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Report

Preliminary Contamination, Salinity and Geotechnical Assessment
Schofields Precinct – North West Growth Centre
Lots 200 in DP 1140580 & Lot B in DP 388652
Bridge Street, Schofields, NSW

Prepared for:
Schofields Village Pty Ltd
C/-Villawood Properties
Level 1, 6 Riverside Quay
SOUTHBANK VIC 3006

Ref: JC12125A-r1
September 2012

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28th September 2012

Our Ref: JC12125A-r1

Schofields Village Pty Ltd
C/-Villawood Properties
Level 1, 6 Riverside Quay
SOUTHBANK VIC 3006

Attention: Mr Greg Poole

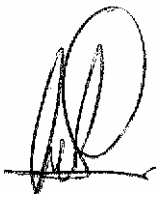
Dear Sir

Re: **Preliminary Contamination, Salinity and Geotechnical Assessment Report**
Schofields Precinct – North West Growth Centre
Lot 200 in DP 1140580 & Lot B in DP 388652, Bridge Street, Schofields

This report presents the results of our Preliminary Contamination, Salinity and Geotechnical assessment for the Schofields Precinct of the North West Growth Centre comprising Lot 200 in DP 1150580 and Lot B in DP 388652 Bridge Street in Schofields.

Should you have any queries, please contact the undersigned.

Yours faithfully,
GeoEnviro Consultancy Pty Ltd



Solern Liew CPEng (NPER)
Director

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1. INTRODUCTION

This report presents the results of a preliminary contamination, salinity and geotechnical assessment for the site referred to as Lot 200 in DP 1140580 (large southern lot) and Lot B in DP 388652 (smaller northern lot), Bridge Street in Schofields (referred hereto as the Subject Site), as shown on Drawing No 1. The investigation was commissioned by Mr Greg Poole of Villawood Properties Pty Ltd in his letter dated 11th July 2012, acting on behalf of Schofields Village Pty Ltd. The works were carried out in general accordance with our fee proposal PC12967A dated 8th May 2012.

We understand that the proposed development will include the following

- Retail/commercial hub around a green town square adjacent to Schofields Railway Station
- Medium to high density residential housing around the Railway Station
- Low density residential housing along Eastern Creek

The objectives of this study were as follows;

- To determine if significant subsurface contamination is likely to exist on site that may present a risk to human health and/or the environment as a result of previous and current landuse.
- To assess the salinity of the subsurface soil and the potential adverse impact on the proposed development.
- To assess the subsurface ground conditions and to provide general comments and recommendations on geotechnical issues considered relevant to the proposed development.

2. SCOPE OF WORK

2.1 Contamination Investigation

The preliminary contamination assessment was performed in general conformance with our understanding of the guidelines by the Australian and New Zealand Conservation Council (ANZECC) and the Department of Environment and Conservation (DEC, formerly known as NSW EPA). The scope of work conducted consisted of:

- A review of published information on the subsurface conditions in the general area,
- An inspection of the site to identify apparent or suspected areas of contamination,
- A site investigation to assess subsurface ground conditions and sample subsurface soil.
- Laboratory analysis of soil samples to detect the presence or otherwise of the contaminants of concern,
- An assessment of the laboratory test results with relevant DEC guidelines.

2.2 Salinity Investigation

The salinity assessment was performed in general conformance with our understanding of the guidelines prepared by the Department of Land and Water Conservation (Reference 1) and the Salinity Code of Practice prepared by Western Sydney Regional Organisation of Council (Reference 11). The scope of work conducted consisted of:

- Soil sampling of the topsoil and at every change in the soil texture at lower depths at selected test pit locations.
- Laboratory analysis to aid assessment of physical and chemical properties

2.3 Geotechnical Investigation

The scope of work for geotechnical investigation included;

- Deepening of some test pits to a maximum depth of 3.3m.
- Hand penetrometer testing on the clayey soil to assess the strength of the subsurface profile,
- Visual soil classification and assessment of insitu material ,
- Collection of soil samples for laboratory analysis of physical properties
- Preparing a report providing comments and general guidelines on issues such as earthworks, site preparation, suitable foundation systems and indicative site classifications to AS2870.

3. SITE INFORMATION

3.1 Site Location

The Subject Site is located off the southern ends of Vernon Road and Bridge Street in Schofields. It is situated between the Richmond branch of the North Shore and Western Line Railway to the east and Eastern Creek to the west. The southern boundary is formed by the former RAAF Schofields Aerodrome. Geographical location of the Subject Site is between 302 054 - 302 722 Easting and 6267 947 - 6268 897 Northing.

The Subject Site has an irregular shape and has approximate dimensions of 770m wide and 850m long. Total site area is about 57 hectares. Refer to Drawing No 1 for site locality.

The site is within the jurisdiction of Blacktown City Council, Parish of Gidley and County of Cumberland.

Surrounding properties to the north consist of semi rural residential properties with agricultural activities. To the east is the newly constructed Schofields Railway Station, to the south is the decommissioned RAAF Schofields Aerodrome and to the west is Eastern Creek.

3.2 Geological and Topographical Setting

The site is situated on undulating terrain, in the catchment area of Eastern Creek which flows north into the South/Wianamatta Creek and eventually in the Hawkesbury River.

Ground surface within the Subject Site drops in a general north westerly direction towards eastern creek at angles varying from 4 to 6 degrees with localised steeper areas in the southern portion of the site. The south eastern portion of the site drops to the south east towards the railway line.

The 1:100,000 Soil Landscape of Penrith Series 9030 prepared by the Soil Conservation Services of NSW indicates the majority of the site to be underlain by Residual soil belonging to the Blacktown Landscape group which typically consists of shallow to moderately deep hard setting soils of low permeability, highly plastic and moderately reactive. Portions of the site in closer proximity to Eastern Creek may be situated on Fluvial soil of the South Creek Landscape group which typically consists of very deep layered sediments with structured plastic clays over relict soils with high erosion hazards.

The 1:100,000 geological map of Penrith indicated the major underlying bedrock to consist of Bringelly shale of the Wianamatta Group consisting of Shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff. Closer to Eastern Creek the underlying lithology consists of fine-grained sand, silt and clay from the Quaternary period

From our knowledge of the area, permanent groundwater table is not expected to be at shallow depths (less than 3.0m). Some perched ground water may be present in the vicinity of the dams

3.3 Hydrogeology

Subsurface water in the area tends to flow in a general direction to the north west towards Eastern Creek located long the western boundary.

Permanent groundwater table was not encountered in the test pits which were taken to a maximum depth of 3.3m below existing ground surface. Due to the relatively impervious insitu overburden soil, surface stormwater runoff infiltrating through the soil is likely to be limited and therefore not likely to significantly influence the permanent groundwater table, expected to be present at significant depths (ie greater than 3m).

A search of registered groundwater monitoring bores within a 1km radius of the site was carried out through the NSW Department Infrastructure, Planning and Natural Resources. The search concluded that there were no bores within 1km radius from the site and therefore groundwater conditions beneath the site are not likely to be impacted by surface landuse. Refer to Appendix B for details of the DEC search.

3.4 Site Description

Reference should be made to Drawing No 1 for site features. At the time of the site investigation, the Subject Site consisted predominantly of vacant land with a number of dams and scattered trees along the western boundary and north western corner. The site was divided into various large paddocks and used for cattle grazing with a number of cows on the site.

The following is a summary of site features observed;

Site Feature No	Description
A	Dams
B	Metal pump house
C	A pile of rubbish consisting of car parts, rusty wire and fabric.
D	Farming equipment.
E	Earthen stockpile

Site Feature No	Description
F	Buried rubbish consisting of bricks, ceramic, glass, plastics with some metal items on the surface.
G	Concrete watering troughs
H	Concrete slab, remnants of an old building.
I	Gravel area with geo-grid stabilised base
J	Small soil stockpile
K	Old building footprint with scattered building debris present on the surface. Building was believed to have occupied by Dairycorp.
L	Trench
M	Old garden bed, overgrown with weeds.
N	Eastern Creek
O	Wet/boggy area
P	Ponding water
Q	Rusty car
R	Schofields railway station
S	Former RAAF aerodrome

There were a number of small earthfill stockpiles not mentioned in the above table but are scattered across the site. The majority of these stockpiles were investigated and are described in the test pit profiles in Table 1. Section 7 provides a summary of the material encountered.

There were no obvious signs of gross ground contamination in the form of ground staining, vegetational distress or odour noted during the inspection.

Surrounding properties were extensively cleared of trees and the areas were mainly used for grazing.

4. SITE HISTORY

4.1 Previous Owners

Historical information on the previous owners of the site was obtained from the Department of Lands. The information can often be linked to possible land uses and provides and indication of potential contamination on the site.

Title Reference	Dealing No	Registration Date	Registered Proprietors
Part Lot B in DP 388652			
Vol 5801 Folio 136	D757346	17/03/1948	Stanley Joseph Eschbach (Metal Polisher of Herne Bay) and Beatrice Woodruff Eschbach (wife)
	G152285	10/09/1954	George Henry Cole (Farmer of Schofields)
Part Lot B in DP 388652			
Vol 3421 Folio 79		10/02/1920	Percy Reginald Hill (Chartered Accountant of Sydney)
	G666443	14/07/1938	William Andrew Percy Cameron (Labourer of Marrickville)
Vol 4950 Folio 79	F89495	07/11/1949	William Andrew Percy Cameron (Labourer of Marrickville)
Vol 6051 Folio 63	F910105	07/08/1952	George Henry Cole (Farmer of Schofields)
Lot B in DP 388652			
Vol 6910 Folio 24		10/01/1955	George Henry Cole (Farmer of Schofields)
	G704928	24/04/1957	Douglas William Lindsay (Farmer of Schofields)
Folio B/388652	O27599	17/02/1995	Gregory Lindsay-Owen
	AB635671	20/07/2005	Gregory Lindsay-Owen and Dairycorp Pty Limited (equal shares)

Title Reference	Dealing No	Registration Date	Registered Proprietors
Lot 200 in DP 1140580			
Vol 940 Folio 60	153212	5/09/1889	David Pye (Farmer of Blacktown)
	212625	18/07/1893	James John Pye (Farmer of Blacktown)
Vol 1101 Folio 101	C660458	17/11/1938	Joseph Langdale and Harold Smith Langdale (Dairymen of Leichhardt)
Vol 4990 Folio 224	D362216	20/06/1945	Bruce William Hutchinson (Clerk of Northbridge) and Kathleen Millicent Hutchinson (wife)
Vol 5501Folio 155	D588045/6	20/03/1947	Ernest Jones and Keith Jones (Omnibus proprietors of Lithgow)
Vol 5655 Folio 75/76	D790583	25/09/1947	Douglas William Lindsay (Dairyman of Ermington)
Folio 2/563808	E426311	04/05/1992	Gregory Lindsay-Owen (Company Director of Mona Vale) and Barry James French (Accountant of Killara)
	E565198	26/06/1992	Gregory Lindsay-Owen (Company Director of Mona Vale) and Jeanette Blanche French (of Killara)
Folio 200/1140580	AF354344	05/03/2010	Gregory Lindsay-Owen and Dairycorp Pty Limited (equal shares)

4.2 Aerial Photographs

A review of aerial photographs taken between 1956 and 1986 was carried out on the site. The following is a summary of site conditions observed;

Year	Reference	Description
1956	NSW 237 5086, Run 12, 18/01/1956	The subject site appeared to have boundaries similar to present, with the exception of the eastern boundary which at this time was a continuation of the property. In the north eastern portion of Lot 200 there appeared to be a number of structures and the ground surface appeared heavily disturbed. The remainder of Lot 200 and of Lot B appeared in a similar state to present day with a series of dams and large areas of cleared land visible. The garden (Site Feature M) was present. The RAAF Aerodrome to the south of the subject site was evident and adjoining land to the north appeared to consist of semi rural properties with evidence of agricultural processes present.
1965	NSW 1406 5075, Run 14W, 29/08/1965	The subject site appeared similar to 1956 photograph. One of the dams appeared to have been modified. The site was divided into various large paddocks. Surrounding properties appeared similar to 1956
1970	NSW 1910 5185, Run 10 07/07/1970	The majority of the site appeared similar to 1965, the central portion of the subject site appeared to have some ground disturbance mainly around the dams and drainage channels Surrounding properties appeared similar to 1965
1986	NSW 3534 29, Run 15, 19/08/1986	The previous building (Site Feature K) was constructed and the trench (Site Feature L) was evident. The remainder of the subject site appeared similar to current conditions Surrounding properties appeared similar to 1970 photograph

4.3 DEC Records

A search of DEC's contaminated land register and licensing register indicate the Subject Site to have no records kept under the Contaminated Land Management Act 1997 and the Environmentally Hazardous Chemicals Act 1985. Refer to Appendix B for details of the DEC search.

4.4 Section 149 (2) Zoning Certificate

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

The conditions are as follows;

- The land to which the certificate relates had not been declared to be significantly contaminated land at the date the certificate was issued
- The land to which the certificate relates had not been subjected to a management order at the date the certificate was issued
- The land to which the certificate relates had not been the subject of an approved voluntary management proposal at the date the certificate was issued
- The land to which the certificate relates had not been the subject of an ongoing maintenance order at the date the certificate was issued
- The land to which the certificate relates had not been the subject of a site audit statement provided to council

5. POTENTIAL FOR CONTAMINATION

From our review of site history, records and search carried out on the Subject Site, the potential for site contamination is as follows;

- The site has potentially been used as a Dairy farm since at least 1938 according to Land Title documents. Though not evident from our site inspections, cattle dipping may have occurred in the past as a way to control pests (particularly Ticks). Chemical used in dip sites may contain pesticides and Arsenic (trioxide). If present, the dip sites would most likely have been situated in the north eastern portion of the site, in a similar area to the structures noted in the aerial photographs.

- The site could have potentially been used for agricultural activities in the past as there have been numerous 'farmer' owners. Chemicals associated in agricultural activities include Organochlorine (OCP) and Organophosphorus (OPP). OCP is relatively persistence in the environment with residue levels lasting up to 20 years, whilst OPP, herbicides and fungicides are less persistence in the environment and therefore not considered significant. In addition fertilizers may have been used and common heavy metal used includes Cadmium (Cd), Chromium (Cr), Copper (Cu), Nickel (Ni) and Zinc (Zn).

- A number of areas were found to have rubbish fill present (PAEC 1, 3, 6 and 7 as shown on Drawing No 3). There is a potential for fill contamination and common contaminants of concern include Heavy metals such as Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Nickel (Ni), Lead (Pb), Mercury (Hg) and Zinc (Zn), OCP, OPP, PCB, TRH, BTEX and PAH. Bonded asbestos material may also be present

- There were a number of small piles of rubbish and building material (PAEC 4, 5 and 6). Building material included tiles, concrete and metal pieces were noted on the ground surface. There is a potential for this area to be contaminated by Heavy metals as a result of corrosion and leaching. Common contaminants include Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Nickel (Ni), Lead (Pb), Mercury (Hg) and Zinc (Zn)

- A number of areas were also found to have concentrations of some chemicals slightly exceeding environmental thresholds (PAEC 2, 6 and 8). Refer to Section 8.2.1 and 11.1 for further details.

6. INVESTIGATION METHODOLOGY

6.1 Fieldwork

The fieldwork for the investigation was carried out between 19th and 25th of July 2012 and consisted of excavation of a total of 303 test pits (TP 1 to TP 303) across the site. Additional test pits were excavated in the vicinity of TP 35, 46, 66, 132 and 133 within about 5m away to assess the extent of fill and buried rubbish. Refer to Drawing No 2 for test pit locations which were approximated by off-set measurement relative to site boundaries and site features. The test pits were excavated through topsoil, fill, natural clay and in some locations into shale to depths varying of about 0.25m to 3.3m below existing ground surface.

To aid assessment of the strength of the subsurface profile, hand penetrometer tests were carried out in the test pits. The test pits were observed for groundwater during and upon completion of the excavation. The details of the strata encountered are presented in Table 1.

Environmental samples were collected in duplicate. The majority of the environmental samples were composited in groups of three for the purpose of laboratory analysis. Care was taken to ensure that the samples composited were similar in geology. A composite schedule is presented in Table 2.

The field results together with details of the strata encountered in the test pits are presented in Table 1.

6.2 Laboratory Analysis

Selected soil samples were analysed for the contaminants of concern consisting of;

- Heavy metals - Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Mercury (Hg), Lead (Pb), Nickel (Ni) and Zinc (Zn).
- Organochlorine Pesticides (OCP).
- Total Recoverable Hydrocarbons (TRH)
- Benzene, Toluene, Ethyl Benzene and Total Xylene (BTEX)
- Polycyclic Aromatic Hydrocarbons (PAH)
- Asbestos

The above contaminants include those which are commonly encountered on agricultural and anthropomorphically affected sites. The analytical program is presented in Table 2. Laboratory results for soil samples are summarised in Tables 3 to 8. The analytical results and methods employed are presented in the laboratory certificates in Appendix C.

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

- Particle size distribution
- Emerson Dispersion Test
- pH
- Electrical Conductivity (Ec)
- Cation Exchange Capacity (CEC)
- Exchangeable Sodium Percentage (ESP)
- Chloride (Cl)
- Sulphate (S04)

Soil analysis was performed by Envirolab Services Pty Ltd, a laboratory accredited by the National Association of Testing Authorities (NATA). The Emerson Dispersion tests and Particle Size Distribution tests were carried out in our NATA accredited laboratory. The laboratory test reports for salinity properties are attached in Appendix C of this report.

Soil samples were also collected and tested for Atterberg Limits and Shrink/Swell index to aid in the assessment of the physical properties of the soil. These tests were carried out in our NATA accredited laboratory and are attached in appendix D of this report

7. SUBSURFACE CONDITIONS

Reference should be made to the attached Table 1 for details of subsurface profiles encountered. The following is a generalised subsurface profile;

Embankment and Mounds

In TP 1, 14, 15, 28, 66, 85, 111A, 133A which were excavated on the earth mounds with height varying from about 0.5m to 1.0m encountered Silty Clay and Clayey Silt fill. Some pieces of bricks, tiles and bitumen were encountered in the mounds in TP 1, 111A and 133A.

The dam embankment material (up to 1.2m high) as encountered in TP 13, 203 and 210 consists of high plasticity Silty Clay with ironstone and shale gravel.

Fill

Sandy Gravel fill about 0.1m to 0.35m thick was encountered in TP 16 to 21, 36, 59, 60 and 86 and this fill was placed to form a temporary access road into the property. The fill appeared to have been stabilised and a layer of geogrid was noted in the majority of the test pits. In TP 36, a small piece of fibre board was noted on the ground surface and this piece was taken to the laboratory for asbestos analysis.

Fill was encountered in TP 35, 46, 46A, 66, 66A, 66B, 73, 104, 109 and 110 to depths ranging from 0.4m to 1.5m below existing ground surface. The fill in TP 35, 46A, 66, 66A, 66B, 109 and 110 was found to contain some building debris such as concrete pieces, tiles, ceramic, metal pieces and household rubbish including car tyres, glass bottles and glass. A fibre board fragment was noted on the surface of TP 46A and TP 66 and samples were taken from these test pits and sent to Envirolab Services for asbestos analysis.

Topsoil/Fill

Topsoil/fill was encountered on the surface in TP 24, 46, 47, 73, 89, 108, 109, 119, 132A, 133, 133A, 134, 135, 136, 157 and 171 with thickness ranging from 0.1m to 0.6m. The topsoil/fill consists predominantly of a mixture of Clayey Silt and Silty Clay. Some minor building rubbish inclusion such as bricks, tiles and metal pieces were encountered in the topsoil/fill in TP 89, 108, 132A, 133, 133A, 134 and 157.

The topsoil/fill was found to be moist to wet in TP 108, 135, 136 and 157. In the other test pits, the topsoil/fill was found to be dry to moist.

Topsoil

The majority of the test pits encountered topsoil on the surface consisting predominantly of Clayey Silt of low liquid limit. Thickness of the topsoil was found to typically range from 0.05m to 0.50m.

The topsoil was generally found to be moist with some areas in the drainage depressions being moist to wet.

Natural Soil

Underlying the fill, topsoil and topsoil/fill, natural soil was encountered in all test pits consisting predominantly of high plasticity Silty Clay. In general, the plasticity of the natural soil becomes lower at greater depths and more gravelly. Some test pits were taken to depths of up to 3.3m into natural soil.

The natural clayey soil was generally assessed to be very stiff with moisture content approximately equal to the plastic limit. In TP 7, 11, 12, 13, 51, 52, 70, 77, 93, 103, 110, 116, 117, 127, 128, 147, 154, 155, 163, 172, 174, 180, 183, 197, 230, 231, 232, 233, 259, 261, 262, 286, 295, 297, 299, 302 and 303, the upper natural clay was found to be relatively weak (ie firm to stiff) and wet (ie moisture content greater than the plastic limit).

Bedrock

Shale was encountered in TP 2, 6, 13, 19, 21, 34, 61, 79, 93, 107, 130, 135, 138, 154, 178, 181, 188, 207, 208, 212, 246, 250, 256, 264, 272, 279, 291 and 298 at depths ranging from 0.7m to 2.6m. Shale was not encountered in some test pits which were taken to the maximum reach of the backhoe (ie about 3.3m).

Groundwater

All test pits were found to be dry during and upon completion of the site investigation. Some minor ground water seepage was encountered in TP 34, 77, 154, 174, 197, 218 and 256 between depths of 0.80m and 2.40m

8. CONTAMINATION ASSESSMENT

8.1 Contamination Criteria

The results of laboratory analyses for this investigation were compared with published Australian contamination assessment criteria such as those published by the DEC and National Environmental Health Forum (NEHF) (Reference 6). The NEHF criteria which was recently updated by the National Environment Protection Council Service Corporation (Reference 7) are health based soil investigation levels for different exposure settings. For this assessment, the criteria for a standard residential setting with garden/accessible soil (HILs 'A') were adopted as the Site Criteria.

The NEHF criteria which was recently updated by the National Environment Protection Council Service Corporation (NEPC) (Reference 7) are health based soil investigation levels (HILs) for different exposure settings.

Other guidelines such as the DEC discussion paper on orchard and market gardens contamination was published to aid assessment of potential contamination in orchards and market gardens (Reference 5) and was used in this study.

Assessment of TRH and BTEX was based on the DEC Guideline for Assessing Service Station Sites (Reference 8). The DEC endorses the use of these guidelines for the assessment of contaminated sites and in addition, the DEC recommends the concentrations of heavy metals to be compared with the phytotoxicity criteria (EIL) in order to protect the environment and plant growth (Reference 9)

The results of laboratory analysis of individual samples have been directly compared with the Criteria. The results of laboratory analysis for the composites have been compared with 'modified criteria' by dividing the Criteria by the number of subsamples forming the composite. The relevant criteria are presented in the summary table of results (Tables 3 to 7).

8.2 Laboratory Test Results

8.2.1 Metals

A total of eighty two composite samples and 21 individual samples were analysed for a range of heavy metals consisting of Cu, Pb, Zn, Cd, Cr, Ni, As and Hg. The concentrations of heavy metals in all composite samples analysed were less than the modified EIL criteria except;

- Arsenic in C1 to C3, C7 to C11, C15, C16, C18 to C20, C22, C24 to C26, C28 to C33, C35 to C44, C49 to C57, C60 to C81 where slightly elevated concentrations ranging from 8mg/kg to 15mg/kg were encountered above the modified EIL criteria of 7mg/kg.
- Copper in C4, C5 and C17 where slightly elevated concentrations of 46mg/kg, 70mg/kg and 38mg/kg were encountered above the modified EIL criteria of 33mg/kg
- Zinc in C29 where a slightly elevated concentration of 84mg/kg was encountered above the modified EIL criteria of 67mg/kg.

The laboratory test results of individual samples and subsamples indicated all concentrations of heavy metals of concern to be within the EIL and Site Criteria with the exception of the following;

- TP 16 (0.0-0.1m) where a slightly elevated concentration of Copper of 130mg/kg was encountered above the EIL criteria of 100mg/kg, (PAEC 2).
- TP 89 (0.0-0.1m) where a slightly elevated concentration of Nickel of 62mg/kg was encountered above the EIL criteria of 60mg/kg (PAEC 6).
- TP 108 (0.0-0.1m) where slightly elevated concentrations of Nickel of 62mg/kg and Zinc of 810 mg/kg were encountered above the EIL criteria of 60mg/kg and 200mg/kg respectively (PAEC 6).
- TP 250 (0.0-0.1m) where a slightly elevated concentration of Arsenic of 21mg/kg was encountered above the EIL criteria of 20mg/kg (PAEC 8).

Reference should be made to Table 3 for details of the laboratory test results.

8.2.2 Organochlorine Pesticides

Fifty four composite samples and twenty one individual samples were analysed for a range of organochlorine pesticides.

All concentrations of OCP were found to be below detection limit and therefore within the Site Criteria. The results are summarised in Table 4.

8.2.3 Polychlorinated Biphenyls

Fifty four composite samples and twenty one individual samples were analysed for a range of Polychlorinated Biphenyls.

All concentrations of PCBs were found to be below detection limit and therefore within the Site Criteria. The results are summarised in Table 5.

8.2.4 Total Recoverable Hydrocarbons

Twenty one individual samples were analysed for a range of Total Recoverable Hydrocarbons.

All concentrations of TRH were found to be below detection limit and therefore with the Site Criteria. The results are summarised in Table 6.

8.2.5 Benzene, Toluene, Ethyl Benzene and Xylene

Twenty one individual samples were analysed for a range of BTEX. All concentrations of BTEX were found to be below detection limit and therefore with the Site Criteria. The results are summarised in Table 6.

8.2.6 Polycyclic Aromatic Hydrocarbons

Twenty one individual samples were analysed for a range of PAH. All concentrations of BTEX were found to be below detection limit and therefore with the Site Criteria. The results are summarised in Table 6.

8.2.7 Asbestos

Twenty one individual soil samples were analysed for the presence of asbestos. The three fibre board pieces obtained from TP 36, 46 and 66 were also analysed for asbestos.

All samples analysed did not encounter Asbestos fibres. The results are summarised in Table 8.

8.3 Quality Assurance/Quality Control (QA/QC)

8.3.1 Chain of Custody Forms and Preservation

The fieldwork was carried out in accordance with standard written procedures which included collection of samples in new glass jars, preservation of samples in ice chests and transportation of samples to the contract laboratory under chain of custody documentation. Refer to Appendix A.

8.3.2 Field Duplicate

The fieldwork for this investigation was carried out in accordance with GeoEnviro Consultancy Standard procedures. This included collection of samples in new glass jars, preservation of samples in ice chests and transport of samples to the contract laboratory under chain of custody documentation. The following duplicate samples were prepared;

Samples	Duplicate Samples	Analysis
TP 125	Duplicate A	Heavy Metals, OCP, PCB, TRH, BTEX, PAH
TP 279	Duplicate B	Heavy Metals, OCP, PCB, TRH, BTEX, PAH

The Relative Percentage Difference (RPD) values between primary and duplicate samples were calculated to assess the results. A zero RPD means perfect agreement of results between the primary and duplicate sample whilst an RPD above 200% indicates total disagreement in results.

For heavy metals, the RPD values were all found to be below the targeted 50%. The RPD's for OCP, PCB, TRH, BTEX and PAH could not be calculated because the results were below laboratory detection limits in both primary and duplicate samples.

Refer to Table 9 for details. The internal laboratory QA/QC results are presented with the laboratory certificates (Appendix C) and are considered acceptable based on the duplicate and control samples analysed. The overall results suggest that the laboratory analysis carried out for this investigation were reliable.

8.3.3 Laboratory QA

The EnviroLab Services laboratory carried out internal QA/QC procedures which normally include one of more of the following;

- Preparation and analysis of duplicate samples to assess precision of laboratory results,
- A spike and duplicate spike is prepared for each sample batch. This involves spiking a sample with a known concentration of contaminant to verify the absence of matrix effects and to assess precision,
- Analysis of sample batch as reagent blanks to monitor reagent purity and as an over-all procedural blank. Reagent blank will also be run after samples with a high concentration to prevent carry over.
- A surrogate is added to all samples to monitor sample matrix effects throughout all analytical stages by calculating the % recovery at the completion of the analysis.

The laboratory control results which are included in the laboratory test reports in Appendix C are all within acceptable criteria.

8.3.4 QA/QC Assessment

The QA/QC indicators either all complied with the required standards or showed variations that would have no significant effect on the quality or interpretation of the data. It is therefore assessed that for the purposes of this analysis, the QA/QC results are adequate and the quality of the data is acceptable for use in this contamination assessment.

9. SALINITY ASSESSMENT

9.1 Salinity 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 a Salinity Code of Practice (Reference 11) to address the issue of salinity. It was acknowledge 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 1).

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

As soil salinity is a function of soil stability, other parameters such Emerson Dispersion, Cation Exchange Capacity (CEC), Exchangeable Sodium (ESP), Sodium Exchangeable Ratio (SAR) were used to assess saline soil. The following tables obtained from the various guidelines (Reference 1 and 12).

Soil dispersion relates to stability of the soil in the presence of water. The following is a measure of soil dispersion;

Emerson Class No	**Dispersibility**
1	Very High
2	High
3	High to moderate
4	Moderate
5 and 6	Slight
7 and 8	Negligible/Aggregated

Sodic soils are dispersible and are vulnerable to erosion and tunnelling. Sodicity is a measure of Exchangeable Sodium Percentage (ESP) and Cation Exchangeable Capacity (CEC). The following is a measure of soil sodicity;

ESP (%)	**Rating**
Less than 5	Non-Sodic
5 to 15	Sodic
Greater than 15	Highly Sodic

The measure of Cation Exchangeable Capacity is as follows;

CEC ($cmol^+/kg$)	**Rating**
Less than 6	Very Low
6 to 12	Low
12 to 25	Moderate
25 to 40	High
Greater than 40	Very High

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 (Reference 13).

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	Non-aggressive	Non-aggressive
5000-1000	1000-3000	4.5-5.5	6000-12000	Mild	Mild
10000-20000	3000-10000	4-4.5	12000-30000	Severe	Moderate
>20000	>10000	<4	>30000	Very Severe	Severe

Approximate 100ppm of SO_4=80ppm of SO_3
* 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 13).

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

9.2 Laboratory Test Results

The following is a summary of the laboratory test results;

Sample	Depth (m)	Ph	EC	EC_e	CL	SO4	CEC	ESP	Resistivity
TP2	0.0-0.1	6.2	0.02	0.23					
	1.2-1.3	5.5	0.05	0.50	98	12	6.5	13.1	20000
TP6	0.0-0.1	5.7	0.07	0.67					
	0.4-0.5	5.4	0.05	0.37	<20	<20			19000
TP13	0.0-0.1	6.7	0.09	0.63					
	0.6-0.7	9.4	0.41	2.87	170	190	2.5	33.1	2400
TP19	0.0-0.1	9.9	0.27	2.70					
	1.1-1.2	5.0	0.37	2.59	390	85			2700
	2.0-2.1	5.4	0.41	3.28	460	98			2400
TP23	0.0-0.1	5.7	0.04	0.44					
	0.5-0.6	5.5	0.05	0.41	6	30	6.7	3.9	19000
	2.5-2.6	6.9	0.62	5.58	750	130			1600
TP34	0.0-0.1	6.2	0.16	1.60					
	0.5-0.7	6.9	0.59	4.13	610	220			1700
TP36	0.0-0.1	10.2	0.30	3.00					
TP43	0.0-0.1	6.6	0.05	0.45					
	1.6-1.7	5.8	0.09	0.75	49	29	7.6	19.9	11000
	3.0-3.1	7.8	0.47	3.29	590	36			2100
TP45	0.0-0.1	6.6	0.05	0.54					
TP49	0.0-0.1	6.2	0.03	0.31					
	2.6-2.7	7.0	0.44	3.52	530	52	6.9	26.4	2300
TP61	0.0-0.1	6.9	0.07	0.69					
	0.5-0.6	5.0	0.14	0.98	15	120			7300
TP62	0.0-0.1	6.3	0.05	0.45					
TP72	0.0-0.1	5.8	0.03	0.27					

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

Sample	Depth (m)	Ph	EC	EC_e	CL	SO4	CEC	ESP	Resistivity
TP73	0.0-0.1	6.0	0.08	0.79					
	1.0-1.1	7.8	0.14	0.98	44	73	13	13.5	7400
	3.0-3.1	7.0	0.16	1.28	130	34			6300
TP77	0.0-0.1	6.0	0.04	0.44					
	0.7-0.8	6.4	0.10	0.70	35	74	6.4	4.1	9700
	1.7-1.8	5.7	0.28	1.96	270	73			3600
	2.7-2.8	7.8	0.19	1.33	160	40	9.1	30.8	5300
TP79	0.0-0.1	5.9	0.07	0.66					
	0.5-0.6	9.7	0.40	2.80	150	110			2500
TP85	0.0-0.1	6.1	0.05	0.35					
TP93	0.0-0.1	6.2	0.04	0.37					
	0.5-0.6	5.1	0.27	2.03	160	200			3700
	1.2-1.3	5.2	0.83	5.81	920	340	10	30.2	1200
TP96	0.0-0.1	6.6	0.06	0.58					
	0.7-0.8	7.2	0.69	4.83	530	440			1500
	1.7-1.8	5.8	0.71	5.68	710	300	13	22.9	1400
	2.7-2.8	6.5	0.66	5.28	760	160			1500
TP110	0.0-0.1	7.7	0.13	1.82					
	1.0-1.1	4.9	0.06	0.47	19	46	6.1	6.7	16000
TP123	0.0-0.1	6.0	0.03	0.34					
TP125	0.0-0.1	6.1	0.03	0.32					
	0.7-0.8	4.7	0.50	3.50	610	130			2000
	2.6-2.7	4.9	0.61	4.27	740	270	2.5	32.8	1600
TP130	0.0-0.1	6.4	0.07	0.66					
TP135	0.0-0.1	5.8	0.06	0.51					
	1.2-1.3	4.8	0.12	0.90	9	160	5.1	6.6	8000
TP138	0.0-0.1	5.9	0.04	0.42					

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

Sample	Depth (m)	Ph	EC	EC_e	CL	SO4	CEC	ESP	Resistivity
TP143	0.0-0.1	6.2	0.02	0.16					
	0.5-0.6	5.3	0.04	0.29	6	31			24000
TP154	0.0-0.1	5.7	0.06	0.55					
	0.3-0.4	8.0	0.23	1.61	96	180	12	9.2	4300
	1.3-1.4	7.8	0.37	2.59	250	210	13	26.8	2700
TP160	0.0-0.1	6.7	0.16	1.60					
TP171	0.0-0.1	6.3	0.04	0.41					
TP174	0.0-0.1	5.7	0.03	0.26					
	1.0-1.1	6.2	0.03	0.21	25	17			35000
	2.0-2.1	7.0	0.04	0.35	24	16	7.7	4.3	22000
TP176	0.0-0.1	6.2	0.05	0.48					
	0.5-0.6	5.4	0.13	0.91	83	60			7600
TP178	0.0-0.1	6.0	0.03	0.27					
	1.6-1.7	5.1	0.34	2.72	340	130	16	25.7	2900
TP181	0.0-0.1	6.8	0.07	0.71					
	0.7-0.8	4.8	1.10	7.70	880	910			920
TP188	0.0-0.1	6.8	0.26	2.60					
	0.5-0.6	8.1	1.20	8.40	1300	590	8.2	18	810
	1.5-1.6	9.2	0.76	5.32	810	210			1300
TP197	0.0-0.1	6.1	0.02	0.24					
	0.7-0.8	6.8	0.04	0.27	5	14	9.1	2.2	26000
	1.7-1.8	7.7	0.04	0.30	17	9			23000
	2.6-2.7	7.8	0.04	0.30	14	6	5.9	13.2	23000
TP207	0.0-0.1	6.0	0.03	0.28					
	1.1-1.2	5.1	0.21	1.58	130	150			4700
TP208	0.0-0.1	6.0	0.03	0.28					

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

Sample	Depth (m)	Ph	EC	EC_e	CL	SO4	CEC	ESP	Resistivity
TP210	0.0-0.1	8.1	0.17	1.19					
TP212	0.0-0.1	6.1	0.05	0.48					
	0.4-0.5	5.0	0.26	1.82	120	160			3900
TP214	0.0-0.1	5.7	0.09	0.87					
TP215	0.0-0.1	6.2	0.04	0.37					
	0.4-0.5	5.0	0.16	1.12	100	93	4.6	12.9	6200
	2.0-2.1	5.0	0.54	4.05	650	120			1900
TP218	0.0-0.1	6.3	0.02	0.20					
	0.5-0.6	6.8	0.05	0.43	15	23	6.9	3.4	19000
	1.5-1.6	6.6	0.06	0.51	58	7			16000
TP237	0.0-0.1	6.1	0.03	0.34					
	0.5-0.6	4.8	0.12	0.84	37	80			8600
	2.5-2.6	5.2	0.43	3.44	430	140	3.4	34.7	2300
TP246	0.0-0.1	6.1	0.03	0.30					
	1.4-1.5	4.7	0.97	6.79	1100	320			1000
TP250	0.0-0.1	6.2	0.03	0.32					
	0.5-0.6	5.0	0.11	0.77	32	86	8.7	12.1	9000
TP256	0.0-0.1	6.2	0.03	0.31					
	1.0-1.1	5.0	0.05	0.36	20	26	3.1	3.6	19000
TP264	0.0-0.1	6.1	0.03	0.28					
	0.5-0.6	4.9	0.06	0.44	11	28			16000
TP267	0.0-0.1	6.0	0.03	0.29					
	1.2-1.3	5.0	0.25	2.13	240	69	9.3	27.1	4100
TP272	0.0-0.1	6.2	0.03	0.32					
	0.7-0.8	4.6	0.24	1.68	280	3	6.9	19.3	4200
	1.7-1.8	4.7	0.29	2.03	350	31			3500
TP279	0.0-0.1	6.1	0.02	0.21					

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

Sample	Depth (m)	Ph	EC	EC_e	CL	SO4	CEC	ESP	Resistivity
TP282	0.0-0.1	5.4	0.11	1.10					
	0.5-0.6	5.6	0.06	0.43	12	37			16000
	1.0-1.1	4.8	0.06	0.42	41	23	4.9	11.8	17000
	2.0-2.1	5.3	0.03	0.25	8	13			33000
TP286	0.0-0.1	6.0	0.03	0.26					
TP291	0.0-0.1	5.6	0.05	0.53					
	0.5-0.6	5.3	0.07	0.47	29	25	8.3	17.5	15000
TP298	0.0-0.1	5.9	0.03	0.33					
	0.5-0.6	5.2	0.07	0.46	26	38			15000
	1.4-1.5	5.2	0.14	0.98	96	37	14	29.7	7100
TP301	0.0-0.1	6.0	0.03	0.29					
	0.5-0.6	5.9	0.10	0.68	49	32	17	3.9	10000
	2.3-2.4	5.1	0.15	1.05	140	17			6800

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)

Emerson Class

Sample	Material Description	Class	Description
TP 2 (1.2-1.3m)	(CH) Silty Clay: High plasticity, grey mottled brown	3	Moderate to highly dispersive
TP 6 (0.4-0.5m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 13 (0.6-0.7m)	(CH) Gravelly Silty Clay: High plasticity, grey mottled brown	1	Very highly dispersive
TP 19 (2.0-2.1m)	(CI) Silty Clay: Medium plasticity, grey	2	Highly dispersive
TP 21 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown mottled grey	2	Highly dispersive
TP 23 (2.5-2.6m)	(CL) Silty Clay: Low plasticity, grey mottled brown	2	Highly dispersive

Emerson Class

Sample	Material Description	Class	Description
TP 34 (0.5-0.7m)	(CH) Silty Clay: High plasticity, brown	2	Highly dispersive
TP 36 (1.0-1.1m)	(CI-CH) Silty Clay: High plasticity, grey	1	Very highly dispersive
TP 43 (3.0-3.1m)	(CH) Silty Clay: High plasticity, brown mottled grey	1	Very highly dispersive
TP 45 (1.1-1.2m)	(CI) Silty Clay: Medium plasticity, mottled brown and grey	4	Moderately dispersive
TP 49 (2.6-2.7m)	Shaley Clay: Medium to high plasticity, grey mottled brown	1	Very highly dispersive
TP 61 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 62 (1.0-1.1m)	(CH) Silty Clay: High plasticity, grey mottled brown	2	Highly dispersive
TP 72 (2.1-2.2m)	(CH) Silty Clay: High plasticity, mottled grey and brown	1	Very highly dispersive
TP 73 (3.0-3.1m)	Gravelly Silty Clay: High plasticity, brown	2	Highly dispersive
TP 77 (1.7-1.8m)	(CH) Silty Clay: High plasticity, mottled grey and brown	1	Very highly dispersive
TP 79 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 85 (1.9-2.0m)	(CH) Silty Clay: High plasticity, grey mottled brown	2	Highly dispersive
TP 93 (0.5-0.6m)	(CI-CH) Silty Clay: Medium to high plasticity, brown	2	Highly dispersive
TP 96 (2.7-2.8m)	Interbedded Silty Clay/Shale/Siltstone: Low plasticity, mottled brown grey	1	Very highly dispersive

Emerson Class

Sample	Material Description	Class	Description
TP 110 (1.0-1.1m)	(CI-CH) Silty Clay: Medium to high plasticity, grey mottled red brown	3	Moderate to highly dispersive
TP 123 (0.7-0.8m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 125 (2.6-2.7m)	(CH) Shaley Clay: High plasticity, grey	2	Highly dispersive
TP 130 (1.5-1.6m)	(CI) Silty Clay: Medium plasticity, grey mottled brown	3	Moderate to highly dispersive
TP 135 (1.2-1.3m)	(CI-CH) Silty Clay: Medium to high plasticity, grey mottled brown	4	Moderately dispersive
TP 138 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	2	Highly dispersive
TP 143 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 146 (2.7-2.8m)	(CH) Gravelly Silty Clay: Medium plasticity, grey mottled brown	1	Very highly dispersive
TP 154 (0.3-0.4m)	(CH) Silty Clay: High plasticity, brown	3	Moderate to highly dispersive
TP 160 (1.2-1.3m)	(CH) Silty Clay: High plasticity, grey mottled brown	4	Moderately dispersive
TP 171 (2.9-3.0m)	(CH) Shaley Clay: High plasticity, grey mottled brown	2	Highly dispersive
TP 174 (2.0-2.1m)	(CI) Silty Clay: Medium plasticity, mottled grey and brown	2	Highly dispersive
TP 176 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	2	Highly dispersive
TP 178 (1.6-1.7m)	Gravelly Shaley Clay: Medium plasticity, grey mottled brown	4	Moderately dispersive
TP 181 (0.7-0.8m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive

Emerson Class

Sample	Material Description	Class	Description
TP 188 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 197 (2.6-2.7m)	Gravelly Silty Clay: High plasticity, brown	1	Very highly dispersive
TP 207 (1.1-1.2m)	(CI-CH) Shaley Clay: Medium to high plasticity, grey mottled brown	1	Very highly dispersive
TP 208 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	2	Highly dispersive
TP 210 (2.9-3.0m)	(CI) Silty Clay/Shaley Clay: Medium plasticity, grey mottled brown	1	Very highly dispersive
TP 212 (0.4-0.5m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 214 (1.3-1.4m)	(CI-CH) Shaley Clay: Medium to high plasticity, grey	2	Highly dispersive
TP 215 (2.0-2.1m)	(CI-CH) Shaley Clay: Medium to high plasticity, grey	2	Highly dispersive
TP 218 (1.5-1.6m)	Gravelly Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 237 (2.5-2.6m)	(CI) Shaley Clay: Medium plasticity, grey	2	Highly dispersive
TP 246 (1.4-1.5m)	(CH) Silty Clay: High plasticity, grey mottled brown	2	Highly dispersive
TP 250 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown mottled grey	4	Moderately dispersive
TP 256 (1.0-1.1m)	(CH) Silty Clay: High plasticity, brown	3	Moderate to highly dispersive
TP 264 (0.5-0.6m	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 267 (1.2-1.3m)	(CL-CI) Shaley Clay: Low to medium plasticity, grey	3	Moderate to highly dispersive

Emerson Class

Sample	Material Description	Class	Description
TP 272 (1.7-1.8m)	(CH) Silty Clay: High plasticity, grey mottled brown	2	Highly dispersive
TP 279 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 282 (1.0-1.1m)	Gravelly Silty Clay: High plasticity, brown mottled grey	4	Moderately dispersive
TP 286 (2.4-2.5m)	(CH) Shaley Clay: High plasticity, grey	1	Very highly dispersive
TP 291 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 298 (0.5-0.6m)	(CH) Silty Clay: High plasticity, brown	4	Moderately dispersive
TP 301 (2.3-2.4m)	(CH) Shaley Clay: High plasticity, grey mottled brown	1	Very highly dispersive

Particle Size Distribution

Sample	Clay & Silt (%)	Sand (%)	Gravel (%)
TP 2 (1.2-1.3m)	75	18	7
TP 21 (0.5-0.6m)	79	16	5
TP 23 (2.5-2.5m)	61	36	3
TP 36 (1.0-1.1m)	88	2	10
TP 79 (0.5-0.6m)	91	7	2
TP 96 (2.7-2.8m)	80	11	9
TP 110 (1.0-1.1m)	61	13	26
TP 125 (2.6-2.7m)	100	0	0
TP 130 (1.5-1.9m)	57	41	2
TP 138 (0.5-0.6m)	55	40	5

Particle Size Distribution

Sample	Clay & Silt (%)	Sand (%)	Gravel (%)
TP 176 (0.5-0.6m)	90	5	5
TP 181 (0.7-0.8m)	47	27	26
TP 210 (2.9-3.0m)	93	5	2
TP 212 (0.4-0.5m)	76	11	13
TP 250 (0.5-0.6m)	85	8	7
TP 256 (1.0-1.1m)	87	12	1
TP 267 (1.2-1.3m)	70	30	0
TP 279 (0.6-0.7m)	78	19	9
TP 282 (1.0-1.1m)	56	26	18
TP 298 (0.5-0.6m)	63	18	19

The particle size distribution tests generally confirmed our visual classification.

10. GEOTECHNICAL ASSESSMENT

10.1 Principles of Site Classification

Most natural clay soils have sufficient bearing capacities to support typical residential loads. Most distress to residential structures occurs due to reactive soil movements rather than settlement movements.

AS2870 establishes a classification system whereby reactive sites are classified based on the reactive soil movements anticipated. Other foundation conditions such as the presence of fill material, may affect the site classification. Appendix E of this report provides a comprehensive explanation of site classification.

The purpose of the classification is to allow the design of an economical footing system that will limit cracking of footings, floor slabs and masonry walls to an extent normally considered acceptable. The performance expectations associated with the design guidelines are presented in Appendix A of AS 2870. It is fundamental when applying the following site classifications to residential footing design that these performance expectations are acceptable to the house owners.

10.2 Soil Properties

The test pit investigation indicates the site to be generally underlain by natural plastic clay overlying shale. Our laboratory test results confirmed our visual classification of the natural soil and previous testing indicated the natural Silty Clay to be of medium to high plasticity at the upper stratum becoming medium plasticity at lower depths. Indicative soil properties based on our laboratory test results are as follows (refer to Appendix D);

Shrink/Swell Index

Sample	Shrink (%)	Swell (%)	Shrink/Swell Index (%/pF)
TP 23 (0.3-0.5m)	3.1	0.0	1.7
TP 34 (0.5-0.8m)	2.3	0.5	1.4
TP 36 (0.3-0.7m)	2.7	0.5	1.7

Shrink/Swell Index

Sample	Shrink (%)	Swell (%)	Shrink/Swell Index (%/pF)
TP 49 (0.4-0.65m)	3.4	0.1	1.9
TP 61 (0.3-0.7m)	4.9	0.5	2.9
TP 62 (0.3-0.55m)	4.5	0.5	2.6
TP 72 (0.3-.7m)	1.4	0.0	0.8
TP 93 (0.4-0.7m)	4.0	0.6	2.4
TP 107 (0.3-0.7m)	1.6	1.1	1.2
TP 110 (0.5-0.8m)	5.8	1.2	3.5
TP 125 (0.4-0.7m)	4.6	0.0	2.6
TP 135 (0.4-0.65m)	4.3	0.0	2.4
TP 138 (0.3-0.7m)	2.2	0.1	1.2
TP 146 (0.4-0.7m)	1.1	0.0	0.5
TP 176 (0.3-0.5m)	2.8	0.8	1.8
TP 174 (0.3-0.6m)	0.7	0.0	0.4
TP 178 (0.3-0.5m)	3.1	0.2	1.8
TP 181 (0.3-0.5m)	2.3	0.1	1.3
TP 188 (0.4-0.6m)	2.5	2.5	2.1
TP 197 (0.4-0.7m)	1.6	0.1	0.9
TP 207 (0.3-0.5m)	2.5	0.7	1.6
TP 215 (0.4-0.7m)	3.7	0.9	2.3
TP 264 (0.4-0.7m)	4.7	0.1	2.6

Shrink/Swell Index

Sample	Shrink (%)	Swell (%)	Shrink/Swell Index (%/pF)
TP 272 (0.4-0.7m)	4.8	0.1	2.7
TP 282 (0.4-0.7m)	4.3	0.0	2.4
TP 291 (0.3-0.7m)	3.6	0.4	2.1
TP 298 (0.4-0.7m)	1.0	0.0	0.6

The laboratory results generally indicated the site to be moderately to highly reactive to moisture variation.

Atterberg limits

Sample	Liquid Limit (%)	Plasticity Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)
TP 6 (0.3-0.6m)	37	18	19	6.5
TP 6 (0.4-0.5m)	48	22	26	10.0
TP 13 (0.6-0.7m)	55	25	30	10.5
TP 19 (0.6-0.9m)	60	22	38	16.0
TP 19 (2.0-2.1m)	40	17	24	9.0
TP 34 (0.5-0.7m)	48	21	27	13.0
TP 43 (3.0-3.1m)	40	16	24	11.5
TP 45 (1.1-1.2m)	40	17	23	12.0
TP 49 (2.6-2.7m)	27	19	8	3.0
TP 62 (1.0-1.1m)	46	20	26	12.0
TP 73 (3.0-3.1m)	44	21	23	12.0
TP 85 (1.9-2.0m)	34	15	19	10.0
TP 93 (0.5-0.6m)	62	22	40	15.5

Atterberg limits

Sample	Liquid Limit (%)	Plasticity Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)
TP 96 (0.3-0.7m)	63	23	40	15.5
TP 123 (0.7-0.8m)	52	20	32	15.0
TP 135 (1.2-1.3m)	66	23	43	16.5
TP 143 (0.5-0.6m)	37	20	18	11.0
TP 154 (0.3-0.4m)	60	22	38	15.5
TP 171 (2.9-3.0m)	41	19	23	11.5
TP 178 (0.6-0.7m)	80	24	56	16.5
TP 188 (0.5-0.6m)	58	21	37	16.0
TP 197 (2.6-2.7m)	33	16	17	9.5
TP 207 (1.1-1.2m)	38	17	21	10.5
TP 208 (0.5-0.6m)	65	21	44	16.0
TP 214 (1.3-1.4m)	69	23	46	11.0
TP 215 (2.0-2.1m)	49	18	32	12.5
TP 237 (0.4-0.7m)	83	36	47	21.0
TP 237 (2.5-2.6m)	55	20	35	13.0
TP 246 (1.4-1.5m)	69	20	49	13.0
TP 250 (0.3-0.6m)	71	26	44	17.0
TP 264 (0.5-0.6m)	73	30	43	16.0
TP 272 (1.7-1.8m)	62	23	39	13.5
TP 286 (2.4-2.5m)	38	15	23	10.5
TP 291 (0.5-0.6m)	84	32	52	20.5
TP 301 (2.3-2.4m)	53	19	34	18.5

11. RECOMMENDATIONS AND CONCLUSIONS

11.1 Contamination Issues

Based on the laboratory test results and the test pit investigation, the following are our comments;

- The Subject Site as it currently exists consists predominantly of vacant land with a number of dams. It is known from historical documents to have been used as a Dairy Farm.
- There were numerous areas where rubbish fill was encountered in our test pits and these are shown on Drawing No 3 as Potential Areas of Environmental Concern (PAEC) 1, 3, 4, 5, 6 and 7. The fill was found to contain building debris such as concrete pieces, tiles, ceramic, metal pieces and household rubbish including car tyres, glass bottles and glass bricks, metal, plastic, tiles, glass and cloth mixed in with Clayey Silt and Silty Clay. Some fibre board fragments were encountered in three test pits (TP 36, 46A and TP 66), however laboratory analysis did not detect presence of asbestos fibres in the fibre boards.
- The test pit investigation indicates the site to be generally underlain by natural residual clayey soil overlying shale at various depths.
- The laboratory test results indicate concentrations of contaminants of concern to be within the Site Criteria
- Slightly elevated concentrations of some contaminants of concern were encountered as listed below:
  - TP 16 (0.0-0.1m) where a slightly elevated concentration of Copper of 130mg/kg was encountered above the EIL criteria of 100mg/kg, (PAEC 2).
  - TP 89 (0.0-0.1m) where a slightly elevated concentration of Nickel of 62mg/kg was encountered above the EIL criteria of 60mg/kg (PAEC 6).
  - TP 108 (0.0-0.1m) where slightly elevated concentrations of Nickel of 62mg/kg and Zinc of 810 mg/kg were encountered above the EIL criteria of 60mg/kg and 200mg/kg respectively (PAEC 6).

- TP 250 (0.0-0.1m) where a slightly elevated concentration of Arsenic of 21mg/kg was encountered above the EIL criteria of 20mg/kg (PAEC 8).

All samples were found to be well within HILs A (ie Site Criteria) and therefore do not constitute a "Hot-spot".

Within the context of the scope of work carried out, the results of the contamination assessment indicate that the likelihood of gross ground chemical contamination on the Subject Site is generally considered low. However, the site was found to have a significant amount of rubbish fill and building material in 6 areas identified as PAEC 1, 3, 4, 5, 6 and 7.

To ensure suitability of the Subject Site for the proposed development, all rubbish fill and rubbish identified should be excavated and disposed to a DECCW approved landfill. All excavated material should be stockpiled and sampled for chemical analysis to adequately classify the material for offsite disposal in accordance with DECC 2008 Guidelines – Part 1 Classifying Waste (Reference 10)

Areas where slightly elevated concentrations of heavy metals were encountered (PAEC 2, 6, and 8) should be vertically mixed by tilling the topsoil and upper clay material up to about 400mm deep. These areas should be reassessed for concentrations of the various heavy metals of concern by sampling and testing to ensure all concentrations are within the EIL criteria. Should persistent concentration of contaminants of concern remain despite vertical mixing then the material should be classified and disposed offsite to a DECC approved landfill site.

Though bonded asbestos were not encountered in our test pits and the three fibre board samples did not encounter asbestos fibres, asbestos may still exist within the site particularly in the filled areas containing building rubble as this material was commonly used in building construction in the past. Should bonded asbestos material be encountered during excavation, we recommend that the material be removed and disposed in accordance with regulatory and Workcover requirements. All asbestos cleanup works should be supervised by a hygienist.

11.2 Salinity Issues

The laboratory test results indicate the majority of the subject site to Non to Slightly saline. Moderately saline soils were encountered in TP 34, 96 and 188 at the upper 1.0m of soil profile and Highly saline soil was also encountered in TP 188 at 0.5-0.6m. At below 1.0m in TP 23, 93, 96, 125, 188, 215 and 246, moderately saline soil was encountered. Refer to Drawing Nos 4 and 5 for soil salinity mapping of the site.

The laboratory test results confirmed our visual classification of the insitu soil classification. The clayey soil was assessed to be low permeability with a permeability rate in the order of 0.012 to 0.06m/day.

Groundwater was not encountered in the test pits which were taken to a maximum depth of 3.3m below existing ground surface and on this basis, we are of the opinion that soil salinity is not likely to be impacted by ground water during and after development.

The natural soil was generally assessed to be sodic to highly sodic particularly at lower depths of greater than 1.0m. The insitu soil was found to be dispersive.

Based on the results of the investigation, we are of the opinion that site is affected by saline soil requiring good soil and water management strategy to address soil salinity. For the proposed subdivision development the following suggested management strategies are recommended;

- Avoid exposure and disturbance of sodic soil by minimising cut and fill. In general excavation should be kept under 1.0m. Refer to Drawings No 4 and 5 for soil salinity maps.

- Excavation deeper than 1.0m should be avoided and if carried out, should be backfilled in the same order. Alternatively this material may be treated by using lime and/or used in fill at depths more than 1m from finished level.

- Building platform in cut areas greater than 1m should be monitored for salinity by soil sampling and laboratory testing.

- Appropriate batter slopes for excavations should be adopted to prevent erosion and scouring. Under good drainage conditions, the following batter slopes or less may be adopted;

Material	Recommended Minimum Batter Slopes
Compacted Fill	2.5 Horizontal : 1 Vertical
Very stiff residual clay	2 Horizontal : 1 Vertical
Weathered Shale/Siltstone	0.5 Horizontal : 1 Vertical

- The site roadworks should be planned to reduce cutting and filling to the absolute minimum and the earthworks undertaken in stages to alleviate erosion and localised instability problem. To minimise the effects of erosion, all road batters, whether in cut or fill should be stabilised by planting (or the application of a sprayed-on mulch) with appropriate species of vegetation as soon as practical after construction.

- Special considerations must be given to the design, bedding of pipework for stormwater and other services, as the soils within these areas are generally 'erodible' or 'dispersive'. It is recommended rubber-ring jointed pipes be used. Special types of 'pipe-bedding' (eg clean coarse sand) may also be required.

- The insitu soil was found to be sodic and dispersive, therefore unstable in the presence of water resulting in tunnelling. Construction of infrastructures should include adequate compaction of service trenches and construction of cut-off walls to prevent migration of fines and prevent breakdown of soil structures.

- Prevention of soil erosion, tunnelling and salt scalds may be treated by using gypsum or lime.

- The subsurface soil was generally found to have relatively low Sulphate however in an environment with the lowest pH value of 4.6, the soil is considered to be Mildly aggressive to buried concrete structures. The subsurface soil was found to have a low resistivity of 810 ohm/cm in some parts, therefore the soil is considered to be Moderately aggressive to buried steel structure. Reference should be made to the AS 2159 guidelines and the Western Sydney Regional Organisation of Councils (WSROC) recommendations on protection of buried concrete and steel structures.

11.3 Geotechnical Issues

Earthworks

It is anticipated that earthworks by cut and fill will be required for the proposed development. The investigation revealed the site to be underlain by natural plastic clay overlying shale at depths varying from 0.7m to greater than 3.30m below existing ground surface. In general, the natural clay was assessed to be very stiff with moisture content approximately equal to the plastic limit. In TP 7, 11, 12, 13, 51, 52, 70, 77, 93, 103, 110, 116, 117, 127, 128, 147, 154, 155, 163, 172, 174, 180, 183, 197, 230, 231, 232, 233, 259, 261, 262, 286, 295, 297, 299, 302 and 303, the upper natural clay was found to be relatively weak (ie firm to stiff) and wet (ie moisture content greater than the plastic limit0.

Typical bulk earthworks will involve the following;

- Site clearing to remove vegetation and grass from the surface. The topsoil should be stripped to allow drying of the upper clayey profiles. The topsoil should be stockpiled separately and may be reused in landscaping at a later stage or removed off site. The test pits indicated the topsoil to be relatively thick at some locations up to 0.5m.

- Excavation of all insitu fill and removal of rubbish fill to expose the natural clay. All rubbish fill should be excavated and disposed to a landfill. To reduce cost of landfill disposal, some screening of the fill to remove building material may be carried if the proportion of building material is small.

- The exposed natural natural clay should be proof rolled using a minimum 8 tonne vibrating roller to identify any soft or heaving areas. Any soft or heaving areas observed during proof rolling should be excavated and recompacted to a minimum 95% Standard Maximum Dry Density (SMDD) at ±2% Optimum Moisture Content (OMC) for residential and 98% SMDD at ±2% OMC for commercial/industrial sites.

- If filling is required to elevate site to design level, all structural fill should be controlled and compacted in layers not exceeding 250mm thickness compacted to the above specified compaction level. The underlying natural Silty Clay and shale may be reused on site. Any imported fill to be used as structural 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.

Retaining Wall and Slope Batters

Cut and fill in excess of 1.0m should be adequately retained by a structurally engineered wall. If retaining walls are adopted, rigid or 'propped' walls (eg supported by floor slab) should be designed using an "at-rest" lateral earth pressure coefficient (K_o) and based on a rectangular stress block. Gravity or 'cantilever' walls should be designed using an "Active" lateral earth pressure coefficient (K_a) based on a triangular stress block. The following lateral earth pressure coefficients may be adopted;

Material	**K_o**	**K_a**	**Bulk Density (kN/m^3)**
Loose Fill	0.55	0.36	18.5
Very stiff natural clay/Compacted Fill	0.5	0.33	19.0
Weathered Shale/Sandstone	0.25	0.1	22.0

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.

Retaining walls may not be required if the excavation and filling is battered to the following;

Material	Temporary Batter	Permanent Batter
Loose Fill	1 Vertical : 1.5 Horizontal	1 Vertical : 3 Horizontal
Very stiff natural clay/Compacted Fill	1 Vertical : 1 Horizontal	1 Vertical : 2 Horizontal
Weathered Shale/Sandstone	Near Vertical	1 Vertical : 0.5 Horizontal

Foundation Design

Shallow footings consisting of stiffened raft slabs, waffle slabs or strip and pad footings may be adopted for future residential buildings or light weight structures subject to site preparation and earthworks as described above.

Deep footings such as bored piles, grout injected piles or steel piles should be adopted if the site contains "Uncontrolled" fill or other incompetent foundation material (eg soft and wet alluvial soil) and minimal earthworks are undertaken to improve the foundation.

For preliminary footing design, the following allowable bearing capacities may be adopted;

Foundation Material	Allowable Bearing Capacities
Controlled Fill (95% Standard)	100kPa
Controlled Fill (98% Standard)	150kPa
Natural Very Stiff Clay or better	150kPa
Weathered Shale	600kPa

There is limited site information to classify the site to AS 2870 "Residential Slabs and Footings". Preliminary site classification assessment may be based on the following criteria;

Site Classification	**Site Conditions**
'S' (Slight)	➢ Topsoil or uncontrolled fill less than 400mm thick ➢ Stable 'Controlled' fill compacted to a minimum 95% Standard ➢ Natural clay to be of very stiff or better consistency ➢ Bedrock profiles less than 0.6m deep ➢ Surface movements from reactive clay less than 20mm
'M' (Moderate)	➢ Topsoil or uncontrolled fill less than 400mm thick ➢ Stable 'Controlled" fill compacted to a minimum 95% Standard ➢ Natural clay to be of very stiff or better consistency ➢ Bedrock profiles less than 1.5m deep ➢ Surface movements from reactive clay between 20mm to 40mm
'H1 and H2' (High)	➢ Topsoil or uncontrolled fill less than 400mm thick ➢ Stable 'Controlled' fill compacted to a minimum 95% Standard ➢ Natural clay to be of very stiff or better consistency ➢ Bedrock profiles greater than 1.5m deep ➢ Surface movements from reactive clay between 40mm to 70mm
'P' (Problem)	➢ Topsoil or 'Uncontrolled' fill greater than 400mm thick ➢ Soft and wet natural clay ➢ Steep site with slope gradients greater than 12 degrees.

Additional site specific investigations should be carried out to determine more accurately the site classification of individual blocks once the final design levels of the site are established.

12. LIMITATIONS

The findings contained in this report are the results of discreet/specific sampling methodologies used in accordance with normal practices and standards. There is no investigation which is thorough enough to preclude the presence of material which presently, or in future, may be considered hazardous to the site. The site may subject of dumping of rubbish fill in the past and the scope of this report do not cover for future dumping and burial of such material on the subject site.

As regulatory evaluation criteria are constantly updated, concentrations of contaminants presently considered low, may in the future fall short of regulatory standards that require further investigation/redemption.

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 groundworks 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" in conjunction with which this report must be read, as it details important limitations regarding the investigation undertaken and this report.

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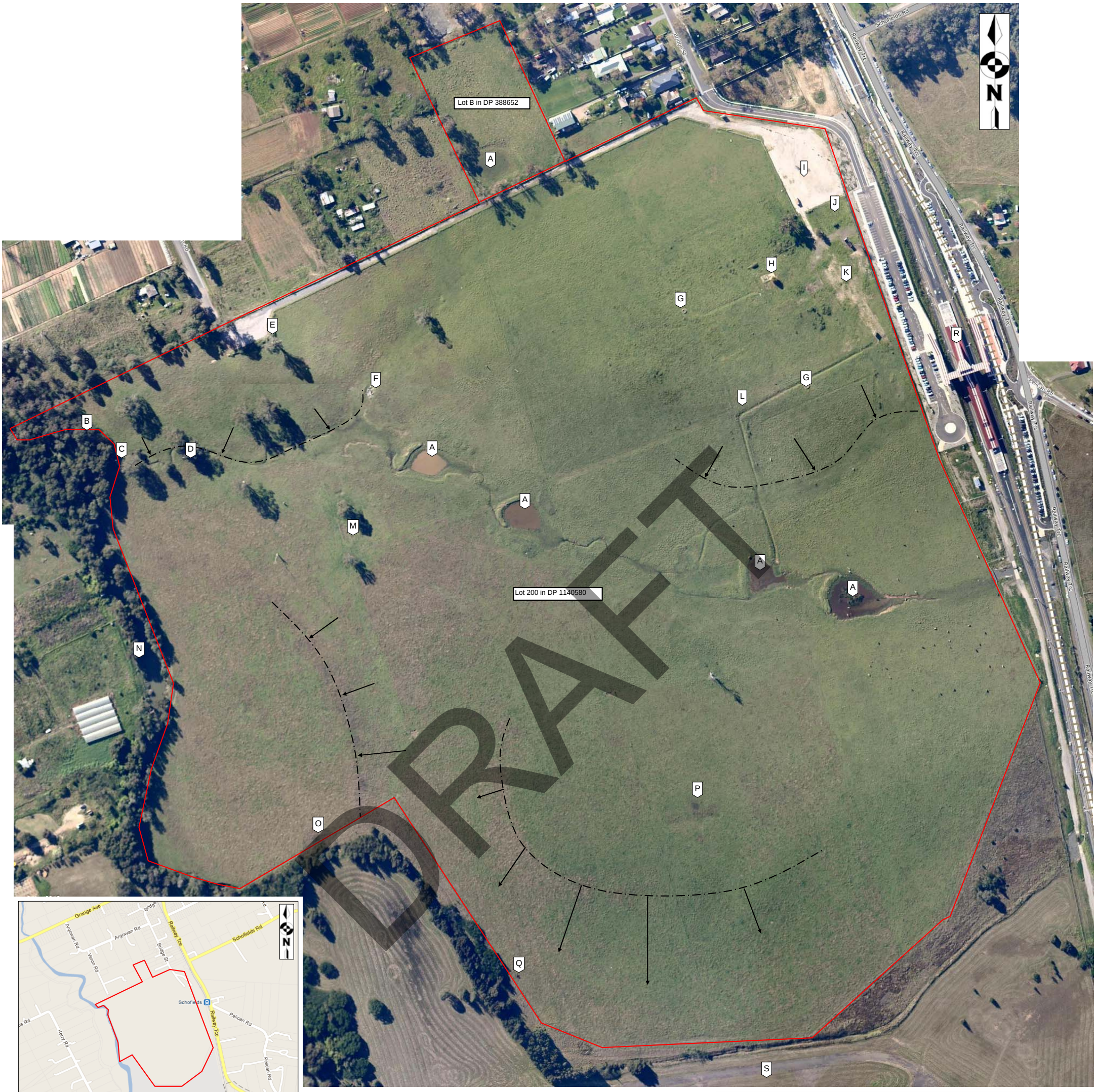
REFERENCES

1. *Department of Land and Water Conservation – "Site Investigation for Urban Salinity".2002*
2. *1:100,000 Geological Map of Penrith – Geological Series Sheet 9029-9129 (Edition 1) 1985*
3. *1:100,000 Soil Landscape Map of Penrith – Soil Conservation Service of NSW ; Sheet 9029-9129*
4. *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.*
5. *Assessment of Orchard and Market Garden Contamination - Contaminated Sites Discussion Paper, NSW EPA 1995.*
6. *Health Based Soil Investigation Levels, National Environmental Health Forum Monographs Soil series No. 1 – 1996*
7. *Assessment of Site Contamination- Measure 1999 – National Environment Protection*
8. *Guidelines for Assessment Service Station Sites – NSW EPA 1994*
9. *Guidelines for the NSW Auditor Scheme(2nd Edition) , NSW DEC 2004*
10. *Part 1 – Classifying Waste – NSW DECCW 2008*
11. *Salinity Code of Practice – Western Sydney Regional Organisation of Councils Ltd – 2002*
12. *What do all the numbers mean? A guide for the interpretation of soil test results. – Department of Conservation and Land Management, 1992*
13. *Australian Standard, AS 2159-2009 "Piling – Design and Installation", 2009*



Site Feature	Description
A	Dams
B	Metal pump house
C	Rubbish - Car pars, rusty wire, fabric
D	Farming equipment
E	Earthen Stockpile
F	Rubbish - Metal items
G	Concrete watering troughs
H	Concrete Slab
I	Gravel area with geo-grid stabilised base
J	Small soil stockpile
K	Old building footprint - scattered building debris present
L	Trench
M	Old garden bed - overgrown
N	Eastern Creek
O	Wet/boggy area
P	Ponding water
Q	Rusty car
R	Schofields railway station
S	RAAF aerodrome

Legend

Site Feature A

Slope in direction of Arrow

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	Checked By: SL	**Date: 26/09/2012**
	Revision By:	**Date:**
	Scale: NTS A3	**Project No: JC12125A-r1** / **Drawing No: 1**

Villawood Properties Pty Ltd

Lot 200 DP 1140580 & Lot B DP388652, Bridge Street, Schofields

Site Locality and Site Features Plan

Legend

Test Pit Location TP 1

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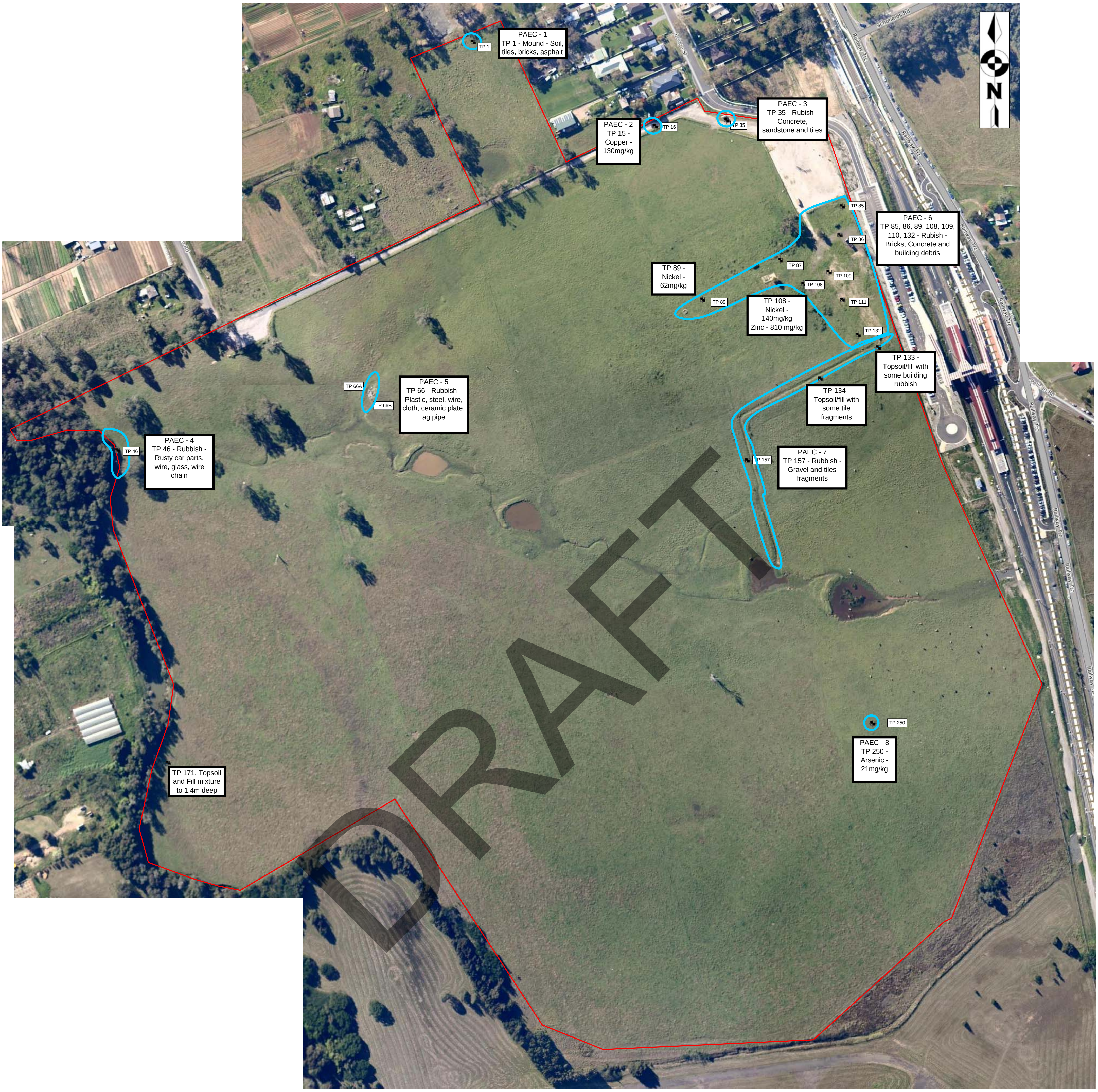
Drawn By: SG	**Date: 26/09/2012**	Villawood Properties Pty Ltd
Checked By: SL	**Date: 26/09/2012**	Lot 200 DP 1140580 & Lot B DP388652, Bridge Street, Schofields
Revision By:	**Date:**	Test Pit Location Plan
Scale: NTS	**A3**	**Project No: JC12125A-r1** / **Drawing No: 2**



Legend

Potential Area of Environmental Concern (PAEC)

Note: The extent of areas are only indicative

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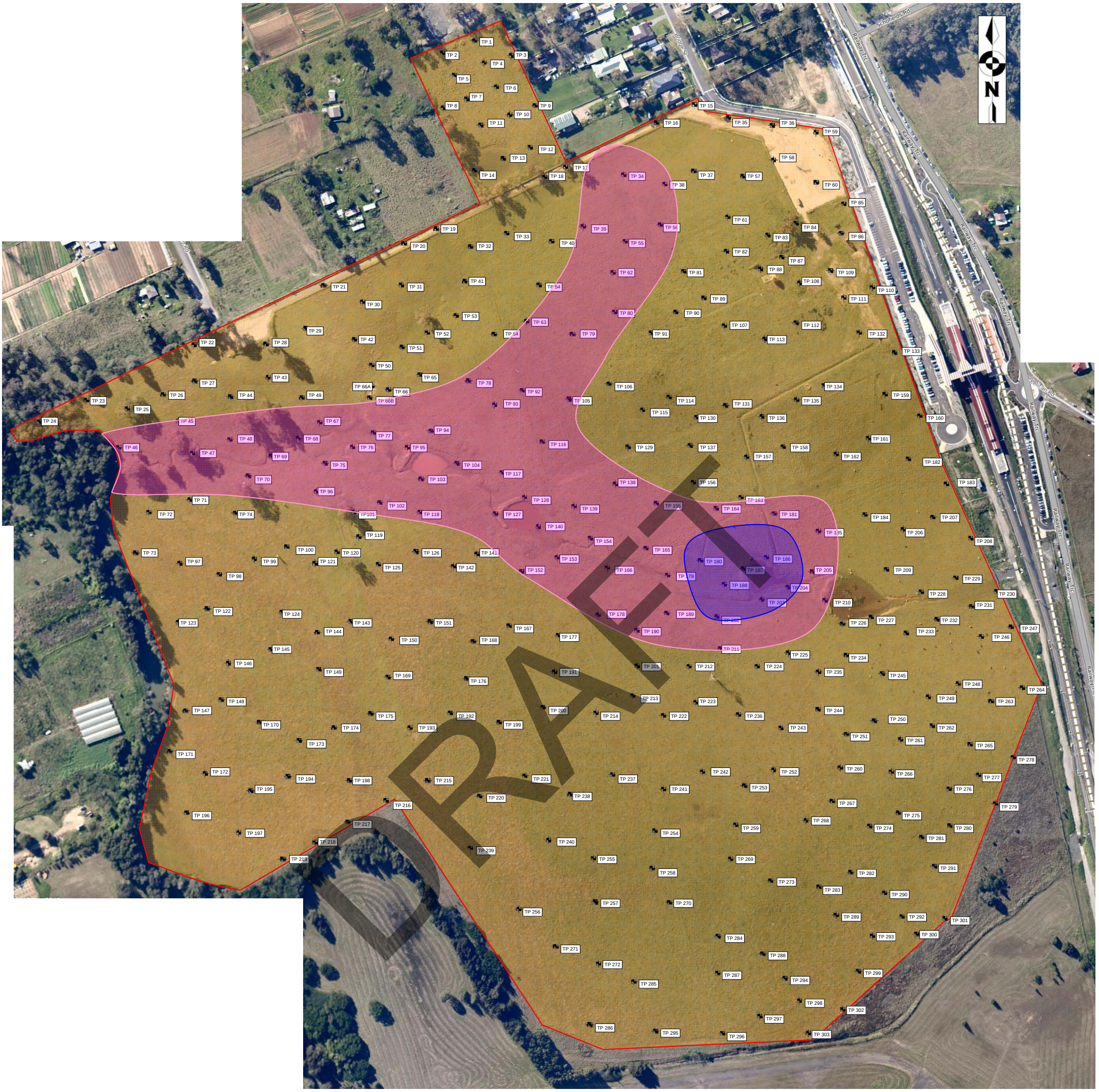
Checked By: SL	**Date: 26/09/2012**	Lot 200 DP 1140580 & Lot B DP388652, Bridge Street, Schofields
Revision By:	**Date:**	Potential Areas of Environmental Concern
Scale: NTS A3	**Project No: JC12125A-r1**	**Drawing No: 3**



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Test Pit Location TP 1

Non-Slightly Saline

Moderately Saline

Highly Saline

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Checked By: SL	**Date: 26/09/2012**
Revision By:	**Date:**
Scale: NTS	**A3**

Villawood Properties Pty Ltd

Lot 200 DP 1140580 & Lot B DP388652, Bridge Street, Schofields

Salinity Potential Plan - At depth 0.0-1.0m

Project No: JC12125A-r1 | **Drawing No: 4**

Legend

Test Pit Location TP 1

Non-Slightly Saline

Moderately Saline

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	Checked By: SL	**Date: 26/09/2012**	Lot 200 DP 1140580 & Lot B DP388652, Bridge Street, Schofields
	Revision By:	**Date:**	Salinity Potential Plan - At depth greater than 1.0m
	Scale: NTS	**A3**	**Project No: JC12125A-r1** — **Drawing No: 5**

Test Pit Number	Depth (m)	Profile Type	Description
1	0.00 - 1.00	Mound	Silty Clay/Clayey Silt: Low liquid limit, dark brown, with gravels, ironstones, pieces of tiles, bricks and AC bitumen.
	1.00 - 1.20	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
2	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels, moist
	0.25 - 0.75	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
	0.75 - 1.30	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with fine to coarse grained ironstone gravels and cobbles, moist (MC=PL)
	1.30 - 1.40	Rock	Siltstone/Shale: Red/Brown, low to medium strength, distinctly weathered
3	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels, moist
	0.25 - 0.65	Natural	(CH) Gravelly Silty Clay: High plasticity, brown, with fine to coarse grained ironstones and gravels, moist (MC=PL)
4	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown with a trace of gravel, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
5	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with gravels, moist to wet (MC≥PL)
6	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown with a trace of gravel, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
	0.50 - 1.00	Natural	(CH) Silty Clay: High plasticity, grey with root fibres, moist (MC=PL)
	1.00 - 1.40	Rock	Siltstone/Shale: Brown/Dark Grey, low to medium strength, distinctly weathered
7	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels, wet
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist to wet (MC=PL)
8	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
9	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
10	0.00 - 0.30	Topsoil	Clayey Silt. low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel, moist (MC=PL)
11	0.00 - 0.30	Topsoil	Clayey Silt. low liquid limit, dark brown, with gravels, moist
	0.30 - 0.55	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel, moist to wet (MC≥PL)

Note:

PP = Pocket Penetrometer

MC = Moisture Content

PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Test Pit Number	Depth (m)	Profile Type	Description
12	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels and roots, wet
	0.30 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel, wet (MC>PL)
	0.45 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel, moist (MC=PL)
13	0.00 - 0.35	Fill (Dam)	Silty Clay: High plasticity, brown mottled dark brown, with shale and ironstone gravels, wet (MC>PL)
	0.35 - 0.50	Natural	(CH) Gravelly Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
	0.50 - 0.70	Natural	(CH) Gravelly Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)
	0.70 - 1.30	Rock	Siltstone/Shale: Dark grey/Grey, with clay bands, very low to low strength, extremely weathered
	1.30 - 1.60	Rock	Shale: Grey, with clay bands and ironstone bands, low to medium strength, extremely to distinctly weathered
14	0.00 - 1.00	Fill mound	Silty Clay: High plasticity, brown mottled grey with a trace of ironstone gravel.
	1.00 - 1.20	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels and roots, moist
	1.20 - 1.40	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels and roots, moist (MC=PL)
	1.40 - 1.60	Natural	(CH) Silty Clay: High plasticity, grey, with ironstone gravels, moist (MC=PL)
15	0.00 - 0.60	Topsoil mound	Clayey Silt: Low liquid limit, dark brown, moist
	0.60 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 300 to 350kPa)
16	0.00 - 0.30	Road	Sandy Gravel: Fine to coarse grained, with geogrid (Appeared stabalized)
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, dry to moist (MC≤PL), hard (PP > 450kPa)
17	0.00 - 0.25	Road	Sandy Gravel: Fine to coarse grained, with cobbles (Appeared stabalized)
	0.25 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 250kPa)
18	0.00 - 0.15	Road	Sandy Gravel: Fine to coarse grained, with geogrid (Appeared stabalized)
	0.15 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
19	0.00 - 0.20	Road	Sandy Gravel: Fine to coarse grained, with geogrid and geofabric (Appeared stabalized)
	0.20 - 0.40	Topsoil	Clayey Silt: Low liquid limit, dark brown with gravels and roots, moist
	0.40 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), stiff (PP = 150 to 200kPa)
	1.00 - 1.60	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with gravels
	1.60 - 2.30	Natural	(CI) Silty Clay: Medium plasticity, grey, with shale/ironstone bands, moist (MC=PL), very stiff (PP=250kPa)
	2.30 - 2.60	Rock	Shale: Brown/Grey, low to medium strength, distinctly weathered
20	0.00 - 0.25	Road	Sandy Gravel: Fine to coarse grained, with geogrid (Appeared stabalized)
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown mottle dgrey, moist (MC=PL), hard (PP> 450kPa)

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
21	0.00 - 0.25	Road	Sandy Gravel: Fine to coarse grained, with geogrid (Appeared stabalized)
	0.25 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown mottle dgrey, moist (MC=PL), hard (PP> 450kPa)
	0.80 - 1.30	Natural	(CI-CH) Silty Clay: High plasticity, grey, with ironstone gravels, moist (MC=PL), very stiff (PP= 380kPa)
	1.30 - 1.50	Rock	Shale: Red brown/Grey, low strength, distinctly weathered
22	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.30	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
23	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 1.10	Natural	(CI) Silty Clay: Medium plasticity, brown, with decayed root and a trace of gravel, moist (MC=PL)
	1.10 - 1.80	Natural	(CL) Silty Clay: Low plasticity, brown, with ironstone gravels, moist (MC=PL)
	1.80 - 2.30	Natural	(CL) Silty Clay: Low plasticity, brown, with ironstone bands, moist (MC=PL)
	2.30 - 2.80	Natural	(CL) Silty Clay: Low plasticity, grey mottled brown, with ironstone bands, moist (MC=PL)
24	0.00 - 0.25	Topsoil/Fill	Clayey Silt: Low liquid limit, dark brown, moist
25	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.15 - 0.40	Natural	(CI- CH) Silty Clay: Medium to high plasticity, brown, moist (MC=PL)
26	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.15 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 350kPa)
27	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
28	0.00 - 0.60	Mound	Silty Clay: High plasticity, dark brown, dry (MC<PL)
	0.60 - 0.80	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry
	0.80 - 1.10	Natural	(CH) Silty Clay: High plasticity, brown, dry to moist (MC≤PL)
29	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP=250kPa)
30	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP=300 to 350kPa)
31	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
32	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, wet (MC>PL), very stiff (PP=300 to 350kPa)
	0.45 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
33	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels and roots, wet
	0.40 - 0.65	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
34	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.30 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 350kPa)
	0.90 - 1.50	Natural	(CI) Silty Clay: Medium plasticity, mottled brown and grey with gravels. (SEEPAGE at 1.50m)
	1.50 - 2.00	Natural	(CL) Gravelly Silty Clay: Low plasticity, grey mottled brown, dry to moist (MC≤PL)
	2.00 - 2.40	Natural	Interbedded Silty Clay and Siltstone/Shale bands (SEEPAGE at 2.40m)
	2.40 - 2.70	Rock	Shale: Dark grey/Red brown, very low strength, extremely weathered
	2.70 - 2.90	Rock	Shale: Dark grey/Red brown, low to medium strength, distinctly weathered
35	0.00 - 0.60	Fill	Gravelly Sandy Silt: Low liquid limit, dark brown, with tile, conrete and sandstone pieces, moist to wet
	0.60 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	0.90 - 1.20	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
35A	0.00 - 0.40	Fill	Mix Topsoil and Sandy Gravel (Road Base)
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
36	0.00 - 0.25	Road	Sandy Gravel: Fine to coarse grained, with geogrid (Appeared stabilized), A piece of fibre board
	0.25 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 250kPa)
	0.70 - 1.50	Natural	(CI-CH) Silty Clay: High plasiticity, grey, moist (MC=PL), very stiff (PP= 250kPa)
	1.50 - 1.70	Rock	Shale: Dark Grey/ Brown, low to medium strength, distinctly weathered
37	0.00 - 0.10	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.10 - 0.30	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 350 to 400kPa)
38	0.00 - 0.10	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.10 - 0.30	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
39	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.15 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
40	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.15 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 350 to 400kPa)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
41	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, with roots and root fibres, moist (MC=PL)
42	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown,moist (MC=PL)
43	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.40 - 1.30	Natural	(CH) Silty Clay: High plasticity, brown,moist (MC=PL), very stiff (PP = 350kPa)
	1.30 - 2.20	Natural	(CI) Shaley Clay: Medium plasticity, grey mottled brown, dry to moist (MC≤PL)
	2.20 - 2.60	Natural	(CL) Silty Clay: Low plasticity, brown, with gravels, dry to moist (MC≤PL)
	2.60 - 2.80	Natural	Interbedded Clay and Shale/Sandstone/Siltstone bands
	2.80 -3.10	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL), very stiff (PP= 350 to 380kPa)
44	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.15 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown,moist (MC=PL)
45	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.20 - 0.90	Natural	(CI) Silty Clay: Medium plasticity, brown,with gravels, moist (MC=PL)
	0.90 - 1.80	Natural	(CI) Silty Clay: Medium plasticity, mottled brown and grey, moist (MC = PL)
	1.80 - 2.20	Natural	(CI) Gravelly Silty Clay: Medium plasticity, brown, moist to wet (MC≥PL)
	2.20 - 2.60	Natural	(CL) Shaley Clay: Low plasticity, brown mottled grey, with ironstone gravels, moist (MC=PL)
	2.60 - 2.90	Natural	(CI-CH) Silty Clay: Medium to high plasticity, brown mottled grey, moist (MC=PL), very stiff to hard (PP= 300 to 400kPa)
46	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 1.40	Fill	Silty Clay: High plasticity, dark brown, with roots and sandstone pieces (300mm), moist to wet (MC ≥PL)
	1.40 - 1.90	Natural	(CI) Silty Clay: Medium plasticity, grey mottled brown, with gravels
46A	0.00 - 1.30	Fill	Silty Clay: High plasticity, brown, with car tyre, metal chain, metal sheet, glass bottle, brick, glass, tile pieces and a piece of fibre board
	1.30 - 1.50	Natural	(CI) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
47	0.00 - 0.45	Topsoil/Fill	Silty Clay/Clayey Silt: Low liquid limit, brown / dark brown, moist (MC=PL)
	0.45 - 0.70	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.70 - 1.00	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist (MC=PL)
48	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

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GeoEnviro Consultancy

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Test Pit Number	Depth (m)	Profile Type	Description
49	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 1.10	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), stiff (PP = 200kPa)
	1.10 - 1.60	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL), stiff (PP = 150kPa)
	1.60 - 2.60	Natural	(CI) Silty Clay: Medium plasticity, mottled grey and brown, moist to wet (MC ≥PL), firm (PP = 50 to 100kPa)
	2.60 - 3.00	Natural	Shaley Clay: Medium to high plasticity, grey mottled brown, with ironstone gravels
50	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), stiff (PP = 200kPa)
51	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL), stiff (PP = 100kPa)
52	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL), stiff (PP = 100kPa)
53	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, dry
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), stiff to very stiff(PP = 200, 250, 270kPa)
54	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, dry
	0.20 - 0.50	Natural	(CI-CH) Silty Clay: Medium to high plasticity, brown, moist (MC=PL), stiff to very stiff(PP = 200kPa)
55	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: Medium to high plasticity, brown, moist (MC=PL),hard (PP =400 to >450kPa)
56	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: Medium to high plasticity, brown, moist (MC=PL),hard (PP > 450kPa)
57	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.15 - 0.30	Natural	(CH) Silty Clay: Medium to high plasticity, brown
58	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: Medium to high plasticity, brown
	0.70 - 1.20	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)
59	0.00 - 0.20	Road	Sandy Gravel: Fine to coarse grained, with geogrid (Appeared stabalized)
	0.20 - 0.35	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
60	0.00 - 0.10	Road	Sandy Gravel: Fine to coarse grained, with geogrid (Appeared stabalized)
	0.10 - 0.30	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Test Pit Number	Depth (m)	Profile Type	Description
61	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	0.70 - 1.40	Natural	(CI- CH) Silty Clay: Medium to high plasticity, mottled grey and brown, moist (MC=PL)
	1.40 - 2.40	Natural	Interbedded layer Clayey Shale and Silty Clay: Medium plasticity, grey mottled brown
	2.40 - 2.80	Rock	Shale: Brown/Dark grey, low to medium strength, distinctly weathered
62	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 250 to 300kPa)
	0.70 - 1.20	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)300kPa)
	1.20 - 1.50	Natural	(CH) Silty Clay: High plasticity, grey, with ironstone gravels, moist (MC=PL)300kPa)
	1.50 - 1.70	Rock	Siltstone/Shale: Brown/Grey, low strength, distinctly weathered.
63	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.15 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, with roots and root fibres, moist (MC=PL).
64	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.30 - 0.60	Natural	(CI) Silty Clay: Medium plasticity, brown, moist (MC=PL), very stiff (PP= 250 to 300kPa).
65	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.35 - 0.50	Natural	(CI) Silty Clay: Medium plasticity, brown, moist (MC=PL)
66	0.00 - 0.50	Mound	Silty Clay: High plasticity, brown, with roots, moist (MC=PL)
	0.50 - 1.50	Fill	Clayey Silt/Silty Clay: High plasticity, with roots, glass, steel wire, bricks, metal sheets, cloth, ceramic plate, and hose, wet (MC>PL), a piece of fibre board
	1.50 - 1.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
66A	0.00 - 0.30	Buried Fill	Clayey Silt/Silty Clay: High plasticity, with roots, glass, plastic, steel, wire, metal sheets, cloth, ceramic pieces, ag pipe and hose, wet (MC>PL)
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
66B	0.00 - 0.30	Buried Fill	Clayey Silt/Silty Clay: High plasticity, with roots, glass fragements, plastic pieces, stee, bricks, metal sheets, cloth, ceramic plate, ag pipe and hose, wet (MC>PL)
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
67	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
68	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
69	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: high plasticity, brown, moist (MC=PL)

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
70	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, wet (MC>PL)
71	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, dry to moist
	0.20 - 1.20	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
72	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, dry to moist
	0.20 - 1.20	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff to hard (PP = 350 to 400kPa)
	1.20 - 1.90	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, moist to wet (MC≥PL), firm to stiff (PP = 100 to 150kPa)
	1.90 - 2.50	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, with ironstone gravels, wet (MC>PL), firm (PP = 50kPa)
	2.50 - 2.70	Natural	Gravelly Silty Clay: Medium to high plasticity, dark brown mottle red brown, with ironstone gravels, wet (MC>PL)
	2.70 - 3.00	Natural	(CI-CH) Silty Clay: Medium to high plasticity, grey mottled brown, moist (MC=PL)
73	0.00 - 0.25	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown, moist (MC=PL)
	0.25 - 0.80	Fill	Silty Clay: High plasticity, brown, moist (MC=PL)
	0.80 - 2.00	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
	2.00 - 2.70	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, with ironstone gravels, moist (MC=PL)
	2.70 - 3.20	Natural	Gravelly Silty Clay: High plasticity, brown, moist (MC = PL)
74	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.15 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
75	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist to wet
	0.20 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
76	0.00 - 0.10	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.10 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
77	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, wet
	0.35 - 1.30	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist to wet (MC≥PL)
	1.30 - 2.00	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, wet (MC>PL). SEEPAGE at 1.20m
	2.00 - 2.70	Natural	(CH) Shaley Clay: High plasticity, grey mottled brown, moist (MC=PL)
	2.70 - 3.00	Natural	(CH) Shaley Clay: High plasticity, grey mottled brown, with gravels, moist (MC=PL)
78	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 250kPa)

Note:

PP = Pocket Penetrometer

MC = Moisture Content

PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
79	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 350kPa)
	0.90 - 1.50	Natural	(CI) Silty Clay: Medium plasticity, grey mottled brown, moist (MC=PL), very stiff (PP = 200 to 350kPa)
	1.50 - 1.90	Natural	Gravelly Silty Clay: Medium plasticity, grey mottled brown, with shale bands, moist (MC=PL)
	1.90 - 2.20	Rock	Shale: Brown/Grey, low to medium strength, distinctly weathered
80	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
81	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.40 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
82	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
83	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.15 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
84	0.00 - 0.10	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, dry
	0.10 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
85	0.00 - 0.70	Fill Mound	Silty Clay: High plasticity, brown, moist (MC=PL)
	0.70 - 1.00	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	1.00 - 1.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	1.40 - 2.00	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with shale and ironstone gravels, moist (MC=PL)
	2.00 - 3.30	Natural	Interbedded layer of Silty Clay and Shale: Low plasticity, mottled brown and grey, dry to moist (MC ≤PL)
86	0.00 - 0.25	Road	Sandy Gravel: Fine to medium graied, with metal sheet
	0.25 - 0.35	Asphalt	Bituminous material
	0.35 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
87	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist (MC=PL)
88	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.15 - 0.30	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	0.30 - 0.45	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)

Note:

PP = Pocket Penetrometer

MC = Moisture Content
PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
89	0.00 - 0.20	Topsoil/Fill	Clayey Silt: Low liquid limit, brown, with brick pieces, sandstone pieces, roots, shale gravels, silstone gravels, dry to moist
	0.20 - 0.40	Natural	(Cl) Silty Clay: Medium plasticity, brown, moist to wet (MC≥PL)
90	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.50	Natural	(Cl) Silty Clay: Medium plasticity, brown, moist (MC=PL), very stiff (PP = 350kPa)
91	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
92	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.60	Natural	(Cl) Silty Clay: Medium plasticity, brown, moist (MC=PL)
93	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.60	Natural	(Cl-CH) Silty Clay: Medium to high plasticity, brown, moist to wet (MC≥PL), very stiff (PP = 150kPa)
	0.60 - 1.30	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)
	1.30 - 2.00	Natural	(Cl) Silty Clay: Medium plasticity, grey, with ironstone gravels, moist (MC=PL)
	2.00 - 2.20	Rock	Shale: Dark brown/Dark grey, low to medium strength, distinctly weathered
94	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.65	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 350kPa)
95	0.00 - 0.10	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.10 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
96	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, with ironstone gravels, moist (MC=PL)
	1.00 - 1.70	Natural	(CH) Silty Clay: High plasticity, grey, with with fine to coarse grained ironstone gravels and cobbles, moist (MC=PL)
	1.70 - 2.80	Natural	Interbedded layer of Silty Clay with Shale/Siltstone: Low plasticity, mottled brown and grey, dry to moist (MC ≤PL)
97	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
98	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
99	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.30 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
100	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.30 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
101	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.35 - 0.50	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist (MC=PL)
102	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.35 - 0.50	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist to wet (MC≥PL)
103	0.00 - 0.30	Topsoil/Fill	Silty Clay/Clayey Silt: Low liquid limit, brown, moist to wet
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
104	0.00 - 0.45	Fill	Silty Clay: High plasticity, dark brown, moist (MC=PL)
	0.45 - 0.70	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.70 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
105	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.55	Natural	(CI) Silty Clay: Medium plasticity, brown, moist (MC=PL)
106	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist (MC=PL)
107	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist (MC=PL), hard (PP= 400kPa)
	0.60 - 1.20	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with a trace of shale and ironstone gravel, moist (MC=PL)
	1.20 - 1.50	Rock	Shale: Grey/Brown, low to medium strength, distinctly weathered
108	0.00 - 0.30	Topsoil/Fill	Silty Clay/Clayey Silt: Low liquid limit, brown, with sand & tiles & Shale gravels, moist to wet
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
109	0.00 - 0.10	Topsoil/Fill	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.10 - 0.40	Fill	Gravelly Sand: Fine to medium grained, with shale pieces and iron bar
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
110	0.00 - 0.30	Fill	Gravelly Clayey Sand: Fine to medium grained, with concrete and brick pieces and wood, moist
	0.30 - 0.50	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.50 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
	1.00 - 1.50	Natural	(CI-CH) Silty Clay: Medium to high plasticity, grey mottled red brown, with a trace of ironstone gravels, moist (MC=PL)
	1.50 - 1.70	Natural	Shale: Brown/Red, low to medium strength, distinctly weathered

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
111	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
111A	0.00 - 0.50	Fill Mound	Clayey Silt: Low liquid limit, brown, with gravels and tile & brick pieces, moist
	0.50 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
112	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.15 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 300kPa)
113	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 350kPa)
114	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 300 to 350kPa)
115	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.50	Natural	(CI-CH) Silty Clay: Medium to high plasticity, brown, moist (MC=PL), stiff to very stiff (PP = 200 to 250kPa)
116	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 250kPa)
	0.40 - 0.65	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL), stiff (PP = 200kPa)
117	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
118	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff to hard (PP = 350 to 400kPa)
119	0.00 - 0.25	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown, moist (MC=PL)
	0.25 - 0.40	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
120	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
121	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

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MC = Moisture Content
PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
122	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
123	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 1.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff to hard (PP = 350 to 400kPa)
	1.80 - 2.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	2.70 - 3.10	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
124	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
125	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.25 - 0.65	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), with ironstone gravels, very stiff (PP = 300kPa)
	0.65 - 1.40	Natural	(CH) Silty Clay: High plasticity, grey, moist (MC=PL), with ironstone gravels, very stiff (PP = 350kPa)
	1.40 - 2.20	Natural	(CH) Shaley Clay: High plasticity, grey, moist (MC=PL), with ironstone bands, very stiff (PP = 350kPa)
	2.20 - 2.80	Natural	(CH) Shaley Clay: High plasticity, grey, moist (MC=PL), with with a trace of ironstone gravel and root fibre
126	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
127	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.15 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
128	0.00 - 0.50	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.50 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL), stiff (PP= 150kPa)
129	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20 - 0.50	Natural	(CI-CH) Silty Clay: Medium to high plasticity, brown, moist (MC=PL), stiff (PP = 200kPa)
130	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
	1.00 - 1.60	Natural	(CI) Silty Clay: Medium plasticity, grey mottled brown, moist (MC=PL)
	1.60 - 1.80	Natural	(CI) Silty Clay: Medium plasticity, grey mottled brown, with gravels, moist (MC=PL)
	1.80 - 2.00	Rock	Shale: Brown/Grey, low to medium strength, distinctly weathered
131	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.15 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 350kPa)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
132	0.00 - 0.10	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.10 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL), stiff to very stiff (PP = 200 to 250kPa)
132A	0.00 - 0.40	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown, with gravels and tile & brick pieces, moist (MC=PL)
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
133	0.00 - 0.30	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown, with gravels and tile pieces, moist (MC=PL)
	0.30 - 0.50	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.50 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
133A	0.00 - 0.60	Fill Mound	Mix Silty Clay/Clayey Silt: with gravels and bricks & tiles pieces
	0.60 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 300kPa)
134	0.00 - 0.25	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown, with gravels and tile pieces, moist (MC=PL)
	0.25 - 0.50	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.50 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
134A	0.00 - 0.45	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.45 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
135	0.00 - 0.20	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown, with gravels, moist to wet (MC≥PL)
	0.20 - 0.40	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.40 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 350kPa)
	0.90 - 1.30	Natural	(CI-CH) Silty Clay: Medium to high plasticity, grey mottled brown, moist (MC=PL), very stiff (PP = 300kPa)
	1.30 - 1.60	Natural	(CL-CI) Silty Clay: Low to medium plasticity, grey, with shale bands, dry (MC<PL)
	1.60 - 2.00	Rock	Shale: Grey/Brown, low to medium strength, distinctly weathered
136	0.00 - 0.15	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown mottled grey, moist to wet (MC≥PL)
	0.15 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, moist to wet
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
137	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
138	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 300 to 350kPa)
	0.90 - 1.60	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL), stiff to very stiff (PP = 200 to 250kPa)
	1.60 - 2.50	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL), very stiff (PP =350kPa)
	2.50 - 2.80	Rock	Shale: Dark Grey/Brown, low to medium strength, distinctly weathered

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
139	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), stiff to very stiff (PP= 200 to 300kPa)
140	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.55	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
141	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.55	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
142	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.55	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
143	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL), very stiff (PP= 300kPa)
	0.90 - 1.30	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL), with gravels, very stiff to hard (PP = 350 to >450kPa)
	1.30 - 1.70	Natural	(CH) Gravelly Clay: High plasticity, mottled dark brown and grey, moist (MC=PL),
	1.70 - 2.20	Natural	Shale/Siltstone: Dark Grey, with clay bands, low, extremely weathered
144	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
145	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
146	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.35 - 1.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	1.60 - 2.10	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL), with ironstone gravels
	2.10 - 2.80	Natural	(CH) Gravelly Silty Clay: Medium plasticity, grey mottled brown, with fine to medium grained ironstone cobbles, moist (MC=PL)
147	0.00 - 0.45	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.45 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
148	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0. 6	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
149	0.00 - 0.10	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.10 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of roots, moist (MC=PL)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
150	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
151	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, moist (MC=PL)
152	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
153	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
154	0.00 - 0.20	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), stiff to very stiff (PP = 200 to 250kPa)
	0.70 - 1.60	Natural	(CH) Silty Clay: High plasticity, brown, with gravels, wet (MC>PL), stiff to very stiff (PP = 200 to 250kPa). SEEPAGE at 0.80m and 1.40m
	1.60 - 2.40	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)
	2.40 - 2.60	Natural	(CL) Silty Clay: Low plasticity, grey, with gravels, moist (MC=PL)
	2.60 - 2.90	Rock	Siltstone/Shale: Very fine to fine grained, with sandstone laminites, grey/brown, low to medium strength, distinctly weathered
155	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL), stiff (PP = 150kPa)
156	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 300kPa)
157	0.00 - 0.20	Topsoil/Fill	Clayey Silt/Silty Clay: High plasticity, brown, with gravels and tiles pieces, moist to wet (MC≥PL)
	0.20 - 0.50	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.50 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
158	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
159	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
160	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.40 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL), hard (PP > 450kPa)
	0.90 - 1.30	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)
	1.30 - 1.50	Natural	Shale/Siltstone: Dark Grey/Brown, low strength, distinctly weathered

Note:

PP = Pocket Penetrometer

MC = Moisture Content

PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
161	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
162	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
163	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL), very stiff (PP = 250)
164	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
165	0.00 - 0.35	Topsoil	Gravelly Clayey Silt: Low liquid limit, brown, wet
	0.35 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist (MC=PL)
166	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist (MC=PL)
167	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, with fine to coarse grained ironstone gravels, moist (MC=PL)
168	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
169	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with a trace of gravel, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
170	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
171	0.00 - 0.30	Topsoil/Fill	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 1.40	Fill	Mix Topsoil and Silty Clay: High plasticity, dark brown, moist (MC=PL)
	1.40 - 2.60	Natural	(CH) Shaley Clay: High plasticity, dark brown mottled dark grey, with ironstone gravels, moist (MC=PL)
	2.60 - 3.00	Natural	(CH) Shaley Clay: High plasticity, grey mottled brown, moist (MC=PL)
172	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)

Note:

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MC = Moisture Content
PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
173	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.35 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of roots, moist (MC=PL)
174	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, dry to moist
	0.30 - 1.60	Natural	(CI-CH) Silty Clay: Medium to high plasticity, brown, with ironstone gravels, moist to wet (MC ≥PL). SEEPAGE at 1.00m
	1.60 - 2.60	Natural	(CI) Silty Clay: Medium plasticity, mottled grey and brown, with some ironstone gravels, moist to wet (MC ≥PL)
	2.60 - 2.80	Natural	Gravelly Shaley Clay: Medium plasticity, brown mottled grey, moist to wet (MC ≥PL)
175	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.35 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist to wet (MC ≥PL)
176	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel, moist (MC=PL)
	0.60 - 1.40	Natural	Shale/Clayey Shale: Dark grey, very low to low strength, extremely to distinctly weathered
	1.40 - 1.60	Natural	Shale: Dark grey, low to medium strength, distinctly weathered
177	0.00 - 0.20	Topsoil	Gravelly Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
178	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.30 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
	1.00 - 1.50	Natural	(CH) Shaley Clay: High plasticity, grey mottled red brown, with ironstones, moist (MC=PL)
	1.50 - 1.70	Natural	Gravelly Shaley Clay: Medium plasticity, grey mottled brown, moist (MC=PL)
	1.70 -	Rock	Ironstone/Siltstone/Shale: Brown/Red, medium strength, distinctly weathered
179	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
180	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, brown/grey, wet
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
181	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown, with gravels, moist (MC=PL)
	1.00 - 1.90	Natural	(CH) Shaley Clay: High plasticity, grey, with ironstone bands, moist (MC=PL)
	1.90 - 2.10	Rock	Siltstone/Shale: Grey/Red, low to medium strength, distinctly weathered
182	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, brown/grey, wet
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
183	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist to wet
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
184	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist (MC=PL)
185	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist (MC=PL)
186	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist to wet
	0.35 - 0.80	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist to wet(MC≥PL)
187	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
188	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 1.00	Natural	(CH) Silty Clay: High plasticity, brown, with gravels, moist (MC=PL)
	1.00 - 1.30	Natural	(CH) Shaley Clay: High plasticity, grey mottled brown, moist (MC=PL)
	1.30 - 1.60	Natural	(CH) Shaley Clay: High plasticity, grey, with ironstone gravels, moist (MC=PL)
	1.60 - 2.10	Natural	Gravelly Silty Clay: High plasticity, grey, moist (MC=PL)
	2.10 - 2.30	Rock	Siltstone/Shale: Dark grey/Grey, low to medium strength, distinctly weathered
189	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
190	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
191	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
192	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
193	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
194	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.35 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

PP = Pocket Penetrometer

MC = Moisture Content
PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
195	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, moist (MC=PL)
196	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.35 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
197	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 1.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), stiff (PP = 100 to 150kPa)
	1.70 - 2.30	Natural	(CH) Silty Clay: High plasticity, mottled grey and borwn, with ironstone gravels, moist (MC=PL), very stiff (PP = 300.kPa)
	2.30 - 2.70	Natural	Gravelly Silty Clay: High plasticity, brown, moist to wet (MC≥PL). SEEPAGE at 2.30m
198	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
199	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
200	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
201	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
202	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.35 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
203	0.00 - 0.60	Embankment	Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
	0.60 - 0.80	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.80 - 1.20	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
204	0.00 - 0.45	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.45 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
205	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, with a trace of gravel, moist
	0.35 - 0.55	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
206	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with a trace of gravel, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

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MC = Moisture Content
PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
207	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, with root fibres, moist (MC=PL)
	0.60 - 1.20	Natural	(CI-CH) Shaley Clay: Medium to high plasticity, grey mottled brown, with root fibresmoist (MC=PL)
	1.20 - 1.50	Rock	Siltstone/Shale: Dark grey/Grey, low to medium strength, distinctly weathered
208	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
	0.70 - 1.30	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with ironstones, moist (MC=PL)
	1.30 - 1.60	Rock	Siltstone/Shale: Dark Grey, low strength, distinctly weathered
	1.60 - 1.70	Rock	Siltstone/Shale: Dark Grey, low to medium strength, distinctly weathered
209	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.25 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
210	0.00 - 1.20	Embankment	Silty Clay: High plasticity, brown, with fine to coarse grained gravels and root fibres, moist (MC=PL)
	1.20 - 1.80	Fill	Silty Clay: High plasticity, brown mottled grey, moist to wet (MC≥PL)
	1.80 - 2.20	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel and root fibres, moist (MC=PL)
	2.20 - 3.00	Natural	(CI) Silty Clay/Shaley Clay: Medium plasticity, grey mottled brown, with fine to medium grained gravels and root fibres, moist (MC=PL)
	3.00 - 3.30	Natural	Gravelly Shaley Clay: Medium plasticity, grey mottled red brown, moist (MC=PL)
211	0.00 - 0.35	Topsoil	Gravelly Clayey Silt: Low liquid limit, brown, moist
	0.35 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
212	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, with gravels, moist
	0.20 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
	0.80 - 1.20	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with ironstone gravels, moist (MC=PL)
	1.20 - 1.60	Natural	(CI-CH) Shaley Clay: Medium to high plasticity, grey, with root fibres and ironstone bands
	1.60 - 1.80	Rock	Siltstone/Shale: Brown/Grey, low to medium strength, distinctly weathered
213	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, brown, with a trace of gravels, moist
	0.35 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
214	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.80	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, moist (MC=PL)
	0.80 - 1.40	Natural	(CI-CH) Shaley Clay: Medium to high plasticity, grey with root fibres and ironstone bands, moist (MC=PL)
	1.40 - 1.60	Rock	Siltstone/Shale: Brown/Grey, low to medium strength, distinctly weathered

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
215	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.80	Natural	(CH) Silty Clay: High plasticity, mottled grey and brown, moist (MC=PL)
	0.80 - 1.50	Natural	(CH) Shaley Clay: High plasticity, brown mottled grey, with ironstone gravels, moist (MC=PL)
	1.50 - 2.70	Natural	(CI-CH) Shaley Clay: Medium to high plasticity, grey with and ironstone gravels, moist (MC=PL)
216	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.35 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
217	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, brown, moist
	0.20 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
218	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 1.40	Natural	(CI) Silty Clay: Medium plasticity, brown, with ironstones, moist (MC=PL)
	1.40 - 2.70	Natural	Gravelly Silty Clay: High plasticity, brown, wet (MC>PL). SEEPAGE at 1.40m
219	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.35 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
220	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.20 - 0.35	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
221	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20- 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
222	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
223	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
224	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
225	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
226	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
227	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist to wet
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
228	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist to wet
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
229	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist to wet
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
230	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist to wet
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, wet (MC>PL)
231	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist to wet
	0.35 - 0.65	Natural	(CH) Silty Clay: High plasticity, brown, wet (MC>PL)
232	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist to wet
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
233	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
234	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
235	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
236	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
237	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, with ironstones, moist (MC=PL)
	0.80 - 1.30	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with ironstones, moist (MC=PL)
	1.30 - 2.00	Natural	(CI) Shaley Clay: Medium plasticity, grey mottled red brown, with root fibres and shale bands
	2.00 - 2.70	Natural	(CI) Shaley Clay: Medium plasticity, grey, with root fibres and shale gravels, moist (MC=PL)
238	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with ironstones, moist (MC=PL)

Note:

PP = Pocket Penetrometer

MC = Moisture Content
PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
239	0.00 - 0.20	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), hard (PP = 450kPa)
240	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, with fine to coarse grained ironstones, moist (MC=PL)
241	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with fine to coarse grained ironstones, moist (MC=PL)
242	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstones and root fibres, moist (MC=PL)
243	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, with fine to coarse grained ironstones, moist (MC=PL)
244	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
245	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
246	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.25 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL)
	0.90 - 2.00	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with ironstone gravels and root fibres, moist (MC=PL)
	2.00 - 2.40	Natural	(CI) Shaley Clay: Medium plasticity, grey, with ironstone bands, moist (MC=PL)
	2.40 - 2.80	Rock	Siltstone/Shale: Grey/Red, with clay bands and ironstain, low strength, extremely weathered
247	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
248	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.35	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
249	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

PP = Pocket Penetrometer

MC = Moisture Content
PL = Plastic Limit

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Test Pit Number	Depth (m)	Profile Type	Description
250	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, with ironstone gravels, moist (MC=PL)
	0.70 - 0.90	Natural	Gravelly Silty Clay: High plasticity, grey mottled red brown, moist (MC=PL)
	0.90 - 1.20	Rock	Siltstone/Shale: Grey/Red, low to medium strength, extremely weathered
251	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
252	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP = 250 to 300kPa)
253	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with fine to coarse grained ironstones, moist (MC=PL)
254	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with fine to coarse grained ironstones and root fibres, moist (MC=PL)
255	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
256	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 1.70	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels and bands, moist (MC=PL). SEEPAGE at 1.70m'
	1.70 - 2.20	Rock	Siltstone/Shale: Brown/Grey, low strength, distinctly weathered
257	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
258	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
259	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.50	Natural	Gravelly Silty Clay: Medium plasticity, brown, moist to wet (MC≥PL)
260	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.20 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
261	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist to wet (MC≥PL)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
262	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist to wet (MC≥PL)
263	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
264	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel, moist to wet (MC≥PL)
	0.80 - 1.40	Natural	Gravelly Shaley Clay: Medium plasticity, grey, with ironstone bands, moist (MC=PL)
	1.40 - 1.80	Rock	Siltstone/Shale: Brown/Red/Grey, low to medium strength, distinctly weathered
265	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
266	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.30 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of fine to medium grained ironstone gravel, dry to moist (MC ≤PL)
267	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.70	Natural	(CI-CH) Silty Clay: Medium to high plasticity, brown, with ironstone gravels, moist (MC=PL)
	0.70 - 1.30	Natural	(CL-CI) Shaley Clay: Low to medium plasticity, grey with ironstone bands and root fibres, (MC=PL)
	1.30 - 1.60	Rock	Siltstone/Shale: Brown/Red/Grey, with clay bands, low to medium strength, distinctly weathered
268	0.00 - 0.40	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.40 - 0.65	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
269	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
270	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
271	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
272	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 1.10	Natural	(CH) Silty Clay: High plasticity, brown, with ironstone gravels, moist (MC=PL), very stiff (PP= 250 to 300kPa)
	1.10 - 1.80	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, with ironstone gravels
	1.80 - 2.20	Rock	Siltstone/Shale: Brown/Grey, with clay bands, low strength, distinctly weathered

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
273	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), hard (PP = 400kPa)
274	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.30 - 0.55	Natural	(CI-CH) Silty Clay: Medium to high plasticity, brown, moist (MC=PL)
275	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.20 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
276	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravel, moist
	0.30 - 0.45	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist (MC=PL)
277	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist (MC=PL)
278	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
279	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, with fine grained gravels, moist (MC=PL)
	0.90 - 1.60	Natural	(CI) Silty Clay: Medium plasticity, grey mottled red brown, with a trace of ironstone gravel, moist (MC=PL)
	1.60 - 1.90	Rock	Interbedded layer of Shaley Clay and ironstone and siltstone: Grey and brown, low to medium strength, distinctly weathered
280	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
281	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
282	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of ironstone gravel, moist (MC=PL)
	0.80 - 1.20	Natural	Gravelly Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
	1.20 - 1.60	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, with ironstone gravels, moist (MC=PL)
	1.60 - 2.20	Natural	Gravelly Shaley Clay: Medium plasticity, grey, moist (MC=PL)
	2.20 - 2.70	Natural	(CI) Shaley Clay: Medium plasticity, grey, with interbedded layer of ironstone bands, moist (MC=PL)
283	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
284	0.00 - 0.20	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
285	0.00 - 0.15	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.15 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown mottled grey, moist (MC=PL)
286	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), very stiff (PP= 250kPa)
	0.80 - 1.40	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist to wet (MC≥PL), stiff (PP= 150 to 200kPa)
	1.40 - 1.90	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, with gravels, moist (MC=PL), stiff (PP= 350 to 450kPa)
	1.90 - 2.50	Natural	(CH) Shaley Clay: High plasticity, grey, with root fibres, dry to moist (MC≤PL), hard (PP > 600kPa)
	2.50 - 2.90	Natural	Gravelly Silty Clay: Medium plasticity, brown mottled grey, with fine to medium graine ironstones, dry to moist (MC ≤PL)
287	0.00 - 0.20	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.20 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
288	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
289	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
290	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
291	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.90	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), with gravels, stiff (PP=150kPa)
	0.90 - 1.40	Natural	(CH) Silty Clay: High plasticity, grey, with ironstones, moist (MC=PL)
	1.40 - 1.70	Rock	Siltstone/Shale: Brown/Grey, with clay bands, low strength, distinctly weathered
292	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.30 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
293	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
294	0.00 - 0.30	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Test Pit Number	Depth (m)	Profile Type	Description
295	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
296	0.00 - 0.25	Topsoil	Clayey Silt: Low liquid limit, dark brown, with gravels, moist
	0.25 - 0.50	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
297	0.00 - 0.40	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
298	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.30 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL), with irosntones, very stiff (PP= 250kPa)
	0.70 - 1.50	Natural	(CH) Silty Clay: High plasticity, grey mottled brown, moist (MC=PL)
	1.50 - 2.20	Natural	(CH) Shaley Clay: High plasticity, grey, with interbedded layer of ironstone gravels, moist (MC=PL)
	2.20 - 2.80	Rock	Siltstone/Shale: Brown/Grey, with clay bands, low strength, distinctly weathered
299	0.00 - 0.30	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.30 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
300	0.00 -0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.25 - 0.40	Natural	(CH) Silty Clay: High plasticity, brown, moist (MC=PL)
301	0.00 - 0.25	Topsoil	Gravelly Clayey Silt: Low liquid limit, dark brown, dry to moist
	0.25 - 0.80	Natural	(CH) Silty Clay: High plasticity, brown, with a trace of gravel, moist (MC=PL), very stiff (PP= 300kPa)
	0.80 - 1.40	Natural	(CH) Silty Clay: High plasticity, mottled brown and grey, moist (MC=PL), very stiff (PP= 350kPa)
	1.40 - 2.40	Natural	(CH) Shaley Clay: High plasticity, grey mottled brown, with ironstone gravels, moist (MC=PL), very stiff (PP= 350kPa)
	2.40 - 2.80	Natural	Gravelly Silty Clay: Medium plasticity, brown mottled grey, with fine to medium grained ironstones and shale, dry to moist (MC ≤PL)
302	0.00 - 0.35	Topsoil	Clayey Silt: Low liquid limit, dark brown, with a trace of gravel, moist
	0.35 - 0.60	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL)
303	0.00 - 0.40	Topsoil	Clayey Silt: Low liquid limit, dark brown, moist to wet
	0.40 - 0.70	Natural	(CH) Silty Clay: High plasticity, brown, moist to wet (MC≥PL), stiff (PP = 150 to 200kPa)

Note:

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SUMMARY OF SOIL PROFILE

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140.00580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
C1	0.0-0.1	1/08/2012	Soil	TP 2 (0.0-0.1)	TP 4 (0.0-0.1)	TP 5 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C2	0.0-0.1	1/08/2012	Soil	TP 6 (0.0-0.1)	TP 7 (0.0-0.1)	TP 8 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C3	0.0-0.1	1/08/2012	Soil	TP 9 (0.0-0.1)	TP 10 (0.0-0.1)	TP 11 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C4	0.0-0.1	1/08/2012	Soil	TP 16 (0.0-0.1)	TP 17 (0.0-0.1)	TP 18 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C5	0.0-0.1	1/08/2012	Soil	TP 19 (0.0-0.1)	TP 20 (0.0-0.1)	TP 21 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C6	0.0-0.1	1/08/2012	Soil	TP 25 (0.0-0.1)	TP 26 (0.0-0.1)	TP 27 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C7	0.0-0.1	1/08/2012	Soil	TP 29 (0.0-0.1)	TP 30 (0.0-0.1)	TP 31 (0.0-0.1)		o	o	o	o	o	o	o	o						
C8	0.0-0.1	1/08/2012	Soil	TP 32 (0.0-0.1)	TP 33 (0.0-0.1)	TP 41 (0.0-0.1)		o	o	o	o	o	o	o	o						
C9	0.0-0.1	1/08/2012	Soil	TP 37 (0.0-0.1)	TP 38 (0.0-0.1)	TP 57 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C10	0.0-0.1	1/08/2012	Soil	TP 39 (0.0-0.1)	TP 40 (0.0-0.1)	TP 54 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C11	0.0-0.1	1/08/2012	Soil	TP 43 (0.0-0.1)	TP 44 (0.0-0.1)	TP 45 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C12	0.0-0.1	1/08/2012	Soil	TP 48 (0.0-0.1)	TP 70 (0.0-0.1)	TP 74 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C13	0.0-0.1	1/08/2012	Soil	TP 49 (0.0-0.1)	TP 67 (0.0-0.1)	TP 68 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C14	0.0-0.1	1/08/2012	Soil	TP 50 (0.0-0.1)	TP 51 (0.0-0.1)	TP 52 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C15	0.0-0.1	1/08/2012	Soil	TP 53 (0.0-0.1)	TP 63 (0.0-0.1)	TP 64 (0.0-0.1)		o	o	o	o	o	o	o	o						
C16	0.0-0.1	1/08/2012	Soil	TP 55 (0.0-0.1)	TP 56 (0.0-0.1)	TP 62 (0.0-0.1)		o	o	o	o	o	o	o	o						
C17	0.0-0.1	1/08/2012	Soil	TP 59 (0.0-0.1)	TP 60 (0.0-0.1)	TP 85 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C18	0.0-0.1	1/08/2012	Soil	TP 61 (0.0-0.1)	TP 81 (0.0-0.1)	TP 82 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C19	0.0-0.1	1/08/2012	Soil	TP 65 (0.0-0.1)	TP 78 (0.0-0.1)	TP 94 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C20	0.0-0.1	1/08/2012	Soil	TP 75 (0.0-0.1)	TP 76 (0.0-0.1)	TP 77 (0.0-0.1)		o	o	o	o	o	o	o	o						
C21	0.0-0.1	1/08/2012	Soil	TP 71 (0.0-0.1)	TP 72 (0.0-0.1)	TP 97 (0.0-0.1)		o	o	o	o	o	o	o	o						
C22	0.0-0.1	1/08/2012	Soil	TP 79 (0.0-0.1)	TP 80 (0.0-0.1)	TP 91 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C23	0.0-0.1	1/08/2012	Soil	TP 83 (0.0-0.1)	TP 84 (0.0-0.1)	TP 87 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C24	0.0-0.1	1/08/2012	Soil	TP 92 (0.0-0.1)	TP 105 (0.0-0.1)	TP 106 (0.0-0.1)		o	o	o	o	o	o	o	o						
C25	0.0-0.1	1/08/2012	Soil	TP 93 (0.0-0.1)	TP 116 (0.0-0.1)	TP 128 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C26	0.0-0.1	1/08/2012	Soil	TP 96 (0.0-0.1)	TP 101 (0.0-0.1)	TP 102 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C27	0.0-0.1	1/08/2012	Soil	TP 98 (0.0-0.1)	TP 99 (0.0-0.1)	TP 100 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C28	0.0-0.1	1/08/2012	Soil	TP 107 (0.0-0.1)	TP 130 (0.0-0.1)	TP 137 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C29	0.0-0.1	1/08/2012	Soil	TP 110 (0.0-0.1)	TP 111 (0.0-0.1)	TP 132 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C30	0.0-0.1	1/08/2012	Soil	TP 112 (0.0-0.1)	TP 113 (0.0-0.1)	TP 131 (0.0-0.1)		o	o	o	o	o	o	o	o						

Note: O denotes tested

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Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
C31	0.0-0.1	1/08/2012	Soil	TP 114 (0.0-0.1)	TP 115 (0.0-0.1)	TP 129 (0.0-0.1)		o	o	o	o	o	o	o	o						
C32	0.0-0.1	1/08/2012	Soil	TP 117 (0.0-0.1)	TP 118 (0.0-0.1)	TP 127 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C33	0.0-0.1	1/08/2012	Soil	TP 120 (0.0-0.1)	TP 121 (0.0-0.1)	TP 124 (0.0-0.1)		o	o	o	o	o	o	o	o						
C34	0.0-0.1	1/08/2012	Soil	TP 122 (0.0-0.1)	TP 123 (0.0-0.1)	TP 146 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C35	0.0-0.1	1/08/2012	Soil	TP 126 (0.0-0.1)	TP 141 (0.0-0.1)	TP 142 (0.0-0.1)		o	o	o	o	o	o	o	o						
C36	0.0-0.1	1/08/2012	Soil	TP 138 (0.0-0.1)	TP 139 (0.0-0.1)	TP 140 (0.0-0.1)		o	o	o	o	o	o	o	o						
C37	0.0-0.1	1/08/2012	Soil	TP 134 (0.0-0.1)	TP 135 (0.0-0.1)	TP 136 (0.0-0.1)		o	o	o	o	o	o	o	o						
C38	0.0-0.1	1/08/2012	Soil	TP 159 (0.0-0.1)	TP 160 (0.0-0.1)	TP 161 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C39	0.0-0.1	1/08/2012	Soil	TP 158 (0.0-0.1)	TP 162 (0.0-0.1)	TP 181 (0.0-0.1)		o	o	o	o	o	o	o	o						
C40	0.0-0.1	1/08/2012	Soil	TP 156 (0.0-0.1)	TP 163 (0.0-0.1)	TP 164 (0.0-0.1)		o	o	o	o	o	o	o	o						
C41	0.0-0.1	1/08/2012	Soil	TP 155 (0.0-0.1)	TP 165 (0.0-0.1)	TP 179 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C42	0.0-0.1	1/08/2012	Soil	TP 152 (0.0-0.1)	TP 153 (0.0-0.1)	TP 154 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C43	0.0-0.1	1/08/2012	Soil	TP 151 (0.0-0.1)	TP 167 (0.0-0.1)	TP 168 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C44	0.0-0.1	1/08/2012	Soil	TP 143 (0.0-0.1)	TP 150 (0.0-0.1)	TP 169 (0.0-0.1)		o	o	o	o	o	o	o	o						
C45	0.0-0.1	1/08/2012	Soil	TP 144 (0.0-0.1)	TP 149 (0.0-0.1)	TP 170 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C46	0.0-0.1	1/08/2012	Soil	TP 145 (0.0-0.1)	TP 147 (0.0-0.1)	TP 148 (0.0-0.1)		o	o	o	o	o	o	o	o						
C47	0.0-0.1	1/08/2012	Soil	TP 171 (0.0-0.1)	TP 172 (0.0-0.1)	TP 196 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C48	0.0-0.1	1/08/2012	Soil	TP 173 (0.0-0.1)	TP 174 (0.0-0.1)	TP 175 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C49	0.0-0.1	1/08/2012	Soil	TP 176 (0.0-0.1)	TP 192 (0.0-0.1)	TP 193 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C50	0.0-0.1	1/08/2012	Soil	TP 191 (0.0-0.1)	TP 199 (0.0-0.1)	TP 200 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C51	0.0-0.1	1/08/2012	Soil	TP 178 (0.0-0.1)	TP 189 (0.0-0.1)	TP 190 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C52	0.0-0.1	1/08/2012	Soil	TP 180 (0.0-0.1)	TP 187 (0.0-0.1)	TP 188 (0.0-0.1)		o	o	o	o	o	o	o	o						
C53	0.0-0.1	1/08/2012	Soil	TP 184 (0.0-0.1)	TP 185 (0.0-0.1)	TP 205 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C54	0.0-0.1	1/08/2012	Soil	TP 183 (0.0-0.1)	TP 206 (0.0-0.1)	TP 207 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C55	0.0-0.1	1/08/2012	Soil	TP 208 (0.0-0.1)	TP 229 (0.0-0.1)	TP 230 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C56	0.0-0.1	1/08/2012	Soil	TP 204 (0.0-0.1)	TP 226 (0.0-0.1)	TP 234 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C57	0.0-0.1	1/08/2012	Soil	TP 212 (0.0-0.1)	TP 222 (0.0-0.1)	TP 223 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C58	0.0-0.1	1/08/2012	Soil	TP 194 (0.0-0.1)	TP 195 (0.0-0.1)	TP 198 (0.0-0.1)		o	o	o	o	o	o	o	o						
C59	0.0-0.1	1/08/2012	Soil	TP 217 (0.0-0.1)	TP 218 (0.0-0.1)	TP 219 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C60	0.0-0.1	1/08/2012	Soil	TP 224 (0.0-0.1)	TP 225 (0.0-0.1)	TP 235 (0.0-0.1)		o	o	o	o	o	o	o	o						

Note: O denotes tested

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Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
C61	0.0-0.1	1/08/2012	Soil	TP 227 (0.0-0.1)	TP 232 (0.0-0.1)	TP 233 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C62	0.0-0.1	1/08/2012	Soil	TP 231 (0.0-0.1)	TP 246 (0.0-0.1)	TP 247 (0.0-0.1)		o	o	o	o	o	o	o	o						
C63	0.0-0.1	1/08/2012	Soil	TP 245 (0.0-0.1)	TP 248 (0.0-0.1)	TP 249 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C64	0.0-0.1	1/08/2012	Soil	TP 236 (0.0-0.1)	TP 243 (0.0-0.1)	TP 244 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C65	0.0-0.1	1/08/2012	Soil	TP 221 (0.0-0.1)	TP 237 (0.0-0.1)	TP 238 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C66	0.0-0.1	1/08/2012	Soil	TP 220 (0.0-0.1)	TP 239 (0.0-0.1)	TP 240 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C67	0.0-0.1	1/08/2012	Soil	TP 242 (0.0-0.1)	TP 252 (0.0-0.1)	TP 253 (0.0-0.1)		o	o	o	o	o	o	o	o						
C68	0.0-0.1	1/08/2012	Soil	TP 250 (0.0-0.1)	TP 251 (0.0-0.1)	TP 260 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C69	0.0-0.1	1/08/2012	Soil	TP 261 (0.0-0.1)	TP 262 (0.0-0.1)	TP 265 (0.0-0.1)		o	o	o	o	o	o	o	o						
C70	0.0-0.1	1/08/2012	Soil	TP 263 (0.0-0.1)	TP 264 (0.0-0.1)	TP 278 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C71	0.0-0.1	1/08/2012	Soil	TP 254 (0.0-0.1)	TP 255 (0.0-0.1)	TP 256 (0.0-0.1)		o	o	o	o	o	o	o	o						
C72	0.0-0.1	1/08/2012	Soil	TP 257 (0.0-0.1)	TP 258 (0.0-0.1)	TP 259 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C73	0.0-0.1	1/08/2012	Soil	TP 266 (0.0-0.1)	TP 267 (0.0-0.1)	TP 277 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C74	0.0-0.1	1/08/2012	Soil	TP 270 (0.0-0.1)	TP 271 (0.0-0.1)	TP 272 (0.0-0.1)		o	o	o	o	o	o	o	o						
C75	0.0-0.1	1/08/2012	Soil	TP 268 (0.0-0.1)	TP 273 (0.0-0.1)	TP 283 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C76	0.0-0.1	1/08/2012	Soil	TP 274 (0.0-0.1)	TP 275 (0.0-0.1)	TP 281 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C77	0.0-0.1	1/08/2012	Soil	TP 280 (0.0-0.1)	TP 293 (0.0-0.1)	TP 299 (0.0-0.1)		o	o	o	o	o	o	o	o						
C78	0.0-0.1	1/08/2012	Soil	TP 289 (0.0-0.1)	TP 290 (0.0-0.1)	TP 294 (0.0-0.1)		o	o	o	o	o	o	o	o						
C79	0.0-0.1	1/08/2012	Soil	TP 287 (0.0-0.1)	TP 288 (0.0-0.1)	TP 296 (0.0-0.1)		o	o	o	o	o	o	o	o						
C80	0.0-0.1	1/08/2012	Soil	TP 284 (0.0-0.1)	TP 285 (0.0-0.1)	TP 286 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C81	0.0-0.1	1/08/2012	Soil	TP 292 (0.0-0.1)	TP 300 (0.0-0.1)	TP 301 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
C82	0.0-0.1	1/08/2012	Soil	TP 298 (0.0-0.1)	TP 302 (0.0-0.1)	TP 303 (0.0-0.1)		o	o	o	o	o	o	o	o	o	o				
TP1	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP12	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP28	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP36	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP 36	Surface	1/08/2012	Soil																		o
TP46	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o			o
TP 46	Surface	1/08/2012	Soil																		o

Note: O denotes tested

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Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP66	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP 66	Surface	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP73	0.0-0.1	1/08/2012	Soil																		o
TP89	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP104	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP108	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP119	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP125	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP133	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP157	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP197	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP201	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP210	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP215	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP267	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP279	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
TP295	0.0-0.1	1/08/2012	Soil				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
Duplicate A	0.0-0.1	1/08/2012	Soil					o	o	o	o	o	o	o	o	o	o	o	o	o	
Duplicate B	0.0-0.1	1/08/2012	Soil					o	o	o	o	o	o	o	o	o	o	o	o	o	
TP2	0.0-0.1	1/08/2012	Soil					o													
TP4	0.0-0.1	1/08/2012	Soil					o													
TP5	0.0-0.1	1/08/2012	Soil					o													
TP6	0.0-0.1	1/08/2012	Soil					o													
TP7	0.0-0.1	1/08/2012	Soil					o													
TP8	0.0-0.1	1/08/2012	Soil					o													
TP9	0.0-0.1	1/08/2012	Soil					o													
TP10	0.0-0.1	1/08/2012	Soil					o													
TP11	0.0-0.1	1/08/2012	Soil					o													
TP16	0.0-0.1	1/08/2012	Soil								o										

Note: O denotes tested

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Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP17	0.0-0.1	1/08/2012	Soil								o										
TP18	0.0-0.1	1/08/2012	Soil								o										
TP19	0.0-0.1	1/08/2012	Soil								o										
TP20	0.0-0.1	1/08/2012	Soil								o										
TP21	0.0-0.1	1/08/2012	Soil								o										
TP29	0.0-0.1	1/08/2012	Soil					o													
TP30	0.0-0.1	1/08/2012	Soil					o													
TP31	0.0-0.1	1/08/2012	Soil					o													
TP32	0.0-0.1	1/08/2012	Soil					o													
TP33	0.0-0.1	1/08/2012	Soil					o													
TP41	0.0-0.1	1/08/2012	Soil					o													
TP37	0.0-0.1	1/08/2012	Soil					o													
TP38	0.0-0.1	1/08/2012	Soil					o													
TP57	0.0-0.1	1/08/2012	Soil					o													
TP39	0.0-0.1	1/08/2012	Soil					o													
TP40	0.0-0.1	1/08/2012	Soil					o													
TP54	0.0-0.1	1/08/2012	Soil					o													
TP43	0.0-0.1	1/08/2012	Soil					o													
TP44	0.0-0.1	1/08/2012	Soil					o													
TP45	0.0-0.1	1/08/2012	Soil					o													
TP53	0.0-0.1	1/08/2012	Soil					o													
TP63	0.0-0.1	1/08/2012	Soil					o													
TP64	0.0-0.1	1/08/2012	Soil					o													
TP55	0.0-0.1	1/08/2012	Soil					o													
TP56	0.0-0.1	1/08/2012	Soil					o													
TP62	0.0-0.1	1/08/2012	Soil					o													
TP59	0.0-0.1	1/08/2012	Soil								o										
TP60	0.0-0.1	1/08/2012	Soil								o										
TP85	0.0-0.1	1/08/2012	Soil								o										
TP61	0.0-0.1	1/08/2012	Soil					o													

Note: O denotes tested

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Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP81	0.0-0.1	1/08/2012	Soil					o													
TP82	0.0-0.1	1/08/2012	Soil					o													
TP65	0.0-0.1	1/08/2012	Soil					o													
TP78	0.0-0.1	1/08/2012	Soil					o													
TP94	0.0-0.1	1/08/2012	Soil					o													
TP75	0.0-0.1	1/08/2012	Soil					o													
TP76	0.0-0.1	1/08/2012	Soil					o													
TP77	0.0-0.1	1/08/2012	Soil					o													
TP79	0.0-0.1	1/08/2012	Soil					o													
TP80	0.0-0.1	1/08/2012	Soil					o													
TP91	0.0-0.1	1/08/2012	Soil					o													
TP92	0.0-0.1	1/08/2012	Soil					o													
TP105	0.0-0.1	1/08/2012	Soil					o													
TP106	0.0-0.1	1/08/2012	Soil					o													
TP93	0.0-0.1	1/08/2012	Soil					o													
TP116	0.0-0.1	1/08/2012	Soil					o													
TP128	0.0-0.1	1/08/2012	Soil					o													
TP96	0.0-0.1	1/08/2012	Soil					o													
TP101	0.0-0.1	1/08/2012	Soil					o													
TP102	0.0-0.1	1/08/2012	Soil					o													
TP107	0.0-0.1	1/08/2012	Soil					o													
TP130	0.0-0.1	1/08/2012	Soil					o													
TP137	0.0-0.1	1/08/2012	Soil					o													
TP110	0.0-0.1	1/08/2012	Soil					o								o					
TP111	0.0-0.1	1/08/2012	Soil					o								o					
TP132	0.0-0.1	1/08/2012	Soil					o								o					
TP112	0.0-0.1	1/08/2012	Soil					o													
TP113	0.0-0.1	1/08/2012	Soil					o													
TP131	0.0-0.1	1/08/2012	Soil					o													
TP114	0.0-0.1	1/08/2012	Soil					o													

Note: O denotes tested

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Analytical Program

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP115	0.0-0.1	1/08/2012	Soil					o													
TP129	0.0-0.1	1/08/2012	Soil					o													
TP117	0.0-0.1	1/08/2012	Soil					o													
TP118	0.0-0.1	1/08/2012	Soil					o													
TP127	0.0-0.1	1/08/2012	Soil					o													
TP120	0.0-0.1	1/08/2012	Soil					o													
TP121	0.0-0.1	1/08/2012	Soil					o													
TP124	0.0-0.1	1/08/2012	Soil					o													
TP126	0.0-0.1	1/08/2012	Soil					o													
TP141	0.0-0.1	1/08/2012	Soil					o													
TP142	0.0-0.1	1/08/2012	Soil					o													
TP138	0.0-0.1	1/08/2012	Soil					o													
TP139	0.0-0.1	1/08/2012	Soil					o													
TP140	0.0-0.1	1/08/2012	Soil					o													
TP134	0.0-0.1	1/08/2012	Soil					o													
TP135	0.0-0.1	1/08/2012	Soil					o													
TP136	0.0-0.1	1/08/2012	Soil					o													
TP159	0.0-0.1	1/08/2012	Soil					o													
TP160	0.0-0.1	1/08/2012	Soil					o													
TP161	0.0-0.1	1/08/2012	Soil					o													
TP158	0.0-0.1	1/08/2012	Soil					o													
TP162	0.0-0.1	1/08/2012	Soil					o													
TP181	0.0-0.1	1/08/2012	Soil					o													
TP156	0.0-0.1	1/08/2012	Soil					o													
TP163	0.0-0.1	1/08/2012	Soil					o													
TP164	0.0-0.1	1/08/2012	Soil					o													
TP155	0.0-0.1	1/08/2012	Soil					o													
TP165	0.0-0.1	1/08/2012	Soil					o													
TP179	0.0-0.1	1/08/2012	Soil					o													
TP152	0.0-0.1	1/08/2012	Soil					o													

Note: O denotes tested

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Analytical Program

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP153	0.0-0.1	1/08/2012	Soil					o													
TP154	0.0-0.1	1/08/2012	Soil					o													
TP151	0.0-0.1	1/08/2012	Soil					o													
TP167	0.0-0.1	1/08/2012	Soil					o													
TP168	0.0-0.1	1/08/2012	Soil					o													
TP143	0.0-0.1	1/08/2012	Soil					o													
TP150	0.0-0.1	1/08/2012	Soil					o													
TP169	0.0-0.1	1/08/2012	Soil					o													
TP176	0.0-0.1	1/08/2012	Soil					o													
TP192	0.0-0.1	1/08/2012	Soil					o													
TP193	0.0-0.1	1/08/2012	Soil					o													
TP191	0.0-0.1	1/08/2012	Soil					o													
TP199	0.0-0.1	1/08/2012	Soil					o													
TP200	0.0-0.1	1/08/2012	Soil					o													
TP178	0.0-0.1	1/08/2012	Soil					o													
TP189	0.0-0.1	1/08/2012	Soil					o													
TP190	0.0-0.1	1/08/2012	Soil					o													
TP180	0.0-0.1	1/08/2012	Soil					o													
TP187	0.0-0.1	1/08/2012	Soil					o													
TP188	0.0-0.1	1/08/2012	Soil					o													
TP184	0.0-0.1	1/08/2012	Soil					o													
TP185	0.0-0.1	1/08/2012	Soil					o													
TP205	0.0-0.1	1/08/2012	Soil					o													
TP183	0.0-0.1	1/08/2012	Soil					o													
TP206	0.0-0.1	1/08/2012	Soil					o													
TP207	0.0-0.1	1/08/2012	Soil					o													
TP208	0.0-0.1	1/08/2012	Soil					o													
TP229	0.0-0.1	1/08/2012	Soil					o													
TP230	0.0-0.1	1/08/2012	Soil					o													
TP204	0.0-0.1	1/08/2012	Soil					o													

Note: O denotes tested

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Analytical Program

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP226	0.0-0.1	1/08/2012	Soil					o													
TP234	0.0-0.1	1/08/2012	Soil					o													
TP212	0.0-0.1	1/08/2012	Soil					o													
TP222	0.0-0.1	1/08/2012	Soil					o													
TP223	0.0-0.1	1/08/2012	Soil					o													
TP224	0.0-0.1	1/08/2012	Soil					o													
TP225	0.0-0.1	1/08/2012	Soil					o													
TP235	0.0-0.1	1/08/2012	Soil					o													
TP227	0.0-0.1	1/08/2012	Soil					o													
TP232	0.0-0.1	1/08/2012	Soil					o													
TP233	0.0-0.1	1/08/2012	Soil					o													
TP231	0.0-0.1	1/08/2012	Soil					o													
TP246	0.0-0.1	1/08/2012	Soil					o													
TP247	0.0-0.1	1/08/2012	Soil					o													
TP245	0.0-0.1	1/08/2012	Soil					o													
TP248	0.0-0.1	1/08/2012	Soil					o													
TP249	0.0-0.1	1/08/2012	Soil					o													
TP236	0.0-0.1	1/08/2012	Soil					o													
TP243	0.0-0.1	1/08/2012	Soil					o													
TP244	0.0-0.1	1/08/2012	Soil					o													
TP221	0.0-0.1	1/08/2012	Soil					o													
TP237	0.0-0.1	1/08/2012	Soil					o													
TP238	0.0-0.1	1/08/2012	Soil					o													
TP220	0.0-0.1	1/08/2012	Soil					o													
TP239	0.0-0.1	1/08/2012	Soil					o													
TP240	0.0-0.1	1/08/2012	Soil					o													
TP242	0.0-0.1	1/08/2012	Soil					o													
TP252	0.0-0.1	1/08/2012	Soil					o													
TP253	0.0-0.1	1/08/2012	Soil					o													
TP250	0.0-0.1	1/08/2012	Soil					o													

Note: O denotes tested

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Analytical Program

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP251	0.0-0.1	1/08/2012	Soil					o													
TP260	0.0-0.1	1/08/2012	Soil					o													
TP261	0.0-0.1	1/08/2012	Soil					o													
TP262	0.0-0.1	1/08/2012	Soil					o													
TP265	0.0-0.1	1/08/2012	Soil					o													
TP263	0.0-0.1	1/08/2012	Soil					o													
TP264	0.0-0.1	1/08/2012	Soil					o													
TP278	0.0-0.1	1/08/2012	Soil					o													
TP254	0.0-0.1	1/08/2012	Soil					o													
TP255	0.0-0.1	1/08/2012	Soil					o													
TP256	0.0-0.1	1/08/2012	Soil					o													
TP257	0.0-0.1	1/08/2012	Soil					o													
TP258	0.0-0.1	1/08/2012	Soil					o													
TP259	0.0-0.1	1/08/2012	Soil					o													
TP266	0.0-0.1	1/08/2012	Soil					o													
TP267	0.0-0.1	1/08/2012	Soil					o													
TP277	0.0-0.1	1/08/2012	Soil					o													
TP270	0.0-0.1	1/08/2012	Soil					o													
TP271	0.0-0.1	1/08/2012	Soil					o													
TP272	0.0-0.1	1/08/2012	Soil					o													
TP268	0.0-0.1	1/08/2012	Soil					o													
TP273	0.0-0.1	1/08/2012	Soil					o													
TP283	0.0-0.1	1/08/2012	Soil					o													
TP274	0.0-0.1	1/08/2012	Soil					o													
TP275	0.0-0.1	1/08/2012	Soil					o													
TP281	0.0-0.1	1/08/2012	Soil					o													
TP280	0.0-0.1	1/08/2012	Soil					o													
TP293	0.0-0.1	1/08/2012	Soil					o													
TP299	0.0-0.1	1/08/2012	Soil					o													
TP289	0.0-0.1	1/08/2012	Soil					o													

Note: O denotes tested

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Analytical Program

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals								OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn						
TP290	0.0-0.1	1/08/2012	Soil					o													
TP294	0.0-0.1	1/08/2012	Soil					o													
TP287	0.0-0.1	1/08/2012	Soil					o													
TP288	0.0-0.1	1/08/2012	Soil					o													
TP296	0.0-0.1	1/08/2012	Soil					o													
TP284	0.0-0.1	1/08/2012	Soil					o													
TP285	0.0-0.1	1/08/2012	Soil					o													
TP286	0.0-0.1	1/08/2012	Soil					o													
TP292	0.0-0.1	1/08/2012	Soil					o													
TP300	0.0-0.1	1/08/2012	Soil					o													
TP301	0.0-0.1	1/08/2012	Soil					o													

Note: O denotes tested

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Analytical Program

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Composite Samples

Sample	Depths	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
C1	0.0-0.1	***8***	<0.5	16	12	18	0.2	5	28
C2	0.0-0.1	***9***	<0.5	13	18	20	<0.1	11	54
C3	0.0-0.1	***15***	<0.5	18	15	20	0.1	10	43
C4	0.0-0.1	5	<0.5	11	***46***	10	<0.1	10	41
C5	0.0-0.1	<4	<0.5	15	***70***	9	<0.1	15	39
C6	0.0-0.1	5	<0.5	12	4	12	<0.1	3	11
C7	0.0-0.1	***12***	0.7	23	13	19	<0.1	7	22
C8	0.0-0.1	***12***	<0.5	21	12	19	<0.1	6	29
C9	0.0-0.1	***10***	0.6	15	22	28	<0.1	14	66
C10	0.0-0.1	***12***	<0.5	20	11	21	<0.1	6	28
C11	0.0-0.1	***9***	<0.5	19	6	17	<0.1	5	20
C12	0.0-0.1	7	<0.5	14	9	15	<0.1	4	19
C13	0.0-0.1	4	<0.5	8	5	9	<0.1	3	10
C14	0.0-0.1	7	<0.5	14	11	16	<0.1	5	26
C15	0.0-0.1	***19***	0.8	29	9	27	0.1	7	21
C16	0.0-0.1	***12***	0.5	20	14	23	<0.1	8	41
C17	0.0-0.1	6	0.5	24	***38***	13	<0.1	11	43
C18	0.0-0.1	***10***	0.5	13	13	13	<0.1	6	23
C19	0.0-0.1	***14***	<0.5	19	8	19	<0.1	5	20
C20	0.0-0.1	***10***	<0.5	17	10	16	<0.1	4	36
C21	0.0-0.1	7	<0.5	13	9	13	<0.1	5	19
C22	0.0-0.1	***11***	<0.5	15	12	15	<0.1	6	29
C23	0.0-0.1	6	<0.5	12	15	17	<0.1	8	50
C24	0.0-0.1	***10***	<0.5	12	14	21	<0.1	10	33
C25	0.0-0.1	***11***	<0.5	16	13	22	<0.1	9	32
C26	0.0-0.1	***14***	<0.5	17	10	19	<0.1	4	23
C27	0.0-0.1	6	<0.5	11	9	17	<0.1	5	11
C28	0.0-0.1	***15***	<0.5	14	14	24	<0.1	11	38
C29	0.0-0.1	***9***	<0.5	16	18	16	<0.1	8	***84***
C30	0.0-0.1	***15***	<0.5	13	14	20	<0.1	7	38
Modified EIL's (Interim Urban)		**7.0**	**1**	**133/0.33***	**33.3**	**200**	**0.33**	**20**	**66.7**
Modified HILs 'A' Criteria		**33.3**	**6.7**	**33.3**	**333**	**100**	**5**	**200**	**2333.3**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Composite Samples

Sample	Depths	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
C31	0.0-0.1	***13***	<0.5	12	12	18	<0.1	5	22
C32	0.0-0.1	***10***	0.6	26	17	16	<0.1	6	21
C33	0.0-0.1	***9***	0.5	17	10	16	<0.1	5	17
C34	0.0-0.1	<4	<0.5	9	10	13	<0.1	6	22
C35	0.0-0.1	***12***	0.7	30	5	19	<0.1	4	9
C36	0.0-0.1	***8***	0.7	13	9	14	<0.1	4	18
C37	0.0-0.1	***9***	<0.5	15	21	16	<0.1	9	46
C38	0.0-0.1	***12***	<0.5	22	20	20	<0.1	15	58
C39	0.0-0.1	***13***	0.6	25	12	21	<0.1	7	30
C40	0.0-0.1	***14***	0.5	19	9	19	<0.1	6	17
C41	0.0-0.1	***12***	0.6	21	15	21	<0.1	8	28
C42	0.0-0.1	***11***	0.6	21	12	17	<0.1	7	38
C43	0.0-0.1	***9***	<0.5	13	14	16	<0.1	7	22
C44	0.0-0.1	***8***	<0.5	12	16	20	<0.1	12	35
C45	0.0-0.1	4	<0.5	9	12	14	<0.1	5	23
C46	0.0-0.1	<4	<0.5	9	12	15	<0.1	6	28
C47	0.0-0.1	<4	<0.5	10	13	17	<0.1	7	30
C48	0.0-0.1	5	<0.5	10	11	17	<0.1	7	24
C49	0.0-0.1	***9***	<0.5	14	18	20	0.1	11	33
C50	0.0-0.1	***9***	<0.5	14	13	19	<0.1	11	28
C51	0.0-0.1	***12***	0.6	27	4	16	<0.1	2	6
C52	0.0-0.1	***13***	0.6	25	11	22	<0.1	6	36
C53	0.0-0.1	***8***	<0.5	15	13	17	<0.1	7	26
C54	0.0-0.1	***11***	<0.5	21	12	20	<0.1	6	27
C55	0.0-0.1	***13***	<0.5	19	16	23	<0.1	11	36
C56	0.0-0.1	***9***	<0.5	18	8	16	<0.1	4	10
C57	0.0-0.1	***11***	0.6	24	7	14	<0.1	5	11
C58	0.0-0.1	4	<0.5	11	10	15	<0.1	5	12
C59	0.0-0.1	<4	<0.5	9	10	12	<0.1	6	16
C60	0.0-0.1	8	0.5	23	5	15	<0.1	3	7
Modified EIL's (Interim Urban)		**7.0**	**1**	**133/0.33***	**33.3**	**200**	**0.33**	**20**	**66.7**
Modified HILs 'A' Criteria		**33.3**	**6.7**	**33.3**	**333**	**100**	**5**	**200**	**2333.3**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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TABLE 3 (Page 2 of 11)

Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Composite Samples

Sample	Depths	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
C61	0.0-0.1	***9***	<0.5	22	9	19	<0.1	5	20
C62	0.0-0.1	***14***	0.6	26	11	20	<0.1	5	21
C63	0.0-0.1	***9***	0.5	23	4	14	<0.1	4	10
C64	0.0-0.1	***11***	0.6	20	7	15	<0.1	3	7
C65	0.0-0.1	***10***	0.6	21	7	17	<0.1	5	14
C66	0.0-0.1	***11***	0.5	18	12	18	<0.1	8	19
C67	0.0-0.1	***9***	0.5	22	5	12	<0.1	2	6
C68	0.0-0.1	***14***	<0.5	14	10	13	<0.1	4	12
C69	0.0-0.1	***14***	0.6	21	4	15	<0.1	5	12
C70	0.0-0.1	***14***	0.6	28	4	16	<0.1	5	11
C71	0.0-0.1	***9***	0.5	17	10	21	<0.1	7	19
C72	0.0-0.1	***8***	0.5	19	10	13	<0.1	4	15
C73	0.0-0.1	***11***	<0.5	21	5	14	<0.1	5	19
C74	0.0-0.1	***11***	0.5	19	9	20	<0.1	7	18
C75	0.0-0.1	***13***	0.6	21	6	18	<0.1	5	18
C76	0.0-0.1	***10***	<0.5	20	6	15	<0.1	5	15
C77	0.0-0.1	***13***	0.6	26	5	18	<0.1	4	14
C78	0.0-0.1	***13***	0.6	28	4	21	<0.1	5	14
C79	0.0-0.1	***10***	0.5	27	3	17	<0.1	5	11
C80	0.0-0.1	***9***	<0.5	20	5	14	<0.1	4	10
C81	0.0-0.1	***13***	0.5	24	5	17	<0.1	4	12
C82	0.0-0.1	7	<0.5	14	4	10	<0.1	3	7
Modified EIL's (Interim Urban)		**7.0**	**1**	**133/0.33***	**33.3**	**200**	**0.33**	**20**	**66.7**
Modified HILs 'A' Criteria		**33.3**	**6.7**	**33.3**	**333**	**100**	**5**	**200**	**2333.3**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP1	0.0-0.1	8.2	<4	<0.5	16	46	11	<0.1	39	83
TP12	0.0-0.1	6.6	10	0.6	18	9	21	<0.1	6	19
TP28	0.0-0.1	5.3	5	<0.5	13	43	13	<0.1	11	40
TP36	0.0-0.1	10.2	5	<0.5	13	43	13	<0.1	11	40
TP46	0.0-0.1	7.6	5	<0.5	11	13	16	<0.1	6	13
TP66	0.0-0.1	5.8	12	0.6	18	12	17	<0.1	5	28
TP 66	0.0-0.1	6.4	5	<0.5	14	22	28	<0.1	9	90
TP89	0.0-0.1	7.7	<4	<0.5	36	26	12	<0.1	***62***	51
TP104	0.0-0.1	5.7	8	<0.5	12	25	20	<0.1	8	41
TP108	0.0-0.1	8.5	<4	0.6	76	45	98	<0.1	***140***	***810***
TP119	0.0-0.1	5.9	17	0.5	14	15	17	<0.1	6	24
TP125	0.0-0.1	6.1	11	0.6	20	12	19	<0.1	7	23
TP133	0.0-0.1	6	8	0.7	21	17	17	<0.1	8	64
TP157	0.0-0.1	6.3	9	<0.5	15	32	22	<0.1	12	100
TP197	0.0-0.1	6.1	<4	<0.5	9	11	15	<0.1	6	24
TP201	0.0-0.1	5.9	11	0.6	21	10	16	0.2	5	14
TP210	0.0-0.1	8.1	9	<0.5	11	34	16	0.1	17	54
TP215	0.0-0.1	6.2	8	<0.5	15	16	18	<0.1	9	26
TP267	0.0-0.1	6.1	8	<0.5	17	6	14	<0.1	4	11
TP279	0.0-0.1	6.1	11	<0.5	29	3	17	<0.1	5	10
TP295	0.0-0.1	5.7	5	<0.5	17	3	13	<0.1	3	6
Duplicate A	0.0-0.1		10	<0.5	15	13	18	<0.1	8	27
Duplicate B	0.0-0.1		11	0.6	28	4	17	<0.1	5	16
TP2	0.0-0.1		7							
TP4	0.0-0.1		10							
TP5	0.0-0.1		5							
TP6	0.0-0.1		10							
TP7	0.0-0.1		10							
TP8	0.0-0.1		8							
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP9	0.0-0.1		11							
TP10	0.0-0.1		15							
TP11	0.0-0.1		11							
TP16	0.0-0.1					***130***				
TP17	0.0-0.1					65				
TP18	0.0-0.1					48				
TP19	0.0-0.1					78				
TP20	0.0-0.1					55				
TP21	0.0-0.1					93				
TP29	0.0-0.1		11							
TP30	0.0-0.1		11							
TP31	0.0-0.1		9							
TP32	0.0-0.1		12							
TP33	0.0-0.1		12							
TP41	0.0-0.1		9							
TP37	0.0-0.1		12							
TP38	0.0-0.1		10							
TP57	0.0-0.1		10							
TP39	0.0-0.1		7							
TP40	0.0-0.1		12							
TP54	0.0-0.1		12							
TP43	0.0-0.1		6							
TP44	0.0-0.1		6							
TP45	0.0-0.1		9							
TP53	0.0-0.1		11							
TP63	0.0-0.1		13							
TP64	0.0-0.1		14							
TP55	0.0-0.1		11							
TP56	0.0-0.1		10							
TP62	0.0-0.1		11							
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP59	0.0-0.1					66				
TP60	0.0-0.1					47				
TP85	0.0-0.1					14				
TP61	0.0-0.1		9							
TP81	0.0-0.1		12							
TP82	0.0-0.1		8							
TP65	0.0-0.1		8							
TP78	0.0-0.1		16							
TP94	0.0-0.1		10							
TP75	0.0-0.1		7							
TP76	0.0-0.1		8							
TP77	0.0-0.1		13							
TP79	0.0-0.1		10							
TP80	0.0-0.1		8							
TP91	0.0-0.1		9							
TP92	0.0-0.1		12							
TP105	0.0-0.1		10							
TP106	0.0-0.1		10							
TP93	0.0-0.1		14							
TP116	0.0-0.1		12							
TP128	0.0-0.1		12							
TP96	0.0-0.1		11							
TP101	0.0-0.1		11							
TP102	0.0-0.1		11							
TP107	0.0-0.1		10							
TP130	0.0-0.1		14							
TP137	0.0-0.1		16							
TP110	0.0-0.1		<4							150
TP111	0.0-0.1		6							76
TP132	0.0-0.1		13							24
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP112	0.0-0.1		11							
TP113	0.0-0.1		17							
TP131	0.0-0.1		16							
TP114	0.0-0.1		11							
TP115	0.0-0.1		15							
TP129	0.0-0.1		14							
TP117	0.0-0.1		7							
TP118	0.0-0.1		12							
TP127	0.0-0.1		11							
TP120	0.0-0.1		12							
TP121	0.0-0.1		5							
TP124	0.0-0.1		<4							
TP126	0.0-0.1		11							
TP141	0.0-0.1		10							
TP142	0.0-0.1		10							
TP138	0.0-0.1		11							
TP139	0.0-0.1		6							
TP140	0.0-0.1		12							
TP134	0.0-0.1		7							
TP135	0.0-0.1		11							
TP136	0.0-0.1		8							
TP159	0.0-0.1		12							
TP160	0.0-0.1		8							
TP161	0.0-0.1		11							
TP158	0.0-0.1		15							
TP162	0.0-0.1		9							
TP181	0.0-0.1		11							
TP156	0.0-0.1		12							
TP163	0.0-0.1		12							
TP164	0.0-0.1		12							
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP155	0.0-0.1		12							
TP165	0.0-0.1		17							
TP179	0.0-0.1		11							
TP152	0.0-0.1		10							
TP153	0.0-0.1		8							
TP154	0.0-0.1		6							
TP151	0.0-0.1		7							
TP167	0.0-0.1		9							
TP168	0.0-0.1		8							
TP143	0.0-0.1		5							
TP150	0.0-0.1		9							
TP169	0.0-0.1		9							
TP176	0.0-0.1		8							
TP192	0.0-0.1		9							
TP193	0.0-0.1		8							
TP191	0.0-0.1		7							
TP199	0.0-0.1		8							
TP200	0.0-0.1		11							
TP178	0.0-0.1		13							
TP189	0.0-0.1		12							
TP190	0.0-0.1		12							
TP180	0.0-0.1		8							
TP187	0.0-0.1		12							
TP188	0.0-0.1		17							
TP184	0.0-0.1		7							
TP185	0.0-0.1		8							
TP205	0.0-0.1		11							
TP183	0.0-0.1		12							
TP206	0.0-0.1		10							
TP207	0.0-0.1		11							
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP208	0.0-0.1		14							
TP229	0.0-0.1		12							
TP230	0.0-0.1		11							
TP204	0.0-0.1		6							
TP226	0.0-0.1		12							
TP234	0.0-0.1		16							
TP212	0.0-0.1		12							
TP222	0.0-0.1		15							
TP223	0.0-0.1		10							
TP224	0.0-0.1		11							
TP225	0.0-0.1		7							
TP235	0.0-0.1		10							
TP227	0.0-0.1		10							
TP232	0.0-0.1		<4							
TP233	0.0-0.1		11							
TP231	0.0-0.1		11							
TP246	0.0-0.1		10							
TP247	0.0-0.1		14							
TP245	0.0-0.1		14							
TP248	0.0-0.1		14							
TP249	0.0-0.1		13							
TP236	0.0-0.1		14							
TP243	0.0-0.1		11							
TP244	0.0-0.1		16							
TP221	0.0-0.1		10							
TP237	0.0-0.1		10							
TP238	0.0-0.1		11							
TP220	0.0-0.1		11							
TP239	0.0-0.1		11							
TP240	0.0-0.1		8							
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP242	0.0-0.1		10							
TP252	0.0-0.1		12							
TP253	0.0-0.1		8							
TP250	0.0-0.1		***21***							
TP251	0.0-0.1		9							
TP260	0.0-0.1		8							
TP261	0.0-0.1		10							
TP262	0.0-0.1		12							
TP265	0.0-0.1		13							
TP263	0.0-0.1		13							
TP264	0.0-0.1		16							
TP278	0.0-0.1		10							
TP254	0.0-0.1		8							
TP255	0.0-0.1		6							
TP256	0.0-0.1		8							
TP257	0.0-0.1		9							
TP258	0.0-0.1		6							
TP259	0.0-0.1		9							
TP266	0.0-0.1		10							
TP267	0.0-0.1		5							
TP277	0.0-0.1		9							
TP270	0.0-0.1		9							
TP271	0.0-0.1		11							
TP272	0.0-0.1		13							
TP268	0.0-0.1		12							
TP273	0.0-0.1		9							
TP283	0.0-0.1		16							
TP274	0.0-0.1		10							
TP275	0.0-0.1		10							
TP281	0.0-0.1		10							
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Individual Samles

Sample	Depths	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP280	0.0-0.1		14							
TP293	0.0-0.1		14							
TP299	0.0-0.1		8							
TP289	0.0-0.1		6							
TP290	0.0-0.1		8							
TP294	0.0-0.1		12							
TP287	0.0-0.1		12							
TP288	0.0-0.1		12							
TP296	0.0-0.1		10							
TP284	0.0-0.1		9							
TP285	0.0-0.1		15							
TP286	0.0-0.1		8							
TP292	0.0-0.1		11							
TP300	0.0-0.1		11							
TP301	0.0-0.1		13							
EIL's (Interim Urban)			**20**	**3**	**400/1***	**100**	**600**	**1**	**60**	**200**
HILs 'A' Criteria			**100**	**20**	**100**	**1000**	**300**	**15**	**600**	**7000**

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the EIL Criteria or modified Criteria

3) Figures in bold italics that have been underlined and shaded exceed the HILs 'A' Criteria or modified Criteria

4) * Chromium (III)/ Chromium (VI)

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Summary of Analytical Results - pH & Heavy Metals

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Composite Sample

Sample	Depths	HCB	alpha-BHC	gamma-BHC	beta-BHC	Heptachlor	delta-BHC	Aldrin	Heptachlor Epoxide	gamma-Chlordane	alpha-chlordane	Endosulfan I	pp-DDE	Dieldrin	Endrin	pp-DDD	Endosulfan II	pp-DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor	Total OCP
C1	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C2	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C3	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C4	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C5	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C6	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C9	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C10	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C11	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C12	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C13	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C14	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C17	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C18	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C19	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C22	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C23	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C25	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C26	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C27	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C28	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C29	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C32	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C34	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C38	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C41	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C42	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C43	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C45	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C47	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Modified HILs 'A' Criteria						3.33		3.33					66.67	3.33		66.67		66.67				

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the HILs 'A' criteria or Modified Criteria

GeoEnviro Consultancy

TABLE 4 (Page 1 of 3)

Summary of Analytical Results - OCP

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Composite Sample

Sample	Depths	HCB	alpha-BHC	gamma-BHC	beta-BHC	Heptachlor	delta-BHC	Aldrin	Heptachlor Epoxide	gamma-Chlordane	alpha-chlordane	Endosulfan I	pp-DDE	Dieldrin	Endrin	pp-DDD	Endosulfan II	pp-DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor	Total OCP
C48	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C49	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C50	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C51	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C53	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C54	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C55	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C56	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C57	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C59	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C61	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C63	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C64	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C65	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C68	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C70	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C72	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C73	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C75	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C76	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C80	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C81	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C82	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Modified HILs 'A' Criteria						3.33		3.33					66.67	3.33		66.67		66.67				

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the HILs 'A' criteria or Modified Criteria

GeoEnviro Consultancy

TABLE 4 (Page 2 of 3)

Summary of Analytical Results - OCP

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Individual Sample

Sample	Depths	HCB	alpha-BHC	gamma-BHC	beta-BHC	Heptachlor	delta-BHC	Aldrin	Heptachlor Epoxide	gamma-Chlordane	alpha-chlordane	Endosulfan I	pp-DDE	Dieldrin	Endrin	pp-DDD	Endosulfan II	pp-DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor	Total OCP
TP1	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP12	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP28	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP36	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP46	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP 66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP89	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP104	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP108	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP119	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP125	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP133	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP157	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP197	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP201	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP210	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP215	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP267	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP279	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP295	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate A	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate B	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
HILs 'A' Criteria						10		10					200	10		200		200				

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the HILs 'A' criteria or Modified Criteria

GeoEnviro Consultancy

TABLE 4 (Page 3 of 3)
Summary of Analytical Results - OCP

Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Composite Samples

Sample	Depths	Arochlor 1016	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB
C1	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C2	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C3	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C4	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C5	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C6	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C9	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C10	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C11	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C12	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C13	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C14	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C17	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C18	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C19	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C22	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C23	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C25	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C26	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C27	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C28	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C29	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C32	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C34	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C38	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C41	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C42	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C43	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C45	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C47	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
HIL's 'A' Level								3.33

Notes

1) All results are expressed as mg/kg

2) Figures in bold italics that have been underlined exceed the HILs 'A' level

GeoEnviro Consultancy

TABLE 5 (Page 1 of 3)
Summary of Analytical Results - PCB
Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Composite Samples

Sample	Depths	Arochlor 1016	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB
C48	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C49	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C50	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C51	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C53	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C54	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C55	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C56	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C57	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C59	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C61	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C63	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C64	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C65	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C68	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C70	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C72	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C73	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C75	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C76	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C80	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C81	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C82	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
HIL's 'A' Level								3.33

Notes

1) All results are expressed as mg/kg

2) Figures in bold italics that have been underlined exceed the HILs 'A' level

GeoEnviro Consultancy

TABLE 5 (Page 2 of 3)
Summary of Analytical Results - PCB

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Individual Samples

Sample	Depths	Arochlor 1016	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB
TP1	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP12	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP28	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP36	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP46	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP 66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP89	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP104	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP108	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP119	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP125	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP133	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP157	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP197	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP201	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP210	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP215	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP267	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP279	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP295	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate A	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate B	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
HIL's 'A' Level								10

Notes

1) All results are expressed as mg/kg

2) Figures in bold italics that have been underlined exceed the HILs 'A' level

GeoEnviro Consultancy

TABLE 5 (Page 3 of 3)
Summary of Analytical Results - PCB
Villawood Properties Pty Ltd
Proposed Residential Subdivision Development
Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depth	C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	C_{10}-C_{36}	Benzene	Toluene	Ethyl-Benzenes	m+p-Xylene	0-Xylene
TP1	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP12	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP28	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP36	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP46	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP66	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP 66	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP89	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP104	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP108	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP119	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP125	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP133	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP157	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP197	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP201	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP210	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP215	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP267	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP279	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
TP295	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
Duplicate A	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
Duplicate B	0.0-0.1	<25	<50	<100	<100	ND	<0.5	<0.5	<1.0	<2.0	<1.0
NSW DEC (1994)		**65**				**1000**	1	1.4	3.1	14	

Notes

1) All results are expressed as mg/kg unless otherwise specified

2) Figures in bold italics exceed the NSW DEC criteria

3) ND Not detected

GeoEnviro Consultancy

TABLE 6

Summary of Analytical Results - TRH and BTEX

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Prepared By: SL Date: 2/10/2012
Checked By:SG Date: 2/10/2012

Sample	Depths	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total PAHs
TP1	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP12	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP28	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP36	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP46	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP 66	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP89	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP104	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP108	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP119	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP125	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP133	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP157	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP197	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP201	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP210	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP215	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP267	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP279	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
TP295	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
Duplicate A	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
Duplicate B	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	ND
HILs 'A' Level													1				20

Notes

1) All results are expressed as mg/kg

2) Figures in bold italics exceed the HIL's A Guidelines

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TABLE 7

Summary of Analytical Results - PAH

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depth	Asbestos
TP1	0.0-0.1	ND
TP12	0.0-0.1	ND
TP28	0.0-0.1	ND
TP36	0.0-0.1	ND
TP 36	Fibro Piece	ND
TP46	0.0-0.1	ND
TP 46	Fibro Piece	ND
TP66	0.0-0.1	ND
TP 66	Fibro Piece	ND
TP73	0.0-0.1	ND
TP89	0.0-0.1	ND
TP104	0.0-0.1	ND
TP108	0.0-0.1	ND
TP119	0.0-0.1	ND
TP125	0.0-0.1	ND
TP133	0.0-0.1	ND
TP157	0.0-0.1	ND
TP197	0.0-0.1	ND
TP201	0.0-0.1	ND
TP210	0.0-0.1	ND
TP215	0.0-0.1	ND
TP267	0.0-0.1	ND
TP279	0.0-0.1	ND
TP295	0.0-0.1	ND

Note: ND = Not detected

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TABLE 8

Summary of Analytical Results - Asbestos

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields

Sample	Depths	Metals							
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP 125	0.0-0.1	11	0.6	20	12	19	<0.1	7	23
Duplicate A	-	10	<0.5	15	13	18	<0.1	8	27
Relative Percentage Difference (RPD)		9.5	NA	28.6	8.0	5.4	NA	13.3	16.0

Sample	Depths	OCP	PCB	TRH	BTEX	PAH
TP 125	0.0-0.1	ND	ND	ND	ND	ND
Duplicate A	-	ND	ND	ND	ND	ND
Relative Percentage Difference (RPD)		NA	NA	NA	NA	NA

Sample	Depths	Metals							
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP 279	0.0-0.1	11	<0.5	29	3	17	<0.1	5	10
Duplicate B	-	11	0.6	28	4	17	<0.1	5	16
Relative Percentage Difference (RPD)		0.0	NA	3.5	28.6	0.0	NA	0.0	46.2

Sample	Depths	OCP	PCB	TRH	BTEX	PAH
TP 279	0.0-0.1	ND	ND	ND	ND	ND
Duplicate B	-	ND	ND	ND	ND	ND
Relative Percentage Difference (RPD)		NA	NA	NA	NA	NA

Notes

1) All results are expressed as mg/kg .

2) ND - Not Detected

3) NA - Not Applicable

GeoEnviro Consultancy

TABLE 9

Summary of Analytical Results - Quality Assurance

Villawood Properties Pty Ltd

Proposed Residential Subdivision Development

Lot 200 DP 1140580 & Lot B DP 388652 - Bridge Street, Schofields