish of Euabalong: Euabalong Public School

Allotments 1–5, section 1, D.P. 758393 of 1.012 hectares — Dedicated for Public School. *Government Gazette*, 11th June 1889.

Lot 1, D.P. 725397 of 809.6 square metres — Dedicated for Public School (addition). *Government Gazette* 18th September 1953.

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
23/11/2017 4:14PM

FOLIO: 1/49/758032

First Title(s): 1/49/758032
Prior Title(s): CROWN LAND

Recorded	Number	Type of Instrument	C.T. Issue
13/6/1991	DP758032	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
8/8/1995	0441923	DEPARTMENTAL DEALING	
24/8/1995	0431053	DEPARTMENTAL DEALING	EDITION 1
13/11/2012	AH362192	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

PSH-GROLLY-JG17064A PRINTED ON 23/11/2017

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/49/758032

SEARCH DATE	TIME	EDITION NO	DATE
23/11/2017	4:14 PM	1	24/8/1995

LAND

LOT 1 OF SECTION 49 IN DEPOSITED PLAN 758032
AT ARMIDALE
LOCAL GOVERNMENT AREA ARMIDALE REGIONAL
PARISH OF ARMIDALE COUNTY OF SANDON
(FORMERLY KNOWN AS ALLOTMENT 1 OF SECTION 49)
TITLE DIAGRAM CROWN PLAN 93.1354

FIRST SCHEDULE

MINISTER FOR EDUCATION AND TRAINING (DD 0431053)

SECOND SCHEDULE (1 NOTIFICATION)

* 1 DEDICATED FOR PUBLIC HIGH SCHOOL SITE GOV. GAZ. 8.3.1918 FOL 1273

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 ***

PSH-GROLLY-JG17064A PRINTED ON 23/11/2017

EPA Searches

Search results

Your search for:LGA: Armidale Dumaresq Council

Matched 22 notices relating to 6 sites.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
ARMIDALE	132 Niagara STREET	Former Mobil Depot	4 former
ARMIDALE	Corner of Beardy Street and Allingham STREET	Gasworks and portion of Harris Park	2 current
ARMIDALE	Martin STREET	Martin Street Estate	6 former
ARMIDALE	Lot 3 Martin STREET	Martin Street Estate, Lot 3	2 former
ARMIDALE	adjoining Martin STREET	RTA land adjoining Martin Street estate	6 former
TILBUSTER	Beethoven LANE	Tilbuster Park Estate	2 former

Page 1 of 1

20 November 2017

Groundwater Bores

All Groundwater

All Groundwater Map

bookmark this page

All data times are Eastern Standard Time

Map | Info

Scale = 1 : 14K

Section 149(2)

135 Rusden Street
PO Box 75A Armidale NSW 2350
P: 1300 136 833
council@armidale.nsw.gov.au
ABN 39 642 954 203

ARMIDALE Regional Council

PLANNING CERTIFICATE

Issued under Section 149 of the *Environmental Planning and Assessment Act 1979*, as amended.

CERTIFICATE DETAILS

Certificate Number

A-149(2):5573

Certificate Issue Date:

28 September 2017

Your Reference:

JG17064A:18109

PROPERTY DETAILS

Property Details:

158-182 Butler Street ARMIDALE NSW 2350

Legal Description:

Lot 1151 DP 821627, Lot 1 DP 196298, Lot 704 DP 755808, Lot 2 Sec 49 DP 758032, Lot 1 Sec 161 DP 758032, Lot 1 Sec 49 DP 758032,

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Notes:

1. This Certificate reflects the circumstances applicable at the date of issue of the document.
2. Where a 149 Certificate is issued by Council relating to a lot/s within a Strata Plan, the information supplied on the Certificate will provide answers that are relevant to the entire Strata Plan.

1 Names of relevant planning instruments and DCPs

(1) The names of:

(a) each environmental planning instrument that applies to the carrying out of development on the land, and

Armidale Dumaresq Local Environmental Plan 2012.

Refer to Annexure 1 for a list of State Environmental Planning Policies (SEPPs).

(b) 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);*

** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.*

Refer to Annexure 1 for list of any Draft State Environmental Planning Policies (SEPPs).

(c) The name of each development control plan that applies to the carrying out of development on the land.

Armidale Dumaresq Development Control Plan 2012.

A copy of the Armidale Dumaresq Development Control Plan 2012 is available from Council's web site – www.armidale.nsw.gov.au/planning-development-armidale, or alternatively, can be printed on payment of a standard charge.

2 Zoning and land use under relevant LEPs

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

(a) the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Conservation Area") or by reference to a number (such as "Zone R1 General Residential");

Current Zone under Armidale Dumaresq Local Environmental Plan 2012:

R1 General Residential;

(b) the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent;

See Part 2 of the Armidale Dumaresq Local Environmental Plan 2012. Other provisions in the Armidale Dumaresq Local Environmental Plan 2012 may also be relevant. A full copy of the Armidale Dumaresq Local Environmental Plan 2012 is available from the NSW Government's legislation web site – http://www.legislation.nsw.gov.au/maintop/view/inforce/epi+589+2012+cd+0+N or Council's web site – www.armidale.nsw.gov.au. A hard copy is also available from Council on payment of a standard printing charge.

(c) the purposes for which the instrument provides that development may not be carried out within the zone except with development consent;

See response to 2(b) above

(d) the purposes for which the instrument provides that development is prohibited within the zone,

See response to 2(b) above

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,

The minimum land dimension for the erection of a dwelling-house on the land is 500 square metres. Also, see other provisions in Part 4 of the Armidale Dumaresq Local Environmental Plan 2012.

(f) whether the land includes or comprises critical habitat;

No

(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.

Yes – Information on the heritage Item/s is available from the NSW State Heritage website, www.heritage.nsw.gov.au

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

This section does not apply to land in the *Armidale Dumaresq Local Government Area*.

3(1) Complying development

The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A(1)(c) to (e), (2), (3) and (4) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

(a) General Housing Code

The land IS NOT land on which complying development may be carried out under Clause 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Refer to Part 3(2) below.

(b) Rural Housing Code

The land IS NOT land on which complying development may currently be carried out unless complying development is carried out on the part of the lot to which Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 does not apply.

Refer to Part 3(2) below.

(c) Housing Alterations Code
(d) General Development Code
(e) Commercial and Industrial Alterations Code
(f) Subdivisions Code
(g) Demolition Code
(h) Fire Safety Code

The land IS NOT land on which complying development may be carried out under Clause 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Refer to Part 3(2) below.

(i) Commercial and Industrial Code

The land IS land on which complying development may currently be carried out under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 having regard to the provisions of clauses 1.17A(1)(c) to (e), (2), (3) and (4) and 1.19 of the Policy.

Refer to Part 3(2) below.

3(2) Complying development

If complying development may not be carried out on all or part of the land because of the provisions of clauses 1.17A(1)(c) to (e), (2), (3) and (4) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the reasons why it may not be carried out are provided below. The following restrictions may apply to all or part of the land and Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

(a) General Housing Code

(b) Rural Housing Code

NOTE: For the purposes of the Rural Housing Code under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, complying development may be carried out on the part of the lot to which this clause may not apply.

The land is on land that comprises, or on which there is, a building item of the environmental heritage that is identified as such an item in an environmental planning instrument.

(c) Housing Alterations Code

(d) General Development Code

(e) Commercial and Industrial Alterations Code

(f) Subdivision Code

(g) Demolition Code

(h) Fire Safety Code

The land is on land that comprises, or on which there is, a building item of the environmental heritage that is identified as such an item in an environmental planning instrument.

(i) Commercial and Industrial Code

The land is on land that comprises, or on which there is, a building item of the environmental heritage that is identified as such an item in an environmental planning instrument.

4 Coastal protection
4A Certain information relating to beaches and coasts
4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

This section does not apply to land in the *Armidale Dumaresq Local Government Area*.

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

No

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993, or

Not Applicable

(b) any environmental planning instrument, or

No

(c) any resolution of the council.

Armidale Dumaresq Council resolved on 25 September 2000 to require the dedication of splay corners for properties including allotments at the corner of road intersections in the former City areas where such splays do not already exist. These splays (extending 3m x 3m from the relevant corner boundary for minor roads or 5m x 5m from the relevant corner boundary for major roads) would be sought in connection with future subdivision activity or other significant development of relevant lands.

Council also resolved on 25 September 2000 to require the dedication of road widening (usually to a depth of 3 metres) in connection with future subdivision activity or other significant development of allotments fronting roads with a road reserve width of less than 20 metres and no dedicated pedestrian footpath strip. This typically applies to mid-block roads in the central area of Armidale.

For further details please contact Council.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding)

(a) adopted by the council, or

Council has adopted by resolution a Chapter in Development Control Plan on contaminated land which may restrict the development of the land. The relevant policy is implemented when zoning, development or land use changes are proposed on lands which have been used or affected by certain activities. While Council records do provide information about contamination of some land in the local government area, Council does not have sufficient information about previous uses of this land to determine whether the land may be contaminated. Consideration of Council's adopted DCP and the application of provisions under relevant State legislation is warranted.

Council has adopted geotechnical hazard mapping in Development Control Plan 2012, Chapter 2.6, which indicates that the land is potentially affected by Spring Activity. Investigation and possible precautionary works will be required in the event of development of the land.

Council has adopted geotechnical hazard mapping in Development Control Plan 2012, Chapter 2.6, which indicates that the land is potentially affected by Slope Instability. Investigation and possible precautionary works will be required in the event of development of the land.

(b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk.

See Question 11 - Bushfire prone land.

7A Flood related development controls information

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

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

(3) Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the Standard Instrument (Local Environmental Plans) Order 2006.

No

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No

9 Contributions plans

The name of each contributions plan applying to the land.

DSP ARMIDALE WATER DSP ARMIDALE SEWER DSP ARMIDALE WATER DSP ARMIDALE SEWER DSP ARMIDALE WATER DSP ARMIDALE SEWER DSP ARMIDALE WATER DSP ARMIDALE SEWER DSP ARMIDALE WATER DSP ARMIDALE SEWER DSP ARMIDALE WATER DSP ARMIDALE SEWER

Note: The Armidale Dumaresq Water Supply and Sewerage Development Servicing Plan also applies to development of land in the urban area of Armidale and surrounding localities.

9A Biodiversity certified land

If the land is biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995), a statement to that effect.

No

10 Biobanking Agreements

If the land is land to which a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates, a statement to that effect (but only if the Council has been notified of the existence of the Agreement by the Director-General of the Department of Environment, Climate Change and Water).

No

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

None of the land is identified in the certified Bush Fire Prone Land map.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

Council has not been notified of any order under the Trees (Disputes Between Neighbours) Act 2006.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (cl) 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

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

(a) a statement of whether there is a current site compatibility certificate (of which the council is aware), issued under clause 25 of that Policy in respect of proposed development on the land and, if there is a certificate, the statement is to include:
  (i) the period for which the certificate is current, and
  (ii) that a copy may be obtained from the Department of Planning and Environment, and

(b) a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

No

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is valid, and

(b) that a copy may be obtained from the Department of Planning and Environment.

No

17 Site compatibility certificates and conditions for affordable rental housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
  (a) the period for which the certificate is current, and
  (b) that a copy may be obtained from the head office of the Department of Planning and Environment.

(2) A statement setting out any terms of a kind referred to in clause 17 (1) or 37 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

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.

(2) The date of any subdivision order that applies to the land.

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

Not Applicable

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

(b) the date on which the certificate ceases to be current (if any), and

(c) that a copy may be obtained from the head office of the Department of Planning and Infrastructure.

Not Applicable

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

Not Applicable

Matters arising under the Contaminated Land Management Act 1997

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

(a) 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

Matters arising under the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009

Note. Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 provides that a planning certificate must include advice about any exemption under section 23 or authorisation under section 24 of that Act if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.

Not Applicable

- **The above information has been taken from Council records; however, Council cannot accept responsibility for any omission or inaccuracy.**
- **Prospective purchasers should consult their legal advisers concerning any easements or restrictions on the title of the property.**
- **Council does not incur any liability in respect of advice provided in good faith pursuant to s149(5) in accordance with s149(6) of the *Environmental Planning and Assessment Act 1979*, as amended.**
- **Information on any outstanding notices or orders pertaining to this property can be obtained through a Certificate available from Council pursuant to s121ZP of the *Environmental Planning Assessment Act 1979* and s735A of the *Local Government Act 1993*.**

Yours sincerely

John Goodall
Manager Development Assessment

Any request for further information in connection with the above should be marked for the attention of:
Planning and Environment
Armidale Regional Council
Telephone: 1300 136 833
Email: council@armidale.nsw.gov.au

Is your property energy efficient? Further information on energy efficient domestic building design and ratings can be obtained from the following internet sites:

www.nathers.gov.au
www.basix.nsw.gov.au
www.yourhome.gov.au

If the home you are buying has a solid fuel heater, talk to Council about efficient operation, or alternative non-polluting forms of heating.

ANNEXURE 1

STATE ENVIRONMENTAL PLANNING POLICIES APPLYING TO ARMIDALE DUMARESQ LOCAL GOVERNMENT AREA

SEPP No. 1 - Development Standards
Makes development standards more flexible. It allows councils to approve a development proposal that does not comply with a set standard where this can be shown to be unreasonable or unnecessary.

SEPP No. 15 - Rural Land-Sharing Communities
Makes multiple occupancy permissible, with council consent, in rural and non-urban zones, subject to a list of criteria in clause 9(1) of the policy. Multiple occupancy is defined as the collective management and sharing of unsubdivided land, facilities and resources. The policy encourages a community-based environmentally-sensitive approach to rural settlement, and enables the pooling of resources to develop opportunities for communal rural living. SEPP 15 Guide provides guidance to intending applicants.

SEPP No. 21 - Caravan Parks
Ensures that where caravan parks or camping grounds are permitted under an environmental planning instrument, movable dwellings, as defined in the Local Government Act 1993, are also permitted. The specific kinds of movable dwellings allowed under the Local Government Act in caravan parks and camping grounds are subject to the provisions of the Caravan Parks Regulation. The policy ensures that development consent is required for new caravan parks and camping grounds and for additional long-term sites in existing caravan parks. It also enables, with the council's consent, long-term sites in caravan parks to be subdivided by leases of up to 20 years.

SEPP No. 30 - Intensive Agriculture
Requires development consent for cattle feedlots having a capacity of 50 or more cattle or piggeries having a capacity of 200 or more pigs. The policy sets out information and public notification requirements to ensure there are effective planning control over this export-driven rural industry. The policy does not alter if, and where, such development is permitted, or the functions of the consent authority.

SEPP No. 32 - Urban Consolidation (Redevelopment of Urban Land)
States the Government's intention to ensure that urban consolidation objectives are met in all urban areas throughout the State. The policy: focuses on the redevelopment of urban land that is no longer required for the purpose it is currently zoned or used encourages local councils to pursue their own urban consolidation strategies to help implement the aims and objectives of the policy. Councils will continue to be responsible for the majority of rezonings. The policy sets out guidelines for the Minister to follow when considering whether to initiate a regional environmental plan (REP) to make particular sites available for consolidated urban redevelopment. Where a site is rezoned by an REP, the Minister will be the consent authority.

SEPP No. 33 - Hazardous and Offensive Development
Provides new definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future. The new definitions enable decisions to approve or refuse a development to be based on the merit of proposal. The consent authority must careful consider the specifics the case, the location and the way in which the proposed activity is to be carried out. The policy also requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the policy. For example, any application to carry out a potentially hazardous or potentially offensive development is to be advertised for public comment, and applications to carry out potentially hazardous development must be supported by a preliminary hazard analysis (PHA). The policy does not change the role of councils as consent authorities, land zoning, or the designated development provisions of the Environmental Planning and Assessment Act 1979.

SEPP No. 36 - Manufactured Home Estates
Helps establish well-designed and properly serviced manufactured home estates (MHEs) in suitable locations. Affordability and security of tenure for residents are important aspects. The policy applies to Gosford, Wyong and all local government areas outside the Sydney Region. To enable the immediate development of estates, the policy allows MHEs to be located on certain land where caravan parks are permitted. There are however, criteria that a

proposal must satisfy before the local council can approved development. The policy also permits, with consent, the subdivision of estates either by community title or by leases of up to 20 years. A section 117 direction issued in conjunction with the policy guides councils in preparing local environmental plans for MHEs, enabling them to be excluded from the policy.

SEPP No. 44 - Koala Habitat Protection

Encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range. The policy applies to 107 local government areas. Local councils cannot approve development in an area affected by the policy without an investigation of core koala habitat. The policy provides the state-wide approach needed to enable appropriate development to continue, while ensuring there is ongoing protection of koalas and their habitat.

SEPP No. 50 - Canal Estates

Bans new canal estates from the date of gazettal, to ensure coastal and aquatic environments are not affected by these developments.

SEPP No. 55 - Remediation of Land

Introduces state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals. To assist councils and developers, the Department, in conjunction with the Environment Protection Authority, has prepared Managing Land Contamination: Planning Guidelines.

SEPP No 62 - Sustainable Aquaculture

Provides for natural water-based water aquaculture in the form of Oyster aquaculture.

SEPP No. 64 - Advertising and Signage

Aims to improve the amenity of urban and natural settings by managing the impact of outdoor advertising. The policy responds to growing concerns from the community, the advertising industry and local government that existing controls and guidelines were not effective. SEPP No. 64 offers the comprehensive provisions and consistent approach needed. SEPP 64 – Advertising and Signage: Explanatory Information should be read in conjunction with the policy.

SEPP No. 65 – Design Quality of Residential Flat Development

This SEPP highlights 10 design quality principles to guide architects designing residential flats and to assist councils in assessing these developments.

The principles relate to key design issues such as:

- the context for design – the locality and streetscape
- scale, form and density of the building
- measures to achieve resource, energy and water efficiency
- landscape design to create useful outdoor spaces for residents
- safety and security, including ensuring public areas are safe, visible and well lit at night.

Aims to improve the design quality of flats of three or more storeys with four or more dwellings. The policy sets out a series of design principles for local councils or other consent authorities to consider when assessing development proposals for flats. It also creates a role for special design review panels and registered architects in the design and approval.

SEPP – Housing for Seniors or People with a Disability 2004
Aims to increase the supply and choice of housing for older people or people with a disability. Such housing is permitted, with council consent, wherever houses, flats, hospitals or certain 'special uses' are permitted in or adjoining urban areas, except for some environmentally sensitive lands. The policy contains development standards and matters a council and the Department of Planning must consider when determining development applications. For example, future residents must have reasonable access to services they require, taking into account convenience, affordability and the type and scale of housing. Relevant Government Circulars should be read in conjunction with this Policy.

SEPP Building Sustainability Index: BASIX 2004
This SEPP operates in conjunction with Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004 to ensure the effective introduction of BASIX in NSW. The SEPP ensures consistency in the implementation of BASIX throughout the State by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX. The draft SEPP was exhibited together with draft Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004.

SEPP (Major Development) 2005
Defines major infrastructure projects and other projects of state significance which are determined by the Minister and identifies development for which Joint Regional Planning Panels are to exercise specified consent authority functions.

SEPP (Infrastructure) 2007
Provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007
Provides for the management and development of mineral, petroleum and extractive material resources.

SEPP (Temporary Structures) 2007
Provides for the erection of temporary structures and the use of places of public entertainment while protecting public safety and local amenity. Note the name of this policy was changed from SEPP (Temporary Structures and Places of Public Entertainment) 2007 to SEPP (Temporary Structures) 2007 effective 26.10.2009.

SEPP (Rural Lands) 2008
The aims of this policy are:

- to facilitate the orderly and economic use and development of rural lands for rural and related purposes,
- to identify the Rural Planning Principles and the Rural Subdivision Principles so as to assist in the proper management, development and protection of rural lands for the purpose of promoting the social, economic and environmental welfare of the State,
- to implement measures designed to reduce land use conflicts,
- to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,
- to amend provisions of other environmental planning instruments relating to concessional lots in rural subdivisions.

SEPP (Exempt and Complying Development Codes) 2008
This policy aims to provide streamlined assessment processes for development that complies with specified development standards by:

- providing exempt and complying development codes that have State-wide application, and
- identifying types of development that are of minimal environmental impact that may be carried out without the need for development consent, and
- identifying types of complying development that may be carried out in accordance with a complying development certificate as defined in the *Environmental Planning and Assessment Act 1979*, and
- enabling the progressive extension of the types of development in this Policy, and
- providing transitional arrangements for the introduction of the State-wide codes, including the amendment of other environmental planning instruments.

SEPP (Affordable Rental Housing) 2009
This Policy aims to provide a consistent planning regime for the provision of affordable rental housing in the State and provides development standards for such housing, which are permissible with consent in residential zones.

SEPP (State and Regional Development) 2011
This Policy identifies classes of regional development (to be determined by Joint Regional Planning Panels) and classes of development that are considered to be State significant development, State significant infrastructure and critical State significant infrastructure (to be determined by the Minister or Minister's delegate).

SCHEDULE OF DRAFT STATE ENVIRONMENTAL PLANNING POLICIES OF WHICH COUNCIL HAS BEEN MADE AWARE AT DATE OF ISSUE OF CERTIFICATE

Note: The NSW Department of Planning has issued Circular PS 08-013 to Councils on 13 November 2008. From 1 March 2009, Councils are directed not to consider draft environmental planning instruments that were exhibited prior to 1 March 2006 and not yet gazetted for the purpose of assessing development applications under Section 79C(a)(ii) of the Environmental Planning and Assessment Act 1979.

135 Rusden Street
PO Box 75A Armidale NSW 2350
P: 1300 136 833
council@armidale.nsw.gov.au
ABN 39 642 954 203

ARMIDALE Regional Council

PLANNING CERTIFICATE

Issued under Section 149 of the *Environmental Planning and Assessment Act 1979*, as amended.

CERTIFICATE DETAILS

Certificate Number

A-149(2):5574

Certificate Issue Date:

28 September 2017

Your Reference:

JG17064A:18109

PROPERTY DETAILS

Property Details:

56-72 Crest Road ARMIDALE NSW 2350

Legal Description:

Lot 1 DP 598870, Lot 2 DP 598870,

Notes:

1. This Certificate reflects the circumstances applicable at the date of issue of the document.
2. Where a 149 Certificate is issued by Council relating to a lot/s within a Strata Plan, the information supplied on the Certificate will provide answers that are relevant to the entire Strata Plan.

1 Names of relevant planning instruments and DCPs

(1) The names of:

(a) each environmental planning instrument that applies to the carrying out of development on the land, and

Armidale Dumaresq Local Environmental Plan 2012.

Refer to Annexure 1 for a list of State Environmental Planning Policies (SEPPs).

(b) 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);*

** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.*

Refer to Annexure 1 for list of any Draft State Environmental Planning Policies (SEPPs).

(c) The name of each development control plan that applies to the carrying out of development on the land.

Armidale Dumaresq Development Control Plan 2012.

A copy of the Armidale Dumaresq Development Control Plan 2012 is available from Council's web site – www.armidale.nsw.gov.au/planning-development-armidale, or alternatively, can be printed on payment of a standard charge.

2 Zoning and land use under relevant LEPs

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

(a) the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Conservation Area") or by reference to a number (such as "Zone R1 General Residential");

Current Zone under Armidale Dumaresq Local Environmental Plan 2012:

R1 General Residential;

(b) the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent;

See Part 2 of the Armidale Dumaresq Local Environmental Plan 2012. Other provisions in the Armidale Dumaresq Local Environmental Plan 2012 may also be relevant. A full copy of the Armidale Dumaresq Local Environmental Plan 2012 is available from the NSW Government's legislation web site – http://www.legislation.nsw.gov.au/maintop/view/inforce/epi+589+2012+cd+0+N or Council's web site – www.armidale.nsw.gov.au. A hard copy is also available from Council on payment of a standard printing charge.

(c) the purposes for which the instrument provides that development may not be carried out within the zone except with development consent;

See response to 2(b) above

(d) the purposes for which the instrument provides that development is prohibited within the zone,

See response to 2(b) above

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,

The minimum land dimension for the erection of a dwelling-house on the land is 500 square metres. Also, see other provisions in Part 4 of the Armidale Dumaresq Local Environmental Plan 2012.

(f) whether the land includes or comprises critical habitat;

No

(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 *State Environmental Planning Policy (Sydney Region Growth Centres) 2006.*

This section does not apply to land in the *Armidale Dumaresq Local Government Area*.

3(1) Complying development

The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A(1)(c) to (e), (2), (3) and (4) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

(a) General Housing Code

The land IS land on which complying development may be carried out under Clause 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(b) Rural Housing Code

The land IS land on which complying development may be carried out under Clause 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(c) Housing Alterations Code
(d) General Development Code
(e) Commercial and Industrial Alterations Code
(f) Subdivisions Code
(g) Demolition Code
(h) Fire Safety Code

The land IS land on which complying development may be carried out under Clause 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(i) Commercial and Industrial Code

The land IS land on which complying development may currently be carried out under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 having regard to the provisions of clauses 1.17A(1)(c) to (e), (2), (3) and (4) and 1.19 of the Policy.

Refer to Part 3(2) below.

3(2) Complying development

If complying development may not be carried out on all or part of the land because of the provisions of clauses 1.17A(1)(c) to (e), (2), (3) and (4) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the reasons why it may not be carried out are provided below. The following restrictions may apply to all or part of the land and Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

(a) General Housing Code

(b) Rural Housing Code

NOTE: For the purposes of the Rural Housing Code under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, complying development may be carried out on the part of the lot to which this clause may not apply.

Not Applicable

(c) Housing Alterations Code

(d) General Development Code

(e) Commercial and Industrial Alterations Code

(f) Subdivision Code

(g) Demolition Code

(h) Fire Safety Code

Not Applicable

(i) Commercial and Industrial Code

Not Applicable

4 Coastal protection

4A Certain information relating to beaches and coasts

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

This section does not apply to land in the *Armidale Dumaresq Local Government Area*.

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

No

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993, or

Not Applicable

(b) any environmental planning instrument, or

No

(c) any resolution of the council.

Armidale Dumaresq Council resolved on 25 September 2000 to require the dedication of splay corners for properties including allotments at the corner of road intersections in the former City areas where such splays do not already exist. These splays (extending 3m x 3m from the relevant corner boundary for minor roads or 5m x 5m from the relevant corner boundary for major roads) would be sought in connection with future subdivision activity or other significant development of relevant lands.

Council also resolved on 25 September 2000 to require the dedication of road widening (usually to a depth of 3 metres) in connection with future subdivision activity or other significant development of allotments fronting roads with a road reserve width of less than 20 metres and no dedicated pedestrian footpath strip. This typically applies to mid-block roads in the central area of Armidale.

For further details please contact Council.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding)

(a) adopted by the council, or

Council has adopted by resolution a Chapter in Development Control Plan on contaminated land which may restrict the development of the land. The relevant policy is implemented when zoning, development or land use changes are proposed on lands which have been used or affected by certain activities. While Council records do provide information about contamination of some land in the local government area, Council does not have sufficient information about previous uses of this land to determine whether the land may be contaminated. Consideration of Council's adopted DCP and the application of provisions under relevant State legislation is warranted.

Council has adopted geotechnical hazard mapping in Development Control Plan 2012, Chapter 2.6, which indicates that the land is potentially affected by Spring Activity. Investigation and possible precautionary works will be required in the event of development of the land.

Council has adopted geotechnical hazard mapping in Development Control Plan 2012, Chapter 2.6, which indicates that the land is potentially affected by Slope Instability. Investigation and possible precautionary works will be required in the event of development of the land.

(b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk.

See Question 11 - Bushfire prone land.

7A Flood related development controls information

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

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

(3) Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the Standard Instrument (Local Environmental Plans) Order 2006.

No

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No

9 Contributions plans

The name of each contributions plan applying to the land.

DSP ARMIDALE WATER DSP ARMIDALE SEWER DSP ARMIDALE WATER DSP ARMIDALE SEWER
Note: The Armidale Dumaresq Water Supply and Sewerage Development Servicing Plan also applies to development of land in the urban area of Armidale and surrounding localities.

9A Biodiversity certified land

If the land is biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995), a statement to that effect.

No

10 Biobanking Agreements

If the land is land to which a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates, a statement to that effect (but only if the Council has been notified of the existence of the Agreement by the Director-General of the Department of Environment, Climate Change and Water).

No

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.
If none of the land is bush fire prone land, a statement to that effect.

None of the land is identified in the certified Bush Fire Prone Land map.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

Council has not been notified of any order under the Trees (Disputes Between Neighbours) Act 2006.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (cl) 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

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

(a) a statement of whether there is a current site compatibility certificate (of which the council is aware), issued under clause 25 of that Policy in respect of proposed development on the land and, if there is a certificate, the statement is to include:
  (i) the period for which the certificate is current, and
  (ii) that a copy may be obtained from the Department of Planning and Environment, and

(b) a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

No

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is valid, and

(b) that a copy may be obtained from the Department of Planning and Environment.

No

17 Site compatibility certificates and conditions for affordable rental housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
  (a) the period for which the certificate is current, and
  (b) that a copy may be obtained from the head office of the Department of Planning and Environment.

(2) A statement setting out any terms of a kind referred to in clause 17 (1) or 37 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

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.

(2) The date of any subdivision order that applies to the land.

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

Not Applicable

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

(b) the date on which the certificate ceases to be current (if any), and

(c) that a copy may be obtained from the head office of the Department of Planning and Infrastructure.

Not Applicable

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

Not Applicable

Matters arising under the Contaminated Land Management Act 1997

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

(a) 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

Matters arising under the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009

Note. Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 provides that a planning certificate must include advice about any exemption under section 23 or authorisation under section 24 of that Act if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.

Not Applicable

- **The above information has been taken from Council records; however, Council cannot accept responsibility for any omission or inaccuracy.**
- **Prospective purchasers should consult their legal advisers concerning any easements or restrictions on the title of the property.**
- **Council does not incur any liability in respect of advice provided in good faith pursuant to s149(5) in accordance with s149(6) of the *Environmental Planning and Assessment Act 1979*, as amended.**
- **Information on any outstanding notices or orders pertaining to this property can be obtained through a Certificate available from Council pursuant to s121ZP of the *Environmental Planning Assessment Act 1979* and s735A of the *Local Government Act 1993*.**

Yours sincerely

John Goodall
Manager Development Assessment

Any request for further information in connection with the above should be marked for the attention of:
Planning and Environment
Armidale Regional Council
Telephone: 1300 136 833
Email: council@armidale.nsw.gov.au

Is your property energy efficient? Further information on energy efficient domestic building design and ratings can be obtained from the following internet sites:

www.nathers.gov.au
www.basix.nsw.gov.au
www.yourhome.gov.au

If the home you are buying has a solid fuel heater, talk to Council about efficient operation, or alternative non-polluting forms of heating.

ANNEXURE 1

STATE ENVIRONMENTAL PLANNING POLICIES APPLYING TO ARMIDALE DUMARESQ LOCAL GOVERNMENT AREA

SEPP No. 1 - Development Standards
Makes development standards more flexible. It allows councils to approve a development proposal that does not comply with a set standard where this can be shown to be unreasonable or unnecessary.

SEPP No. 15 - Rural Land-Sharing Communities
Makes multiple occupancy permissible, with council consent, in rural and non-urban zones, subject to a list of criteria in clause 9(1) of the policy. Multiple occupancy is defined as the collective management and sharing of unsubdivided land, facilities and resources. The policy encourages a community-based environmentally-sensitive approach to rural settlement, and enables the pooling of resources to develop opportunities for communal rural living. SEPP 15 Guide provides guidance to intending applicants.

SEPP No. 21 - Caravan Parks
Ensures that where caravan parks or camping grounds are permitted under an environmental planning instrument, movable dwellings, as defined in the Local Government Act 1993, are also permitted. The specific kinds of movable dwellings allowed under the Local Government Act in caravan parks and camping grounds are subject to the provisions of the Caravan Parks Regulation. The policy ensures that development consent is required for new caravan parks and camping grounds and for additional long-term sites in existing caravan parks. It also enables, with the council's consent, long-term sites in caravan parks to be subdivided by leases of up to 20 years.

SEPP No. 30 - Intensive Agriculture
Requires development consent for cattle feedlots having a capacity of 50 or more cattle or piggeries having a capacity of 200 or more pigs. The policy sets out information and public notification requirements to ensure there are effective planning control over this export-driven rural industry. The policy does not alter if, and where, such development is permitted, or the functions of the consent authority.

SEPP No. 32 - Urban Consolidation (Redevelopment of Urban Land)
States the Government's intention to ensure that urban consolidation objectives are met in all urban areas throughout the State. The policy: focuses on the redevelopment of urban land that is no longer required for the purpose it is currently zoned or used encourages local councils to pursue their own urban consolidation strategies to help implement the aims and objectives of the policy. Councils will continue to be responsible for the majority of rezonings. The policy sets out guidelines for the Minister to follow when considering whether to initiate a regional environmental plan (REP) to make particular sites available for consolidated urban redevelopment. Where a site is rezoned by an REP, the Minister will be the consent authority.

SEPP No. 33 - Hazardous and Offensive Development
Provides new definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future. The new definitions enable decisions to approve or refuse a development to be based on the merit of proposal. The consent authority must careful consider the specifics the case, the location and the way in which the proposed activity is to be carried out. The policy also requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the policy. For example, any application to carry out a potentially hazardous or potentially offensive development is to be advertised for public comment, and applications to carry out potentially hazardous development must be supported by a preliminary hazard analysis (PHA). The policy does not change the role of councils as consent authorities, land zoning, or the designated development provisions of the Environmental Planning and Assessment Act 1979.

SEPP No. 36 - Manufactured Home Estates
Helps establish well-designed and properly serviced manufactured home estates (MHEs) in suitable locations. Affordability and security of tenure for residents are important aspects. The policy applies to Gosford, Wyong and all local government areas outside the Sydney Region. To enable the immediate development of estates, the policy allows MHEs to be located on certain land where caravan parks are permitted. There are however, criteria that a

proposal must satisfy before the local council can approved development. The policy also permits, with consent, the subdivision of estates either by community title or by leases of up to 20 years. A section 117 direction issued in conjunction with the policy guides councils in preparing local environmental plans for MHEs, enabling them to be excluded from the policy.

SEPP No. 44 - Koala Habitat Protection

Encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range. The policy applies to 107 local government areas. Local councils cannot approve development in an area affected by the policy without an investigation of core koala habitat. The policy provides the state-wide approach needed to enable appropriate development to continue, while ensuring there is ongoing protection of koalas and their habitat.

SEPP No. 50 - Canal Estates

Bans new canal estates from the date of gazettal, to ensure coastal and aquatic environments are not affected by these developments.

SEPP No. 55 - Remediation of Land

Introduces state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals. To assist councils and developers, the Department, in conjunction with the Environment Protection Authority, has prepared Managing Land Contamination: Planning Guidelines.

SEPP No 62 - Sustainable Aquaculture

Provides for natural water-based water aquaculture in the form of Oyster aquaculture.

SEPP No. 64 - Advertising and Signage

Aims to improve the amenity of urban and natural settings by managing the impact of outdoor advertising. The policy responds to growing concerns from the community, the advertising industry and local government that existing controls and guidelines were not effective. SEPP No. 64 offers the comprehensive provisions and consistent approach needed. SEPP 64 – Advertising and Signage: Explanatory Information should be read in conjunction with the policy.

SEPP No. 65 – Design Quality of Residential Flat Development

This SEPP highlights 10 design quality principles to guide architects designing residential flats and to assist councils in assessing these developments.

The principles relate to key design issues such as:

- the context for design – the locality and streetscape
- scale, form and density of the building
- measures to achieve resource, energy and water efficiency
- landscape design to create useful outdoor spaces for residents
- safety and security, including ensuring public areas are safe, visible and well lit at night.

Aims to improve the design quality of flats of three or more storeys with four or more dwellings. The policy sets out a series of design principles for local councils or other consent authorities to consider when assessing development proposals for flats. It also creates a role for special design review panels and registered architects in the design and approval.

SEPP – Housing for Seniors or People with a Disability 2004
Aims to increase the supply and choice of housing for older people or people with a disability. Such housing is permitted, with council consent, wherever houses, flats, hospitals or certain 'special uses' are permitted in or adjoining urban areas, except for some environmentally sensitive lands. The policy contains development standards and matters a council and the Department of Planning must consider when determining development applications. For example, future residents must have reasonable access to services they require, taking into account convenience, affordability and the type and scale of housing. Relevant Government Circulars should be read in conjunction with this Policy.

SEPP Building Sustainability Index: BASIX 2004
This SEPP operates in conjunction with Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004 to ensure the effective introduction of BASIX in NSW. The SEPP ensures consistency in the implementation of BASIX throughout the State by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX. The draft SEPP was exhibited together with draft Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004.

SEPP (Major Development) 2005
Defines major infrastructure projects and other projects of state significance which are determined by the Minister and identifies development for which Joint Regional Planning Panels are to exercise specified consent authority functions.

SEPP (Infrastructure) 2007
Provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007
Provides for the management and development of mineral, petroleum and extractive material resources.

SEPP (Temporary Structures) 2007
Provides for the erection of temporary structures and the use of places of public entertainment while protecting public safety and local amenity. Note the name of this policy was changed from SEPP (Temporary Structures and Places of Public Entertainment) 2007 to SEPP (Temporary Structures) 2007 effective 26.10.2009.

SEPP (Rural Lands) 2008
The aims of this policy are:

- to facilitate the orderly and economic use and development of rural lands for rural and related purposes,
- to identify the Rural Planning Principles and the Rural Subdivision Principles so as to assist in the proper management, development and protection of rural lands for the purpose of promoting the social, economic and environmental welfare of the State,
- to implement measures designed to reduce land use conflicts,
- to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,
- to amend provisions of other environmental planning instruments relating to concessional lots in rural subdivisions.

SEPP (Exempt and Complying Development Codes) 2008
This policy aims to provide streamlined assessment processes for development that complies with specified development standards by:

- providing exempt and complying development codes that have State-wide application, and
- identifying types of development that are of minimal environmental impact that may be carried out without the need for development consent, and
- identifying types of complying development that may be carried out in accordance with a complying development certificate as defined in the *Environmental Planning and Assessment Act 1979*, and
- enabling the progressive extension of the types of development in this Policy, and
- providing transitional arrangements for the introduction of the State-wide codes, including the amendment of other environmental planning instruments.

SEPP (Affordable Rental Housing) 2009
This Policy aims to provide a consistent planning regime for the provision of affordable rental housing in the State and provides development standards for such housing, which are permissible with consent in residential zones.

SEPP (State and Regional Development) 2011
This Policy identifies classes of regional development (to be determined by Joint Regional Planning Panels) and classes of development that are considered to be State significant development, State significant infrastructure and critical State significant infrastructure (to be determined by the Minister or Minister's delegate).

SCHEDULE OF DRAFT STATE ENVIRONMENTAL PLANNING POLICIES OF WHICH COUNCIL HAS BEEN MADE AWARE AT DATE OF ISSUE OF CERTIFICATE

Note: The NSW Department of Planning has issued Circular PS 08-013 to Councils on 13 November 2008. From 1 March 2009, Councils are directed not to consider draft environmental planning instruments that were exhibited prior to 1 March 2006 and not yet gazetted for the purpose of assessing development applications under Section 79C(a)(ii) of the Environmental Planning and Assessment Act 1979.

APPENDIX C

Laboratory Certificates – Geotechnical

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Test Results - California Bearing Ratio

Client / Address: NBRS Architecture / Milsons Point — Job No: JG17064A

Project: Proposed School Buildings — Date: 20/11/17

Location: Armidale High School — Report No: R01A

SAMPLE INFORMATION Test Methods						
Lab Reference No.			SR11722	SR11725		
Date Sampled			04-May-17	04-May-17		
Date Tested			14-Nov-17	14-Nov-17		
Sample Identification			BH 6 (0.4-10m)	BH 9 (0.6-1.2m)		
Laboratory Specimen Description			Silty Clay: brown with gravel	Silty Clay: dark brown		
TEST RESULTS						
Laboratory Compaction & Moisture Content - Test Methods AS1289 5.1.1 Mould A and AS1289 2.1.1						
Maximum Dry Density t/m3			1.53	1.52		
Optimum Moisture Content %			26.0	26.5		
Field Moisture Content %			20.0	25.5		
% Of Oversize 19mm			-	-		
Replacement of Oversize (See note B)			-	-		
California Bearing Ratio - Test Method AS1289 6.1.1						
CBR Test	Dry Density t/m3	Before Soaking	1.54	1.53		
		After Soaking	1.53	1.51		
	Density Ratio %	Before Soaking	100.5	101.0		
		After Soaking	99.5	99.5		
	Moisture Content %	Before Soaking	26.5	25.5		
		After Soaking	28.5	28.0		
	Number of Days Soaked		4	4		
	Surcharge kg		6.75	6.75		
	Moisture Content After Test %	Top 30mm	29.0	31.0		
		Whole Sample	28.5	28.0		
	Swell After Soaking %		0.7	1.3		
	Penetration mm		2.5	2.5		
	CBR Value %		6.0	7.0		

Notes: (A) Test specimen was compacted to a target dry density of 100 percent standard (AS 1289 5.1.1)

(B) If specified the percentage of oversize retained on the 19mm may be replaced by an equal portion of –19mm to +4.75mm

Remarks

C:\\Lab\report\R003 Form No. R003/Ver07/07/13

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025.

NATA Accredited Laboratory Number: 14208.

Authorised Signatory _____ Solern Liew Date 20/11/17

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Test Results - Shrink/Swell Index

Client / Address: NBRS Architecture / Milsons Point — Job No: JG17064A
Project: Proposed School Buildings — Date: 20/11/17
Location: Armidale High School — Report No: R02A

Test Procedure: AS 1289 7.1.1

Sample Identification	BH 2 (0.5-0.8m)	BH 7 (0.5-0.75m)		
Sample Register No	SR11721	SR11723		
Sample Date	4-Nov-17	4-Nov-17		
Test Date	8-Nov-17	8-Nov-17		
Sample Procedure	AS 1289 1.1, 1.2.1 (6.5.3)	AS 1289 1.1, 1.2.1 (6.5.3)		
Test Results				
Test Procedure	AS 1289 2.1.1	AS 1289 2.1.1		
Moisture Content Initial % Final %	 11.5 14.5	 32.0 34.5		
Test Procedure	AS 1289 7.1.1	AS 1289 7.1.1		
Estimated UCS Before Test kPa After Test kPa	 >600 >600	 330 310		
Swell % Shrinkage %	0.3 0.5	0.1 5.3		
Shrink/Swell Index %/pF	0.4	3.0		
Material Description	Gravelly Silty Clay: brown	Silty Clay: red brown		

Remarks

Authorised Signatory _____ Solern Liew Date 20/11/17

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Test Results - Atterberg Limits

Client / Address: NBRS Architecture / Milsons Point — Job No: JG17064A

Project: Proposed School Buildings — Date: 20/11/17

Location: Armidale High School — Report No: R03A

Sample Identification	BH 1 (1.0-1.4m)	BH 2 (3.6-4.0m)	BH 5 (2.5-2.95m)	BH 8 (0.6-1.0m)
Sample Register No	SR11720	SR11726	SR11727	SR11724
Sample Date	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17
Test Date	9-Nov-17	9-Nov-17	9-Nov-17	9-Nov-17
Sample Procedure	AS 1289 1.1, 1.2.1 (6.5.3)	AS 1289 1.1, 1.2.1 (6.5.3)	AS 1289 1.1, 1.2.1 (6.5.3)	AS 1289 1.1, 1.2.1 (6.5.3)
Test Results				
Test Procedure:	AS 1289 3.1.2	AS 1289 3.1.2	AS 1289 3.1.2	AS 1289 3.1.2
Liquid Limit (%)	54	58	62	42
Test Procedure:	AS 1289 3.2.1	AS 1289 3.2.1	AS 1289 3.2.1	AS 1289 3.2.1
Plastic Limit (%)	17	37	30	17
Test Procedure:	AS 1289 3.3.1	AS 1289 3.3.1	AS 1289 3.3.1	AS 1289 3.3.1
Plasticity Index (%)	37	21	32	25
Test Procedure:	AS 1289 3.4.1	AS 1289 3.4.1	AS 1289 3.4.1	AS 1289 3.4.1
Linear Shrinkage (%)	14.5	9.0	12.5	12.0
Test Procedure:	AS 1289 2.1.1	AS 1289 2.1.1	AS 1289 2.1.1	AS 1289 2.1.1
Natural Moisture Content %	17.0	26.5	28.5	17.0
Material Description	(CH) Silty Clay: medium platsicity, brown	(CI-CH) Silty Clay: medium to high plasticity, brown grey	(CH) Silty Clay: high plasticity, grey brown	(CI) Silty Clay: medium plasticity, brown

Remarks

Authorised Signatory  Solern Liew Date 20/11/17

APPENDIX D

Laboratory Certificates – Salinity

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

CERTIFICATE OF ANALYSIS 179394

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Solern Liew
Address	PO Box 1543, Macquarie Centre, North Ryde, NSW, 2113

Sample Details

Your Reference	**JG17064A, Armidale**
Number of Samples	10 Soils
Date samples received	07/11/2017
Date completed instructions received	07/11/2017

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	15/11/2017
Date of Issue	15/11/2017

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Asbestos Approved By
Analysed by Asbestos Approved Identifier: Matt Tang
Authorised by Asbestos Approved Signatory: Paul Ching

Results Approved By
Dragana Tomas, Senior Chemist
Long Pham, Team Leader, Metals
Paul Ching, Senior Analyst
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By

David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	10/11/2017	10/11/2017	10/11/2017	10/11/2017
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	110	111	113	114

svTRH (C10-C40) in Soil					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	83	78	69	87

PAHs in Soil					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	0.3
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	0.2
Fluorene	mg/kg	<0.1	<0.1	<0.1	0.4
Phenanthrene	mg/kg	<0.1	0.3	<0.1	5.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	1.5
Fluoranthene	mg/kg	<0.1	0.7	<0.1	6.4
Pyrene	mg/kg	<0.1	0.7	<0.1	5.5
Benzo(a)anthracene	mg/kg	<0.1	0.3	<0.1	2.2
Chrysene	mg/kg	<0.1	0.4	<0.1	2.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.6	<0.2	3.4
Benzo(a)pyrene	mg/kg	<0.05	0.3	<0.05	2.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.2	<0.1	1.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2
Benzo(g,h,i)perylene	mg/kg	<0.1	0.2	<0.1	1.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	3.0
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	3.0
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	3.0
Total +ve PAH's	mg/kg	<0.05	3.9	<0.05	32
Surrogate p-Terphenyl-d14	%	102	98	95	94

Organochlorine Pesticides in soil					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	84	86	84

PCBs in Soil					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	85	84	86	84

Acid Extractable metals in soil					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Arsenic	mg/kg	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	53	50	69	60
Copper	mg/kg	15	24	18	13
Lead	mg/kg	12	9	10	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	36	42	23	29
Zinc	mg/kg	24	44	24	16

Misc Inorg - Soil						
Our Reference		179394-1	179394-2	179394-3	179394-4	179394-5
Your Reference	UNITS	BH 1	BH 2	BH 3	BH 4	BH 5
Depth		0.00-0.20	0.30-0.50	0.80-1.00	0.20-0.40	0.80-1.00
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017
Date analysed	-	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017
pH 1:5 soil:water	pH Units	7.1	6.7	7.6	7.9	7.5
Electrical Conductivity 1:5 soil:water	µS/cm	28	11	110	84	53
Chloride, Cl 1:5 soil:water	mg/kg	10	10	95	10	10
Sulphate, SO4 1:5 soil:water	mg/kg	<10	<10	<10	22	23
Resistivity in soil*	ohm m	360	930	93	120	190

Misc Inorg - Soil						
Our Reference		179394-6	179394-7	179394-8	179394-9	179394-10
Your Reference	UNITS	BH 6	BH 7	BH 8	BH 8	BH 9
Depth		1.00-1.45	0.80-1.00	0.20-0.40	2.50-2.95	0.10-0.20
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017
Date analysed	-	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017
pH 1:5 soil:water	pH Units	7.1	7.2	7.5	7.5	6.8
Electrical Conductivity 1:5 soil:water	µS/cm	37	35	190	15	44
Chloride, Cl 1:5 soil:water	mg/kg	36	<10	33	<10	10
Sulphate, SO4 1:5 soil:water	mg/kg	<10	26	240	<10	<10
Resistivity in soil*	ohm m	270	280	53	680	230

Moisture					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	10/11/2017	10/11/2017	10/11/2017	10/11/2017
Moisture	%	16	17	15	16

Asbestos ID - soils					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Sample mass tested	g	Approx. 30g	Approx. 35g	Approx. 30g	Approx. 30g
Sample Description	-	Brown clayey soil	Brown clayey soil	Brown clayey soil	Brown clayey soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

PAHs in TCLP (USEPA 1311)					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	0.002
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.0030
Surrogate p-Terphenyl-d14	%	112	116	121	88

Metals in TCLP USEPA1311					
Our Reference		179394-1	179394-4	179394-5	179394-8
Your Reference	UNITS	BH 1	BH 4	BH 5	BH 8
Depth		0.00-0.20	0.20-0.40	0.80-1.00	0.20-0.40
Date Sampled		04/11/2017	04/11/2017	04/11/2017	04/11/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017
pH of soil for fluid# determ.	pH units	6.2	6.1	6.1	6.2
pH of soil TCLP (after HCl)	pH units	1.7	1.7	1.6	1.6
Extraction fluid used	-	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9
Arsenic in TCLP	mg/L	<0.05	<0.05	<0.05	<0.05
Cadmium in TCLP	mg/L	<0.01	<0.01	<0.01	<0.01
Chromium in TCLP	mg/L	<0.01	<0.01	<0.01	<0.01
Lead in TCLP	mg/L	<0.03	<0.03	<0.03	<0.03
Mercury in TCLP	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Nickel in TCLP	mg/L	0.03	<0.02	<0.02	<0.02

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Metals-020	Determination of various metals by ICP-AES.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
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-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. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Leachates are extracted with Dichloromethane and analysed by GC-MS.
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.
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. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
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-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. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Date analysed	-			10/11/2017	[NT]	[NT]	[NT]	[NT]	10/11/2017	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	116	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	116	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	120	[NT]	[NT]	[NT]	[NT]	122	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Date analysed	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	132	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	132	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	132	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	132	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate o-Terphenyl	%		Org-003	90	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Date analysed	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	77	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	99	[NT]	[NT]	[NT]	[NT]	123	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Date analysed	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	77	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	88	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Date analysed	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	88	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Date analysed	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	97	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	179394-2
Date prepared	-			10/11/2017	1	10/11/2017	10/11/2017		10/11/2017	10/11/2017
Date analysed	-			10/11/2017	1	10/11/2017	10/11/2017		10/11/2017	10/11/2017
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	7.1	7.1	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	1	28	30	7	104	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	10	10	0	118	73
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	<10	<10	0	96	82
Resistivity in soil*	ohm m	1	Inorg-002	<1	1	360	340	6	[NT]	[NT]

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Date analysed	-			09/11/2017	[NT]	[NT]	[NT]	[NT]	09/11/2017	[NT]
Naphthalene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	85	[NT]
Acenaphthylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	88	[NT]
Phenanthrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	85	[NT]
Pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	94	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	115	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: Metals in TCLP USEPA1311						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			09/11/2017	1	09/11/2017	09/11/2017		09/11/2017	[NT]
Date analysed	-			09/11/2017	1	09/11/2017	09/11/2017		09/11/2017	[NT]
Arsenic in TCLP	mg/L	0.05	Metals-020 ICP-AES	<0.05	1	<0.05	<0.05	0	98	[NT]
Cadmium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	1	<0.01	<0.01	0	98	[NT]
Chromium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	1	<0.01	<0.01	0	99	[NT]
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	1	<0.03	<0.03	0	98	[NT]
Mercury in TCLP	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	1	<0.0005	<0.0005	0	101	[NT]
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	1	0.03	0.02	40	97	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that these sub-samples are indicative of the entire sample.
Envirolab recommends supplying 40-50g of sample in its own container.
Note: Samples 179394-1, 4, 5 & 8 were sub-sampled from jars provided by the client.

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Solern Liew

Sample Login Details

Your reference	JG17064A, Armidale
Envirolab Reference	179394
Date Sample Received	07/11/2017
Date Instructions Received	07/11/2017
Date Results Expected to be Reported	15/11/2017

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	10 Soils
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	PCBsin Soil	Acid Extractable metalsin soil	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride, Cl1:5 soil:water	Sulphate, SO41:5 soil:water	Resistivity in soil*	Asbestos ID - soils	PAHs in TCLP(USEPA 1311)	Metals in TCLP USEPA1311
BH 1-0.00-0.20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH 2-0.30-0.50							✓	✓	✓	✓	✓			
BH 3-0.80-1.00							✓	✓	✓	✓	✓			
BH 4-0.20-0.40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH 5-0.80-1.00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH 6-1.00-1.45							✓	✓	✓	✓	✓			
BH 7-0.80-1.00							✓	✓	✓	✓	✓			
BH 8-0.20-0.40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH 8-2.50-2.95							✓	✓	✓	✓	✓			
BH 9-0.10-0.20							✓	✓	✓	✓	✓			

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

GeoEnviro Consultancy Pty Ltd
Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Laboratory Test Request/Chain of Custody Record

Job Details
Job Number: JG17064A
Client:
Project: Armidale School Redevelopment
Location: 158 Butler Street, Armidale

Sample Date: 4-5/11/2017
Sampled By: SG
Project Manager: SL
Store Location:

External Laboratory Details:
Laboratory name: Envirolab Services Pty Ltd
Address: 12 Ashley Street
Chatswood
Contact: Tania Notaris

Sampling Details				Sample Type		Test Required (\)													Test Performed(X)										
Location		Depth (m)		Soil	Water	Metals (As Cd Cr Cu Pb Zn Ni Hg)	OCP / PCB	Combination 12a	Combination 5a	Combination 5			pH	EC	CEC/ESP	Cl / SO4	Resistivity												Keep Sample
		From	To																										
1	BH 1	0.00	0.20	DG				/					/	/		/	/												
2	BH 2	0.30	0.50	DG									/	/		/	/												
3	BH 3	0.80	1.00	DG									/	/		/	/												
4	BH 4	0.20	0.40	DG				/					/	/		/	/												
5	BH 5	0.80	1.00	DG				/					/	/		/	/												
6	BH 6	1.00	1.45	DG									/	/		/	/												
7	BH 7	0.80	1.00	DG									/	/		/	/												
8	BH 8	0.20	0.40	DG				/					/	/		/	/												
9	BH 8	2.50	2.95	DG									/	/		/	/												
10	BH 9	0.10	0.20	DG									/	/		/	/												

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

Job No: 179394
Date Received: 7/11
Time Received: 1830
Received by: PH
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by				Received By			
Laboratory	Name	Signature	Date	Laboratory	Name	Signature	Date
GeoEnviro Consultancy	Steven Goss	SMGoss	7/11/2017	ES	PH		7/11

Legend

DB Disturbed Sample (Bulk, Plastic bag)
DS Disturbed Sample (Small, Plastic bag)
DG Disturbed Sample (Glass Jar)
STP Standard Penetration Test Sample
U50 Undisturbed Sample, 50mm Tube
U75 Undisturbed Sample, 75mm Tube
WG Water Sample, Amber Glass Jar
WP Water Sample, Plastic Bottle
Y Keep Sample
N Discard Sample

APPENDIX E

Unexpected Asbestos Finds Protocol

Unexpected Asbestos Finds

If asbestos is detected in area not identified as containing asbestos prior to, or during, bulk excavation works the following 'Unexpected Finds Protocol' will apply:

- Upon discovery of suspected asbestos containing material, the site manager is to be notified and the affected area closed off by the use of barrier tape and warning signs. Warning signs shall be specific to Asbestos Hazards and shall comply with the Australian Standard 1319-1994 – Safety Signs for the Occupational Environment;
- Work shall comply with WorkCover requirements including *Working with Asbestos*, *2008*;
- An OHS consultant or a hygienist is to be notified to inspect the area and confirm the presence of asbestos and determine whether the asbestos is classified as friable or bonded asbestos and determine the extent of remediation works to be undertaken. A report detailing this information will be compiled by the OHS consultant and provided to the Site Manager (SM) (or his representative);
- The impacted soil will be classified and disposed of, as a minimum, as Special Waste (Asbestos) at an appropriately licensed facility. In dry and windy conditions the stockpile will be kept lightly wetted and may be covered with plastic sheet whilst awaiting disposal;
- All work associated with asbestos in soil will be undertaken by a contractor holding a class AS-1 Licence (friable) or AS2 Licence for bonded asbestos, as appropriate. WorkCover must be notified 7 days in advance of any asbestos works;
- Monitoring for airborne asbestos fibres is to be carried out during the soil excavation in asbestos contaminated materials;
- Documentary evidence (weighbridge dockets) of correct disposal is to be provided to the Principal (or their representative);
- At the completion of the excavation, a clearance inspection is to be carried out, soil samples taken and analysed for asbestos fibres followed by written certification provided by an OHS Consultant that the area is safe to be accessed and worked (with respect to asbestos impact). If required, the filling material remaining in the inspected area can be covered/ sealed by an appropriate physical barrier layer of non-asbestos containing material prior to sign–off;
- Details are to be recorded in the site record system;
- Following clearance by an OHS Consultant or hygenist, the area may be reopened for further excavation or construction work.

APPENDIX F

Important Information about your Environmental Site Assessment
Explanatory Notes

GeoEnviro Consultancy Pty Ltd
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Email: geoenviro@exemail.com.au

IMPORTANT INFORMATION REGARDING YOUR ENVIRONMENTAL SITE ASSESSMENT

This Environmental Assessment Report was performed in general conformance with our understanding of the guidelines by the Australian and New Zealand Conservation Council (ANZECC), the Office of Environment and Heritage (OEH) and the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (amended 2013).

These accompanying notes have been prepared by GeoEnviro Consultancy Pty Ltd, using guidelines prepared by ASFE; The Association of Engineering Firms Practising in the Geosciences. The notes are offered as an aid in the interpretation of your environmental site assessment report.

REASONS FOR AN ENVIRONMENTAL SITE ASSESSMENT

Environmental site assessments are typically, though not exclusively, performed in the following circumstances:

- As a pre- acquisition assessment on behalf of either a purchaser or a vendor, when a property is to be sold
- As a pre-development assessment, when a property or area of land is to be redeveloped, or the land use has change, eg from a factory to a residential subdivision
- As a pre-development assessment of greenfield sites, to establish baseline conditions and assess environmental, geological and hydrological constraints to the development of, eg, a landfill
- As an audit of the environmental effects of previous and present site usage

Each circumstance requires a specific approach to the assessment of soil and groundwater contamination. In all cases the objective is to identify and if possible, quantify the risks which unrecognised contamination poses to the ongoing or proposed activity. Such risk may be both financial (clean-up costs or limitations in site use) and physical (health risks to site users or the public).

ENVIRONMENTAL SITE ASSESSMENT LIMITATIONS

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

AN ENVIRONMANTAL SITE ASSESSMENT REPORT IS BASED ON A UNIQUE SET OF PROJECT SPECIFIC FACTORS

Your environmental assessment report should not be used;

- When the nature of the proposed development is changed, eg, if a residential development is proposed, rather than a commercial development
- When the size or configuration of the proposed development is altered, eg, if a basement is added
- When the location or orientation of the proposed structure is modified
- When there is a change of land ownership, or
- For application to an adjacent site

In order to avoid costly problems, you should ask your consultant to assess any changes in the project since the assessment and the implications, if any, to recommendations made in the assessment.

ENVIRONMENTAL SITE ASSESSMENT FINDINGS ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual sub-surface conditions only at those points where samples are taken, when they are taken. Data obtained from the sampling and subsequent laboratory analyses are interpreted by geologists, engineers or scientist and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional, no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, however, steps can be taken to help minimise the impact. For this reason, site owner should retain the services of their consultants throughout the development stage of the project in order to identify variances, conduct additional tests which may be necessary and to recommend solutions to problems encountered on site.

Soil and groundwater contamination is a field in which legislation and interpretation of legislation by government departments is changing rapidly. Whilst every attempt is made by GeoEnviro Consultancy Pty Ltd to be familiar with current policy, our interpretation of the investigation findings should not be taken to be that of the relevant authority. When approval from a statutory authority is required for a project, that approval should be directly sought.

STABILITY OF SUB-SURFACE CONDITIONS

Sub-surface conditions can change by natural processes and site activities. As an environmental site assessment is based on conditions existing at the time of the investigation, project decisions should not be based on environmental site assessment data which may have been affected by time. The consultant should be requested to advise if additional tests are required.

ENVIRONMENTAL SITE ASSESSMENTS ARE PERFORMED FOR SPECIFIC PURPOSES AND CLIENTS

Environmental site assessments are prepared in response to a specific scope of work required to meet the specific needs or specific individuals. An assessment prepared for a consulting civil engineer may not be adequate to a construction contractor or another civil engineer.

An assessment should not be used by other persons for any purpose, or by the client for a different purposes. No individual, other than the client, should apply an assessment, even for its intended purposes, without first conferring with the consultant. No person should apply an assessment for any purposes other than that originally contemplated, without first conferring with the consultant.

MISINTERPRETATION OF ENVIRONMENTAL SITE ASSESSMENTS

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

LOGS SHOULD NOT BE SEPARATED FORM THE REPORT

Borehole and test pit logs are prepared by environmental scientists, engineers or geologist, based upon interpretation of field conditions and laboratory evaluation of field samples. Field logs normally provided in our reports and these should not be redrawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however, contractors can still misinterpret the logs during bid preparation if separated from the test of the assessment. Should this occur, delays and disputes , or unanticipated costs may result.

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

READ RESPONSIBILITY CLAUSES CLOSELY

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

EXPLANATORY NOTES

Introduction

These notes have been provided to amplify the geotechnical report with regard to investigation procedures, classification methods and certain matters relating to the Discussion and Comments sections. Not all notes are necessarily relevant to all reports.

Geotechnical reports are based on information gained from finite sub-surface probing, excavation, boring, sampling or other means of investigation, supplemented by experience and knowledge of local geology. For this reason they must be regarded as interpretative rather than factual documents, limited to some extent by the scope of information on which they rely.

Description and Classification Methods
The methods the description and classification of soils and rocks used in this report are based on Australian standard 1726, the SSA Site investigation Code, in general descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions. Identification and classification of soil and rock involves to a large extent, judgement within the acceptable level commonly adopted by current geotechnical practices.

Soil types are described according to the predominating particle size, qualified by the grading or other particles present (eg sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	Less than 0.002mm
Silt	0.002 to 0.6mm
Sand	0.6 to 2.00mm
Gravel	2.00m to 60.00mm

Soil Classification	Particle size
Clay	less than 0.002mm
Silt	0.002 to 0.06mm
Sand	0.06 to 2.00mm
Gravel	2.00mm to 60.00mm

Cohesive soils are classified on the basis of strength, either by laboratory testing or engineering examination. The strength terms are defined as follows:

Classification	Undrained Shear Strength kPa
Very Soft	Less than 12
Soft	12 - 25
Firm	25 - 50
Stiff	50 - 100
Very Stiff	100 - 200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer test (CPT), as below:

Relative Dense	SPT 'N' Value (blows/300mm)	CPT Cone Value (q_c-Mpa)
Very Loose	Less than 5	Less than 2
Loose	5 - 10	2 - 5
Medium Dense	10 - 30	5 - 15
Dense	30 - 50	15 - 25
Very Dense	> 50	> 25

Rock types are classified by their geological names, together with descriptive terms on degrees of weathering strength, defects and other minor components. Where relevant, further information regarding rock classification, is given on the following sheet.

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

Disturbed samples taken during drilling provided information on plasticity, grained size, colour, type, moisture content, inclusions and depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin walled sample tube (normally know as U_{50}) into the soil and withdrawing a sample of the soil in a relatively undisturbed state. Such Samples yield information on structure and strength and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils. Details of the type and method of sampling are given in the report.

Field Investigation Methods
The following is a brief summary of investigation methods currently carried out by this company and comments on their use and application.

Hand Auger Drilling
The borehole is advanced by manually operated equipment. The diameter of the borehole ranges from 50mm to 100mm. Penetration depth of hand augered boreholes may be limited by premature refusal on a variety of materials, such as hard clay, gravels or ironstone.

Test Pits
These are excavated with a tractor-mounted backhoe or a tracked excavator, allowing close examination of the insitu soils if it is safe to descend into the pit. The depth of penetration is limited to about 3.0m for a backhoe and up to 6.0m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Care must be taken if construction is to be carried out near, or within the test pit locations, to either adequately recompact the backfill during construction, or to design the structure or accommodate the poorly compacted backfill.

Large Diameter Auger (eg Pengo)
The hole is advanced by a rotating plate or short spiral auger generally 300mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 05m) and are disturbed, but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers and is usually supplemented by occasional undisturbed tube sampling.

Continuous Spiral Flight Augers
The hole is advanced by using 90mm - 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling or insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the augers flights, but they are very disturbed and may be highly mixed with soil of other stratum.

Information from the drilling (as distinct from specific sampling by SPT or undisturbed samples) is of relatively low reliability due to remoulding, mixing or softening of samples by ground water, resulting in uncertainties of the original sample depth.

Continuous Spiral Flight Augers (continued)
The spiral augers are usually advanced by using a V - bit through the soil profile refusal, followed by Tungsten Carbide (TC) bit, to penetrate into bedrock. The quality and continuity of the bedrock may be assessed by examination of the recovered rock fragments and through observation of the drilling penetration resistance.

Non - core Rotary Drilling (Wash Boring)
The hole is advanced by a rotary bit, with water being pumped down the drill rod and returned up the annulus, carrying the cuttings, together with some information from the "feel" and rate of penetration.

Rotary Mud Stabilised Drilling
This is similar to rotary drilling, but uses drilling mud as a circulating fluid, which may consist of a range of products, from bentonite to polymers such as Revert or Biogel. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg SPT and U_{50} samples).

Continuous Core Drilling
A continuous core sample is obtained using a diamond tipped core barrel. Providing full core recovery is achieved (which is not always possible in very weak rock and granular soils) this technique provides a very reliable (but relatively expensive) method of investigation. In rocks an NMLC triple tube core barrel which gives a core of about 50mm diameter, is usually used with water flush.

Portable Proline Drilling
This is manually operated equipment and is only used in sites which require bedrock core sampling and there is restricted site access to truck mounted drill rigs. The boreholes are usually advanced initially using a tricone roller bit and water circulation to penetrate the upper soil profile. In some instances a hand auger may be used to penetrate the soil profile. Subsequent drilling into bedrock involves the use of NMLC triple tube equipment, using water as a lubricant.

Standard Penetration Tests
Standard penetration tests are used mainly in non-cohesive soils, but occasionally also in cohesive soils, as a means of determining density or strength and of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289 "Methods of testing Soils for Engineering Purpose"- Test F31.

The test is carried out in a borehole by driving a 50mm diameter split sample tube under the impact of a 63Kg hammer with a free fall of 769mm. It is normal for the tube to be driven in three successive 150mm increments and the "N" value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rocks, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

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

  as 4, 6, 7
  N = 13

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

  as 15,30/40mm

The results of the tests can be related empirically to the engineering properties of the soil. Occasionally the test methods is used to obtain samples in 50mm diameter thin walled samples tubes in clays. In these circumstances, the best results are shown on the bore logs in brackets.

Dynamic Cone Penetration Test
A modification to the SPT test is where the same driving system is used with a solid 60^0 tipped steel cone of the same diameter as the SPT hollow sampler. The cone can be continuously driven into the borehole and is normally used in areas with thick layers of soft clays or loose sand. The results of this test are shown as 'N_c' on the bore logs, together with the number of blows per 150mm penetration.

Cone Penetrometer Testing and Interpretation
Cone penetrometer testing (sometimes referred to as Dutch Cone-CPT) described in this report, has been carried out using an electrical friction cone penetrometer and the test is described in Australian Standard 1289 test F5.1.

In the test, a 35mm diameter rod with cone tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig, which is fitted with a hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130mm long sleeve, immediately behind the cone. Transducer in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20mm per second) the information is output on continuous chart recorders. The plotted results in this report have been traced from the original records. The information provided on the charts comprises:

- Cone resistance - the actual end bearing force divided by the cross sectional area of the cone, expressed in Mpa.
- Sleeve friction - the frictional force on the sleeve divided by the surface area, expressed in kPa.
- Friction ratio - the ratio of sleeve friction to cone resistance, expressed in percentage.

There are two scales available for measurement of cone resistance. The lower "A" scale (0-5Mpa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main "B" scale (0-50Mpa) is less sensitive and is shown as a full line.

The ratios of the sleeve resistance to cone resistance will vary with the type of soil encountered, with higher relative frictions in clays than in sands. Friction ratios of 1% to 2% are commonly encountered in sands and very soft clays, rising to 4% to 10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:

$$q_c \text{ (Mpa)} = (0.4 \text{ to } 0.6)\ N \text{ (blows per 300mm)}$$

In clays the relationship between undrained shear strength and cone resistance is commonly in the range:

$$q_c = (12 \text{ to} 18)\ C_u$$

Interpretation of CPT values can also be made to allow estimate of modulus or compressibility values to allow calculation of foundation settlements. Inferred stratification, as shown on the attached report, is assessed from the cone and friction traces, from experience and information from nearby boreholes etc.

Cone Penetrometer Testing and Interpretation continued
This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties and where precise information or soil classification is required, direct drilling and sampling may be preferable.

Portable Dynamic Cone Penetrometer (AS1289)
Portable dynamic cone penetrometer tests are carried out by driving a rod in to the ground with a falling weight hammer and measuring the blows per successive 100mm increments of penetration.

There are two similar tests, Cone Penetrometer (commonly known as Scala Penetrometer) and the Perth Sand Penetrometer. Scala Penetrometer is commonly adopted by this company and consists of a 16mm rod with a 20mm diameter cone end, driven with a 9kg hammer, dropping 510mm (AS 1289 Test F3.2).

Laboratory Testing
Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedures are given on the individual report forms.

Engineering Logs
The engineering logs presented herein are an engineering and/or geological interpretation of the sub-surface conditions and their reliability will depend to some extent on frequency of sampling and the method of drilling. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, however, this is not always practicable or possible to justify economically. As it is, the boreholes represent only a small sample of the total sub-surface profile. Interpretation of the information and its application to design and construction should take into account the spacing of boreholes, frequency of sampling and the possibility of other than "straight line" variations between the boreholes.

Ground water
Where ground water levels are measured in boreholes, there are several potential problems:
- In low permeability soils, ground water although present, may enter the hole slowly, or perhaps not at all, during the investigation period.
- A localised perched water table may lead to a erroneous indication of the true water table.
- Water table levels will vary from time to time, due to the seasons or recent weather changes. They may not be the same at the time of construction as indicated in the report.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole if any water observations are to be made.

More reliable measurements can be made by installing stand pipes, which are read at intervals over several days, or weeks for low permeability soils. Piezometers sealed in a particular stratum may be interference from a perched water table or surface water.

Engineering Reports
Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal is changed, say to a twenty storey building. If this occurs, the company will be pleased to review the report and sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of sub-surface conditions, discussions of geotechnical aspects and recommendations or suggestions for design and construction. However, the company cannot always anticipate or assume responsibility for:
- Unexpected variations in ground conditions. The potential for this will depend partly on bore spacing and sampling frequency.
- Changes in policy or interpretation of policy by statutory authorities.
- The actions of contractors responding to commercial pressures.

If these occur, the company will be pleased to assist with investigation or advice to resolve the matter.

Site Anomalies
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the company request immediate notification. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes
Attention is drawn to the document “Guidelines for the Provision of Geotechnical Information trader Documents”, published by the Institute of Engineers Australia. Where information obtained for this investigation is provided for tender purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or make additional copies of the report available for contract purpose, at a nominal charge.

Site Inspection

The Company will always be pleased to provide engineering inspection services for geotechnical aspect of work to which this report is related. This could range from a site visit to confirm that the conditions exposed are as expected, to full time engineering presence on site

Review of Design
Where major civil or structural developments are proposed, or where only a limited investigation has been completed, or where the geotechnical conditions are complex, it is prudent to have the design reviewed by a Senior Geotechnical Engineer.

Graphic Symbols For Soil and Rock

SOIL


Fill


Topsoil


Gravel (GW , GP)


Sand (SP, SW)


Silt (ML, MH)


Clay (CL, CH)


Clayey Gravel (GC)


Silty Sand (SM)


Clayey Sand (SC)


Sandy Silt (ML)


Gravelly Clay (CL, CH)


Silty Clay (CL, CH)


Sandy Clay (CL, CH)


Peat or Organic Soil

ROCK


Shale


Sandstone


Siltstone,Mudstone,Claystone


Granite, Gabbro


Dolerite, Diorite


Basalt, Andesite

Other Materials


Concrete


Bitumen, Asphaltic Concrete, Coal


Ironstone Gravel


Organic Material