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Report on
Salinity Investigation and Management Plan

Proposed Rural Residential Development
Horsley Drive, Kemps Creek, NSW

Prepared for
Jacfin Pty Ltd c/- Calibre Group

Project 92240.01
October 2019

Douglas Partners
Geotechnics / Environment / Groundwater

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
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Report on Salinity Investigation and Management Plan
Proposed Rural Residential Development
Horsley Drive, Kemps Creek, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) has been engaged by Calibre Group on behalf of Jacfin Pty Ltd to undertake a Preliminary Salinity Investigation to inform the proposed rural residential subdivision of a portion of land located immediately north west of Burley Road, Horsley Park, NSW. The site location and layout is presented in Drawing 1, Appendix A.

DP understands that Jacfin propose to subdivide the site to provide 16 rural residential lots and associated roadways including effluent disposal infrastructure. The site has previously been investigated as part of a geotechnical investigation undertaken by Consulting Earth Scientists in 2010 (CES, 2010). The geotechnical report has been considered as part of the current investigation (refer to Section 4).

Saline soils affect much of the Western Sydney Region. Buildings and infrastructure located on shales of the Wianamatta Group are particularly at risk. Salinity can affect urban structures in a number of ways, including corrosion of concrete, break-down of bricks and mortar, corrosion of steel (including reinforcement), break-up of roads, attach on buried infrastructure, reduced ability to grow vegetation and increased erosion potential.

The field work for the salinity investigation was undertaken concurrently with a preliminary site investigation (Project 92240.01.R.001) and an effluent disposal assessment (Project 92240.01.R.003), which have been reported separately.

2. Scope of Works

The scope of works for the current investigation comprised the following:

- Review of the following documents detailing Council requirements:
  - ‘Map of Salinity Potential in Western Sydney’, DNR (2002);
  - 'Guidelines to Accompany Map of Salinity Potential in Western Sydney', DNR (2002);
  - 'Western Sydney Salinity Code of Practice' (amended January 2004), Rebecca Nicholson for WSROC, DNR and Natural Heritage Trust;
  - 'Guide to Residential Slabs and Footings in a Saline Environment', Cement, Concrete and Aggregates, Australia (2005);
  - 'Introduction to Urban Salinity', DNR (2003);
  - 'Building in a Saline Environment' DNR (2003);
  - 'Roads and Salinity', DNR (2003);
  - 'Indicators of Urban Salinity', DNR (2002);

- o 'Site Investigations for Urban Salinity', DNR (2002);
- o 'Urban Salinity Processes', DNR (2004);
- o 'Waterwise Parks and Gardens', DNR (2004); and
- o 'Broad Scale Resources for Urban Salinity Assessment' DNR (2002).

- Salinity assessment of the site:
  - o Inspection of the site for signs of salinity; and
  - o Excavation of a total of 56 test pits and bore holes within the site to a maximum depth of 3 m below ground level (bgl) or prior refusal.
- Collection of soil samples from the test pits and bore holes at regular 0.5 m depth intervals;
- Laboratory analysis of selected soil samples for electrical conductivity (EC1:5), pH, chloride, sulphate, sodicity and textural classification by a NATA accredited laboratory for classification of salinity and aggressivity;
- Laboratory analysis of selected soil samples for dispersibility as indicators of erodibility;
- Assessment of the results with respect to potential for salinity impacts on the development; and
- Preparation of this report detailing the methodology and results of the assessment.

3. Site Background

3.1 Site Identification and Description

The site is located in the local government area (LGA) of Penrith City Council and is currently zoned RU4 (Primary Production).

The site comprises the following registered lots:

- Part of Lot A on Deposited Plan (D.P.) 392643 ('Lot A' – approx. 32.9 ha); and
- Lot 21 on D.P. 1010514 ('Lot 21' – approx. 3.1 ha).

The site is characterised by gently undulating topography with a ridgeline running east-west across the southern part of the site. The site slopes towards the north east; the topography ranges from approximately 96 m AHD in the south east portion and 76 m AHD in the north west portion.

3.2 Regional Setting

The site is located in the eastern portion of Kemps Creek suburb. The site is bordered by a quarry and brick manufacturer to the north east, a Costco depot to the west, pastoral land (which forms the remainder of Lot A) to the north west and cleared pastoral/farm land draining to Ropes Creek to the south west.

3.3 Regional Geology

Reference to Geological Survey of New South Wales, *Wollongong – Port Hacking 1:100 000 Geological Map* indicates that the whole site is underlain by Bringelly Shale (Rwb) of the Wianamatta Group characterised by shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff.

3.4 Soils

Reference to the Geological Survey of Soil Conservation Service of NSW, *Penrith 1:100,000 Soils Landscape Sheet* indicates that soils at the site comprise predominantly of:

- Residual soils of the Blacktown Landscape (bt) across the bulk of the site with the exception of the easternmost portion and generally associated with gently undulating and low-rolling hills, broad rounded ridges and crests with gentle slopes. The soils are characterised by yellow podzolic soils and soloths on lower slopes and areas of poor drainage and shallow to moderately deep red podzolic soils on crests, upper slopes and well-drained areas. The soils are moderately reactive with impermeable, highly plastic subsoil, have low fertility and drainage; and
- Erosional soils of the Luddenham Landscape (lu) in the easternmost portion only and generally associated with undulating to rolling low hills on Wianamatta Group shales, often associated with Minchinbury Sandstone. The soils are characterised by moderately deep yellow podzolic soils and prairie soils on lower slopes and drainage lines and shallow dark podzolic soils or massive earthy clays on crests, moderately deep red podzolic soils on upper slopes and

Refer to Figure 1 below for the mapping of site soils.

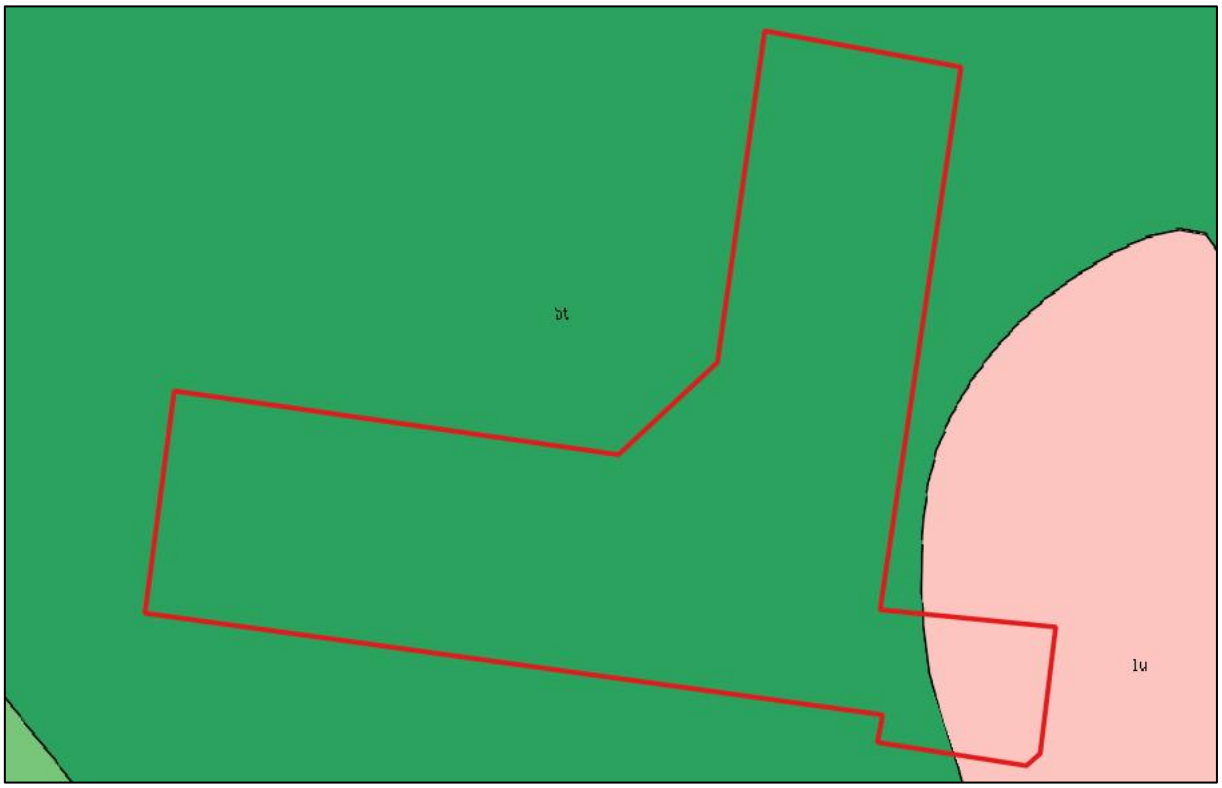


Figure 1: Regional soils mapping at the site (site boundary in red)

3.5 Site Topography

The site topography is generally undulating with elevation ranges between 94 m AHD in the south east and 74 m AHD in the south west and north. The site topography slopes towards the north west, i.e. towards a farm dam located on the adjacent site.

3.6 Hydrogeology and Hydrology

Two ephemeral creeks are located in the eastern portion of the site which drains into a large farm dam located west of the site. A third one located in the south west corner of the site drains from a small farm dam located on Lot 21 towards the south west.

Ropes Creek, which ultimately drains into the Hawkesbury River is located approximately 400 m south west of the site. The Hawkesbury River is located approximately 25 km north of the site.

McNally, G. 2005, *Investigation of Urban Salinity – Case Studies from Western Sydney*, 2005 describes some general features of the hydrogeology of Western Sydney which are relevant to this site. The shale terrain of much of Western Sydney is known for saline groundwater, resulting either from the release of connate salt in shales or marine origin of from the accumulation of windblown sea salt. Seasonal groundwater level changes of 1 m - 2 m can occur in shallow regolith aquifers or a deeper shale aquifer due to natural influences.

Previous investigations undertaken by DP in the area underlain by Wianamatta Group shales indicate that:

- The shales have a very low intrinsic permeability and, hence, groundwater flow was likely to be dominated by fracture flow with resultant low yields (typically <1 L/s) in bores; and
- The groundwater in the Wianamatta Group is typically brackish to saline with total dissolved solids (TDS) in the range 4000 - 5000 mg/L (but with cases of TDS up to 31750 mg/L being reported). The dominant ions are typically sodium and chloride and the water being generally unsuitable for livestock or irrigation.

A search of the NSW Department of Planning, Industry and Environment groundwater bore database indicated that there are no registered groundwater bores on the site. The nearest groundwater bores (two bores) are located just under 1 km north west of the site. Available information on the two bores of relevance to this report are provided below:

- GW100447: Drilled to a depth of 29.6 m for unknown purposes. The recorded standing water level was 2.89 m (presumably bgl) and the recorded salt concentrations were 22,900 mg/L (highly saline); and
- GW100290: Drilled to a depth of 80 m for unknown purposes. No water information was available.

Based on site topography and the location of surface water features in the general area it is anticipated that groundwater is present in shale beneath the site and flows towards the north west.

3.7 Salinity

Reference to the Department of Infrastructure, Planning and Natural Resources *Salinity Potential in Western Sydney* (2002), indicates that the site is located in an area mapped as having a moderate salinity potential (pale orange). It is noted that highly saline soils (dark orange) have been mapped on and to the north west of the large farm dam located to the north east of the site.

These classifications are based on regional hydrology and landform geology and it is noted that due to the resolution at the scale of the mapping, it is not possible to delineate the zone boundaries with precision. Refer Figure 2 below.

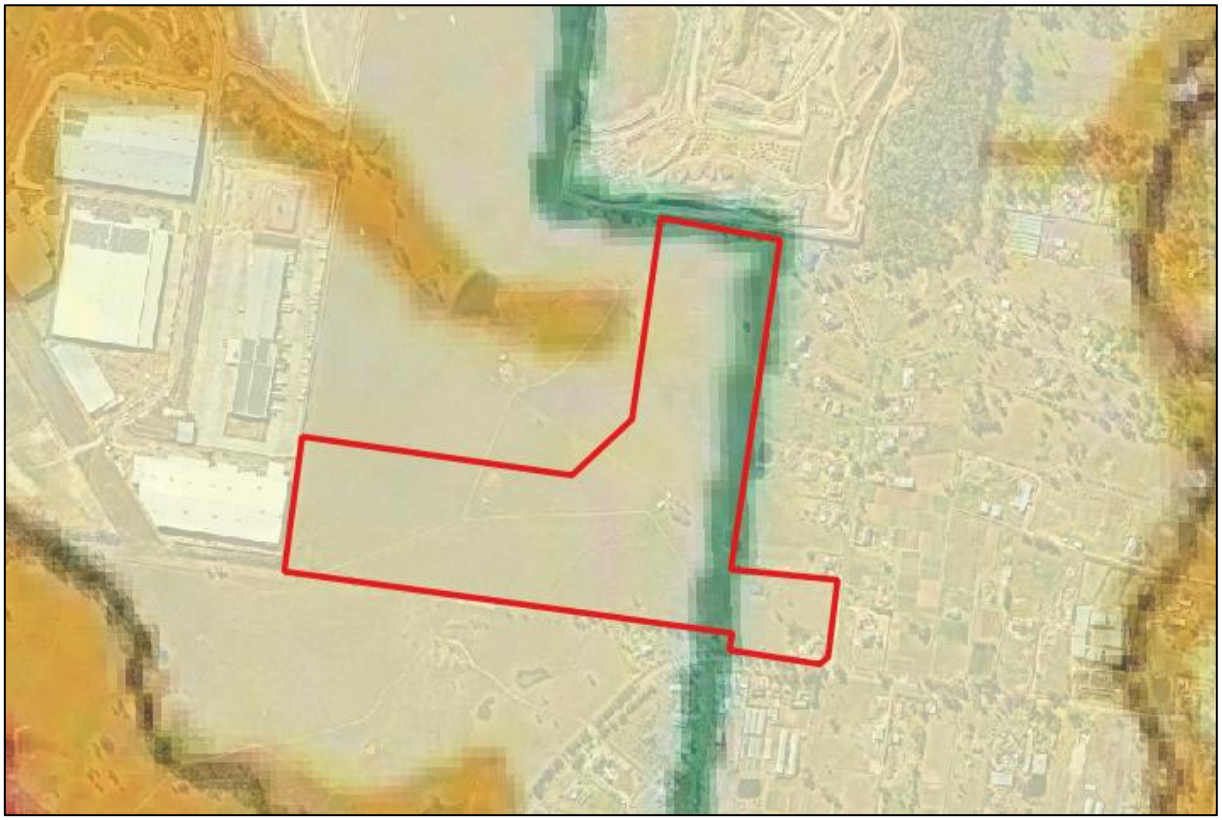


Figure 2: Regional salinity mapping at the site (site boundary in red)

4. Previous Investigations

As previously discussed (Section 1), CES have previously carried out a preliminary geotechnical investigation for the site and the wider Lot A area. It is noted that the CES report does not include Lot 21. Key findings of relevance to this investigation are outlined below:

- Two of the five bore holes completed by CES are located on the current site (BH4 and BH5) which generally observed clay/sandy gravelly clay above interbedded shale and sandstone. Groundwater seepage was not observed during drilling however recovered groundwater levels ranged between 1.6 and 3.8 m bgl / 66 and 84.5 m AHD. Based on the levels observed, groundwater was likely present at the interfaces between residual soil and weathered rock;

- Limited soil analytical data for salinity indicated the following:
  - Salinity levels indicated soils were generally very slightly to moderately saline;
  - regolith below the site is not likely to be dispersive;
  - relatively neutral soil pH conditions;
  - relatively low concentrations of chloride and sulphate; and

  The actual observed sodicity of the soils did not appear to have been discussed by CES.

5. Field Work Methods

Field work was undertaken by a DP environmental scientist between 29 August 2019 and 6 September 2019 as part of a effluent disposal assessment and contamination investigation and using a Hyundai 60 CR-9 6 tonne backhoe fitted with a 450 mm bucket. A total of 82 test pits were carried out for the whole investigation of which included the following:

- Pits 1 to 72:
  - 44 grid based test pits to inform the salinity investigation only; and
  - 28 grid-based test pits to inform the salinity and the septic investigation and the DSI.
- Pits 73 to 82 (10 test pits) targeting possible sources to inform the DSI only. With the exception of observed soils, these test pits will not be further discussed here.

6. Results

6.1 Field Work Results

The test pit logs are included in Appendix B, together with notes defining classification methods and descriptive terms.

Of the 82 test pits completed, 23 were carried out to depths where bedrock was observed. Bedrock included primarily siltstone and sandstone with localised claystone and shale which are observed amongst the Wianamatta Group Bringelly Shales (refer to Section 3.3). The general strata encountered investigation across the site are summarised as follows:

- FILLING: Filling was observed in eight (Pits 5, 32, 66, 70, 76, 77, 81 and 82) out of the 82 test pits completed (10% of test pits) to depths of up to 0.5 m (0.2 m on average) and comprised reworked natural silty clays and clayey silts with siltstone gravels in places.
- TOPSOIL: Topsoil comprising clayey silty/silty clay with rootlets was observed in 77 out of the 82 test pits completed (93% of test pits) to depths of up to 0.5 m (0.2 m on average).
- CLAYEY SILT: Dark/pale brown clayey silts with ironstone gravels were observed in nine out of the 82 test pits completed (11% of test pits) generally overlying silty clays.
- SILTY CLAY: Red/orange mottled pale grey and brown firm silty clays with trace ironstone gravels in places were observed in 80 out of the 82 test pits completed (98% of test pits) to depths of up to 2.6 m bgl (1.5 m bgl on average).

- In one test pit (Pit 4) red mottled pale brown SILTS were observed below topsoil to the base of the pit (0.9 m bgl +);
- BEDROCK:
  - CLAYSTONE: Pale grey/brown firm weathered claystone was observed in Pits 60 and 64 to depths of 1.5 m and below the base of the pit (2.2 m);
  - SILTSTONE: Brown grey/orange weathered firm siltstone was observed in 23 test pits to depths of between 1.5 m and below the base of the pit (3 m +). Silty clay was observed as discrete layers within the siltstone in Pit 52.
  - SANDSTONE: Brown / orange / red / pale grey fine grained weathered, sandstone was observed in 16 test pits to depths of between 1.1 m and below the base of the pit (3 m +); and
  - SHALE: Dark grey firm, weathered shale was observed in five test pits (Pits 43, 58, 59, 66 and 69) to the base of the test pit, with the exception of pit 58 where it was observed above siltstone.

6.2 Spatial Mapping

Salinity and aggressivity within the site was classified by utilising maxima/minima analysis within the full investigated depth zone 0 - 6 m bgl (or prior refusal). Maximum values were used for the mapping. The summary table (Appendix C) presents aggressivities and salinities for each test pit location, based on minimum pH, minimum electrical resistivity and maximum ECe values within the investigated depth zone.

6.3 Laboratory Results

The laboratory test results and assessments of aggressivity, salinity, sodicity and dispersibility are summarised in Appendix C. Aggressivity to concrete was determined using pH values and sulphate concentrations and aggressivity to steel was determined using pH values, chloride concentration and resistivities. The salinity class was inferred from ECe values using the method of Richards (1954) and sodicity was determined using the cation-exchange-capacity (CEC) and exchangeable sodium concentrations. Dispersion potentials were derived from Emerson Crumb Tests. The detailed laboratory test reports and chain of custody documents are provided in Appendix D.

Table 1: Summary of Parameters Tested

Parameter		Units	Samples	Minimum	Maximum
pH		pH units	263	4.5	9.7
Chlorides		(mg/kg)	46	<10	1200
Sulphates		(mg/kg)	46	<10	480
Aggressivity	to Concrete	[AS2159]	-	Non-Aggressive	Mild
	to Steel	[AS2159]	-	Non-Aggressive	Moderate
Exchangeable Sodium (Na)		(meq/100g)	37	0.3	5.2

Parameter	Units	Samples	Minimum	Maximum
CEC (cation exchange capacity)	(meq/100g)	37	5.0	47.0
Sodicity [Na/CEC]	(ESP%)	37	1.9	37.8
Sodicity Class	[after DLWC]	-	Sodic	Highly Sodic
EC1:5 [Lab.]	(mS/cm)	263	24	1,300
Resistivity	Ω.cm	263	769	41,667
ECe [M x EC1:5] [1]	(dS/m)	257	0.2	9.1
Salinity Class	[after Richards 1954]	-	Non-Saline	Very Saline

1 M is soil textural factor

6.4 Aggressivity

Figure 3 presents variations of aggressivity with depth, based on pH profiles at all sampling locations, together with class ranges indicated in the Australian Standard AS2159 (2009). The absence of free groundwater in all locations and the permeability of the sampled clay-rich soils at all sampling locations indicate that soils are in Condition “B” as defined by AS2159.

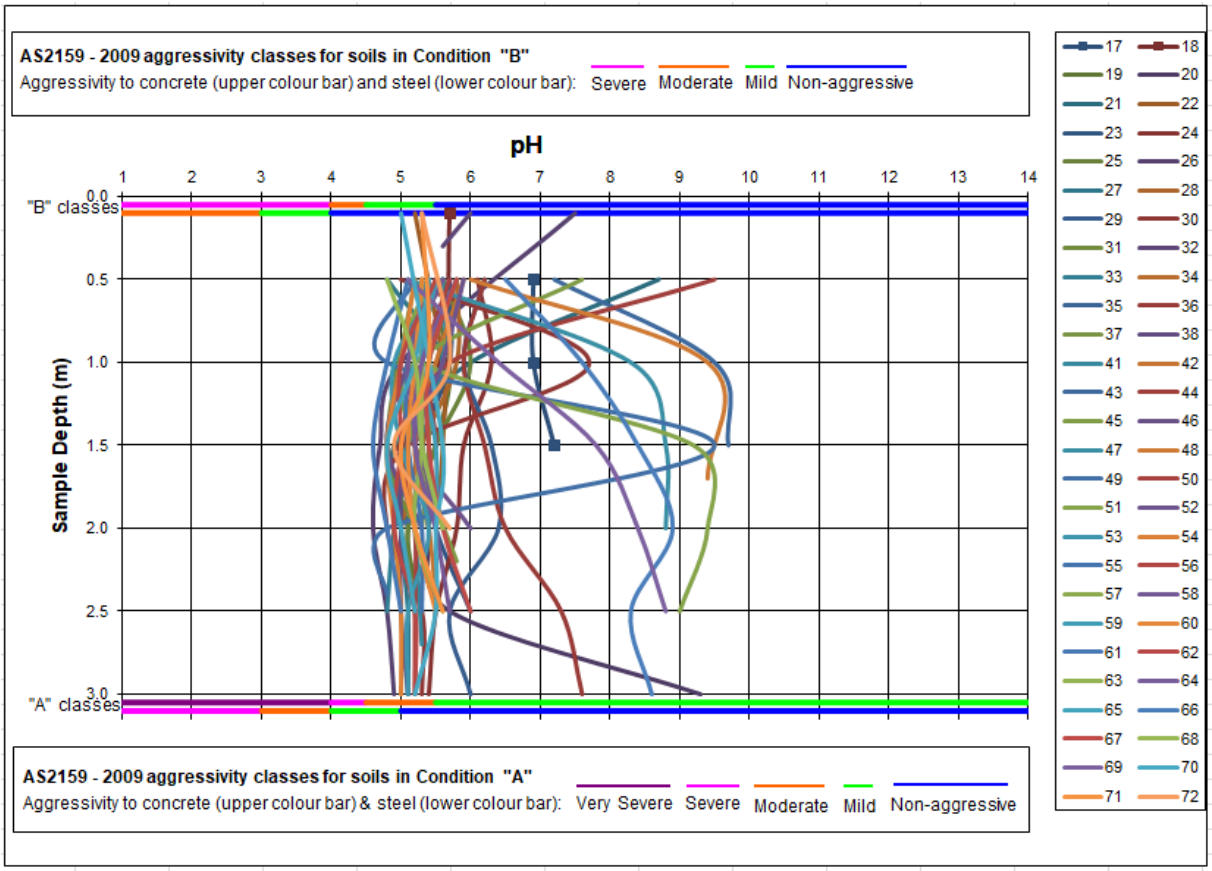


Figure 3: Vertical pH Profiles and Aggressivity Classes

Figure 3 shows non-aggressive to mildly aggressive classifications of soils based on pH values, as well as from observed sulfate and chloride concentrations. It is noted that sample resistivity data indicates slightly more aggressive soil conditions, with classes up to moderately aggressive observed. This is further detailed below.

The summary table (Appendix C) indicates that 38% of all tested samples were non-aggressive to concrete and the remaining majority (62%) were mildly aggressive. The pH profiles of Figure 2 indicate that the materials throughout the site, at all investigated depths were non-aggressive to steel based on soil pH. Using sample resistivity data, the aggressivity to steel ranged between non-aggressive (70%), mildly aggressive (29%) and moderately aggressive (1% - Pits 66 and 69 at depths of 0.5 and 1 m).

The worst case results for each proposed building slab and/or proposed lot were used to define approximate areas of non-aggressive, mild aggressivity and moderate aggressivity to concrete and steel below current ground surface (Drawing 2, Appendix A).

6.5 Salinity

Figure 4 presents the variations of salinity with depth, based on salinity (ECe) profiles at all sampling locations, together with the salinity classifications of Richards (1954).

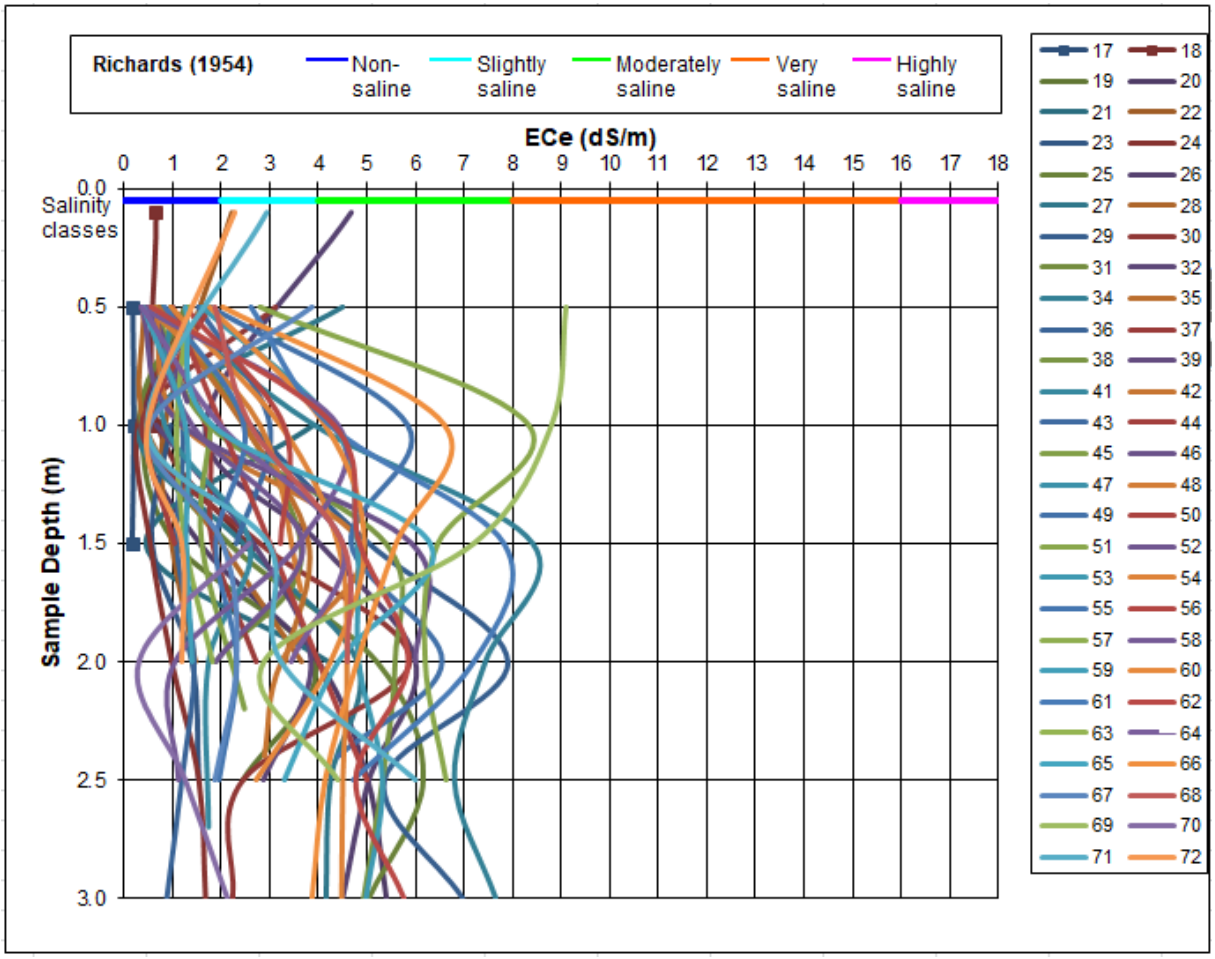


Figure 4: Vertical Salinity Profiles and Salinity Classes

The summary table (Appendix C) indicates that 44% of soil samples were non-saline, 24% were slightly saline, 30% were moderately saline and 4% were very saline. The more saline soils generally correlated with lower elevations, along drainage lines, and the lesser saline soils generally correlated with soils located at the top of the ridgeline.

As, for aggressivity, worst case ECe values were interpolated and contoured for each proposed building slab and/or proposed lot to define areas of differing salinity types (see Drawing 3, Appendix A).

6.6 Sodicity and Dispersibility

The sodicity test reported in the summary table, Appendix C, shows non-sodic to highly sodic soils, indicating potential for erodibility of soils left exposed. Approximately 73 % of the samples analysed were classified as highly sodic.

The dispersion potential of the soils, as measured by the Emerson Crumb Test (refer Appendix C), were determined to be as follows:

- Class 1 (complete dispersion) – Pit 48 (1 m – medium clay);
- Class 2 (some dispersion) – Pit 29 (1 m bgl – loam), Pit 35 (0.5 m – heavy clay), Pit 36 (2 m – clay loam), Pit 37 (1 m – medium clay), Pit 43 (0.5 m – light clay), Pit 46 (1 m – heavy clay), Pit 56 (0.5 m – heavy clay), Pit 58 (1 m – medium clay), Pit 59 (1 m – medium clay); and
- Class 5 and 6 (no dispersion) – Pit 34 (1.5 m bgl – light clay), Pit 39 (0.5 m – clay loam), Pit 53 (1 m – heavy clay).

Given the Emerson Crumb Class Numbers recorded, it is likely soils at the site have the potential to exhibit poor drainage and water logging is likely to occur.

7. Impacts on the Proposed Development

Soils that are mildly aggressive to concrete, mildly to moderately aggressive to steel and ranging from slightly saline to very saline material and sodic to highly sodic soils have been observed across the site. These conditions are naturally occurring features of the local landscape and are not considered to be significant impediments to the proposed development, provided appropriate remediation or management techniques are employed.

Salinity and aggressivity affects the durability of concrete and steel by causing premature breakdown of concrete and corrosion of steel. This has impacts on the longevity of structures in contact with these materials. The level of salinity and aggressivity is lower than that typically found in south western Sydney; nonetheless some management measures will be required during subdivision constructions.

Sodic soils have low permeability due to infilling of interstices with fine clay particles during the weathering process, restricting infiltration of surface water and potentially creating perched water tables, seepage in cut faces or ponding of water in flat open areas. In addition, sodic soils tend to erode when exposed. Management of sodic soils is therefore required to prevent these adverse effects.

8. Salinity Management Plan

The current salinity investigation indicates that materials within the site are non-saline to very saline. Testing of other parameters associated with salinity indicates that the materials within the site are non-aggressive to mildly aggressive to concrete and non-aggressive to moderately aggressive to steel (in accordance with AS 2159). In addition, 73% of soils analysed were highly sodic.

The following management strategies are confined to the management of those factors mentioned above, with a potential to impact on the proposed development.

A. Sodic soils can also be managed by maintaining vegetation where possible and planting new salt tolerant species. The addition of organic matter, gypsum and lime can also be considered where appropriate. After gypsum addition, reduction of sodicity levels may require some time for sufficient infiltration and leaching of sodium into the subsoils, however capping of exposed sodic material should remain the primary management method. Topsoil added at the completion of bulk earthworks is, in effect, also adding organic matter which may help infiltration and leaching of sodium.

B. Avoiding water collecting in low lying areas, in depressions, or behind fill. This can lead to water logging of the soils, evaporative concentration of salts, and eventual breakdown in soil structure resulting in accelerated erosion.

C. Any pavements should be designed to be well drained of surface water. There should not be excessive concentrations of runoff or ponding that would lead to waterlogging of the pavement or additional recharge to the groundwater through any more permeable zones in the underlying filling material.

D. Surface drains should generally be provided along the top of batter slopes to reduce the potential for concentrated flows of water down slopes possibly causing scour.

E. Salt tolerant grasses and trees should be considered for landscaping, to reduce soil erosion as in Strategy A above and to maintain the existing evapo-transpiration and groundwater levels. Reference should be made to an experienced landscape planner or agronomist.

The following additional strategies are recommended for completion of service installation and for house construction. These strategies should be complementary to standard good building practices recommended within the Building Code of Australia, including cover to reinforcement within concrete and correct installation of a brick damp course, so that it cannot be bridged to allow moisture to move into brick work and up the wall.

F. Where soils are classified as non-aggressive to concrete, piles should nevertheless have a minimum strength of 32 MPa and a minimum cover to reinforcement of 45 mm (as per AS2159).

G. Where soils are classified as mildly aggressive to concrete, piles should have a minimum strength of 32 MPa and a minimum cover to reinforcement of 60 mm (as per AS2159) to limit the corrosive effects of the surrounding soils (in accordance with AS2159).

H. With regard to concrete structures, for non-saline and slightly saline soils (with salinities less than 4 dS/m) (refer Drawing 3):

- Where soils are classified as non-aggressive to concrete (AS3600 – A1), slabs and foundations should have a minimum strength of 20 MPa, and should be allowed to cure for a minimum of three days (as per AS3600) to limit the corrosive effects of the surrounding soils; and
- Where soils are classified as mildly aggressive to concrete (AS3600 – A2), slabs and foundations should have a minimum strength of 25 MPa, and should be allowed to cure for a minimum of three days (as per AS3600) to limit the corrosive effects of the surrounding soils.

I. With regard to concrete structures, for moderately saline soils with salinities of 4 – 8 dS/m (refer Drawing 3);

- Where soils are classified as non-aggressive to concrete (AS3600 – A1) (Drawing 2), slabs and foundations should have a minimum strength of 25 MPa, a minimum cover to reinforcement of 45 mm from unprotected ground and should be allowed to cure for a minimum of three days (as per AS3600) to limit the corrosive effects of the surrounding soils; and
- Where soils are classified as mildly aggressive to concrete (AS3600 – A2) (Drawing 2), slabs and foundations should have a minimum strength of 25 MPa, a minimum cover to reinforcement of 45 mm from unprotected ground and should be allowed to cure for a minimum of three days (as per AS3600) to limit the corrosive effects of the surrounding soils.

J. A. With regard to concrete structures, for very saline soils with salinities of 8 – 16 dS/m (refer Drawing 3);

- Where soils are classified as non-aggressive to concrete (AS3600 – A1) (Drawing 2), slabs and foundations should have a minimum strength of 32 MPa, a minimum cover to reinforcement of 50 mm from unprotected ground and should be allowed to cure for a minimum of seven days (as per AS3600) to limit the corrosive effects of the surrounding soils; and
- Where soils are classified as mildly aggressive to concrete (AS3600 – A2) (Drawing 2), slabs and foundations should have a minimum strength of 32 MPa, a minimum cover to reinforcement of 50 mm from unprotected ground and should be allowed to cure for a minimum of seven days (as per AS3600) to limit the corrosive effects of the surrounding soils.

K. Any future installation of concrete pipes up to a maximum diameter of 750 mm, in the defined areas of moderately to very saline or mildly to moderately aggressive soil at services depths, should employ fibre reinforced cement. Alternatively, concrete pipes in these areas should be encased in outer PVC conduits or should have a minimum equivalent strength as defined in L and M above.

L. Wet cast concrete pipes and currently manufactured spun concrete pipes are understood to have estimated compressive strengths of 50 MPa and 60 – 70 MPa, respectively, in excess of the requirements for mass concrete in J and K above. Reference to the maximum and minimum test results of Table 1 (Section 7 of this report) and to Tables E1 and 3.1 of AS4058 – 2007 "Precast concrete pipes" indicates that the site falls within the AS4058 Clay/Stagnant (low sulphate) soil type (chlorides <=20,000 ppm, pH>=4.5 and sulphates <=1,000 ppm) and (in the absence of tidal water flow) falls within the AS4058 Normal durability environment. Under these conditions, AS4058-compliant reinforced concrete pipes of general purpose Portland cement, with a minimum cover to reinforcement of 10 mm, are expected to have a design life in excess of 100 years. Any concrete pipes installed within the site should employ AS4058-compliant steel reinforced pipes of general purpose Portland cement, with minimum cover to reinforcement of 10 mm, or should be fibre reinforced. Any future installation of concrete pipes up to a maximum diameter of 750 mm, in the defined areas of moderately to very saline or mildly to moderately aggressive soil at services depths, should employ fibre reinforced cement. Alternatively, concrete pipes in these areas should be encased in outer PVC conduits or should have a minimum equivalent strength as defined above.

M. Resistivity results indicate soils that are aggressive to steel (Drawing 2, Appendix A). This drawing identifies mild aggressivity to steel (1000 – 2000 Ohm-cm) and one area of moderate aggressivity steel (<1000 Ohm-cm) over the site. For these areas of soil identified as mildly aggressive to steel (Pit 66) , the following corrosion allowances (as per AS 2159 – 2009) should be taken into account by the designer:

- Mild: uniform corrosion allowance 0.01 – 0.02 mm/year;
- Moderate: uniform corrosion allowance 0.02 – 0.04 mm/year.

In instances where a coating is applied to the pile, if the design life of the pile is greater than the design life for the coating, consideration must be given to corrosion of the pile in accordance with the above list.

9. Additional Recommendations and Conclusion

Additional investigation should be undertaken in development areas which are to be excavated deeper than 3 m, where direct sampling and testing of salinity has not been carried out. Salinity management strategies herein may need to be modified or extended following additional investigations by deep test pitting and/or drilling, sampling and testing for soil and water pH, electrical conductivity, TDS, sodicity, sulphates and chlorides. Such works, if required, could be conducted when final cut and fill requirements have been determined.

It is considered that the management strategies described herein when incorporated into the design and construction works are appropriate to mitigate the levels of salinity, aggressivity and sodicity identified at the Site.

10. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report (or services) for this project at Horsley Drive, Kemps Creek, NSW in accordance with DP's proposal MAC190193 dated 22 August 2019 and acceptance received from Bruce Gunn of Calibre Group dated 21 August 2019 on behalf of Jacfin Pty Ltd. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Jacfin Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

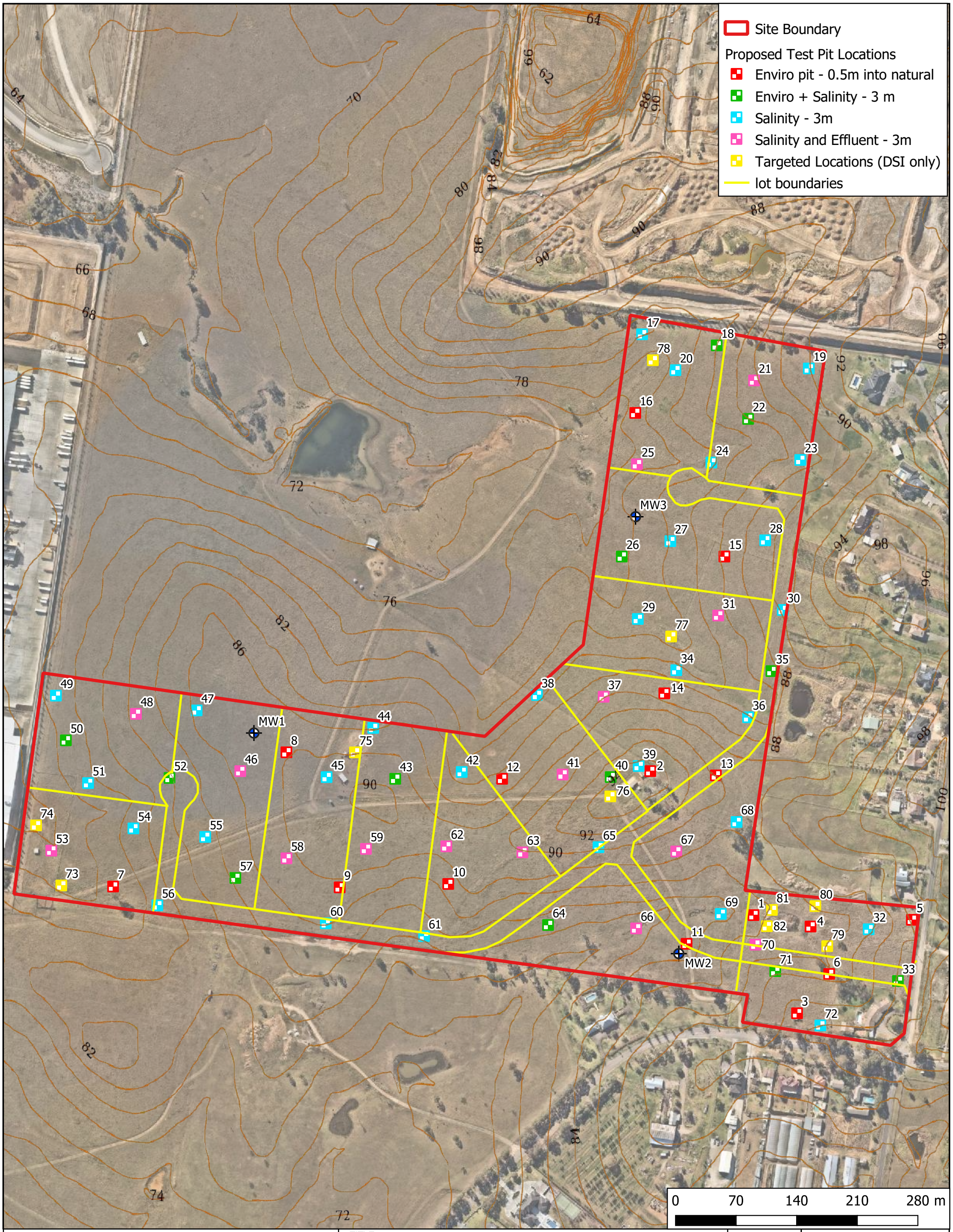
The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical / environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

Drawings 1 to 3

About This Report



Douglas Partners Geotechnics / Environment / Groundwater	TITLE: **Site Layout and Test Pit Plan** **Proposed Rural Residential Subdivision** **Horsley Drive, Kemps Creek, NSW**			OFFICE: Macarthur
				DRAWN BY: LOC / EMG
				DATE: 2 October 2019
CLIENT: Jacfin Pty Ltd	PROJ. #: 92240.01	DRAWING No: 1	REVISION: 0	SCALE: As Shown

100 0 100 200 300 400 m

Legend

Aggrestivity to Steel

- Moderately Aggrssive
- Mildly Aggressive
- Non Aggressive
- lot boundaries
- proposed building slabs

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Jacfin Pty Ltd		TITLE: **Aggrestivity to Steel** **Proposed Rural Residential Subdivision** **Horsley Drive, Kemps Creek, NSW**
	OFFICE: Macarthur	DRAWN BY: LOC	
	SCALE: As shown	DATE: 02.10.2019	

N

MGA

PROJ. #:	92240.01
DRAWING No:	2
REVISION:	0

100 0 100 200 300 400 m

Legend

Salinity

- Non-Saline
- Slightly Saline
- Moderately Saline
- Very Saline
- lot boundaries
- proposed building slabs

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Jacfin Pty Ltd	
	OFFICE: Macarthur	DRAWN BY: LOC
	SCALE: As shown	DATE: 02.10.2019

TITLE: **Salinity**
Proposed Rural Residential Subdivision
Horsley Drive, Kemps Creek, NSW

N
MGA

PROJ. #:	92240.01
DRAWING No:	3
REVISION:	1

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

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

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

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

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

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

Appendix B

Soil Logs

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298520
NORTHING: 6253253

PIT No: 1
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		Clayey SILT: brown mottled grey, trace rootlets, w>PL, firm		D	0.1				
		- becoming orange- brown mottled pale grey, trace rootlets, w~PL, firm below 0.5m		D	0.6				
	1								1
	1.1	Pit discontinued at 1.1m - limit of investigation							
	2								2
	3								3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298401
NORTHING: 6253419

PIT No: 2
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.1	TOPSOIL/Clayey SILT: brown, trace rootlets and insect holes		D	0.05				
		Silty CLAY: red, w<PL, very stiff		D	0.5				
	0.7	Pit discontinued at 0.7m - limit of investigation							
	1								
	2								
	3								

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated next to metal sheds

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298571
NORTHING: 6253139

PIT No: 3
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Silty CLAY: brown, with rootlets		D*	0.1				
	0.7	Silty CLAY: red mottled pale brown, w<PL, very stiff		D	0.5				
	1	Pit discontinued at 0.7m - limit of investigation							
	2								
	3								

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD1/060919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298586
NORTHING: 6253239

PIT No: 4
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		SILT: pale grey mottled orange, trace rootlets, w>PL, firm		D	0.1				
		- becoming red mottled pale brown, w~PL, firm below 0.4m		D	0.5				
	0.9	Pit discontinued at 0.9m - limit of investigation							
	1								1
	2								2
	3								3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298703
NORTHING: 6253247

PIT No: 5
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		FILL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.2	FILL/Clayey SILT: pale grey, orange, red, dark grey and brown, with siltstone gravel - brick at 0.3m		D	0.5				
	1			D	1.0				
		- becoming brown, orange and red, with siltstone gravel below 1.5m		D	1.5				
	2			D	2.0				
		- asphaltic cement cobbles at 2.2m		D	2.5				
	2.6	Clayey SILT: dark brown, w<PL, firm (prior topsoil layer)							
	2.8	Silty CLAY: red mottled pale grey, w~PL, firm							
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD3/060919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298608
NORTHING: 6253185

PIT No: 6
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: dark brown, trace rootlets, w~PL		D	0.1				
	0.4	Silty CLAY: red mottled pale brown, w>PL, firm		D	0.5				
	0.9	Pit discontinued at 0.9m - limit of investigation							
	1								1
	2								2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on drainage channel, likely offrun from septic system, organic/sewage odour

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297780
NORTHING: 6253286

PIT No: 7
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.1	TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.45	Clayey SILT: pale brown, trace ironstone gravel and rootlets		D	0.3				
	0.8	Silty CLAY: red mottled pale grey and brown, w<PL, hard		D	0.5				
		Pit discontinued at 0.8m - limit of investigation							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD4/290819 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297981
NORTHING: 6253441

PIT No: 8
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: pale brown, with rootlets to 0.1m		D*	0.1				
	0.3	Silty CLAY: red mottled pale brown, trace ironstone gravel, w<PL, stiff		D	0.5				
	0.8	Pit discontinued at 0.8m - limit of investigation							
	1								1
	2								2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD1/300819 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298042
NORTHING: 6253285

PIT No: 9
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets		D	0.1				
	0.2	Silty CLAY: red and pale grey, trace rootlets, w<PL, firm		D	0.5				
		- becoming pale grey mottled red and orange brown below 0.7m							
	1.0	Pit discontinued at 1.0m - limit of investigation							

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20; 1, 2, 3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298168
NORTHING: 6253289

PIT No: 10
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets, w<PL		D*	0.1				
	0.2	Silty CLAY: pale orange brown mottled red, trace rootlets, w<PL, firm		D	0.5				
	0.8	Pit discontinued at 0.8m - limit of investigation							
	1								
	2								
	3								

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/290819 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298443
NORTHING: 6253219

PIT No: 11
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		TOPSOIL/Clayey SILT: dark brown, with rootlets		D*	0.1				
	0.2	Silty CLAY: brown mottled orange and pale grey, w~PL, firm		D	0.5				
		- becoming pale grey and pale orange brown, w~PL, firm below 0.7m							
	1								1
	1.1	Pit discontinued at 1.1m - limit of investigation							
	2								2
	3								3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD1/290819 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298230
NORTHING: 6253410

PIT No: 12
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, with rootlets		D	0.1				
	0.3	Silty CLAY: red mottled pale brown, w<PL, stiff		D	0.5				
	0.9	Pit discontinued at 0.9m - limit of investigation							
	1								1
	2								2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298477
NORTHING: 6253414

PIT No: 13
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.8	Silty CLAY: red mottled brown, w~PL, firm		D	0.5				
	1	Pit discontinued at 0.8m - limit of investigation							
	2								
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD4/020919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298417
NORTHING: 6253509

PIT No: 14
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
		Silty CLAY: red mottled pale brown, w<PL, very stiff		D	0.5				
		- becoming pale grey mottled red, w<PL, very stiff below 0.6m							
	1.0	Pit discontinued at 1.0m - limit of investigation							

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20; 1, 2, 3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD5/020919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298487
NORTHING: 6253667

PIT No: 15
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.8	Silty CLAY: red mottled pale grey, w<PL, firm		D	0.5				
	1	Pit discontinued at 0.8m - limit of investigation							
	2								
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/050919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298384
NORTHING: 6253833

PIT No: 16
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.2	Silty CLAY: orange brown mottled red, trace ironstone gravel, w<PL, very stiff		D	0.5				
	1	- becoming pale brown mottled pale orange, w~PL, firm below 0.8m							
	1.1	Pit discontinued at 1.1m - limit of investigation							
	2								
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD3/050919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298392
NORTHING: 6253924

PIT No: 17
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace rootlets							
		Silty CLAY: red mottled brown, trace rootlets, w<PL, firm		D	0.5				
	0.7	SANDSTONE: fine grained, brown, orange and pale grey, distinctly weathered, very low to low strength		D	1.0				
	1.5	Pit discontinued at 1.5m - refusal on low strength sandstone		D	1.5				

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298478
NORTHING: 6253911

PIT No: 18
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.1	TOPSOIL/Clayey SILT: dark brown, with rootlets							
		Silty CLAY: red mottled pale grey, w<PL, firm		D	0.1				
				D	0.5				
	1	- becoming pale grey mottled orange, w<PL, firm below 0.9m		D	1.0				1
	1.3	SANDSTONE: fine grained, grey, brown and red, distinctly weathered, low strength							
	1.5	Pit discontinued at 1.5m - refusal on low strength sandstone		D	1.5				
	2								2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298584
NORTHING: 6253884

PIT No: 19
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.05	TOPSOIL/Clayey SILT: brown							
		Silty CLAY: red mottled pale grey, w<PL, stiff		D	0.5				
	1			D	1.0				1
		- becoming pale grey mottled orange and red, with bands of grey and red low strength siltstone, w<PL, very stiff below 1.2m		D	1.5				
	2			D	2.0				2
	2.3	SILTSTONE: brown, grey and orange, distinctly weathered, low strength							
	2.5	Pit discontinued at 2.5m		D	2.5				
		- refusal on low strength siltstone							
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated in potential cut area

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298430
NORTHING: 6253882

PIT No: 20
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, w~PL, firm		D	0.5				
		- becoming orange brown mottled pale grey and red, trace sand, w~PL, firm below 0.8m		D	1.0				
	1.4	SANDSTONE: fine grained, pale brown, brown, orange and grey, highly weathered, very low strength		D	1.5				
	1.8	Silty CLAY: pale grey mottled orange, trace siltstone gravel, w<PL, firm		D	2.0				
				D	2.5				
	3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298521
NORTHING: 6253871

PIT No: 21
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale grey, w<PL, stiff		D	0.5				
		- becoming red, pale grey and orange, firm below 0.7m							
	1			D	1.0				1
		- becoming pale grey mottled dark red, stiff below 1.1m							
				D	1.5				
	2 2.0			D	2.0				2
	2.1	SANDSTONE: fine grained, red, pale grey and orange, distinctly weathered, low strength							
		Pit discontinued at 2.1m - refusal on low strength sandstone							
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298514
NORTHING: 6253826

PIT No: 22
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.1	TOPSOIL/Clayey SILT: brown, trace rootlets							
		Silty CLAY: red mottled pale brown, w~PL, firm		D*	0.1				
				D	0.5				
		- becoming pale grey, pale orange and red, with bands of low strength siltstone, w~PL, firm below 0.7m							
	1			D	1.0				1
	1.3	SILTSTONE: pale grey, orange and red, highly weathered, very low strength							
				D	1.5				
	1.8	SANDSTONE: fine grained, pale brown, pale grey and red, distinctly weathered, low strength							
	2 2.0	Pit discontinued at 2.0m		D	2.0				2
		- refusal on low strength sandstone							
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD4/050919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298574
NORTHING: 6253779

PIT No: 23
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: dark brown, trace rootlets							
	0.3	Silty CLAY: red mottled brown, w~PL, firm		D	0.5				
	1			D	1.0				
		- becoming red and pale grey, trace gravel, w~PL, firm below 1.3m		D	1.5				
	1.8	SILTSTONE: pale grey and brown, trace fine grained sand, highly weathered, low strength							
	2			D	2.0				
	2.5	Pit discontinued at 2.5m		D	2.5				
		- refusal on low strength siltstone							
	3								

Dynamic Penetrometer Test (blows per mm) scale: 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298472
NORTHING: 6253776

PIT No: 24
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/SILT: brown, trace rootlets							
	0.3	Silty CLAY: red mottled brown, w<PL, firm		D	0.5				
	1	- becoming pale grey mottled orange, with orange brown sand, w<PL, firm below 1.0m		D	1.0				1
	1.3	SANDSTONE: fine grained, pale brown, pale grey and pale orange, distinctly weathered, very low to low strength		D	1.5				
	1.8	Sandy CLAY: pale brown, orange and red, w<PL, stiff (extremely weathered sandstone)							
	2			D	2.0				2
		- bands of fine grained golden brown and pale grey low strength sandstone below 2.5m		D	2.5				
	3								3
	3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on drainage channel

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298386
NORTHING: 6253774

PIT No: 25
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace rootlets							
		Clayey SILT: red, w<PL, firm		D	0.5				
	0.6	Silty CLAY: red mottled pale brown, w<PL, firm		D	1.0				
		- becoming red mottled grey and orange, trace red siltstone gravel, trace ironstone gravel, w<PL, very stiff below 1.2m		D	1.5				
		- becoming pale grey mottled red, w~PL, stiff below 1.8m		D	2.0				
		- becoming pale grey mottled red and orange, w<PL, firm below 2.3m		D	2.5				
	3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on drainage channel

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298368
NORTHING: 6253667

PIT No: 26
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.3	Silty CLAY: red mottled pale brown, w<PL, stiff		D	0.5				
	1			D	1.0				1
		- becoming pale grey mottled red, w~PL, firm below 1.2m		D	1.5				
		- pale grey slightly mottled pale red, w~PL, firm below 1.6m							
	2			D	2.0				2
		- becoming pale grey mottled dark red, w<PL, firm below 2.1m		D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD1/050919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298424
NORTHING: 6253685

PIT No: 27
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.3	Silty CLAY: red mottled pale brown, w<PL, firm		D	0.5				
	1			D	1.0				1
		- becoming pale grey mottled red, w<PL, firm below 1.3m		D	1.5				
	2			D	2.0				2
		- with bands of fine grained brown, red and grey highly weathered, very low strength sandstone below 2.5m		D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298534
NORTHING: 6253686

PIT No: 28
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets		D	0.1				
	0.2	Silty CLAY: red mottled pale brown, w<PL, firm		D	0.5				
		- becoming orange brown mottled pale grey below 0.6m							
	1			D	1.0				1
	1.2	SANDSTONE: fine grained, red, pale grey and orange, highly weathered, very low strength		D	1.5				
	2			D	2.0				2
	2.1	Pit discontinued at 2.1m - refusal on low strength sandstone							
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298387
NORTHING: 6253595

PIT No: 29
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, w<PL, firm		D	0.5				
	1			D	1.0				1
		- becoming red brown with pale brown, grey and orange, w<PL, stiff below 1.1m							
				D	1.5				
	2			D	2.0				2
				D	2.5				
		- becoming pale grey slightly mottled dark red and orange below 2.8m							
	3 3.0	Pit discontinued at 3.0m		D	3.0				3
		- limit of investigation							

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298554
NORTHING: 6253605

PIT No: 30
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, w~PL, firm		D	0.5				
		- becoming pale grey mottled pale orange and red below 0.8m							
	1			D	1.0				1
		- becoming pale grey mottled red, trace red siltstone gravel, w<PL, stiff below 1.3m							
				D	1.5				
	1.8	SANDSTONE: fine grained, pale grey, red and brown, highly weathered, very low strength							
	2			D	2.0				2
	2.2	Silty CLAY: pale grey mottled red, with bands of fine grained brown, grey and red sandstone, w<PL, very stiff							
				D	2.5				
	3								3
	3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298480
NORTHING: 6253599

PIT No: 31
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace rootlets							
		Silty CLAY: red mottled pale grey, w~PL, firm		D	0.5				
		- becoming stiff below 0.8m							
	1			D	1.0				1
	1.1	SANDSTONE: fine grained, pale grey and orange, highly weathered, very low strength							
				D	1.5				
		- becoming brown and orange, distinctly weathered, low strength below 1.9m							
	2			D	2.0				2
	2.2	Pit discontinued at 2.2m - refusal on low strength sandstone							
	3								3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298653
NORTHING: 6253236

PIT No: 32
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.15	TOPSOIL/Clayey SILT: brown, with rootlets, trace gravel		D	0.1				
		FILL/Silty CLAY: pale grey and orange		D	0.3				
	0.45	FILL/Silty CLAY: brown, orange and pale grey, with gravel		D	0.5				
	1			D	1.0				1
	1.3	FILL/Silty CLAY: grey and brown, trace gravel		D	1.5				
	2 2.0	FILL/Silty CLAY: grey, orange and brown, with gravel, trace organic matter comprising bark		D	2.0				2
				D	2.5				
	2.8	Silty CLAY: red mottled pale brown, trace ironstone gravel, w~PL, firm							
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Fill likely reworked from neighbouring stormwater pipe

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298687
NORTHING: 6253176

PIT No: 33
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, with rootlets		D	0.1				
	0.2	Silty CLAY: red mottled pale grey, with red and brown siltstone gravel, w~PL, firm		D	0.5				
		- becoming pale grey mottled pale brown and red, w<PL, stiff below 0.8m							
	1			D	1.0				1
		- becoming pale grey mottled red, with bands of brown and red siltstone, w<Pl, firm below 1.2m							
				D	1.5				
	1.7	SILTSTONE: red, grey and brown, distinctly weathered, very low to low strength							
	2			D	2.0				2
		- becoming low strength below 2.3m							
	2.5	Pit discontinued at 2.5m		D	2.5				
		- refusal on low strength siltstone							
	3								3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298431
NORTHING: 6253536

PIT No: 34
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, w<PL, firm							
				D	0.5				
		- becoming grey mottled red, stiff below 0.6m							
	1			D	1.0				1
				D	1.5				
	2			D	2.0				2
				D	2.5				
	3	3.0		D	3.0				3
		Pit discontinued at 3.0m - limit of investigation							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298541
NORTHING: 6253535

PIT No: 35
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		TOPSOIL/Clayey SILT: brown, with rootlets		D	0.1				
	0.15	Silty CLAY: red mottled pale brown, trace rootlets, w<PL, firm		D	0.5				
		- becoming pale grey mottled pale red and orange, trace rootlets, w~PL, firm below 0.6m		D	1.0				1
	1.3	SILTSTONE: grey, red brown and orange, highly weathered, very low strength		D	1.5				
				D	2.0				2
	2.2	Pit discontinued at 2.2m - refusal on low strength siltstone							3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298514
NORTHING: 6253481

PIT No: 36
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: grey brown, with rootlets, trace gravel		D	0.1				
	0.2	Clayey SILT: brown, trace rootlets, w<PL, firm		D	0.5				
	0.7	Silty CLAY: brown, grey and orange, w>PL, firm							
	1	- becoming orange brown mottled pale grey and red below 1.0m		D	1.0				1
				D	1.5				
	2			D	2.0				2
				D	2.5				
		- becoming pale grey mottled orange, with bands of distinctly weathered, low strength siltstone, w<PL, firm							
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on drainage channel, green grass indicative of nutrient rich runoff, possibly from stockpile next door

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298347
NORTHING: 6253505

PIT No: 37
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, w<PL, stiff		D	0.5				
		- becoming orange brown mottled pale grey below 0.6m		D	1.0				
	1	- becoming pale grey mottled red, firm below 1.2m		D	1.5				
				D	2.0				
	2								
	2.4	SILTSTONE: grey, brown and red, distinctly weathered, low strength							
	2.5	Pit discontinued at 2.5m - refusal on low strength siltstone		D	2.5				
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298270
NORTHING: 6253507

PIT No: 38
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, w<PL, very stiff		D	0.5				
	1			D	1.0				1
		- becoming grey mottled red, hard below 1.2m		D	1.5				
	2			D	2.0				2
				D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298388
NORTHING: 6253425

PIT No: 39
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.5	Silty CLAY: red and dark red, w<PL, hard							
	0.9	SANDSTONE: fine grained, brown, red, grey and orange, trace medium grained, distinctly weathered, low strength		D	0.5				
	1	Pit discontinued at 0.9m - refusal on medium strength sandstone		D	0.9				
	2								
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on crest of hill

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298355
NORTHING: 6253412

PIT No: 40
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, with rootlets		D*	0.1				
	0.2	Silty CLAY: red mottled grey, w<PL, very stiff							
				D	0.5				
		- becoming orange brown mottled grey, hard below 0.6m							
	0.89			D	0.9				
	0.9	SANDSTONE: fine grained, brown and grey, moderately weathered, low strength							
	1	Pit discontinued at 0.9m							1
		- refusal on sandstone							
	2								2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD3/020919 collected; Test pit excavated on crest of hill

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298300
NORTHING: 6253415

PIT No: 41
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, w<PL, stiff		D	0.5				
		- becoming orange brown mottled pale grey, trace fine grained sand, firm below 0.7m		D	1.0				
		- becoming pale grey mottled orange, with bands of brown very low strength siltstone, w<PL, very stiff (extremely weathered material)		D	1.5				
				D	2.0				
	2.6	SILTSTONE: brown, dark red and grey, distinctly							
	2.7	weathered, low strength		D	2.7				
		Pit discontinued at 2.7m - refusal on low strength siltstone							

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20; 1, 2, 3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298183
NORTHING: 6253418

PIT No: 42
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL: pale brown, trace rootlets							
	0.3	Silty CLAY: red and pale brown, w<PL, stiff							
	1	- becoming pale grey mottled pale orange and red, firm below 1.2m							
	2								
	2.3	SILTSTONE: grey with red and brown, distinctly weathered, low strength							
	2.4	Pit discontinued at 2.4m - refusal on siltstone		D	2.4				
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298106
NORTHING: 6253410

PIT No: 43
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	TOPSOIL/Clayey SILT: brown, trace roots and rootlets		D*	0.1				
	0.3	Silty CLAY: red mottled pale brown, w<PL, stiff		D	0.5				
	0.7	SILTSTONE: grey with trace brown, distinctly weathered, very low to low strength		D	1.0				
	1			D	1.5				
	1.7	Pit discontinued at 1.7m - refusal on shale							
	2								
	3								

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/020919 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298081
NORTHING: 6253469

PIT No: 44
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red, trace ironstone gravel and rootlets, w<PL, stiff							
		- becoming pale grey mottled orange and red, hard below 0.7m							
	1.6	SILTSTONE: dark grey, blue grey, brown and orange, distinctly weathered, low strength							
	1.7	Pit discontinued at 1.7m - refusal on siltstone							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298027
NORTHING: 6253412

PIT No: 45
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/SILT: pale grey brown, with rootlets, trace gravel							
	0.2	Silty CLAY: red, trace rootlets, w<PL, very stiff		D	0.5				
		- becoming grey, orange and red, firm below 0.7m		D	1.0				
		- becoming grey, red and brown, with bands of highly weathered, low strength siltstone, very stiff (extremely weathered material) below 1.3m		D	1.5				
	2.0	SANDSTONE: brown and red, highly weathered, low strength							
	2.2	Pit discontinued at 2.2m - refusal on low strength sandstone		D	2.2				

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20; 1, 2, 3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297927
NORTHING: 6253419

PIT No: 46
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: pale brown, with rootlets to 0.1m							
	0.3	Silty CLAY: red mottled, trace ironstone gravel, w<PL, very stiff		D	0.5				
		- becoming pale grey mottled pale red, stiff below 0.7m							
	1			D	1.0				1
		- becoming grey, orange and red, hard (extremely weathered material) below 1.2m							
				D	1.5				
	1.7	SANDSTONE: fine grained, brown, red and pale grey, highly weathered, very low strength							
	2			D	2.0				2
				D	2.5				
	2.6	- becoming red, pale grey and dark grey, low strength below 2.5m							
		Pit discontinued at 2.6m - refusal on low strength sandstone							
	3								3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297877
NORTHING: 6253489

PIT No: 47
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/SILT: pale brown, trace rootlets							
	0.5	Silty CLAY: red slightly mottled pale brown, w~PL, stiff							
	1	Sandy CLAY: pale brown, with fine grained sand, with bands of highly weathered, low strength sandstone, w<PL, stiff (extremely weathered sandstone)		D	0.5				
				D	1.0				
				D	1.5				
	1.9	SANDSTONE: brown and pale grey, highly weathered, very low to low strength							
	2 2.0	Pit discontinued at 2.0m - refusal on low strength sandstone		D	2.0				
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297807
NORTHING: 6253485

PIT No: 48
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.1	TOPSOIL/Clayey SILT: dark brown, trace rootlets							
		Silty CLAY: red mottled pale brown, w~PL, stiff		D	0.5				
		- becoming grey, orange, brown and red, w<PL, stiff below 0.6m		D	1.0				
	1.2	SILTSTONE: grey and brown, highly weathered, very low to low strength							
	1.5	SANDSTONE: fine grained, brown, red and orange, distinctly weathered, low strength		D	1.5				
	1.7	Pit discontinued at 1.7m - refusal on low strength sandstone		D	1.7				

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297714
NORTHING: 6253506

PIT No: 49
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: dark brown, with rootlets							
	0.2	Silty CLAY: red mottled pale brown, w<PL, firm		D	0.5				
		- becoming red mottled pale grey, w~PL, firm below 0.8m							
	1			D	1.0				1
		- becoming pale grey slightly mottled red, trace red siltstone gravel, w<PL below 1.4m		D	1.5				
	2			D	2.0				2
		- becoming grey, red, brown and orange, with bands of siltstone, very stiff to hard (extremely weathered material) below 2.4m		D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297726
NORTHING: 6253455

PIT No: 50
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: dark brown, trace rootlets		D*	0.1				
	0.2	Silty CLAY: red mottled orange and pale brown, trace ironstone gravel, w~PL, firm		D	0.5				
		- becoming pale grey mottled pale red below 0.7m							
	1			D	1.0				1
		- becoming pale grey mottled orange and red, stiff below 1.2m		D	1.5				
	2			D	2.0				2
		- becoming pale grey and red, with bands of highly weathered, low strength siltstone, w<PL, stiff below 2.3m		D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD3/300819 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297751
NORTHING: 6253405

PIT No: 51
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: orange brown mottled pale grey and pale red, w<PL, firm		D	0.5				
		- becoming pale grey slightly mottled orange, trace fine grained sand and rootlets, w~PL, stiff below 0.6m		D	1.0				1
	1.1	SILTSTONE: dark grey, orange and brown, highly weathered, very low strength		D	1.5				
	2			D	2.0				2
	2.1	Silty CLAY: pale grey mottled orange, w<PL, firm		D	2.5				
	2.6	SILTSTONE: dark grey, orange and brown, highly weathered, very low to low strength							
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297845
NORTHING: 6253411

PIT No: 52
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.15	TOPSOIL/Silty CLAY: brown to dark brown, trace rootlets		D*	0.1				
		Silty CLAY: grey, red and orange, trace rootlets, w<PL, stiff							
	0.6	SANDSTONE: fine grained, brown, highly weathered, very low strength							
1	1.1	Silty CLAY: pale grey mottled orange, w<PL, firm							1
	1.8	SILTSTONE: dark grey, brown and orange, distinctly weathered, low strength							
2	2.0	Pit discontinued at 2.0m - refusal on low strength siltstone							2
3									3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/300819 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297709
NORTHING: 6253327

PIT No: 53
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown to pale brown, trace rootlets							
	0.2	Silty CLAY: orange brown, trace rootlets, w<PL, firm							
				D	0.5				
		- becoming red mottled pale grey and orange, trace ironstone gravel, w~PL, firm below 0.6m							
	1			D	1.0				1
				D	1.5				
		- becoming pale grey, orange, red and brown, with bands of highly weathered, low strength siltstone, very stiff (extremely weathered material) below 1.7m							
	2			D	2.0				2
				D	2.5				
	3	3.0		D	3.0				3
		Pit discontinued at 3.0m - limit of investigation							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297804
NORTHING: 6253353

PIT No: 54
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
									5 10 15 20
	0.3	TOPSOIL/Clayey SILT: brown, trace rootlets							
		Silty CLAY: red mottled pale brown, trace ironstone gravel, w<PL, stiff		D	0.5				
	1	- becoming red mottled pale grey below 1.0m		D	1.0				1
		- becoming pale grey slightly mottled red, w~PL, firm below 1.5m		D	1.5				
	2			D	2.0				2
				D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297887
NORTHING: 6253343

PIT No: 55
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace gravel and rootlets		D	0.1				
		Silty CLAY: red mottled pale grey, w~PL, firm		D	0.5				
		- becoming pale red mottled pale grey, firm to stiff below 0.6m							
	1			D	1.0				
		- becoming pale grey slightly mottled red and orange, w<PL, very stiff below 1.2m							
				D	1.5				
	2			D	2.0				
				D	2.5				
	2.6	SILTSTONE: red, orange and grey, highly weathered, low strength							
	2.7	Pit discontinued at 2.7m - refusal on low strength siltstone							
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297831
NORTHING: 6253264

PIT No: 56
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.1	TOPSOIL/Clayey SILT: brown and red, trace small dark gravel and rootlets							
		Silty CLAY: pale grey mottled pale red and pale orange, trace ironstone gravel, w~PL, firm							
	0.9	SANDSTONE: fine grained, brown and pale grey, highly weathered, low to very low strength							
	1.6	Pit discontinued at 1.6m - refusal on low strength sandstone							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297921
NORTHING: 6253295

PIT No: 57
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.2	Silty CLAY: red mottled pale brown, trace ironstone gravel, w~PL, firm		D	0.5				
		- becoming pale orange and grey slightly mottled red, w~L, firm below 0.8m							
	1			D	1.0				1
		- becoming pale grey mottled red and orange, w<PL, firm below 1.4m		D	1.5				
	1.6	SILTSTONE: brown and grey, distinctly weathered, low to very low strength							
	2 2.0	Pit discontinued at 2.0m - refusal on low strength siltstone		D	2.0				2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD3/290819 collected

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297981
NORTHING: 6253318

PIT No: 58
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.3	Silty CLAY: red mottled pale brown, w~PL, firm		D	0.5				
	1	- becoming pale grey mottled pale orange below 0.9m		D	1.0				1
	1.4	SHALE: pale grey mottled red, highly weathered, very low strength		D	1.5				
	2			D	2.0				2
	2.3	SILTSTONE: brown and grey, distinctly weathered, low strength							
	2.5	Pit discontinued at 2.5m - refusal on low strength siltstone		D	2.5				
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298072
NORTHING: 6253329

PIT No: 59
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets							
	0.2	Silty CLAY: red slightly mottled pale grey, w~PL, firm							
	1	- becoming pale grey mottled red below 1.0m							1
		- band of brown, highly weathered, low strength shale at 1.3m - becoming pale grey, red and orange, with bands of highly weathered, low strength shale, w<PL, very stiff (extremely weathered shale) below 1.4m							
	1.7	SHALE: grey, red and orange, highly weathered, very low to low strength							
	2 2.0	Pit discontinued at 2.0m - refusal on low strength shale							2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298026
NORTHING: 6253243

PIT No: 60
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: brown, trace gravel and rootlets							
		Silty CLAY: pale orange mottled pale grey and red		D	0.5				
	0.8	CLAYSTONE: pale grey and brown, highly weathered, very low strength		D	1.0				
	1.3	Silty CLAY: pale grey slightly mottled red and orange, w<PL, firm		D	1.5				
				D	2.0				
	2.4	SILTSTONE: brown, pale grey and red, highly weathered, very low to low strength		D	2.5				
	2.5	Pit discontinued at 2.5m - refusal on low strength siltstone							

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298140
NORTHING: 6253228

PIT No: 61
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Silty CLAY: red, trace rootlets, w<PL, hard		D	0.5				
	1	- becoming red mottled pale grey, firm below 1.0m		D	1.0				1
				D	1.5				
	2	- becoming pale grey mottled red and orange, very stiff below 2.2m		D	2.0				2
	2.4	Silty CLAY: grey, red and orange, with bands of highly weathered, very low strength siltstone, w<PL, very stiff (extremely weathered siltstone/claystone)		D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No topsoil

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298165
NORTHING: 6253332

PIT No: 62
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown and red, trace rootlets							
	0.2	Silty CLAY: red mottled pale grey, trace rootlets, w<PL, firm		D	0.5				
		- becoming pale grey and very pale orange, w~PL, firm below 0.7m							
	1			D	1.0				1
		- becoming grey mottled red, w<PL, firm below 1.1m							
				D	1.5				
	2			D	2.0				2
	2.2	SILTSTONE: red, grey and orange, highly weathered, very low strength							
				D	2.5				
		- becoming dark grey and red, highly weathered, very low to low strength below 2.8m							
	3 3.0	Pit discontinued at 3.0m		D	3.0				3
		- limit of investigation							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298253
NORTHING: 6253325

PIT No: 63
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	TOPSOIL/Clayey SILT: brown, trace gravel and metal,		D	0.1				
	0.3	Silty CLAY: pale red mottled pale brown, w<PL, firm		D	0.5				
		- becoming pale grey and orange, firm below 0.6m							
	1			D	1.0				1
	1.5	CLAY: grey, orange and red, with bands of highly weathered, very low strength, w<PL, very stiff (extremely weathered shale)		D	1.5				
	2			D	2.0				2
	2.4	SILTSTONE: red and grey, highly weathered, very low to low strength							
	2.5	Pit discontinued at 2.5m		D	2.5				
		- refusal on low strength siltstone							
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298283
NORTHING: 6253241

PIT No: 64
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		TOPSOIL/Clayey SILT: brown, trace rootlets		D	0.1				
	0.3	Silty CLAY: red, trace ironstone gravel, w<PL, firm		D	0.5				
		- becoming orange mottled pale grey, w<PL, stiff below 0.8m							
	1			D	1.0				1
		- becoming pale grey mottled orange below 1.4m		D	1.5				
	2			D	2.0				2
	2.1	CLAYSTONE: red, black gravels/minerals, highly weathered, low strength							
	2.2	Pit discontinued at 2.2m - refusal on claystone		D	2.2				
	3								3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298341
NORTHING: 6253331

PIT No: 65
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.3	TOPSOIL/Clayey SILT: brown, with rootlets							
		Silty CLAY: red mottled pale brown and pale grey, w<PL, very stiff		D	0.5				
	1			D	1.0				
		- becoming pale grey mottled orange and red, firm below 1.3m		D	1.5				
	2			D	2.0				
	2.3	SILTSTONE: brown and red, highly weathered, low strength							
	2.4	Pit discontinued at 2.4m - refusal on siltstone		D	2.5				
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298385
NORTHING: 6253237

PIT No: 66
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	TOPSOIL/Silty CLAY: brown and orange, with rootlets		D	0.1				
	0.2	FILL/Silty CLAY: brown, pale grey and dark grey, trace charcoal and rootlets, (reworked natural)		D	0.5				
	0.6	Silty CLAY: orange mottled pale grey, w~PL, firm		D	1.0				
	1	- becoming red mottled pale grey and orange, w<PL, firm below 1.3m		D	1.5				
		- becoming pale grey mottled orange, stiff below 1.8m		D	2.0				
	2.4	SHALE: dark red, brown, orange and pale grey, highly weathered, very low strength		D	2.5				
	3	- becoming dark grey and brown, highly weathered, low strength below 2.9m		D	3.0				
	3.0	Pit discontinued at 3.0m - limit of investigation							

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298431
NORTHING: 6253326

PIT No: 67
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown and red, trace rootlets							
	0.2	Silty CLAY: red mottled pale brown, trace ironstone gravel, w<PL, firm		D	0.5				
		- becoming pale grey mottled pale orange below 0.7m							
	1			D	1.0				1
		- becoming pale grey mottled slightly red, w~PL below 1.3m							
				D	1.5				
	1.8	SILTSTONE: dark grey, brown and orange, distinctly weathered, low to very low strength							
	2			D	2.0				2
	2.5	Pit discontinued at 2.5m		D	2.5				
		- refusal on low strength siltstone							
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298501
NORTHING: 6253360

PIT No: 68
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.2	TOPSOIL/Clayey SILT: grey brown, with rootlets							
		Silty CLAY: red mottled pale brown, trace ironstone gravel and tree roots		D	0.5				
	1	- becoming pale grey mottled red and orange, w<PL, very stiff		D	1.0				1
				D	1.5				
	1.9	SILTSTONE: grey, moderately weathered, low strength							
	2 2.0	Pit discontinued at 2.0m - refusal on low strength siltstone		D	2.0				2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298482
NORTHING: 6253254

PIT No: 69
PROJECT No: 92240.01
DATE: 29/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.3	TOPSOIL/Clayey SILT: brown, trace rootlets							
		Silty CLAY: brown and pale grey, trace charcoal and rootlets, w~PL, firm							
	1	- becoming pale grey mottled pale orange, firm, below 0.7 m							
		- becoming red brown, orange and brown, trace rootlets, firm below 1.3m							
	1.7	SHALE: pale grey dark red and brown, highly weathered, very low to low strength							
	2								
	2.5	Pit discontinued at 2.5m - refusal on low strength shale/siltstone							
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated in creek with burnt logs

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298522
NORTHING: 6253218

PIT No: 70
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		FILL/Clayey SILT: brown, trace gravel, plastic and rootlets to 0.1m		D	0.1				
	0.5	FILL/Silty CLAY: red mottled pale grey, trace ironstone gravel		D	0.5				
	0.6	Silty CLAY: red mottled pale grey, trace ironstone gravel, w<PL, very stiff							
	1			D	1.0				1
		- becoming orange mottled pale grey, w<PL, stiff							
		- becoming pale brown mottled pale grey and orange, with bands of brown distinctly weathered, very low strength siltstone, very stiff (extremely weathered siltstone) below 1.3m		D	1.5				
	2			D	2.0				2
		- becoming pale grey mottled orange below 2.2m							
				D	2.5				
	3 3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298545
NORTHING: 6253188

PIT No: 71
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets		D	0.1				
	0.2	Silty CLAY: red mottled grey, trace rootlets, w~PL, stiff		D	0.5				
	1	- becoming orange brown mottled red and pale grey, with bands of brown and red highly weathered, very low strength siltstone, w<PL, very stiff below 0.8m		D	1.0				1
		- becoming grey mottled red, with bands of grey, red and orange, highly weathered, very low strength siltstone, firm below 1.4m		D	1.5				
		- becoming grey mottled red and orange, with bands of grey and red, highly weathered, very low strength siltstone below 1.7m							
	2			D	2.0				2
	2.4	SILTSTONE: red and grey, distinctly weathered, low strength							
	2.5	Pit discontinued at 2.5m - refusal on low strength siltstone		D	2.5				
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298598
NORTHING: 6253125

PIT No: 72
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		FILL/TOPSOIL: Clayey SILT, brown, trace rootlets, 2 x concrete cobbles		D	0.1				
	0.2	Silty CLAY: red, trace rootlets, w<PL, hard		D	0.5				
		- becoming pale grey mottled red, trace rootlets, fissured below 0.7m		D	1.0				
	1.2	SILTSTONE: dark grey, brown and orange, distinctly weathered, low to very low strength		D	1.5				
	2.0	Pit discontinued at 2.0m - refusal on low strength siltstone		D	2.0				

5 10 15 20

1 2 3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297720
NORTHING: 6253287

PIT No: 73
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, with rootlets to 0.1m		D	0.1				
	0.3	Silty CLAY: red mottled pale brown, trace ironstone gravel, w<PL, very stiff		D	0.5				
	0.8	Pit discontinued at 0.8m - limit of investigation							
	1								
	2								
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated to target pH - deficient vegetation and uneven ground

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297691
NORTHING: 6253356

PIT No: 74
PROJECT No: 92240.01
DATE: 30/8/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Clayey SILT: dark brown, with rootlets to 0.05m		D	0.1				
	0.4	Silty CLAY: orange brown, trace ironstone gravel, w~PL, very stiff		D	0.5				
	0.8	Pit discontinued at 0.8m - limit of investigation							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated to target potential fill (drainage line and plastic on surface)

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298060
NORTHING: 6253441

PIT No: 75
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, with rootlets to 0.1m, organic odour from manure on surface		D*	0.1				
	0.3	Silty CLAY: red mottled light brown, w<PL, stiff		D	0.5				
	0.9	Pit discontinued at 0.9m - limit of investigation							
	1								1
	2								2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on disturbed ground

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298355
NORTHING: 6253390

PIT No: 76
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.07	FILL/SILT: pale grey, with asphaltic cement and basaltic gravel, trace concrete gravel, ceramic tile and rootlets		D	0.01				
		Silty CLAY: red, w<PL, firm		D	0.5				
	0.8	Pit discontinued at 0.8m - limit of investigation							
	1								
	2								
	3								

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated to target fill on driveway

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298425
NORTHING: 6253575

PIT No: 77
PROJECT No: 92240.01
DATE: 2/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		FILL/Silty CLAY: brown, with trace gravel and rootlets (reworked natural)		D*	0.1				
				D	0.5				
	0.9	Silty CLAY: red brown mottled grey, pale grey and orange, w>PL, firm		D	1.0				
	1.6	Pit discontinued at 1.6m - limit of investigation							

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD6/020919 collected; Test pit excavated on fill mound next to drainage channel

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298404
NORTHING: 6253894

PIT No: 78
PROJECT No: 92240.01
DATE: 5/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Clayey SILT: brown, rootlets to 0.1m, w~PL, firm		D	0.1				
	0.5	Silty CLAY: red mottled brown, trace ironstone gravel, w~PL, firm		D	0.5				
	0.9	Pit discontinued at 0.9m - limit of investigation							
	1								1
	2								2
	3								3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated to target potential fill gully

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298606
NORTHING: 6253217

PIT No: 79
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Clayey SILT: brown, trace rootlets		D*	0.1				
	0.2	Silty CLAY: red mottled pale brown, trace ironstone gravel, w<PL, firm		D	0.5				
	0.8	Pit discontinued at 0.8m - limit of investigation							
	1								
	2								
	3								

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/060919 collected;
Test pit excavated to target potential fill

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298592
NORTHING: 6253263

PIT No: 80
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		TOPSOIL/Silty CLAY: grey brown and orange, with rootlets, w>PL, firm		D	0.1				
	0.2	Silty CLAY: red mottled pale brown, w>PL, firm		D	0.5				
	1.0	Pit discontinued at 1.0m - limit of investigation							

5 10 15 20

1 2 3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated to target wet slope, potentially septic

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298542
NORTHING: 6253258

PIT No: 81
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
		FILL/Silty CLAY: red, brown and orange, trace gravel, (reworked natural)		D	0.5				
1	1.0	Silty CLAY: grey brown and trace orange, w~PL, firm (prior topsoil layer)		D	1.0				1
	1.2	Silty CLAY: red mottled pale brown, w<PL, firm							
	1.6	Pit discontinued at 1.6m - limit of investigation							
2									2
3									3

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on dam wall

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298536
NORTHING: 6253240

PIT No: 82
PROJECT No: 92240.01
DATE: 6/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		FILL/Silty CLAY: red, orange and brown, trace gravel and rootlets (reworked natural)							
1	1.0	FILL/Silty CLAY: brown and dark brown (reworked natural)		D	1.0				
2	2.0	Silty CLAY: red mottled pale brown, w~PL, stiff		D	2.0				
	2.5	Pit discontinued at 2.5m - limit of investigation		D	2.5				
3									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Hyundai 60CR-9 6 tonne - 450mm bucket

LOGGED: LOC

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 297943
NORTHING: 6253463
DIP/AZIMUTH: 90°/--

BORE No: MW1
PROJECT No: 92240.01
DATE: 3/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	TOPSOIL: Clayey SILT, brown, trace rootlets							cement
		Silty CLAY: orange brown mottled pale grey, w<PL, firm							
	1	- becoming pale grey mottled orange below 0.8m							sand
									casing
	1.9	SILTSTONE: brown and grey, distinctly weathered, low strength							bentonite
	2								
	3								
	4								
		- becoming red brown below 4.5m							
	5								
	5.5	SHALE: dark grey							
	6								sand
	7								
									screen
	8								
	9								
	10 10.0	Bore discontinued at 10.0m - limit of investigation							10

RIG: Geo 205 **DRILLER:** Groundtest **LOGGED:** LOC **CASING:** 50mm

TYPE OF BORING: SFA to 3.0m, wash boring to 10.0m

WATER OBSERVATIONS: No free groundwater observed in top 3.0m

REMARKS: Location coordinates are in MGA94 Zone 56. Purging on 3/9/19 to 9.40m; water level on 6/9/19 at 7.982m - potentially residual water from boring

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298434
NORTHING: 6253208
DIP/AZIMUTH: 90°/--

BORE No: MW2
PROJECT No: 92240.01
DATE: 4/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	TOPSOIL: Clayey SILT, brown, with rootlets							cement
		Silty CLAY: red mottled pale brown, w~PL, firm							sand
	1.5	Sandy CLAY: fine grained, brown, w>PL (extremely weathered material)							casing
	2.4	SANDSTONE: fine grained, dark grey, red and brown, distinctly weathered, low strength							bentonite
	2.8	Silty CLAY: orange brown mottled pale grey, with bands of low strength siltstone							
		- becoming pale grey mottled orange, with bands of low strength siltstone below 3.5m							
	4.5	SHALE: dark grey, trace orange and brown							sand
									screen
	10.1	Bore discontinued at 10.1m - limit of investigation							

RIG: Geo 205 **DRILLER:** Groundtest **LOGGED:** LOC **CASING:** 50mm

TYPE OF BORING: SFA to 3.1m, wash boring to 10.1m

WATER OBSERVATIONS: No free groundwater observed in top 3.0m

REMARKS: Location coordinates are in MGA94 Zone 56. Purging on 4/9/19 - unable to dry with bailer; pumped on 5/9/19 for 20 minutes to 6.0m, well refilling quickly

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Jacfin Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot A in DP 392643 and Lot 21 in DP 1010514 Burley Road, Horsley Park, NSW

SURFACE LEVEL: --
EASTING: 298384
NORTHING: 6253713
DIP/AZIMUTH: 90°/--

BORE No: MW3
PROJECT No: 92240.01
DATE: 3/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.0	TOPSOIL: Clayey SILT, brown with rootlets							cement
	0.3	Silty CLAY: red mottled pale brown and orange, w<PL, firm - becoming pale grey mottled red, w<PL, firm							sand casing bentonite
	2.8	SILTSTONE: red, very low to low strength - becoming brown and red below 4.0m - becoming dark grey, orange and red below 4.5m							
	5.0	SHALE: dark grey - band of grey silty clay (extremely weathered shale) between 7.0 to 8.0m							sand screen
	10.0	Bore discontinued at 10.0m - limit of investigation							

RIG: Geo 205 **DRILLER:** Groundtest **LOGGED:** LOC **CASING:** 50mm

TYPE OF BORING: SFA to 5.0m, wash boring to 10.0m

WATER OBSERVATIONS: No free groundwater observed in top 5.0m

REMARKS: Location coordinates are in MGA94 Zone 56. Purged on 4/9/19 with bailer, well refilling; purged on 5/9/19 dry, 1 hour later 3.5m of water

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Sampling Methods

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Sampling

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

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4,6,7
  N=13

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Soil Descriptions

Douglas Partners

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726-1993, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 -5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

Symbols & Abbreviations

Douglas Partners

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

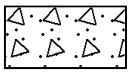
Symbols & Abbreviations

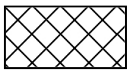
Graphic Symbols for Soil and Rock

General

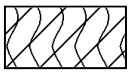

Asphalt

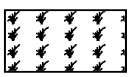

Road base

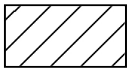

Concrete

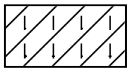

Filling

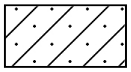
Soils


Topsoil

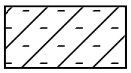

Peat

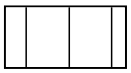

Clay

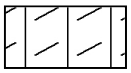

Silty clay

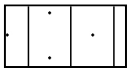

Sandy clay

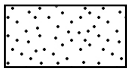

Gravelly clay

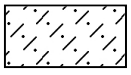

Shaly clay

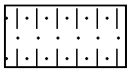

Silt


Clayey silt


Sandy silt

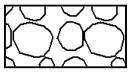

Sand

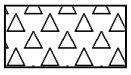

Clayey sand


Silty sand


Gravel

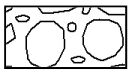

Sandy gravel


Cobbles, boulders

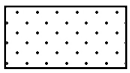

Talus

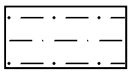
Sedimentary Rocks

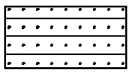

Boulder conglomerate

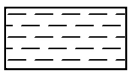

Conglomerate


Conglomeratic sandstone

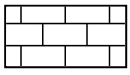

Sandstone


Siltstone

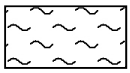

Laminite

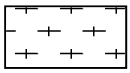

Mudstone, claystone, shale

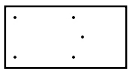

Coal


Limestone

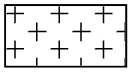
Metamorphic Rocks

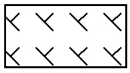

Slate, phyllite, schist

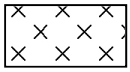

Gneiss

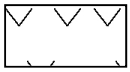

Quartzite

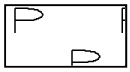
Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

Appendix C

Summary Table

Test Bore or Pit/ Sample Depth	Sample Depth	pH	Chloride Concentration	Sulphate Concentration	Resistivity	Soil Condition	Sample Aggressivity Class					Exchangeable Sodium (Na) Concentration	Cation Exchange Capacity	Sodicity	Sodicity Class	Emerson Crumb Class Number	Dispersion?	Soil Texture Group	Textural Factor (M)	$EC_{1:5}$	EC_e	Sample Salinity Class
					By inversion of EC1:5		Aggr. to Concrete - from sample pH	Aggr. to Concrete - from Sulphate conc.	Aggr. to Steel - from sample pH	Aggr. to Steel - from Chloride conc.	Aggr. to Steel - from sample Resistivity			[Na/CEC]			(from Emerson Class)	(for detailed soil logs see Report Appendix)		[Lab.]	[M x $EC_{1:5}$]	(Based on sample ECe)
	(m bgl)	(pH units)	(mg/kg)	(mg/kg)	Ω.cm	[AS2159-2009]	[AS2159-2009]					(meq/100g)	(meq/100g)	(%)	[after DLWC]		[AS1289.3.8.1]	[after DLWC]	[after DLWC]	(microS/cm)	(deciS/m)	[Richards 1954]
17/0.5	0.5	6.9			33333	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	30	0.2	Non-Saline
17/1.0	1.0	7.2	10	10	41667	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive							Medium clay	7.0	24	0.2	Non-Saline
17/1.5	1.5	5.7			9091	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	110	0.8	Non-Saline
18/0.5	0.1	5.6			10000	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	100	0.6	Non-Saline
18/1.0	1.0	5.0			2778	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	360	2.5	Slightly Saline
18/1.5	1.5	5.3			4545	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	220	1.5	Non-Saline
19/0.5	0.5	5.7			4545	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	220	1.3	Non-Saline
19/1.0	1.0	5.5			6667	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	150	1.1	Non-Saline
19/1.5	1.5	5.1			2041	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	490	3.4	Slightly Saline
19/2.0	2.0	5.3	340	210	2857	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive							Light medium clay	8.0	350	2.8	Slightly Saline
19/2.5	2.5	5.6			2632	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	380	2.7	Slightly Saline
20/0.5	0.5	5.7			16667	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	60	0.4	Non-Saline
20/1.0.	1.0	5.3			3846	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	260	1.6	Non-Saline
20/1.5	1.5	5.4			2128	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	470	2.8	Slightly Saline
20/2.0	2.0	5.7			1695	B	Non-Aggressive		Non-Aggressive		Mild							Light clay	8.5	590	5.0	Moderately Saline
20/2.5	2.5	9.3	490	95	1667	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild							Light clay	8.5	600	5.1	Moderately Saline
20/3.0	3.0	8.7			1538	B	Non-Aggressive		Non-Aggressive		Mild							Clay loam	9.0	650	5.9	Moderately Saline
21/0.5	0.5	6.0			15385	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	65	0.4	Non-Saline
21/1.0	1.0	5.1			2000	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	500	3.5	Slightly Saline
21/1.5	1.5	5.1			2326	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	430	3.0	Slightly Saline
21/2.0	2.0	5.2			2703	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	370	2.6	Slightly Saline
22/0.5	0.5	5.6			8333	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	120	0.7	Non-Saline
22/1.0	1.0	5.6			7143	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	140	1.0	Non-Saline
22/1.5	1.5	5.5			4762	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	210	1.5	Non-Saline
22/2.0	2.0	5.7			6250	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	160	1.1	Non-Saline
23/0.5	0.5	5.7	26	140	10417	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive							Heavy clay	6.0	96	0.6	Non-Saline
23/1.0	1.0	5.3			5000	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	200	1.2	Non-Saline
23/1.5	1.5	5.6			4762	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	210	1.5	Non-Saline
23/2.0	2.0	6.0			5882	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	170	1.2	Non-Saline
23/2.5	2.5	6.1			5556	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	180	1.4	Non-Saline
24/0.5	0.5	6.3			25000	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	40	0.3	Non-Saline
24/1.0	1.0	5.9			12987	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	77	0.5	Non-Saline
24/1.5	1.5	5.8			7143	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	140	1.0	Non-Saline
24/2.0	2.0	5.5			4545	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	220	1.5	Non-Saline
24/2.5	2.5	5.4			4167	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	240	1.7	Non-Saline
24/3.0	3.0	5.6			4762	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	210	1.5	Non-Saline
25/0.5	0.5	6.0			18868	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	53	0.3	Non-Saline
25/1.0	1.0	5.5			3704	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	270	1.6	Non-Saline
25/1.5	1.5	5.1			1538	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	650	5.2	Moderately Saline
25/2.0	2.0	5.2	1100	210	1299	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild							Light medium clay	8.0	770	6.2	Moderately Saline
25/2.5	2.5	6.0			1587	B	Non-Aggressive		Non-Aggressive		Mild							Light medium clay	8.0	630	5.0	Moderately Saline
25/3.0	3.0	7.5			1282	B	Non-Aggressive		Non-Aggressive		Mild							Light medium clay	8.0	780	6.2	Moderately Saline
26/0.5	0.5	5.0			3571	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	280	1.7	Non-Saline
26/1.0	1.0	4.7			1493	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	670	4.0	Moderately Saline
26/1.5	1.5	4.6			1000	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	1000	6.0	Moderately Saline
26/2.0	2.0	4.8			1136	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	880	5.3	Moderately Saline
26/2.5	2.5	4.9			1333	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	750	4.5	Moderately Saline
26/3.0	3.0	4.8			1333	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	750	4.5	Moderately Saline
27/0.5	0.5	5.6			16667	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	60	0.4	Non-Saline
27/1.0	1.0	5.1			2857	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	350	2.1	Slightly Saline
27/1.5	1.5	5.0			1667	B	Mild		Non-Aggressive		Mild							Medium clay	7.0	600	4.2	Moderately Saline
27/2.0	2.0	5.1			2000	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	500	4.0	Slightly Saline
27/2.5	2.5	5.1			1923	B	Mild		Non-Aggressive		Mild							Light clay	8.5	520	4.4	Moderately Saline
27/3.0	3.0	5.2			2000	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	500	4.0	Slightly Saline
28/0.5	0.5	5.8			14706	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	68	0.4	Non-Saline
28/1.0	1.0	5.3			4000	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	250	1.5	Non-Saline

Test Bore or Pit/ Sample Depth	Sample Depth	pH	Chloride Concentration	Sulphate Concentration	Resistivity	Soil Condition	Sample Aggressivity Class					Exchangeable Sodium (Na) Concentration	Cation Exchange Capacity	Sodicity	Sodicity Class	Emerson Crumb Class Number	Dispersion?	Soil Texture Group	Textural Factor (M)	$EC_{1:5}$	EC_e	Sample Salinity Class
					By inversion of EC1:5		Aggr. to Concrete - from sample pH	Aggr. to Concrete - from Sulphate conc.	Aggr. to Steel - from sample pH	Aggr. to Steel - from Chloride conc.	Aggr. to Steel - from sample Resistivity			[Na/CEC]			(from Emerson Class)	(for detailed soil logs see Report Appendix)		[Lab.]	[M x $EC_{1:5}$]	(Based on sample ECe)
	(m bgl)	(pH units)	(mg/kg)	(mg/kg)	Ω.cm	[AS2159-2009]	[AS2159-2009]					(meq/100g)	(meq/100g)	(%)	[after DLWC]		[AS1289.3.8.1]	[after DLWC]	[after DLWC]	(microS/cm)	(deciS/m)	[Richards 1954]
28/1.5	1.5	5.0	440	260	2326	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive							Light medium clay	8.0	430	3.4	Slightly Saline
28/2.0	2.0	5.0			1923	B	Mild		Non-Aggressive		Mild							Light clay	8.5	520	4.4	Moderately Saline
29/0.5	0.5	6.2			11765	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light clay	8.5	85	0.7	Non-Saline
29/1.0	1.0	5.9	340	110	3846	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	2	9	21	Highly Sodic	2	Some	Loam	10.0	260	2.6	Slightly Saline
29/1.5	1.5	6.3			1786	B	Non-Aggressive		Non-Aggressive		Mild							Clay loam	9.0	560	5.0	Moderately Saline
29/2.0	2.0	6.4			1266	B	Non-Aggressive		Non-Aggressive		Mild							Loam	10.0	790	7.9	Moderately Saline
29/2.5	2.5	5.7			1493	B	Non-Aggressive		Non-Aggressive		Mild							Light medium clay	8.0	670	5.4	Moderately Saline
29/3.0	3.0	6.0			1220	B	Non-Aggressive		Non-Aggressive		Mild							Light clay	8.5	820	7.0	Moderately Saline
30/0.5	0.5	7.7			16667	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	60	0.4	Non-Saline
30/1.0	1.0	5.1			2500	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	400	2.4	Slightly Saline
30/1.5	1.5	4.8			1190	B	Mild		Non-Aggressive		Mild							Medium clay	7.0	840	5.9	Moderately Saline
30/2.0	2.0	5.3			2857	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	350	2.5	Slightly Saline
30/2.5	2.5	5.3			3125	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	320	2.2	Slightly Saline
30/3.0	3.0	5.2			2439	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	410	2.9	Slightly Saline
31/0.5	0.5	5.2	130	210	6250	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive							Heavy clay	6.0	160	1.0	Non-Saline
31/1.0.	1.0	4.8			1923	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	520	3.1	Slightly Saline
31/1.5	1.5	5.2			3704	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	270	1.9	Non-Saline
31/2.0.	2.0	6.0			2564	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	390	2.7	Slightly Saline
33/0.5	0.5	5.3			9091	B	Mild	#REF!	Non-Aggressive	#REF!	Non-Aggressive							Heavy clay	6.0	110	0.7	Non-Saline
33/1.0	1.0	5.1	310	330	2632	B	Mild	#REF!	Non-Aggressive	#REF!	Non-Aggressive							Heavy clay	6.0	380	2.3	Slightly Saline
33/1.5	1.5	4.9			1818	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild							Medium clay	7.0	550	3.9	Slightly Saline
33/2.0	2.0	4.8			2439	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	410	2.9	Slightly Saline
33/2.5	2.5	5.0			2326	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	430	3.0	Slightly Saline
34/0.5	0.5	5.5			7692	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	130	0.8	Non-Saline
34/1.0	1.0	5.0			2041	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	490	3.9	Slightly Saline
34/1.5	1.5	4.6	1100	480	1010	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	4	15	29	Highly Sodic	6	No	Light clay	8.5	990	8.4	Very Saline
34/2.0	2.0	4.7			1075	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	930	7.4	Moderately Saline
34/2.5	2.5	4.8			1250	B	Mild		Non-Aggressive		Mild							Light clay	8.5	800	6.8	Moderately Saline
34/3.0	3.0	4.8			1111	B	Mild		Non-Aggressive		Mild							Light clay	8.5	900	7.7	Moderately Saline
35/0.5	0.5	5.4			8333	B	Mild		Non-Aggressive		Non-Aggressive					2	Some	Heavy clay	6.0	120	0.7	Non-Saline
35/1.0	1.0	5.3			3448	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	290	2.5	Slightly Saline
35/1.5	1.5	5.4	280	300	2632	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	13	20	Highly Sodic			Loam	10.0	380	3.8	Slightly Saline
35/2.0	2.0	5.4			2564	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	390	3.3	Slightly Saline
36/0.5	0.5	6.2			17241	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	58	0.6	Non-Saline
36/1.0	1.0	5.9			8333	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	120	1.2	Non-Saline
36/1.5	1.5	6.2			8333	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	120	1.1	Non-Saline
36/2.0	2.0	6.5	100	95	6250	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	2	10	25	Highly Sodic	2	Some	Clay loam	9.0	160	1.4	Non-Saline
36/2.5	2.5	7.3			7143	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light clay	8.5	140	1.2	Non-Saline
36/3.0	3.0	7.6			9091	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	110	0.9	Non-Saline
37/0.5	0.5	5.8			16949	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	59	0.4	Non-Saline
37/1.0	1.0	5.4	190	130	4167	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	4	13	33	Highly Sodic	2	Some	Medium clay	7.0	240	1.7	Non-Saline
37/1.5	1.5	5.4			3846	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	260	1.8	Non-Saline
37/2.0	2.0	5.3			2941	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	340	2.7	Slightly Saline
38/0.5	0.5	5.7	29	110	10989	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	1	12	11	Sodic			Medium clay	7.0	91	0.6	Non-Saline
38/1.0	1.0	5.3			4000	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	250	1.8	Non-Saline
38/1.5	1.5	5.0			1299	B	Mild		Non-Aggressive		Mild							Medium clay	7.0	770	5.4	Moderately Saline
38/2.0	2.0	5.0			1613	B	Mild		Non-Aggressive		Mild							Clay loam	9.0	620	5.6	Moderately Saline
38/2.5	2.5	5.0	870	290	1316	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	5	15	34	Highly Sodic			Medium clay	7.0	760	5.3	Moderately Saline
38/3.0	3.0	5.1			1724	B	Mild		Non-Aggressive		Mild							Light clay	8.5	580	4.9	Moderately Saline
39/0.5	0.5	5.3			15873	B	Mild		Non-Aggressive		Non-Aggressive					6	No	Clay loam	9.0	63	0.6	Non-Saline
39/0.9	0.9	8.0			7692	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	130	1.3	Non-Saline
40/0.5	0.5	5.6	35	44	14925	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	0	16	2	Non-Sodic			Light medium clay	8.0	67	0.5	Non-Saline
41/0.5	0.5	5.6			10000	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	100	1.0	Non-Saline
41/1.0	1.0	5.6	110	93	7143	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	12	21	Highly Sodic			Heavy clay	6.0	140	0.8	Non-Saline
41/1.5	1.5	5.1			2703	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	370	2.6	Slightly Saline
41/2.0	2.0	5.2			3448	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	290	1.7	Non-Saline

Test Bore or Pit/ Sample Depth	Sample Depth	pH	Chloride Concentration	Sulphate Concentration	Resistivity	Soil Condition	Sample Aggressivity Class					Exchangeable Sodium (Na) Concentration	Cation Exchange Capacity	Sodicity	Sodicity Class	Emerson Crumb Class Number	Dispersion?	Soil Texture Group	Textural Factor (M)	$EC_{1:5}$	EC_e	Sample Salinity Class
					By inversion of EC1:5		Aggr. to Concrete - from sample pH	Aggr. to Concrete - from Sulphate conc.	Aggr. to Steel - from sample pH	Aggr. to Steel - from Chloride conc.	Aggr. to Steel - from sample Resistivity			[Na/CEC]			(from Emerson Class)	(for detailed soil logs see Report Appendix)		[Lab.]	[M x $EC_{1:5}$]	(Based on sample ECe)
	(m bgl)	(pH units)	(mg/kg)	(mg/kg)	Ω.cm	[AS2159-2009]	[AS2159-2009]					(meq/100g)	(meq/100g)	(%)	[after DLWC]		[AS1289.3.8.1]	[after DLWC]	[after DLWC]	(microS/cm)	(deciS/m)	[Richards 1954]
41/2.5	2.5	5.1			3571	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	280	1.7	Non-Saline
41/2.7	2.7	5.3			3448	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	290	1.7	Non-Saline
42/0.5	0.5	5.9			13333	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light clay	8.5	75	0.6	Non-Saline
42/1.0	1.0	5.5			5882	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	170	1.2	Non-Saline
42/1.5	1.5	5.2			1852	B	Mild		Non-Aggressive		Mild							Clay loam	9.0	540	4.9	Moderately Saline
42/2.0	2.0	5.4	400	82	2778	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	10	29	Highly Sodic			Clay loam	9.0	360	3.2	Slightly Saline
42/2.4	2.4	5.5			2941	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	340	2.9	Slightly Saline
43/0.5	0.5	7.2			5556	B	Non-Aggressive		Non-Aggressive		Non-Aggressive					2	Some	Light clay	8.5	180	1.5	Non-Saline
43/1.0	1.0	9.5			3333	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	300	3.0	Slightly Saline
43/1.5	1.5	9.7	220	22	3030	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	24	12	Sodic			Medium clay	7.0	330	2.3	Slightly Saline
44/0.5	0.5	9.5			4545	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	220	1.8	Non-Saline
44/1.0	1.0	5.7	27	25	17241	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	1	13	10	Sodic			Light clay	8.5	58	0.5	Non-Saline
44/1.5	1.5	5.5			7692	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	130	1.0	Non-Saline
45/0.5	0.5	7.6			4762	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light clay	8.5	210	1.8	Non-Saline
45/1.0	1.0	5.2			5000	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	200	1.6	Non-Saline
45/1.5	1.5	5.2			3226	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	310	2.5	Slightly Saline
45/2.2	2.2	5.8	200	110	4167	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	4	12	33	Highly Sodic			Loam	10.0	240	2.4	Slightly Saline
46/0.5	0.5	5.5			16949	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	59	0.4	Non-Saline
46/1.0	1.0	5.1			5000	B	Mild		Non-Aggressive		Non-Aggressive					2	Some	Heavy clay	6.0	200	1.2	Non-Saline
46/1.5	1.5	4.8	960	120	1351	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	4	11	36	Highly Sodic			Light medium clay	8.0	740	5.9	Moderately Saline
46/2.0	2.0	5.3			1333	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	750	6.0	Moderately Saline
46/2.5	2.5	8.0			2857	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	350	2.5	Slightly Saline
47/0.5	0.5	5.1	20	20	27027	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	0	11	4	Non-Sodic			Light clay	8.5	37	0.3	Non-Saline
47/1.0	1.0	8.3			9091	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	110	1.0	Non-Saline
47/1.5	1.5	8.8			12346	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	81	0.7	Non-Saline
47/2.0	2.0	8.8			10417	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	96	1.0	Non-Saline
48/0.5	0.5	6.0			14286	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	70	0.5	Non-Saline
48/1.0	1.0	9.4			2500	B	Non-Aggressive		Non-Aggressive		Non-Aggressive					1	Complete	Medium clay	7.0	400	2.8	Slightly Saline
48/1.7	1.7	9.4	380	130	1923	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	5	47	11	Sodic			Medium clay	7.0	520	3.6	Slightly Saline
49/0.5	0.5	5.2			4762	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	210	1.8	Non-Saline
49/1.0	1.0	4.8			1370	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	730	5.8	Moderately Saline
49/1.5	1.5	9.5			1818	B	Non-Aggressive		Non-Aggressive		Mild							Light clay	8.5	550	4.7	Moderately Saline
49/2.0	2.0	4.8	890	230	1299	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	3	13	25	Highly Sodic			Light clay	8.5	770	6.5	Moderately Saline
49/2.4	2.4	4.8			1587	B	Mild		Non-Aggressive		Mild							Medium clay	7.0	630	4.4	Moderately Saline
49/3.0	3.0	4.9			1099	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	910	7.3	Moderately Saline
50/0.5	0.5	5.7			20833	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	48	0.4	Non-Saline
50/1.0	1.0	5.3			4167	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	240	1.7	Non-Saline
50/1.5	1.5	5.0			1887	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	530	4.2	Moderately Saline
50/2.0	2.0	5.2			2326	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	430	3.4	Slightly Saline
50/2.5	2.5	5.2	570	290	1695	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	4	14	29	Highly Sodic			Medium clay	7.0	590	4.1	Moderately Saline
50/3.0	3.0	5.2			1667	B	Mild		Non-Aggressive		Mild							Light clay	8.5	600	5.1	Moderately Saline
51/0.5	0.5	5.4			2500	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	400	2.8	Slightly Saline
51/1.0	1.0	5.3	1200	450	1020	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	4	21	17	Highly Sodic			Light clay	8.5	980	8.3	Very Saline
51/1.5	1.5	9.2			1316	B	Non-Aggressive		Non-Aggressive		Mild							Light clay	8.5	760	6.5	Moderately Saline
51/2.0	2.0	9.4			1613	B	Non-Aggressive		Non-Aggressive		Mild							Loam	10.0	620	6.2	Moderately Saline
51/2.5	2.5	9.0			1282	B	Non-Aggressive		Non-Aggressive		Mild							Light clay	8.5	780	6.6	Moderately Saline
51/3.0	3.0	8.8			1370	B	Non-Aggressive		Non-Aggressive		Mild							Medium clay	7.0	730	5.1	Moderately Saline
52/0.5	0.5	5.9			21277	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	47	0.5	Non-Saline
52/1.0	1.0	5.6			7143	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	140	1.4	Non-Saline
52/1.5	1.5	5.2	610	220	2174	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	12	27	Highly Sodic			Light medium clay	8.0	460	3.7	Slightly Saline
52/2.0	2.0	6.0			4762	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	210	1.9	Non-Saline
53/0.5	0.5	5.6	240	24	5000	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	1	5	16	Highly Sodic			Light medium clay	8.0	200	1.6	Non-Saline
53/1.0	1.0	4.9			1389	B	Mild		Non-Aggressive		Mild					6	No	Heavy clay	6.0	720	4.3	Moderately Saline
53/1.5	1.5	5.0			1250	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	800	4.8	Moderately Saline
53/2.0	2.0	5.4			1449	B	Mild		Non-Aggressive		Mild							Medium clay	7.0	690	4.8	Moderately Saline
53/2.5	2.5	5.1			1316	B	Mild		Non-Aggressive		Mild							Medium clay	7.0	760	5.3	Moderately Saline

Test Bore or Pit/ Sample Depth	Sample Depth	pH	Chloride Concentration	Sulphate Concentration	Resistivity	Soil Condition	Sample Aggressivity Class					Exchangeable Sodium (Na) Concentration	Cation Exchange Capacity	Sodicity	Sodicity Class	Emerson Crumb Class Number	Dispersion?	Soil Texture Group	Textural Factor (M)	$EC_{1:5}$	EC_e	Sample Salinity Class
					By inversion of EC1:5		Aggr. to Concrete - from sample pH	Aggr. to Concrete - from Sulphate conc.	Aggr. to Steel - from sample pH	Aggr. to Steel - from Chloride conc.	Aggr. to Steel - from sample Resistivity			[Na/CEC]			(from Emerson Class)	(for detailed soil logs see Report Appendix)		[Lab.]	[M x $EC_{1:5}$]	(Based on sample ECe)
	(m bgl)	(pH units)	(mg/kg)	(mg/kg)	Ω.cm	[AS2159-2009]	[AS2159-2009]					(meq/100g)	(meq/100g)	(%)	[after DLWC]		[AS1289.3.8.1]	[after DLWC]	[after DLWC]	(microS/cm)	(deciS/m)	[Richards 1954]
53/3.0	3.0	5.1			1205	B	Mild		Non-Aggressive		Mild							Heavy clay	6.0	830	5.0	Moderately Saline
54/0.5	0.5	5.2			8333	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	120	1.0	Non-Saline
54/1.0	1.0	5.0	390	350	2174	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	14	22	Highly Sodic			Medium clay	7.0	460	3.2	Slightly Saline
54/1.5	1.5	4.8			1818	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	550	4.4	Moderately Saline
54/2.0	2.0	4.9			1852	B	Mild		Non-Aggressive		Mild							Light clay	8.5	540	4.6	Moderately Saline
54/2.5	2.5	5.0			1887	B	Mild		Non-Aggressive		Mild							Light clay	8.5	530	4.5	Moderately Saline
54/3.0	3.0	5.0			1786	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	560	4.5	Moderately Saline
55/0.5	0.5	5.4			8333	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	120	0.8	Non-Saline
55/1.0	1.0	5.1			3448	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	290	2.5	Slightly Saline
55/1.5	1.5	5.1	210	260	3704	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	4	17	22	Highly Sodic			Medium clay	7.0	270	1.9	Non-Saline
55/2.0	2.0	5.3			3448	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	290	2.3	Slightly Saline
55/2.5	2.5	5.3			4348	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	230	2.0	Non-Saline
56/0.5	0.5	5.3	120	180	4762	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	2	14	12	Sodic	2	Some	Heavy clay	6.0	210	1.3	Non-Saline
56/1.0	1.0	5.2			2128	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	470	3.3	Slightly Saline
56/1.5	1.5	5.2			2174	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	460	3.2	Slightly Saline
57/0.5	0.5	5.3			4545	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	220	1.3	Non-Saline
57/1.0	1.0	5.3			5556	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	180	1.1	Non-Saline
57/1.5	1.5	5.3			4762	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	210	1.3	Non-Saline
57/2.0	2.0	5.6	270	80	3846	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	4	10	38	Highly Sodic			Medium clay	7.0	260	1.8	Non-Saline
58/0.5	0.5	5.6			16667	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	60	0.4	Non-Saline
58/1.0	1.0	5.1	820	240	1587	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	3	10	30	Highly Sodic	2	Some	Medium clay	7.0	630	4.4	Moderately Saline
58/1.5	1.5	5.3			2222	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	450	3.6	Slightly Saline
58/2.0	2.0	5.5			6667	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	150	1.1	Non-Saline
58/2.5	2.5	5.7			6250	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	160	1.1	Non-Saline
59/0.5	0.5	5.5			15385	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	65	0.4	Non-Saline
59/1.0	1.0	5.3	160	76	5556	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	2	8	21	Highly Sodic	2	Some	Medium clay	7.0	180	1.3	Non-Saline
59/1.5	1.5	5.5			6250	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	160	1.3	Non-Saline
59/2.0	2.0	5.5			5000	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	200	1.4	Non-Saline
60/0.5	0.5	5.3			4545	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	220	1.8	Non-Saline
60/1.0	1.0	5.2			2174	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	460	4.1	Moderately Saline
60/1.5	1.5	5.1	670	200	1818	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	3	11	25	Highly Sodic			Clay loam	9.0	550	5.0	Moderately Saline
60/2.0	2.0	5.2			2000	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	500	4.3	Moderately Saline
60/2.5	2.5	5.5			3125	B	Mild		Non-Aggressive		Non-Aggressive							Light clay	8.5	320	2.7	Slightly Saline
61/0.5	0.5	5.1	280	160	3448	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	2	15	14	Sodic			Clay loam	9.0	290	2.6	Slightly Saline
61/1.0	1.0	4.8			1887	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	530	4.2	Moderately Saline
61/1.5	1.5	4.6			1087	B	Mild		Non-Aggressive		Mild							Light clay	8.5	920	7.8	Moderately Saline
61/2.0	2.0	4.8			1111	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	900	7.2	Moderately Saline
61/2.5	2.5	5.0	720	180	1695	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	3	11	28	Highly Sodic			Light medium clay	8.0	590	4.7	Moderately Saline
61/3.0	3.0	5.3			1923	B	Mild		Non-Aggressive		Mild							Medium clay	7.0	520	3.6	Slightly Saline
62/0.5	0.5	5.5			14286	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	70	0.6	Non-Saline
62/1.0	1.0	5.0			1852	B	Mild		Non-Aggressive		Mild							Light medium clay	8.0	540	4.3	Moderately Saline
62/1.5	1.5	5.0			1754	B	Mild		Non-Aggressive		Mild							Light clay	8.5	570	4.8	Moderately Saline
62/2.0	2.0	4.9			1538	B	Mild		Non-Aggressive		Mild							Clay loam	9.0	650	5.9	Moderately Saline
62/2.5	2.5	5.2			1887	B	Mild		Non-Aggressive		Mild							Clay loam	9.0	530	4.8	Moderately Saline
62/3.0	3.0	5.2			1563	B	Mild		Non-Aggressive		Mild							Clay loam	9.0	640	5.8	Moderately Saline
63/0.5	0.5	5.4			7143	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	140	1.0	Non-Saline
63/1.0	1.0	5.3			4000	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	250	1.8	Non-Saline
63/1.5	1.5	5.3			2778	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	360	3.2	Slightly Saline
63/2.0	2.0	5.2	520	210	2273	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	13	25	Highly Sodic			Light clay	8.5	440	3.7	Slightly Saline
63/2.5	2.5	5.6			3125	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	320	3.2	Slightly Saline
64/0.5	0.5	5.8			24390	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	41	0.4	Non-Saline
64/1.0	1.0	5.3			4545	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	220	2.0	Non-Saline
64/1.5	1.5	5.2	600	120	2000	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	11	27	Highly Sodic			Clay loam	9.0	500	4.5	Moderately Saline
64/2.0	2.0	5.5			2326	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	430	3.4	Slightly Saline
64/2.2	2.2	5.6			2778	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	360	2.5	Slightly Saline
65/0.5	0.5	5.4	110	110	7143	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	1	13	10	Sodic			Clay loam	9.0	140	1.3	Non-Saline

Test Bore or Pit/ Sample Depth	Sample Depth	pH	Chloride Concentration	Sulphate Concentration	Resistivity	Soil Condition	Sample Aggressivity Class					Exchangeable Sodium (Na) Concentration	Cation Exchange Capacity	Sodicity	Sodicity Class	Emerson Crumb Class Number	Dispersion?	Soil Texture Group	Textural Factor (M)	$EC_{1:5}$	EC_e	Sample Salinity Class
					By inversion of EC1:5		Aggr. to Concrete - from sample pH	Aggr. to Concrete - from Sulphate conc.	Aggr. to Steel - from sample pH	Aggr. to Steel - from Chloride conc.	Aggr. to Steel - from sample Resistivity			[Na/CEC]			(from Emerson Class)	(for detailed soil logs see Report Appendix)		[Lab.]	[M x $EC_{1:5}$]	(Based on sample ECe)
	(m bgl)	(pH units)	(mg/kg)	(mg/kg)	Ω.cm	[AS2159-2009]	[AS2159-2009]					(meq/100g)	(meq/100g)	(%)	[after DLWC]		[AS1289.3.8.1]	[after DLWC]	[after DLWC]	(microS/cm)	(deciS/m)	[Richards 1954]
65/1.0	1.0	5.2			3846	B	Mild		Non-Aggressive		Non-Aggressive							Medium clay	7.0	260	1.8	Non-Saline
65/1.5	1.5	4.8			1587	B	Mild		Non-Aggressive		Mild							Loam	10.0	630	6.3	Moderately Saline
65/2.0	2.0	5.0			2041	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	490	4.4	Moderately Saline
65/2.5	2.5	5.2			3030	B	Mild		Non-Aggressive		Non-Aggressive							Loam	10.0	330	3.3	Slightly Saline
66/0.5	0.5	6.5			3448	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	290	2.0	Slightly Saline
66/1.0	1.0	7.6			909	B	Non-Aggressive		Non-Aggressive		Moderate							Heavy clay	6.0	1100	6.6	Moderately Saline
66/1.5	1.5	8.4			1250	B	Non-Aggressive		Non-Aggressive		Mild							Medium clay	7.0	800	5.6	Moderately Saline
66/2.0	2.0	8.9	760	70	1667	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	4	13	32	Highly Sodic			Light medium clay	8.0	600	4.8	Moderately Saline
66/2.5	2.5	8.3			2174	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	460	4.1	Moderately Saline
66/3.0	3.0	8.6			2326	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	430	3.9	Slightly Saline
67/0.5	0.5	5.8			13333	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	75	0.5	Non-Saline
67/1.0	1.0	5.4	300	120	3448	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3	10	27	Highly Sodic			Medium clay	7.0	290	2.0	Slightly Saline
67/1.5	1.5	5.4			3448	B	Mild		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	290	2.3	Slightly Saline
67/2.0	2.0	5.6			4545	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light clay	8.5	220	1.9	Non-Saline
67/2.5	2.5	6.0			4545	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Clay loam	9.0	220	2.0	Non-Saline
68/0.5	0.5	4.8	150	210	4545	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	0	9	5	Sodic			Light clay	8.5	220	1.9	Non-Saline
68/1.0	1.0	5.2			3846	B	Mild		Non-Aggressive		Non-Aggressive							Loam	10.0	260	2.6	Slightly Saline
68/1.5	1.5	5.3			2000	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	500	4.5	Moderately Saline
68/2.0	2.0	5.6			2174	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	460	4.6	Moderately Saline
69/0.5	0.5	5.1			769	B	Mild		Non-Aggressive		Moderate							Medium clay	7.0	1300	9.1	Very Saline
69/1.0	1.0	6.4			909	B	Non-Aggressive		Non-Aggressive		Moderate							Light medium clay	8.0	1100	8.8	Very Saline
69/1.5	1.5	7.8	1100	150	1250	B	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	3	8	34	Highly Sodic			Clay loam	9.0	800	7.2	Moderately Saline
69/2.0	2.0	8.4			2778	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Light medium clay	8.0	360	2.9	Slightly Saline
69/2.5	2.5	8.8			2273	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Loam	10.0	440	4.4	Moderately Saline
70/1.0	1.0	5.6			19608	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	51	0.3	Non-Saline
70/1.5	1.5	5.5	160	72	7143	B	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive							Heavy clay	6.0	140	0.8	Non-Saline
70/2.0	2.0	5.5			4000	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	250	2.3	Slightly Saline
70/2.5	2.5	5.2			1613	B	Mild		Non-Aggressive		Mild							Light clay	8.5	620	5.3	Moderately Saline
70/3.0	3.0	5.3			2041	B	Mild		Non-Aggressive		Non-Aggressive							Loam	10.0	490	4.9	Moderately Saline
71/0.5	0.1	5.4			12658	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	79	0.5	Non-Saline
71/1.0	1.0	5.0			3030	B	Mild		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	330	2.0	Non-Saline
71/1.5	1.5	5.2			2632	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	380	3.4	Slightly Saline
71/2.0	2.0	5.1			1754	B	Mild		Non-Aggressive		Mild							Light clay	8.5	570	4.8	Moderately Saline
71/2.5	2.5	5.3			2632	B	Mild		Non-Aggressive		Non-Aggressive							Loam	10.0	380	3.8	Slightly Saline
72/0.5	0.1	5.7			18519	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Heavy clay	6.0	54	0.3	Non-Saline
72/1.0	1.0	4.9			5882	B	Mild		Non-Aggressive		Non-Aggressive							Clay loam	9.0	170	1.5	Non-Saline
72/1.5	1.5	5.7			5882	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	170	1.2	Non-Saline
72/2.0	2.0	5.7			4167	B	Non-Aggressive		Non-Aggressive		Non-Aggressive							Medium clay	7.0	240	1.7	Non-Saline

Appendix D

Laboratory Analytical Reports

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INTERIM REPORT 225667

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Emily McGinty
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details

Your Reference	**92240.01, Horsley Park**
Number of Samples	233 Soil
Date samples received	06/09/2019
Date completed instructions received	09/09/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	17/09/2019
Interim Report Date	17/09/2019

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vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225667-1	225667-3	225667-6	225667-8	225667-10
Your Reference	UNITS	2/0.05	7/0.1	8/0.1	9/0.1	10/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	87	87	88	86	89

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225667-13	225667-14	225667-16	225667-18	225667-20
Your Reference	UNITS	BD4	11/0.1	12/0.1	13/0.1	BD3/020919
Depth		-	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	86	86	85	87	88

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225667-23	225667-24	225667-25	225667-26	225667-27
Your Reference	UNITS	43/0.1	50/0.1	52/0.1	57/0.1	63/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	87	75	85	80	83

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225667-28	225667-29	225667-30	225667-32	225667-33
Your Reference	UNITS	64/0.1	66/0.1	73/0.1	74/0.1	BD3/290819
Depth		0.1	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	30/08/2019	30/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	86	85	88	87	85

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225667-37	225667-39	225667-41	225667-43	225667-214
Your Reference	UNITS	75/0.1	76/0.1	77/0.1	BD6/020919	BH35/0.1
Depth		0.1	0.1	0.1	-	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	83	89	87	83	88

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		225667-217	225667-228	225667-230
Your Reference	UNITS	BH40/0.1	14/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	87	81	82

svTRH (C10-C40) in Soil						
Our Reference		225667-1	225667-3	225667-6	225667-8	225667-10
Your Reference	UNITS	2/0.05	7/0.1	8/0.1	9/0.1	10/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	10/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	77	75	75	79

svTRH (C10-C40) in Soil						
Our Reference		225667-13	225667-14	225667-16	225667-18	225667-20
Your Reference	UNITS	BD4	11/0.1	12/0.1	13/0.1	BD3/020919
Depth		-	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	77	78	76	74

svTRH (C10-C40) in Soil						
Our Reference		225667-23	225667-24	225667-25	225667-26	225667-27
Your Reference	UNITS	43/0.1	50/0.1	52/0.1	57/0.1	63/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	73	73	74	76

svTRH (C10-C40) in Soil						
Our Reference		225667-28	225667-29	225667-30	225667-32	225667-33
Your Reference	UNITS	64/0.1	66/0.1	73/0.1	74/0.1	BD3/290819
Depth		0.1	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	30/08/2019	30/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	76	76	75	76

svTRH (C10-C40) in Soil						
Our Reference		225667-37	225667-39	225667-41	225667-43	225667-214
Your Reference	UNITS	75/0.1	76/0.1	77/0.1	BD6/020919	BH35/0.1
Depth		0.1	0.1	0.1	-	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	77	76	75	76

svTRH (C10-C40) in Soil				
Our Reference		225667-217	225667-228	225667-230
Your Reference	UNITS	BH40/0.1	14/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	77	84	92

PAHs in Soil						
Our Reference		225667-1	225667-6	225667-10	225667-16	225667-18
Your Reference	UNITS	2/0.05	8/0.1	10/0.1	12/0.1	13/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	30/08/2019	29/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	89	89	91	88

PAHs in Soil						
Our Reference		225667-26	225667-29	225667-30	225667-37	225667-39
Your Reference	UNITS	57/0.1	66/0.1	73/0.1	75/0.1	76/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	0.4
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	92	90	89	91	90

PAHs in Soil				
Our Reference		225667-41	225667-217	225667-230
Your Reference	UNITS	77/0.1	BH40/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	85	95	90

Organochlorine Pesticides in soil						
Our Reference		225667-1	225667-6	225667-10	225667-16	225667-18
Your Reference	UNITS	2/0.05	8/0.1	10/0.1	12/0.1	13/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	30/08/2019	29/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	89	88	88	88

Organochlorine Pesticides in soil						
Our Reference		225667-26	225667-29	225667-30	225667-37	225667-39
Your Reference	UNITS	57/0.1	66/0.1	73/0.1	75/0.1	76/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	88	88	88	89

Organochlorine Pesticides in soil				
Our Reference		225667-41	225667-217	225667-230
Your Reference	UNITS	77/0.1	BH40/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	88	88

Organophosphorus Pesticides						
Our Reference		225667-1	225667-6	225667-10	225667-16	225667-18
Your Reference	UNITS	2/0.05	8/0.1	10/0.1	12/0.1	13/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	30/08/2019	29/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	89	88	88	88

Organophosphorus Pesticides						
Our Reference		225667-26	225667-29	225667-30	225667-37	225667-39
Your Reference	UNITS	57/0.1	66/0.1	73/0.1	75/0.1	76/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	88	88	88	89

Organophosphorus Pesticides				
Our Reference		225667-41	225667-217	225667-230
Your Reference	UNITS	77/0.1	BH40/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	88	88

PCBs in Soil						
Our Reference		225667-1	225667-6	225667-10	225667-16	225667-18
Your Reference	UNITS	2/0.05	8/0.1	10/0.1	12/0.1	13/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	30/08/2019	29/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	89	88	88	88

PCBs in Soil						
Our Reference		225667-26	225667-29	225667-30	225667-37	225667-39
Your Reference	UNITS	57/0.1	66/0.1	73/0.1	75/0.1	76/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	88	88	88	89

PCBs in Soil				
Our Reference		225667-41	225667-217	225667-230
Your Reference	UNITS	77/0.1	BH40/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	88	88

Acid Extractable metals in soil						
Our Reference		225667-1	225667-3	225667-6	225667-8	225667-10
Your Reference	UNITS	2/0.05	7/0.1	8/0.1	9/0.1	10/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Arsenic	mg/kg	16	8	14	12	15
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	13	18	20	15
Copper	mg/kg	22	14	9	18	21
Lead	mg/kg	20	17	22	21	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	8	4	8	14
Zinc	mg/kg	80	26	16	32	43

Acid Extractable metals in soil						
Our Reference		225667-13	225667-14	225667-16	225667-18	225667-20
Your Reference	UNITS	BD4	11/0.1	12/0.1	13/0.1	BD3/020919
Depth		-	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Arsenic	mg/kg	9	13	10	5	15
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	20	17	16	15
Copper	mg/kg	13	15	14	13	19
Lead	mg/kg	18	17	19	18	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	7	9	6	15
Zinc	mg/kg	28	21	29	23	42

Acid Extractable metals in soil						
Our Reference		225667-23	225667-24	225667-25	225667-26	225667-27
Your Reference	UNITS	43/0.1	50/0.1	52/0.1	57/0.1	63/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Arsenic	mg/kg	7	6	6	20	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	15	10	21	16
Copper	mg/kg	12	17	23	16	24
Lead	mg/kg	19	14	10	21	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	7	8	8	14
Zinc	mg/kg	24	24	34	24	55

Acid Extractable metals in soil						
Our Reference		225667-28	225667-29	225667-30	225667-32	225667-33
Your Reference	UNITS	64/0.1	66/0.1	73/0.1	74/0.1	BD3/290819
Depth		0.1	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	30/08/2019	30/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Arsenic	mg/kg	8	6	8	13	20
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	15	20	28	23
Copper	mg/kg	17	24	10	14	15
Lead	mg/kg	28	27	18	26	20
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	10	6	10	8
Zinc	mg/kg	35	38	27	29	25

Acid Extractable metals in soil						
Our Reference		225667-37	225667-39	225667-41	225667-43	225667-214
Your Reference	UNITS	75/0.1	76/0.1	77/0.1	BD6/020919	BH35/0.1
Depth		0.1	0.1	0.1	-	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Arsenic	mg/kg	10	5	11	11	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	31	23	23	17
Copper	mg/kg	10	23	18	17	22
Lead	mg/kg	15	9	23	23	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	47	9	10	10
Zinc	mg/kg	20	49	33	36	79

Acid Extractable metals in soil				
Our Reference		225667-217	225667-228	225667-230
Your Reference	UNITS	BH40/0.1	14/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019
Arsenic	mg/kg	16	7	15
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	15	15	15
Copper	mg/kg	19	20	20
Lead	mg/kg	18	17	21
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	15	8	15
Zinc	mg/kg	41	33	43

Moisture						
Our Reference		225667-1	225667-3	225667-6	225667-8	225667-10
Your Reference	UNITS	2/0.05	7/0.1	8/0.1	9/0.1	10/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Moisture	%	9.0	11	13	14	14

Moisture						
Our Reference		225667-13	225667-14	225667-16	225667-18	225667-20
Your Reference	UNITS	BD4	11/0.1	12/0.1	13/0.1	BD3/020919
Depth		-	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Moisture	%	9.9	15	15	15	13

Moisture						
Our Reference		225667-23	225667-24	225667-25	225667-26	225667-27
Your Reference	UNITS	43/0.1	50/0.1	52/0.1	57/0.1	63/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Moisture	%	11	18	16	11	15

Moisture						
Our Reference		225667-28	225667-29	225667-30	225667-32	225667-33
Your Reference	UNITS	64/0.1	66/0.1	73/0.1	74/0.1	BD3/290819
Depth		0.1	0.1	0.1	0.1	-
Date Sampled		29/08/2019	29/08/2019	30/08/2019	30/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Moisture	%	13	16	14	19	12

Moisture						
Our Reference		225667-37	225667-39	225667-41	225667-43	225667-214
Your Reference	UNITS	75/0.1	76/0.1	77/0.1	BD6/020919	BH35/0.1
Depth		0.1	0.1	0.1	-	0.1
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Moisture	%	14	4.8	11	11	18

Moisture				
Our Reference		225667-217	225667-228	225667-230
Your Reference	UNITS	BH40/0.1	14/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019
Moisture	%	9.5	17	11

Asbestos ID - soils						
Our Reference		225667-1	225667-6	225667-10	225667-16	225667-18
Your Reference	UNITS	2/0.05	8/0.1	10/0.1	12/0.1	13/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	30/08/2019	29/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 25g	Approx. 30g	Approx. 20g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		225667-26	225667-29	225667-30	225667-37	225667-39
Your Reference	UNITS	57/0.1	66/0.1	73/0.1	75/0.1	76/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Sample mass tested	g	Approx. 30g	Approx. 30g	Approx. 30g	Approx. 30g	Approx. 35g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils				
Our Reference		225667-41	225667-217	225667-230
Your Reference	UNITS	77/0.1	BH40/0.1	40/0.1
Depth		0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil
Date analysed	-	11/09/2019	11/09/2019	11/09/2019
Sample mass tested	g	Approx. 30g	Approx. 30g	Approx. 30g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Misc Soil - Inorg						
Our Reference		225667-1	225667-6	225667-10	225667-16	225667-18
Your Reference	UNITS	2/0.05	8/0.1	10/0.1	12/0.1	13/0.1
Depth		0.05	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	30/08/2019	29/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		225667-26	225667-29	225667-30	225667-37	225667-39
Your Reference	UNITS	57/0.1	66/0.1	73/0.1	75/0.1	76/0.1
Depth		0.1	0.1	0.1	0.1	0.1
Date Sampled		02/09/2019	29/08/2019	30/08/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019	10/09/2019	10/09/2019	10/09/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg			
Our Reference		225667-41	225667-230
Your Reference	UNITS	77/0.1	40/0.1
Depth		0.1	0.1
Date Sampled		02/09/2019	29/08/2019
Type of sample		Soil	Soil
Date prepared	-	10/09/2019	10/09/2019
Date analysed	-	10/09/2019	10/09/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5

Misc Inorg - Soil						
Our Reference		225667-45	225667-46	225667-47	225667-48	225667-49
Your Reference	UNITS	29/0.5	29/1.0	29/1.5	29/2.0	29/2.5
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	6.2	5.9	6.3	6.4	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	85	260	560	790	670
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	340	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	110	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-50	225667-51	225667-52	225667-53	225667-54
Your Reference	UNITS	29/3.0	34/0.5	34/1.0	34/1.5	34/2.0
Depth		3.0	0.5	1.0	1.5	2.0
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	6.0	5.5	5.0	4.6	4.7
Electrical Conductivity 1:5 soil:water	µS/cm	820	130	490	990	930
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	1,100	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	480	[NA]

Misc Inorg - Soil						
Our Reference		225667-55	225667-56	225667-57	225667-58	225667-59
Your Reference	UNITS	34/2.5	34/3.0	35/0.5	35/1.0	35/1.5
Depth		2.5	3.0	0.5	1.0	1.5
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	4.8	4.8	5.4	5.3	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	800	900	120	290	380
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	280
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	300

Misc Inorg - Soil						
Our Reference		225667-60	225667-61	225667-62	225667-63	225667-64
Your Reference	UNITS	35/2.0	36/0.5	36/1.0	36/1.5	36/2.0
Depth		2.0	0.5	1.0	1.5	2.0
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.4	6.2	5.9	6.2	6.5
Electrical Conductivity 1:5 soil:water	µS/cm	390	58	120	120	160
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	100
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	95

Misc Inorg - Soil						
Our Reference		225667-65	225667-66	225667-67	225667-68	225667-69
Your Reference	UNITS	36/2.5	36/3.0	37/0.5	37/1.0	37/1.5
Depth		2.5	3.0	0.5	1.0	1.5
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	7.3	7.6	5.8	5.4	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	140	110	59	240	260
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	190	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	130	[NA]

Misc Inorg - Soil						
Our Reference		225667-70	225667-71	225667-72	225667-73	225667-74
Your Reference	UNITS	37/2.0	38/0.5	38/1.0	38/1.5	38/2.0
Depth		2.0	0.5	1.0	1.5	2.0
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.3	5.7	5.3	5.0	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	340	91	250	770	620
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	29	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	110	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-75	225667-76	225667-77	225667-78	225667-79
Your Reference	UNITS	38/2.5	38/3.0	39/0.5	39/0.9	40/0.5
Depth		2.5	3.0	0.5	0.9	0.5
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.0	5.1	5.3	8.0	5.6
Electrical Conductivity 1:5 soil:water	µS/cm	760	580	63	130	67
Chloride, Cl 1:5 soil:water	mg/kg	870	[NA]	[NA]	[NA]	35
Sulphate, SO4 1:5 soil:water	mg/kg	290	[NA]	[NA]	[NA]	44

Misc Inorg - Soil						
Our Reference		225667-80	225667-81	225667-82	225667-83	225667-84
Your Reference	UNITS	41/0.5	41/1.0	41/1.5	41/2.0	41/2.7
Depth		0.5	1.0	1.5	2.0	2.7
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.6	5.6	5.1	5.2	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	100	140	370	290	290
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	110	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	93	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-85	225667-86	225667-87	225667-88	225667-89
Your Reference	UNITS	42/0.5	42/1.0	42/1.5	42/2.0	42/2.4
Depth		0.5	1.0	1.5	2.0	2.4
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.9	5.5	5.2	5.4	5.5
Electrical Conductivity 1:5 soil:water	µS/cm	75	170	540	360	340
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	400	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	82	[NA]

Misc Inorg - Soil						
Our Reference		225667-90	225667-91	225667-92	225667-93	225667-94
Your Reference	UNITS	43/0.5	43/1.0	43/1.5	44/0.5	44/1.0
Depth		0.5	1.0	1.5	0.5	1.0
Date Sampled		02/09/2019	02/09/2019	02/09/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	7.2	9.5	9.7	9.5	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	180	300	330	220	58
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	220	[NA]	27
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	22	[NA]	25

Misc Inorg - Soil						
Our Reference		225667-95	225667-96	225667-97	225667-98	225667-99
Your Reference	UNITS	44/1.5	45/0.5	45/1.0	45/1.5	45/2.2
Depth		1.5	0.5	1.0	1.5	2.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.5	7.6	5.2	5.2	5.8
Electrical Conductivity 1:5 soil:water	µS/cm	130	210	200	310	240
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	200
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	110

Misc Inorg - Soil						
Our Reference		225667-100	225667-101	225667-102	225667-103	225667-104
Your Reference	UNITS	46/0.5	46/1.0	46/1.5	46/2.0	47/0.5
Depth		0.5	1.0	1.5	2.0	0.5
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.5	5.1	4.8	5.3	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	59	200	740	750	37
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	960	[NA]	20
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	120	[NA]	20

Misc Inorg - Soil						
Our Reference		225667-105	225667-106	225667-107	225667-108	225667-109
Your Reference	UNITS	47/1.0	47/1.5	47/2.0	48/0.5	48/1.0
Depth		1.0	1.5	2.0	0.5	1.0
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	8.3	8.8	8.8	6.0	9.4
Electrical Conductivity 1:5 soil:water	µS/cm	110	81	96	70	400

Misc Inorg - Soil						
Our Reference		225667-110	225667-111	225667-112	225667-113	225667-114
Your Reference	UNITS	48/2.7	49/0.5	49/1.0	49/1.5	49/2.0
Depth		2.7	0.5	1.0	1.5	2.0
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	9.4	5.2	4.8	9.5	4.8
Electrical Conductivity 1:5 soil:water	µS/cm	520	210	730	550	770
Chloride, Cl 1:5 soil:water	mg/kg	380	[NA]	[NA]	[NA]	890
Sulphate, SO4 1:5 soil:water	mg/kg	130	[NA]	[NA]	[NA]	230

Misc Inorg - Soil						
Our Reference		225667-115	225667-116	225667-117	225667-118	225667-119
Your Reference	UNITS	49/2.4	50/0.5	50/1.0	50/1.5	50/2.0
Depth		2.4	0.5	1.0	1.5	2.0
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	4.8	5.7	5.3	5.0	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	630	48	240	530	430

Misc Inorg - Soil						
Our Reference		225667-120	225667-121	225667-122	225667-123	225667-124
Your Reference	UNITS	50/2.5	50/3.0	51/0.5	51/1.0	51/1.5
Depth		2.5	3.0	0.5	1.0	1.5
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.2	5.2	5.4	5.3	9.2
Electrical Conductivity 1:5 soil:water	µS/cm	590	600	400	980	760
Chloride, Cl 1:5 soil:water	mg/kg	570	[NA]	[NA]	1,200	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	290	[NA]	[NA]	450	[NA]

Misc Inorg - Soil						
Our Reference		225667-125	225667-126	225667-127	225667-128	225667-129
Your Reference	UNITS	51/2.0	51/2.5	52/0.5	52/1.0	52/1.5
Depth		2.0	2.5	0.5	1.0	1.5
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	9.4	9.0	5.9	5.6	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	620	780	47	140	460
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	610
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	220

Misc Inorg - Soil						
Our Reference		225667-130	225667-131	225667-132	225667-133	225667-134
Your Reference	UNITS	52/2.0	53/0.5	53/1.0	53/1.5	53/2.0
Depth		2.0	0.5	1.0	1.5	2.0
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	6.0	5.6	4.9	5.0	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	210	200	720	800	690
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	240	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	24	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-135	225667-136	225667-137	225667-138	225667-139
Your Reference	UNITS	53/2.5	53/3.0	54/0.5	54/1.0	54/1.5
Depth		2.5	3.0	0.5	1.0	1.5
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.1	5.1	5.2	5.0	4.8
Electrical Conductivity 1:5 soil:water	µS/cm	760	830	120	460	550
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	390	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	350	[NA]

Misc Inorg - Soil						
Our Reference		225667-140	225667-141	225667-142	225667-143	225667-144
Your Reference	UNITS	54/2.0	54/2.5	54/3.0	55/0.5	55/1.0
Depth		2.0	2.5	3.0	0.5	1.0
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	4.9	5.0	5.0	5.4	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	540	530	560	120	290

Misc Inorg - Soil						
Our Reference		225667-145	225667-146	225667-147	225667-148	225667-149
Your Reference	UNITS	55/1.5	55/2.0	55/2.5	56/0.5	56/1.0
Depth		1.5	2.0	2.5	0.5	1.0
Date Sampled		30/08/2019	30/08/2019	30/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.1	5.3	5.3	5.3	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	270	290	230	210	470
Chloride, Cl 1:5 soil:water	mg/kg	210	[NA]	[NA]	120	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	260	[NA]	[NA]	180	[NA]

Misc Inorg - Soil						
Our Reference		225667-150	225667-151	225667-152	225667-153	225667-154
Your Reference	UNITS	56/1.5	57/0.5	57/1.0	57/1.5	57/2.0
Depth		1.5	0.5	1.0	1.5	2.0
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.2	5.3	5.3	5.3	5.6
Electrical Conductivity 1:5 soil:water	µS/cm	460	220	180	210	260
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	270
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	80

Misc Inorg - Soil						
Our Reference		225667-155	225667-156	225667-157	225667-158	225667-159
Your Reference	UNITS	58/0.5	58/1.0	58/1.5	58/2.0	58/2.5
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.6	5.1	5.3	5.5	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	60	630	450	150	160
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	820	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	240	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-160	225667-161	225667-162	225667-163	225667-164
Your Reference	UNITS	59/0.5	59/1.0	59/1.5	59/2.0	60/0.5
Depth		0.5	1.0	1.5	2.0	0.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.5	5.3	5.5	5.5	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	65	180	160	200	220
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	160	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	76	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-165	225667-166	225667-167	225667-168	225667-169
Your Reference	UNITS	60/1.0	60/1.5	60/2.0	60/2.5	61/0.5
Depth		1.0	1.5	2.0	2.5	0.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.2	5.1	5.2	5.5	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	460	550	500	320	290
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	670	[NA]	[NA]	280
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	200	[NA]	[NA]	160

Misc Inorg - Soil						
Our Reference		225667-170	225667-171	225667-172	225667-173	225667-174
Your Reference	UNITS	61/1.0	61/1.5	61/2.0	61/2.5	62/0.5
Depth		1.0	1.5	2.0	2.5	0.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	4.8	4.6	4.8	5.0	5.5
Electrical Conductivity 1:5 soil:water	µS/cm	530	920	900	590	70
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	720	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	180	[NA]

Misc Inorg - Soil						
Our Reference		225667-175	225667-176	225667-177	225667-178	225667-179
Your Reference	UNITS	62/1.0	62/1.5	62/2.0	62/2.5	62/3.0
Depth		1.0	1.5	2.0	2.5	3.0
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.0	5.0	4.9	5.2	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	540	570	650	530	640

Misc Inorg - Soil						
Our Reference		225667-180	225667-181	225667-182	225667-183	225667-184
Your Reference	UNITS	63/0.5	63/1.0	63/1.5	63/2.0	63/2.5
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.4	5.3	5.3	5.2	5.6
Electrical Conductivity 1:5 soil:water	µS/cm	140	250	360	440	320
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	520	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	210	[NA]

Misc Inorg - Soil						
Our Reference		225667-185	225667-186	225667-187	225667-188	225667-189
Your Reference	UNITS	64/0.5	64/1.0	64/1.5	64/2.0	65/0.5
Depth		0.5	1.0	1.5	2.0	0.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.8	5.3	5.2	5.5	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	41	220	500	430	140
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	600	[NA]	110
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	120	[NA]	110

Misc Inorg - Soil						
Our Reference		225667-190	225667-191	225667-192	225667-193	225667-194
Your Reference	UNITS	65/1.0	65/1.5	65/2.0	65/2.5	66/0.5
Depth		1.0	1.5	2.0	2.5	0.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.2	4.8	5.0	5.2	6.5
Electrical Conductivity 1:5 soil:water	µS/cm	260	630	490	330	290

Misc Inorg - Soil						
Our Reference		225667-195	225667-196	225667-197	225667-198	225667-199
Your Reference	UNITS	66/1.0	66/1.5	66/2.0	66/2.5	66/3.0
Depth		1.0	1.5	2.0	2.5	3.0
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	7.6	8.4	8.9	8.3	8.6
Electrical Conductivity 1:5 soil:water	µS/cm	1,100	800	600	460	430
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	760	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	70	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-200	225667-201	225667-202	225667-203	225667-204
Your Reference	UNITS	67/0.5	67/1.0	67/1.5	67/2.0	67/2.5
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.8	5.4	5.4	5.6	6.0
Electrical Conductivity 1:5 soil:water	µS/cm	75	290	290	220	220
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	300	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	120	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-205	225667-206	225667-207	225667-208	225667-209
Your Reference	UNITS	68/0.5	68/1.0	68/1.5	68/2.0	69/0.5
Depth		0.5	1.0	1.5	2.0	0.5
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	4.8	5.2	5.3	5.6	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	220	260	500	460	1,300
Chloride, Cl 1:5 soil:water	mg/kg	150	[NA]	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	210	[NA]	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-210	225667-211	225667-212	225667-213	225667-216
Your Reference	UNITS	69/1.0	69/1.5	69/2.0	69/2.5	BH37/1.5
Depth		1.0	1.5	2.0	2.5	1.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	6.4	7.8	8.4	8.8	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	1,100	800	360	440	360
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	1,100	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	150	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225667-218	225667-219	225667-220	225667-221	225667-223
Your Reference	UNITS	BH41/2.5	BH46/2.5	BH49/3.0	BH51/3.0	BH61/3.0
Depth		2.5	2.5	3.0	3.0	3.0
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units	5.1	8.0	4.9	8.8	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	280	350	910	730	520

Misc Inorg - Soil		
Our Reference		225667-224
Your Reference	UNITS	BH64/2.2
Depth		2.2
Date Sampled		29/08/2019
Type of sample		Soil
Date prepared	-	12/09/2019
Date analysed	-	12/09/2019
pH 1:5 soil:water	pH Units	5.6
Electrical Conductivity 1:5 soil:water	µS/cm	360

CEC						
Our Reference		225667-46	225667-53	225667-59	225667-64	225667-68
Your Reference	UNITS	29/1.0	34/1.5	35/1.5	36/2.0	37/1.0
Depth		1.0	1.5	1.5	2.0	1.0
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	<0.1	0.3	0.1	0.3	0.2
Exchangeable K	meq/100g	0.1	0.3	0.2	0.1	0.2
Exchangeable Mg	meq/100g	7.0	10	9.7	6.8	7.9
Exchangeable Na	meq/100g	1.9	4.3	2.6	2.4	4.3
Cation Exchange Capacity	meq/100g	9.1	15	13	9.6	13

CEC						
Our Reference		225667-71	225667-75	225667-79	225667-81	225667-88
Your Reference	UNITS	38/0.5	38/2.5	40/0.5	41/1.0	42/2.0
Depth		0.5	2.5	0.5	1.0	2.0
Date Sampled		02/09/2019	02/09/2019	02/09/2019	02/09/2019	02/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	1.9	0.3	10	2.3	0.8
Exchangeable K	meq/100g	0.2	0.3	0.2	0.3	0.2
Exchangeable Mg	meq/100g	8.9	9.9	5.4	7.3	6.0
Exchangeable Na	meq/100g	1.3	5.1	0.30	2.5	2.9
Cation Exchange Capacity	meq/100g	12	15	16	12	9.9

CEC						
Our Reference		225667-92	225667-94	225667-99	225667-102	225667-104
Your Reference	UNITS	43/1.5	44/1.0	45/2.2	46/1.5	47/0.5
Depth		1.5	1.0	2.2	1.5	0.5
Date Sampled		02/09/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	13	3.8	1.7	1.5	6.6
Exchangeable K	meq/100g	0.1	0.2	0.3	0.1	0.2
Exchangeable Mg	meq/100g	7.5	7.8	6.5	5.8	3.7
Exchangeable Na	meq/100g	2.9	1.3	3.9	4.0	0.45
Cation Exchange Capacity	meq/100g	24	13	12	11	11

CEC						
Our Reference		225667-110	225667-114	225667-120	225667-123	225667-129
Your Reference	UNITS	48/2.7	49/2.0	50/2.5	51/1.0	52/1.5
Depth		2.7	2.0	2.5	1.0	1.5
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	30	1	0.3	4.9	0.5
Exchangeable K	meq/100g	<0.1	0.3	0.3	0.1	0.3
Exchangeable Mg	meq/100g	11	8.7	9.5	13	7.8
Exchangeable Na	meq/100g	5.2	3.3	4.0	3.6	3.2
Cation Exchange Capacity	meq/100g	47	13	14	21	12

CEC						
Our Reference		225667-131	225667-138	225667-145	225667-148	225667-154
Your Reference	UNITS	53/0.5	54/1.0	55/1.5	56/0.5	57/2.0
Depth		0.5	1.0	1.5	0.5	2.0
Date Sampled		30/08/2019	30/08/2019	30/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	0.3	0.2	0.4	2.5	<0.1
Exchangeable K	meq/100g	<0.1	0.3	0.3	0.3	0.2
Exchangeable Mg	meq/100g	3.7	11	12	9.9	5.8
Exchangeable Na	meq/100g	0.80	3.1	3.8	1.7	3.7
Cation Exchange Capacity	meq/100g	5.0	14	17	14	9.8

CEC						
Our Reference		225667-156	225667-161	225667-166	225667-169	225667-173
Your Reference	UNITS	58/1.0	59/1.0	60/1.5	61/0.5	61/2.5
Depth		1.0	1.0	1.5	0.5	2.5
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	0.2	0.7	0.3	1.0	0.2
Exchangeable K	meq/100g	0.2	0.2	0.3	0.3	0.2
Exchangeable Mg	meq/100g	6.9	5.5	7.5	12	7.2
Exchangeable Na	meq/100g	3.0	1.7	2.8	2.1	3.1
Cation Exchange Capacity	meq/100g	10	8.1	11	15	11

CEC						
Our Reference		225667-183	225667-187	225667-189	225667-197	225667-201
Your Reference	UNITS	63/2.0	64/1.5	65/0.5	66/2.0	67/1.0
Depth		2.0	1.5	0.5	2.0	1.0
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	0.2	<0.1	3.3	0.7	0.2
Exchangeable K	meq/100g	0.3	0.2	0.3	0.2	0.2
Exchangeable Mg	meq/100g	9.7	7.4	8.0	8.4	6.9
Exchangeable Na	meq/100g	3.2	3.0	1.3	4.2	2.7
Cation Exchange Capacity	meq/100g	13	11	13	13	10

CEC			
Our Reference		225667-205	225667-211
Your Reference	UNITS	68/0.5	69/1.5
Depth		0.5	1.5
Date Sampled		02/09/2019	29/08/2019
Type of sample		Soil	Soil
Date prepared	-	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019
Exchangeable Ca	meq/100g	1.4	0.2
Exchangeable K	meq/100g	0.4	<0.1
Exchangeable Mg	meq/100g	6.6	4.9
Exchangeable Na	meq/100g	0.47	2.7
Cation Exchange Capacity	meq/100g	8.8	7.9

Phosphorus Sorption						
Our Reference		225667-46	225667-57	225667-78	225667-101	225667-132
Your Reference	UNITS	29/1.0	35/0.5	39/0.9	46/1.0	53/1.0
Depth		1.0	0.5	0.9	1.0	1.0
Date Sampled		02/09/2019	02/09/2019	02/09/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-					
Date analysed	-					
Phosphorus Buffer Index	mg/kg					
Phosphorus Sorption Capacity	mg/kg					
Phosphorus Capacity	mg/kg					

Phosphorus Sorption						
Our Reference		225667-149	225667-165	225667-176	225667-186	225667-190
Your Reference	UNITS	56/1.0	60/1.0	62/1.5	64/1.0	65/1.0
Depth		1.0	1.0	1.5	1.0	1.0
Date Sampled		29/08/2019	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-					
Date analysed	-					
Phosphorus Buffer Index	mg/kg					
Phosphorus Sorption Capacity	mg/kg					
Phosphorus Capacity	mg/kg					

Phosphorus Sorption			
Our Reference		225667-202	225667-206
Your Reference	UNITS	67/1.5	68/1.0
Depth		1.5	1.0
Date Sampled		29/08/2019	02/09/2019
Type of sample		Soil	Soil
Date prepared	-		
Date analysed	-		
Phosphorus Buffer Index	mg/kg		
Phosphorus Sorption Capacity	mg/kg		
Phosphorus Capacity	mg/kg		

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Ext-062	Analysed by East West Enviroag
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date extracted	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			13/09/2019	1	13/09/2019	13/09/2019		13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	87	88
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	87	88
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	82	80
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	81	81
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	91	93
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	91	92
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	88	90
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	92	1	87	87	0	90	87

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225667-230
Date extracted	-			[NT]	18	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			[NT]	18	13/09/2019	13/09/2019		13/09/2019	13/09/2019
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	18	<25	<25	0	87	85
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	18	<25	<25	0	87	85
Benzene	mg/kg	0.2	Org-016	[NT]	18	<0.2	<0.2	0	80	79
Toluene	mg/kg	0.5	Org-016	[NT]	18	<0.5	<0.5	0	79	77
Ethylbenzene	mg/kg	1	Org-016	[NT]	18	<1	<1	0	93	90
m+p-xylene	mg/kg	2	Org-016	[NT]	18	<2	<2	0	92	90
o-Xylene	mg/kg	1	Org-016	[NT]	18	<1	<1	0	91	88
naphthalene	mg/kg	1	Org-014	[NT]	18	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	18	87	84	4	89	86

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	43	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	43	13/09/2019	13/09/2019		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	43	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	43	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	43	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	43	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	43	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	43	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	43	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	43	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	43	83	84	1	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	217	13/09/2019	13/09/2019		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	217	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	217	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	217	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	217	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	217	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	217	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	217	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	217	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	217	87	88	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date extracted	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			11/09/2019	1	13/09/2019	13/09/2019		11/09/2019	13/09/2019
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	102	102
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	73
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	88	112
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	102	102
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	73
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	88	112
Surrogate o-Terphenyl	%		Org-003	85	1	77	80	4	95	94

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225667-230
Date extracted	-			[NT]	18	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			[NT]	18	11/09/2019	11/09/2019		11/09/2019	11/09/2019
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	18	<50	<50	0	96	109
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	18	<100	<100	0	88	81
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	18	<100	<100	0	92	110
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	18	<50	<50	0	96	109
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	18	<100	<100	0	88	81
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	18	<100	<100	0	92	110
Surrogate o-Terphenyl	%		Org-003	[NT]	18	76	76	0	95	98

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	217	11/09/2019	11/09/2019		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	217	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	217	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	217	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	217	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	217	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	217	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	217	77	80	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date extracted	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	108	108
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	100	98
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	94	96
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	92	94
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	94	96
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	102	102
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	102	100
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	96	1	88	91	3	90	92

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	18	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	18	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	18	88	87	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	217	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	217	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	217	95	90	5	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date extracted	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	94	93
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	95	91
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	96	93
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	99	95
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	99	95
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	103	100
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	117	112
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	103	101
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	104	98
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	117	107
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	92	1	91	89	2	87	84

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	18	88	87	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	217	88	89	1	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date extracted	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	96	95
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	101	100
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	108	101
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	108	100
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	102	98
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	100	103
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	98	98
Surrogate TCMX	%		Org-008	92	1	91	89	2	87	84

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	18	88	87	1	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	217	88	89	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date extracted	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	105	101
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	92	1	91	89	2	87	84

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	18	10/09/2019	10/09/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	18	88	87	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	217	88	89	1	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date prepared	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Arsenic	mg/kg	4	Metals-020	<4	1	16	16	0	102	83
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	100	76
Chromium	mg/kg	1	Metals-020	<1	1	16	17	6	111	83
Copper	mg/kg	1	Metals-020	<1	1	22	22	0	104	93
Lead	mg/kg	1	Metals-020	<1	1	20	20	0	113	78
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	93	82
Nickel	mg/kg	1	Metals-020	<1	1	15	16	6	101	80
Zinc	mg/kg	1	Metals-020	<1	1	80	91	13	105	81

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225667-230
Date prepared	-			[NT]	18	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			[NT]	18	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Arsenic	mg/kg	4	Metals-020	[NT]	18	5	5	0	103	99
Cadmium	mg/kg	0.4	Metals-020	[NT]	18	<0.4	<0.4	0	101	91
Chromium	mg/kg	1	Metals-020	[NT]	18	16	16	0	109	95
Copper	mg/kg	1	Metals-020	[NT]	18	13	14	7	105	106
Lead	mg/kg	1	Metals-020	[NT]	18	18	17	6	112	98
Mercury	mg/kg	0.1	Metals-021	[NT]	18	<0.1	<0.1	0	75	87
Nickel	mg/kg	1	Metals-020	[NT]	18	6	6	0	101	93
Zinc	mg/kg	1	Metals-020	[NT]	18	23	21	9	105	89

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	43	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	43	10/09/2019	10/09/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	43	11	10	10	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	43	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	43	23	22	4	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	43	17	18	6	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	43	23	22	4	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	43	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	43	10	9	11	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	43	36	30	18	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	217	10/09/2019	10/09/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	217	16	16	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	217	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	217	15	16	6	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	217	19	19	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	217	18	20	11	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	217	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	217	15	16	6	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	217	41	41	0	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-6
Date prepared	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Date analysed	-			10/09/2019	1	10/09/2019	10/09/2019		10/09/2019	10/09/2019
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	105	99

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	41	10/09/2019	10/09/2019		[NT]	[NT]
Date analysed	-			[NT]	41	10/09/2019	10/09/2019		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	41	<5	<5	0	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225667-59
Date prepared	-			12/09/2019	46	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			12/09/2019	46	12/09/2019	12/09/2019		12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	46	5.9	5.8	2	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	46	260	270	4	106	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	46	340	380	11	105	110
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	46	110	110	0	100	#

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225667-94
Date prepared	-			[NT]	55	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			[NT]	55	12/09/2019	12/09/2019		12/09/2019	12/09/2019
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	55	4.8	4.7	2	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	55	800	900	12	105	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	75	870	770	12	109	104
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	75	290	280	4	100	100

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			[NT]	70	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	70	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	70	5.3	5.3	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	70	340	340	0	104	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	120	570	630	10	[NT]	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	120	290	310	7	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			[NT]	75	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	75	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	75	5.0	5.0	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	75	760	690	10	105	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	145	210	240	13	[NT]	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	145	260	230	12	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			[NT]	98	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	98	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	98	5.2	5.1	2	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	98	310	340	9	104	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	205	150	160	6	[NT]	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	205	210	210	0	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			[NT]	107	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	107	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	107	8.8	8.9	1	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	107	96	94	2	103	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date prepared	-			[NT]	120	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	120	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	120	5.2	5.2	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	120	590	620	5	105	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date prepared	-			[NT]	127	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	127	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	127	5.9	5.9	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	127	47	49	4	104	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date prepared	-			[NT]	135	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	135	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	135	5.1	5.1	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	135	760	750	1	104	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date prepared	-			[NT]	145	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	145	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	145	5.1	5.1	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	145	270	310	14	106	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	[NT]
Date prepared	-			[NT]	155	12/09/2019	12/09/2019		12/09/2019	[NT]
Date analysed	-			[NT]	155	12/09/2019	12/09/2019		12/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	155	5.6	5.6	0	101	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	155	60	60	0	104	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	164	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	164	12/09/2019	12/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	164	5.3	5.4	2	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	164	220	200	10	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	175	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	175	12/09/2019	12/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	175	5.0	4.9	2	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	175	540	660	20	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	185	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	185	12/09/2019	12/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	185	5.8	5.8	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	185	41	41	0	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	195	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	195	12/09/2019	12/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	195	7.6	7.6	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	195	1100	1200	9	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	205	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	205	12/09/2019	12/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	205	4.8	4.8	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	205	220	230	4	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	212	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	212	12/09/2019	12/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	212	8.4	8.4	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	212	360	450	22	[NT]	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			13/09/2019	64	13/09/2019	13/09/2019		13/09/2019	[NT]
Date analysed	-			13/09/2019	64	13/09/2019	13/09/2019		13/09/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	64	0.3	0.3	0	108	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	64	0.1	0.1	0	105	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	64	6.8	6.5	5	102	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	64	2.4	2.3	4	108	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			[NT]	94	13/09/2019	13/09/2019		13/09/2019	[NT]
Date analysed	-			[NT]	94	13/09/2019	13/09/2019		13/09/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	[NT]	94	3.8	4.0	5	102	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	[NT]	94	0.2	0.2	0	100	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	[NT]	94	7.8	8.3	6	97	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	[NT]	94	1.3	1.4	7	98	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	145	13/09/2019	13/09/2019		[NT]	[NT]
Date analysed	-			[NT]	145	13/09/2019	13/09/2019		[NT]	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	[NT]	145	0.4	0.4	0	[NT]	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	[NT]	145	0.3	0.2	40	[NT]	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	[NT]	145	12	10	18	[NT]	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	[NT]	145	3.8	3.2	17	[NT]	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	197	13/09/2019	13/09/2019		[NT]	[NT]
Date analysed	-			[NT]	197	13/09/2019	13/09/2019		[NT]	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	[NT]	197	0.7	0.7	0	[NT]	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	[NT]	197	0.2	0.2	0	[NT]	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	[NT]	197	8.4	8.7	4	[NT]	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	[NT]	197	4.2	4.3	2	[NT]	[NT]

QUALITY CONTROL: Phosphorus Sorption					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Phosphorus Capacity	mg/kg	2	Ext-062	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

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

MISC_INORG_DRY:
Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8a	Metals, TRH, BTEX	OCP / OPP / PCB	PAH	Total phenols	TRH	BTEX	HOLD		Notes/preservation
2/0.05	1	29/8/19	S	G/P	X	X								
2/0.5	2	〃	S	G/P								X		
7/0.1	3	29/8/19	S	G/P		X								
7/0.3	4	↓	S	G/P								X		
7/0.5	5	↓	S	G/P								X		
8/0.1	6	30/8/19	S	G/P	X	X								
8/0.3 (05)	7	29/8/19	S	G/P								X		
9/0.1	8	↓	S	G/P		X								
9/0.5	9	↓	S	G/P								X		
10/0.1	10	↓	S	G/P	X	X								
10/0.5	11	↓	S	G/P								X		
BD2	12		S	G/P								X		
BD4	13	29/8/19	S	G/P		X								

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

Job No: 225667
Date Received: 6/9/2019
Time Received: 1830
Received by: RJ MO
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None 14'6

Lab Report No:			
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	[redacted]	**Transported to laboratory by:**	
Signed:		**Date & Time:** 6/09/2019	**Received by:** May 6/9/2019

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CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8a	Metals, TRH, BTEX	OCP / OPP / PCB	PAH	Total phenols	TRH	BTEX	HOLD		Notes/preservation
11 / 0.1	14	29/8/19	S	G / P		X								
11/0.5	15	"	S	G / P								X		
12/0.1	16	2/9/19	S	G / P	X	~~X~~								
12/~~0~~0.5	17	"	S	G / P								X		
13/0.1	18	2/9/19	S	G / P	X	~~X~~								
13/0.5	19	"	S	G / P		~~X~~						~~X~~ X		
~~X~~14/0.1	NR	"	S	G / P		X						~~X~~		
14/0.5	NR	"	S	G / P								X		
~~29~~ 40/0.1	NR	"	S	G / P	X									
BD3/020919	20	"	S	G / P		X								
BD5/020919	NR	2/9/19	S	G / P	---	---	---	---	---	---	---	---	---	---
BD4/020919	21	2/9/19	S	G / P										
BD1/290819	22	29/8/19	S	G / P								X		

Lab Report No:					
Send Results to:	Douglas Partners Pty Ltd	**Address:**	18 Waler Crescent Smeaton Grange 2567	**Phone:**	(02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	[redacted]			**Transported to laboratory by:**	
Signed:		**Date & Time:**	6/09/2019	**Received by:**	Ray 6/9/2019 225667

Form COC

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CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type: S - soil, W - water	Container Type: G - glass, P - plastic	Analytes: Combo 8a	Metals, TRH, BTEX	OCP / OPP / PCB	PAH	Total phenols	TRH	BTEX	Asbestos		Notes/preservation
43/0.1	23	2/9/19	S	G/P		X								
50/0.1	24		S	G/P		X								
52/0.1	25		S	G/P		X								
57/0.1	26		S	G/P	X									
63/0.1	27	29/8/19	S	G/P		X								
64/0.1	28	29/8/19	S	G/P		X								
66/0.1	29	29/8/19	S	G/P	X									
73/0.1	30	30/8/19	S	G/P	X	X								
73/0.8	31	30/8/19	S	G/P								X		
74/0.1	32	30/8/19	S	G/P		X								
BD3/29/8/19	33	29/8/19	S	G/P		X								
BD1/30/8/19	34	30/8/19	S	G/P								X		
BD3/30/8/19	35	30/8/19	S	G/P								X		

Lab Report No:			
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	EMG	**Transported to laboratory by:**	
Signed:	**Date & Time:** 6/09/2019	**Received by:** May 6/9/2019 225667	

74/0.5 36 30/8/19

[redacted]

Form COC

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CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8a	Metals, TRH, BTEX	OCP / OPP / PCB	PAH	Total phenols	TRH	BTEX	Keo		Notes/preservation
75/0.1	37	02/09/19	S	G/P	X	X								
" / 0.5	38	"	S	G/P		X						X		
76/0.1	39	"	S	G/P	X	X								
" 0.5	40	"	S	G/P								X		
77/0.1	41		S	G/P	X	X								
" / 0.5	42		S	G/P								X		
			S	G/P										
			S	G/P										
			S	G/P										
			S	G/P										
			S	G/P										
BD6/020919	43		S	G/P		X								
BD1/020919	44	02/09/19	S	G/P								X		

Lab Report No:			
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Relinquished by:	[redacted]	**Transported to laboratory by:**	
Signed:	**Date & Time:** 6/09/2019	**Received by:** Play 6/9/2019 225667	

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CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
29 / 0.5	45	2/9/19	S	G / P	X	X								
1.0	46		S	G / P			X	X	X					
1.5	47		S	G / P										
2.0	48		S	G / P										
2.5	49		S	G / P										
3.0	50		S	G / P										
34 / 0.5	51	2/9/19	S	G / P										
1.0	52		S	G / P										
1.5	53		S	G / P			X	X						
2.0	54		S	G / P										
2.5	55		S	G / P										
3.0	56		S	G / P										
35 / 0.5	57		S	G / P					X					

Lab Report No:					
Send Results to:	Douglas Partners Pty Ltd	**Address:**	18 Waler Crescent Smeaton Grange 2567	**Phone:**	(02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	EMG			**Transported to laboratory by:**	
Signed:		**Date & Time:**	6/09/2019	**Received by:**	Ray 6/9/2019 18:30 225667

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
35 / 1.0	58	2/9/19	S	G / P	X	X			X					
1.5	59	↓	S	G / P			X	X						
2.0	60	↓	S	G / P										
36 / 0.5	61	2/9/19	S	G / P										
1.0	62	↓	S	G / P										
1.5	63	↓	S	G / P										
2.0	64	↓	S	G / P			X	X						
2.5	65	↓	S	G / P										
3.0	66	↓	S	G / P										
37 0.5	67	2/9/19	S	G / P										
1.0	68	↓	S	G / P			X	X						
1.5	69	↓	S	G / P										
2.0	70	↓	S	G / P	↓	↓								

Lab Report No:					
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent Smeaton Grange 2567		**Phone:** (02) 4647 0075	**Fax:** (02) 4646 1886
Relinquished by:	EMG [redacted]		**Transported to laboratory by:**		
Signed:	[redacted]	**Date & Time:** 6/09/2019	**Received by:** May	225667 18:30	6/9/2019

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Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
38 / 0.5	71	2/9/19	S	G / P	X	X	X	X						
1.0	72		S	G / P										
1.5	73		S	G / P										
2.0	74		S	G / P										
2.5	75		S	G / P			X	X						
3.0	76		S	G / P										
39 / 0.5	77		S	G / P										
0.978	78		S	G / P			X	X	X					
40 0.5	79	2/9/19	S	G / P			X	X						
0.9	NR		S	G / P										
41 0.5	80		S	G / P										
1.0	81		S	G / P			X	X						
1.5	82		S	G / P										

Lab Report No:					
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent Smeaton Grange 2567		**Phone:** (02) 4647 0075	**Fax:** (02) 4646 1886
Relinquished by:	[redacted]		**Transported to laboratory by:**		
Signed:		**Date & Time:** 6/09/2019	**Received by:** May 6/9/2019 225667		

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
41 / 2.0	83	2/9/19	S	G / P	X	X								
↓ 2.7	84	↓	S	G / P										
42 / 0.5	85		S	G / P										
1.0	86		S	G / P										
1.5	87		S	G / P										
2.0	88		S	G / P			X	X						
↓ 2.4	89	↓	S	G / P										
43 0.5	90		S	G / P										
1.0	91		S	G / P										
↓ 1.5	92	↓	S	G / P			X	X						
44 0.5	93	30/8/19	S	G / P										
1.0	94		S	G / P			X	X						
↓ 1.5	95	↓	S	G / P	↓	↓								

Lab Report No:					
Send Results to:	Douglas Partners Pty Ltd	**Address:**	18 Waler Crescent Smeaton Grange 2567	**Phone:**	(02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	EM [redacted]			**Transported to laboratory by:**	
Signed:		**Date & Time:**	6/09/2019	**Received by:**	May 6/9/19 225667

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
45 0.5 / 1.0	96	30/8/19	S	G / P	X	X								
1.0	97	"	S	G / P										
1.5	98	"	S	G / P										
2.2	99	"	S	G / P			X	X						
46 0.5	100	30/8/19	S	G / P										
1.0	101	"	S	G / P					X					
1.5	102	"	S	G / P			X	X						
2.0	103	"	S	G / P										
47 0.5	104	"	S	G / P			X	X						
1.0	105	"	S	G / P										
1.5	106	"	S	G / P										
2.0	107	"	S	G / P										
48 0.5	108	"	S	G / P										

Lab Report No:					
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent Smeaton Grange 2567		**Phone:** (02) 4647 0075	**Fax:** (02) 4646 1886
Relinquished by:	EM[redacted]		**Transported to laboratory by:**		
Signed:	[redacted]	**Date & Time:** 6/09/2019	**Received by:**	May 225667	6/9/2019

Form COC

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	LAC		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	N/A	**Attn:**	Nancy Zhang
Email:	emily.mcginty@douglaspartners.com.au			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
48 / 1.0	109	30/8/19	S	G / P	X	X								
1.5	NR		S	G / P										
2.0	110		S	G / P			X	X						
49 / 0.5	111	30/8/19	S	G / P										
1.0	112		S	G / P										
1.5	113	x2	S	G / P										
2.0	114		S	G / P			X	X						
2.4	115		S	G / P										
50 0.5	116	30/8/19	S	G / P										
1.0	117		S	G / P										
1.5	118		S	G / P										
2.0	119		S	G / P										
2.5	120		S	G / P										
3.0	121		S	G / P										

Lab Report No:			
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	EMG	**Transported to laboratory by:**	
Signed:	**Date & Time:** 6/09/2019	**Received by:** May 6/9/2019 225667	

[redacted]

Form COC

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

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Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
0-5														
S1/ [redacted]	122	30/8/19	S	G/P	X	X								
1.0	123		S	G/P			X	X						
1.5	124		S	G/P										
2.0	125		S	G/P										
2.5	126	↓	S	G/P										
S2/ 0.5	127	30/8/19	S	G/P										
1.0	128		S	G/P										
1.5	129		S	G/P			X	X						
2.0	130	↓	S	G/P										
S3/ 0.5 [redacted]	131	30/8/19	S	G/P			X	X						
1.0	132		S	G/P					X					
1.5	133		S	G/P										
2.0	134		S	G/P	↓	↓								
2.5	135													
3.0	136													

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Relinquished by:	EMG	**Transported to laboratory by:**	
Signed:	[redacted]	**Date & Time:** 6/09/2019	**Received by:** Ray 6/9/2019 225667

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Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

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Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
S4 / 0.5	137	30/8/19	S	G / P	X	X								
1.0	138		S	G / P			X	X						
1.5	139		S	G / P										
2.0	140		S	G / P										
2.5	141		S	G / P										
3.0	142		S	G / P										
S5 / 0.5	143	30/8/19	S	G / P										
1.0	144		S	G / P										
1.5	145		S	G / P			X	X						
2.0	146		S	G / P										
2.5	147		S	G / P										
S6 / 0.5	148	29/8/19	S	G / P			X	X						
1.0	149		S	G / P					X					
1.5	150		S	G / P	X	X								

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Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
S7/ 0.5	151	29/8/19	S	G / P	X	X								
1.0	152	↓	S	G / P	↓	↓								
1.5	153		S	G / P										
2.0	154	↓	S	G / P			X	X						
S8/ 0.5	155		S	G / P										
1.0	156		S	G / P			X	X						
1.5	157		S	G / P										
2.0	158		S	G / P										
2.5	159	↓	S	G / P										
S9 / 0.5	160		S	G / P										
1.0	161		S	G / P			X	X						
1.5	162		S	G / P										
2.0	163	↓	S	G / P	↓	↓								

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Signed:	[redacted]	**Date & Time:** 6/09/2019	**Received by:** Ray 6/9/2019 225667

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Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
60 / 0.5	164	29/8/19	S	G / P	X	X								
1.0	165	↓	S	G / P	↓	↓			X					
1.5	166		S	G / P			X	X						
2.0	167		S	G / P										
2.5	168	↓	S	G / P										
61 / 0.5	169		S	G / P			X	X						
1.0	170		S	G / P										
1.5	171		S	G / P										
2.0	172		S	G / P										
2.5	173	↓	S	G / P			X	X						
62 / 0.5	174		S	G / P										
1.0	175		S	G / P										
1.5	176		S	G / P	↓	↓			X					
2.0	177													
2.5	178													
3.0	179													

Lab Report No:			
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[redacted]

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Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

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Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
63/ 0.5	180	29/8/19	S	G / P	X	X								
1.0	181	↓	S	G / P	↓	↓								
1.5	182		S	G / P										
2.0	183		S	G / P			X	X						
2.5	184	↓	S	G / P										
64/ 0.5	185		S	G / P										
1.0	186		S	G / P					X					
1.5	187		S	G / P			X	X						
2.0	188	↓	S	G / P										
65/ 0.5	189	29/8/19	S	G / P			X	X						
1.0	190		S	G / P					X					
1.5	191		S	G / P										
2.0	192		S	G / P	↓	↓								
2.5	193	↓	[redacted]		↓	↓								

Lab Report No:					
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Douglas Partners
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Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil W - water)	Container Type (G - glass P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
66 / 0.5	194	29/8/19	S	G / P	X	X								
1.0	195		S	G / P										
1.5	196		S	G / P										
2.0	197		S	G / P			X	X						
2.5	198		S	G / P										
3.0	199		S	G / P										
67 / 0.5	200		S	G / P										
1.0	201		S	G / P			X	X						
1.5	202		S	G / P					X					
2.0	203		S	G / P										
2.5	204		S	G / P										
68 / 0.5	205	2/9/19	S	G / P			X	X						
1.0	206		S	G / P					X					
1.5	207		S	G / P										
2.0	208		S	G / P										

Lab Report No:					
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Relinquished by:	EMG			**Transported to laboratory by:**	
Signed:		**Date & Time:**	6/09/2019	**Received by:**	225667 May 6/9/2019

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CHAIN OF CUSTODY

Project Name:	Horsley Park			**To:**	Envirolab Services
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Date Required:	Standard turnaround			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: pH	EC	Chloride and Sulphate	Cation Exchange Capacity	Phosphorous Sorption Capacity					Notes/preservation
69/ 0.5	209	29/8/19	S	G / P	X	X								
1.0	210		S	G / P										
1.5	211		S	G / P			X	X						
2.0	212		S	G / P										
2.5	12213		S	G / P										
73/ 0.5	21		S	G / P										
			S	G / P										
			S	G / P										
			S	G / P										
			S	G / P										
			S	G / P										
			S	G / P										
			S	G / P										

Lab Report No:			
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Relinquished by: [redacted]		**Transported to laboratory by:**	
Signed:	**Date & Time:** 6/09/2019	**Received by:** Ray 6/9/2019	225667

Form COC

92240.01

225667

Ecka

~~92~~

BH	35	/ 0.1	214
	36	/ 0.1	215
	37	/ 1.5	216
	40	/ 0.1	217
	41	/ 2.5	218
	46	/ 2.5	219
	49	/ 3.0	220
	51	/ 3.0	221
	55	/ 0.1	222
	61	/ 3.0	223
	64	/ 2.2	224
	77	/ 1.0	~~224~~ 225

BD2	30 05 19	226
BD2	0209.19	227

3 x unlabelled jars rec'd.

113 - x2 jars

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Emily McGinty

Sample Login Details

Your reference	92240.01, Horsley Park
Envirolab Reference	225667
Date Sample Received	06/09/2019
Date Instructions Received	09/09/2019
Date Results Expected to be Reported	17/09/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	233 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	14.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Document Set ID: 9293507
Version: 1, Version Date: 11/09/2020

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Soil - Inorg	Misc Inorg - Soil	CEC	Phosphorus Sorption	On Hold
2/0.05-0.05	✓	✓	✓	✓	✓	✓	✓	✓	✓				
2/0.5-0.5													✓
7/0.1-0.1	✓	✓					✓						
7/0.3-0.3													✓
7/0.5-0.5													✓
8/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
8/0.3-0.3													✓
9/0.1-0.1	✓	✓					✓						
9/0.5-0.5													✓
10/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
10/0.5-0.5													✓
BD2													✓
BD4	✓	✓					✓						
11/0.1-0.1	✓	✓					✓						
11/0.5-0.5													✓
12/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
12/0.5-0.5													✓
13/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
13/0.5-0.5													✓
BD3/020919	✓	✓					✓						
BD4/020914													✓
BD1/290819													✓
43/0.1-0.1	✓	✓					✓						
50/0.1-0.1	✓	✓					✓						
52/0.1-0.1	✓	✓					✓						
57/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
63/0.1-0.1	✓	✓					✓						
64/0.1-0.1	✓	✓					✓						
66/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
73/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
73/0.1-0.1													✓
74/0.1-0.1	✓	✓					✓						

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Soil - Inorg	Misc Inorg - Soil	CEC	Phosphorus Sorption	On Hold
BD3/290819	✓	✓					✓						
BD1/300819													✓
BD3/300819													✓
74/0.5-0.5													✓
75/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
75/0.5-0.5													✓
76/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
76/0.5-0.5													✓
77/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
77/0.5-0.5													✓
BD6/020919	✓	✓					✓						
BD1/020919													✓
29/0.5-0.5										✓			
29/1.0-1.0										✓	✓	✓	
29/1.5-1.5										✓			
29/2.0-2.0										✓			
29/2.5-2.5										✓			
29/3.0-3.0										✓			
34/0.5-0.5										✓			
34/1.0-1.0										✓			
34/1.5-1.5										✓	✓		
34/2.0-2.0										✓			
34/2.5-2.5										✓			
34/3.0-3.0										✓			
35/0.5-0.5										✓		✓	
35/1.0-1.0										✓			
35/1.5-1.5										✓	✓		
35/2.0-2.0										✓			
36/0.5-0.5										✓			
36/1.0-1.0										✓			
36/1.5-1.5										✓			
36/2.0-2.0										✓	✓		

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36/2.5-2.5										✓			
36/3.0-3.0										✓			
37/0.5-0.5										✓			
37/1.0-1.0										✓	✓		
37/1.5-1.5										✓			
37/2.0-2.0										✓			
38/0.5-0.5										✓	✓		
38/1.0-1.0										✓			
38/1.5-1.5										✓			
38/2.0-2.0										✓			
38/2.5-2.5										✓	✓		
38/3.0-3.0										✓			
39/0.5-0.5										✓			
39/0.9-0.9										✓		✓	
40/0.5-0.5										✓	✓		
41/0.5-0.5										✓			
41/1.0-1.0										✓	✓		
41/1.5-1.5										✓			
41/2.0-2.0										✓			
41/2.7-2.7										✓			
42/0.5-0.5										✓			
42/1.0-1.0										✓			
42/1.5-1.5										✓			
42/2.0-2.0										✓	✓		
42/2.4-2.4										✓			
43/0.5-0.5										✓			
43/1.0-1.0										✓			
43/1.5-1.5										✓	✓		
44/0.5-0.5										✓			
44/1.0-1.0										✓	✓		
44/1.5-1.5										✓			
45/0.5-0.5										✓			

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Soil - Inorg	Misc Inorg - Soil	CEC	Phosphorus Sorption	On Hold
45/1.0-1.0										✓			
45/1.5-1.5										✓			
45/2.2-2.2										✓	✓		
46/0.5-0.5										✓			
46/1.0-1.0										✓		✓	
46/1.5-1.5										✓	✓		
46/2.0-2.0										✓			
47/0.5-0.5										✓	✓		
47/1.0-1.0										✓			
47/1.5-1.5										✓			
47/2.0-2.0										✓			
48/0.5-0.5										✓			
48/1.0-1.0										✓			
48/2.7-2.7										✓	✓		
49/0.5-0.5										✓			
49/1.0-1.0										✓			
49/1.5-1.5										✓			
49/2.0-2.0										✓	✓		
49/2.4-2.4										✓			
50/0.5-0.5										✓			
50/1.0-1.0										✓			
50/1.5-1.5										✓			
50/2.0-2.0										✓			
50/2.5-2.5										✓	✓		
50/3.0-3.0										✓			
51/0.5-0.5										✓			
51/1.0-1.0										✓	✓		
51/1.5-1.5										✓			
51/2.0-2.0										✓			
51/2.5-2.5										✓			
52/0.5-0.5										✓			
52/1.0-1.0										✓			

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Soil - Inorg	Misc Inorg - Soil	CEC	Phosphorus Sorption	On Hold
52/1.5-1.5										✓	✓		
52/2.0-2.0										✓			
53/0.5-0.5										✓	✓		
53/1.0-1.0										✓		✓	
53/1.5-1.5										✓			
53/2.0-2.0										✓			
53/2.5-2.5										✓			
53/3.0-3.0										✓			
54/0.5-0.5										✓			
54/1.0-1.0										✓	✓		
54/1.5-1.5										✓			
54/2.0-2.0										✓			
54/2.5-2.5										✓			
54/3.0-3.0										✓			
55/0.5-0.5										✓			
55/1.0-1.0										✓			
55/1.5-1.5										✓	✓		
55/2.0-2.0										✓			
55/2.5-2.5										✓			
56/0.5-0.5										✓	✓		
56/1.0-1.0										✓		✓	
56/1.5-1.5										✓			
57/0.5-0.5										✓			
57/1.0-1.0										✓			
57/1.5-1.5										✓			
57/2.0-2.0										✓	✓		
58/0.5-0.5										✓			
58/1.0-1.0										✓	✓		
58/1.5-1.5										✓			
58/2.0-2.0										✓			
58/2.5-2.5										✓			
59/0.5-0.5										✓			

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Soil - Inorg	Misc Inorg - Soil	CEC	Phosphorus Sorption	On Hold
59/1.0-1.0										✓	✓		
59/1.5-1.5										✓			
59/2.0-2.0										✓			
60/0.5-0.5										✓			
60/1.0-1.0										✓		✓	
60/1.5-1.5										✓	✓		
60/2.0-2.0										✓			
60/2.5-2.5										✓			
61/0.5-0.5										✓	✓		
61/1.0-1.0										✓			
61/1.5-1.5										✓			
61/2.0-2.0										✓			
61/2.5-2.5										✓	✓		
62/0.5-0.5										✓			
62/1.0-1.0										✓			
62/1.5-1.5										✓		✓	
62/2.0-2.0										✓			
62/2.5-2.5										✓			
62/3.0-3.0										✓			
63/0.5-0.5										✓			
63/1.0-1.0										✓			
63/1.5-1.5										✓			
63/2.0-2.0										✓	✓		
63/2.5-2.5										✓			
64/0.5-0.5										✓			
64/1.0-1.0										✓		✓	
64/1.5-1.5										✓	✓		
64/2.0-2.0										✓			
65/0.5-0.5										✓	✓		
65/1.0-1.0										✓		✓	
65/1.5-1.5										✓			
65/2.0-2.0										✓			

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Soil - Inorg	Misc Inorg - Soil	CEC	Phosphorus Sorption	On Hold
65/2.5-2.5										✓			
66/0.5-0.5										✓			
66/1.0-1.0										✓			
66/1.5-1.5										✓			
66/2.0-2.0										✓	✓		
66/2.5-2.5										✓			
66/3.0-3.0										✓			
67/0.5-0.5										✓			
67/1.0-1.0										✓	✓		
67/1.5-1.5										✓		✓	
67/2.0-2.0										✓			
67/2.5-2.5										✓			
68/0.5-0.5										✓	✓		
68/1.0-1.0										✓		✓	
68/1.5-1.5										✓			
68/2.0-2.0										✓			
69/0.5-0.5										✓			
69/1.0-1.0										✓			
69/1.5-1.5										✓	✓		
69/2.0-2.0										✓			
69/2.5-2.5										✓			
BH35/0.1-0.1	✓	✓					✓						
BH36/0.1-0.1													✓
BH37/1.5-1.5										✓			
BH40/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH41/2.5-2.5										✓			
BH46/2.5-2.5										✓			
BH49/3.0-3.0										✓			
BH51/3.0-3.0										✓			
BH55/0.1-0.1													✓
BH61/3.0-3.0										✓			
BH64/2.2-2.2										✓			

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Soil - Inorg	Misc Inorg - Soil	CEC	Phosphorus Sorption	On Hold
BH77/1.0-1.0													✓
BD2 300819													✓
BD2 020919													✓
14/0.1-0.1	✓	✓					✓						
14/0.5-0.5													✓
40/0.1-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BD5/020919													✓
40/0.9-0.9													✓
49/1.5 (HOLD)-1.5													✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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INTERIM REPORT 225812

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Lachlan Clement
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details

Your Reference	**92240.01, Horsley Park Proposed Subdivision**
Number of Samples	147 soil
Date samples received	09/09/2019
Date completed instructions received	09/09/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	17/09/2019
Interim Report Date	17/09/2019

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vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225812-1	225812-3	225812-5	225812-7	225812-9
Your Reference	UNITS	1/0.1	3/0.1	4/0.1	5/0.1	5/1.0
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	16/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	98	107	95	94	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225812-12	225812-14	225812-16	225812-18	225812-23
Your Reference	UNITS	5/2.5	6/0.1	15/0.1	16/0.1	18/0.1
Date Sampled		06/09/19	06/09/19	05/09/19	05/09/2019	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	16/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	97	99	93	99	99

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225812-42	225812-64	225812-92	225812-96	225812-100
Your Reference	UNITS	22/0.1	26/0.1	32/0.1	32/2.0	33/0.1
Date Sampled		05/09/19	05/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	16/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	91	114	106	106	100

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		225812-113	225812-130	225812-133	225812-135	225812-142
Your Reference	UNITS	71/0.1	81/0.5	82/2.0	BD1 060919	TB
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	05/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	16/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	96	106	108	111	108

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		225812-143
Your Reference	UNITS	TS
Date Sampled		05/09/2019
Type of sample		soil
Date extracted	-	12/09/2019
Date analysed	-	16/09/2019
Benzene	mg/kg	88%
Toluene	mg/kg	89%
Ethylbenzene	mg/kg	86%
m+p-xylene	mg/kg	88%
o-Xylene	mg/kg	89%
Surrogate aaa-Trifluorotoluene	%	96

svTRH (C10-C40) in Soil						
Our Reference		225812-1	225812-3	225812-5	225812-7	225812-9
Your Reference	UNITS	1/0.1	3/0.1	4/0.1	5/0.1	5/1.0
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	88	87	88	88	85

svTRH (C10-C40) in Soil						
Our Reference		225812-12	225812-14	225812-16	225812-18	225812-23
Your Reference	UNITS	5/2.5	6/0.1	15/0.1	16/0.1	18/0.1
Date Sampled		06/09/19	06/09/19	05/09/19	05/09/2019	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	87	88	85	87

svTRH (C10-C40) in Soil						
Our Reference		225812-42	225812-64	225812-92	225812-96	225812-100
Your Reference	UNITS	22/0.1	26/0.1	32/0.1	32/2.0	33/0.1
Date Sampled		05/09/19	05/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	13/09/2019	13/09/2019	13/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	87	86	84	86	87

svTRH (C10-C40) in Soil					
Our Reference		225812-113	225812-130	225812-133	225812-135
Your Reference	UNITS	71/0.1	81/0.5	82/2.0	BD1 060919
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	84	86	84	84

PAHs in Soil						
Our Reference		225812-5	225812-7	225812-14	225812-16	225812-42
Your Reference	UNITS	4/0.1	5/0.1	6/0.1	15/0.1	22/0.1
Date Sampled		06/09/19	06/09/19	06/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	115	106	109	102	105

PAHs in Soil					
Our Reference		225812-96	225812-100	225812-145	225812-146
Your Reference	UNITS	32/2.0	33/0.1	PP1	PP5
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.4	0.2
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.2	0.2
Fluoranthene	mg/kg	0.1	<0.1	0.6	0.2
Pyrene	mg/kg	0.2	<0.1	0.8	0.4
Benzo(a)anthracene	mg/kg	<0.1	<0.1	1.0	0.9
Chrysene	mg/kg	0.1	<0.1	2.3	2.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	7.6	7.9
Benzo(a)pyrene	mg/kg	0.08	<0.05	2.0	2.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	2.4	2.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.8	0.7
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	2.4	2.0
Total +ve PAH's	mg/kg	0.52	<0.05	21	19
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	4.0	4.0
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	4.0	4.0
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	4.0	4.0
Surrogate p-Terphenyl-d14	%	113	112	110	109

Organochlorine Pesticides in soil						
Our Reference		225812-5	225812-7	225812-14	225812-16	225812-42
Your Reference	UNITS	4/0.1	5/0.1	6/0.1	15/0.1	22/0.1
Date Sampled		06/09/19	06/09/19	06/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	88	88	90	87

Organochlorine Pesticides in soil				
Our Reference		225812-96	225812-100	225812-147
Your Reference	UNITS	32/2.0	33/0.1	36/0.1
Date Sampled		06/09/19	06/09/19	05/09/2019
Type of sample		soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	13/09/2019
Date analysed	-	12/09/2019	12/09/2019	14/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	88	94

Organophosphorus Pesticides						
Our Reference		225812-5	225812-7	225812-14	225812-16	225812-42
Your Reference	UNITS	4/0.1	5/0.1	6/0.1	15/0.1	22/0.1
Date Sampled		06/09/19	06/09/19	06/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	88	88	90	87

Organophosphorus Pesticides				
Our Reference		225812-96	225812-100	225812-147
Your Reference	UNITS	32/2.0	33/0.1	36/0.1
Date Sampled		06/09/19	06/09/19	05/09/2019
Type of sample		soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	13/09/2019
Date analysed	-	12/09/2019	12/09/2019	14/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	88	94

PCBs in Soil						
Our Reference		225812-5	225812-7	225812-14	225812-16	225812-42
Your Reference	UNITS	4/0.1	5/0.1	6/0.1	15/0.1	22/0.1
Date Sampled		06/09/19	06/09/19	06/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	88	88	90	87

PCBs in Soil				
Our Reference		225812-96	225812-100	225812-146
Your Reference	UNITS	32/2.0	33/0.1	PP5
Date Sampled		06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil
Date extracted	-	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	88	88

Acid Extractable metals in soil						
Our Reference		225812-1	225812-3	225812-5	225812-7	225812-9
Your Reference	UNITS	1/0.1	3/0.1	4/0.1	5/0.1	5/1.0
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Arsenic	mg/kg	8	11	7	9	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	15	18	15	21
Copper	mg/kg	21	19	23	16	25
Lead	mg/kg	23	17	20	21	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	8	10	11	24
Zinc	mg/kg	47	43	39	40	29

Acid Extractable metals in soil						
Our Reference		225812-12	225812-14	225812-16	225812-18	225812-23
Your Reference	UNITS	5/2.5	6/0.1	15/0.1	16/0.1	18/0.1
Date Sampled		06/09/19	06/09/19	05/09/19	05/09/2019	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Arsenic	mg/kg	10	11	8	13	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	23	19	15	17
Copper	mg/kg	28	20	17	18	23
Lead	mg/kg	18	27	18	20	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	12	9	10	10
Zinc	mg/kg	48	54	40	35	42

Acid Extractable metals in soil						
Our Reference		225812-42	225812-64	225812-92	225812-96	225812-100
Your Reference	UNITS	22/0.1	26/0.1	32/0.1	32/2.0	33/0.1
Date Sampled		05/09/19	05/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Arsenic	mg/kg	8	7	14	9	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	21	11	12	18
Copper	mg/kg	18	16	12	14	15
Lead	mg/kg	21	19	15	21	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	7	4	2	10
Zinc	mg/kg	34	22	17	9	43

Acid Extractable metals in soil						
Our Reference		225812-113	225812-130	225812-133	225812-135	225812-147
Your Reference	UNITS	71/0.1	81/0.5	82/2.0	BD1 060919	36/0.1
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	05/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Arsenic	mg/kg	7	8	8	12	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	21	19	21	16	13
Copper	mg/kg	24	23	14	20	23
Lead	mg/kg	21	19	22	19	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	12	8	9	10
Zinc	mg/kg	57	44	26	44	64

Misc Soil - Inorg			
Our Reference		225812-7	225812-100
Your Reference	UNITS	5/0.1	33/0.1
Date Sampled		06/09/19	06/09/19
Type of sample		soil	soil
Date prepared	-	12/09/2019	12/09/2019
Date analysed	-	12/09/2019	12/09/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5

Moisture						
Our Reference		225812-1	225812-3	225812-5	225812-7	225812-9
Your Reference	UNITS	1/0.1	3/0.1	4/0.1	5/0.1	5/1.0
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Moisture	%	27	14	22	16	15

Moisture						
Our Reference		225812-12	225812-14	225812-16	225812-18	225812-23
Your Reference	UNITS	5/2.5	6/0.1	15/0.1	16/0.1	18/0.1
Date Sampled		06/09/19	06/09/19	05/09/19	05/09/2019	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Moisture	%	20	25	22	14	17

Moisture						
Our Reference		225812-42	225812-64	225812-92	225812-96	225812-100
Your Reference	UNITS	22/0.1	26/0.1	32/0.1	32/2.0	33/0.1
Date Sampled		05/09/19	05/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Moisture	%	19	15	20	18	17

Moisture						
Our Reference		225812-113	225812-130	225812-133	225812-135	225812-145
Your Reference	UNITS	71/0.1	81/0.5	82/2.0	BD1 060919	PP1
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Moisture	%	19	19	17	15	15

Moisture			
Our Reference		225812-146	225812-147
Your Reference	UNITS	PP5	36/0.1
Date Sampled		06/09/19	05/09/2019
Type of sample		soil	soil
Date prepared	-	12/09/2019	12/09/2019
Date analysed	-	13/09/2019	13/09/2019
Moisture	%	12	23

Asbestos ID - soils						
Our Reference		225812-1	225812-5	225812-7	225812-14	225812-16
Your Reference	UNITS	1/0.1	4/0.1	5/0.1	6/0.1	15/0.1
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Sample mass tested	g	Approx. 30g	Approx. 20g	Approx. 35g	Approx. 25g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils					
Our Reference		225812-42	225812-92	225812-96	225812-100
Your Reference	UNITS	22/0.1	32/0.1	32/2.0	33/0.1
Date Sampled		05/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil
Date analysed	-	12/09/2019	12/09/2019	12/09/2019	12/09/2019
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 40g	Approx. 35g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Misc Inorg - Soil						
Our Reference		225812-20	225812-21	225812-22	225812-24	225812-25
Your Reference	UNITS	17/0.5	17/1.0	17/1.5	18/0.5	18/1.0
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	6.9	7.2	5.7	5.6	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	30	24	110	100	360
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	<10	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	10	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225812-26	225812-27	225812-28	225812-29	225812-30
Your Reference	UNITS	18/1.5	19/0.5	19/1.0	19/1.5	19/2.0
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.3	5.7	5.5	5.1	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	220	57	150	490	350
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	340
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	210

Misc Inorg - Soil						
Our Reference		225812-31	225812-32	225812-33	225812-34	225812-35
Your Reference	UNITS	19/2.5	20/0.5	20/1.0.	20/1.5	20/2.0
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.6	5.7	5.3	5.4	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	280	60	260	470	590

Misc Inorg - Soil						
Our Reference		225812-36	225812-37	225812-38	225812-39	225812-40
Your Reference	UNITS	20/2.5	20/3.0	21/0.5	21/1.0	21/1.5
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	9.3	8.7	6.0	5.1	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	600	650	65	500	430
Chloride, Cl 1:5 soil:water	mg/kg	490	[NA]	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	95	[NA]	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225812-41	225812-43	225812-44	225812-45	225812-46
Your Reference	UNITS	21/2.0	22/0.5	22/1.0	22/1.5	22/2.0
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.2	5.6	5.6	5.5	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	370	120	140	210	160

Misc Inorg - Soil						
Our Reference		225812-47	225812-48	225812-49	225812-50	225812-51
Your Reference	UNITS	23/0.5	23/1.0	23/1.5	23/2.0	23/2.5
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.7	5.3	5.6	6.0	6.1
Electrical Conductivity 1:5 soil:water	µS/cm	96	200	210	170	180
Chloride, Cl 1:5 soil:water	mg/kg	26	[NA]	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	140	[NA]	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225812-52	225812-53	225812-54	225812-55	225812-56
Your Reference	UNITS	24/0.5	24/1.0	24/1.5	24/2.0	24/2.5
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	6.3	5.9	5.8	5.5	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	40	77	140	220	240

Misc Inorg - Soil						
Our Reference		225812-57	225812-58	225812-59	225812-60	225812-61
Your Reference	UNITS	24/3.0	25/0.5	25/1.0	25/1.5	25/2.0
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.6	6.0	5.5	5.1	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	210	53	270	650	770
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	1,100
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	210

Misc Inorg - Soil						
Our Reference		225812-62	225812-63	225812-65	225812-66	225812-67
Your Reference	UNITS	25/2.5	25/3.0	26/0.5	26/1.0	26/1.5
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	6.0	7.5	5.0	4.7	4.6
Electrical Conductivity 1:5 soil:water	µS/cm	630	780	280	670	1,000

Misc Inorg - Soil						
Our Reference		225812-68	225812-69	225812-70	225812-71	225812-72
Your Reference	UNITS	26/2.0	26/2.5	26/3.0	27/0.5	27/1.0
Date Sampled		05/09/19	05/09/2019	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	4.9	4.9	4.8	5.6	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	880	750	750	60	350

Misc Inorg - Soil						
Our Reference		225812-73	225812-74	225812-75	225812-76	225812-78
Your Reference	UNITS	27/1.5	27/2.0	27/2.5	27/3.0	28/0.5
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.0	5.1	5.1	5.2	5.8
Electrical Conductivity 1:5 soil:water	µS/cm	600	500	520	500	68

Misc Inorg - Soil						
Our Reference		225812-79	225812-80	225812-81	225812-82	225812-83
Your Reference	UNITS	28/1.0	28/1.5	28/2.0	30/0.5	30/1.0
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.3	5.0	5.0	7.7	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	250	430	520	60	400
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	440	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	260	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225812-84	225812-85	225812-86	225812-87	225812-88
Your Reference	UNITS	30/1.5	30/2.0	30/2.5	30/3.0	31/0.5
Date Sampled		05/09/19	05/09/19	05/09/2019	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	4.8	5.3	5.3	5.2	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	840	350	320	410	160
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	130
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	210

Misc Inorg - Soil						
Our Reference		225812-89	225812-90	225812-91	225812-98	225812-101
Your Reference	UNITS	31/1.0	31/1.5	31/2.0.	32/3.0	33/0.5
Date Sampled		05/09/19	05/09/19	05/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	4.8	5.2	6.0	5.6	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	520	270	390	210	110

Misc Inorg - Soil						
Our Reference		225812-102	225812-103	225812-104	225812-105	225812-108
Your Reference	UNITS	33/1.0	33/1.5	33/2.0	33/2.5	70/1.0
Date Sampled		06/09/19	06/09/2019	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.1	4.9	4.8	5.0	5.6
Electrical Conductivity 1:5 soil:water	µS/cm	380	550	410	430	51
Chloride, Cl 1:5 soil:water	mg/kg	310	[NA]	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	330	[NA]	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225812-109	225812-110	225812-111	225812-112	225812-114
Your Reference	UNITS	70/1.5	70/2.0	70/2.5	70/3.0	71/0.5
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.5	5.5	5.2	5.3	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	140	250	620	490	79
Chloride, Cl 1:5 soil:water	mg/kg	160	[NA]	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	72	[NA]	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		225812-115	225812-116	225812-117	225812-118	225812-120
Your Reference	UNITS	71/1.0	71/1.5	71/2.0	71/2.5	72/0.5
Date Sampled		06/09/19	06/09/19	06/09/19	06/09/19	06/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	16/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	16/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	5.0	5.2	5.1	5.3	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	330	380	570	380	54

Misc Inorg - Soil				
Our Reference		225812-121	225812-122	225812-123
Your Reference	UNITS	72/1.0	72/1.5	72/2.0
Date Sampled		06/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil
Date prepared	-	13/09/2019	13/09/2019	13/09/2019
Date analysed	-	13/09/2019	13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units	4.9	5.7	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	170	170	240

ESP/CEC						
Our Reference		225812-21	225812-30	225812-36	225812-47	225812-61
Your Reference	UNITS	17/1.0	19/2.0	20/2.5	23/0.5	25/2.0
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	05/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-					
Date analysed	-					
Exchangeable Ca	meq/100g					
Exchangeable K	meq/100g					
Exchangeable Mg	meq/100g					
Exchangeable Na	meq/100g					
Cation Exchange Capacity	meq/100g					
ESP	%					

ESP/CEC					
Our Reference		225812-80	225812-88	225812-102	225812-109
Your Reference	UNITS	28/1.5	31/0.5	33/1.0	70/1.5
Date Sampled		05/09/19	05/09/19	06/09/19	06/09/19
Type of sample		soil	soil	soil	soil
Date prepared	-				
Date analysed	-				
Exchangeable Ca	meq/100g				
Exchangeable K	meq/100g				
Exchangeable Mg	meq/100g				
Exchangeable Na	meq/100g				
Cation Exchange Capacity	meq/100g				
ESP	%				

Phosphorus Sorption						
Our Reference		225812-40	225812-58	225812-72	225812-88	225812-109
Your Reference	UNITS	21/1.5	25/0.5	27/1.0	31/0.5	70/1.5
Date Sampled		05/09/19	05/09/19	05/09/19	05/09/19	06/09/19
Type of sample		soil	soil	soil	soil	soil
Date prepared	-					
Date analysed	-					
Phosphorus Buffer Index	mg/kg					
Phosphorus Sorption Capacity	mg/kg					
Phosphorus Capacity	mg/kg					

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Ext-062	Analysed by East West Enviroag
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225812-7
Date extracted	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			16/09/2019	5	16/09/2019	16/09/2019		16/09/2019	16/09/2019
TRH C_6 - C_9	mg/kg	25	Org-016	<25	5	<25	<25	0	109	96
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	5	<25	<25	0	109	96
Benzene	mg/kg	0.2	Org-016	<0.2	5	<0.2	<0.2	0	97	85
Toluene	mg/kg	0.5	Org-016	<0.5	5	<0.5	<0.5	0	105	87
Ethylbenzene	mg/kg	1	Org-016	<1	5	<1	<1	0	107	97
m+p-xylene	mg/kg	2	Org-016	<2	5	<2	<2	0	117	106
o-Xylene	mg/kg	1	Org-016	<1	5	<1	<1	0	112	102
naphthalene	mg/kg	1	Org-014	<1	5	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	89	5	95	88	8	102	84

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	42	16/09/2019	16/09/2019		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	42	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	42	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	42	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	42	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	42	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	42	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	42	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	42	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	42	91	107	16	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225812-7
Date extracted	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	5	<50	<50	0	104	105
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	5	<100	<100	0	94	93
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	5	<100	<100	0	91	103
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	5	<50	<50	0	104	105
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	5	<100	<100	0	94	93
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	5	<100	<100	0	91	103
Surrogate o-Terphenyl	%		Org-003	88	5	88	91	3	102	101

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	42	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	42	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	42	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	42	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	42	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	42	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	42	87	87	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225812-7
Date extracted	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			13/09/2019	5	13/09/2019	13/09/2019		13/09/2019	13/09/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	126	120
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	107	106
Phenanthrene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	110	104
Anthracene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	103	102
Pyrene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	108	106
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	108	105
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	5	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	5	<0.05	<0.05	0	104	102
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	105	5	115	108	6	104	100

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	42	13/09/2019	13/09/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	42	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	42	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	42	105	102	3	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225812-7
Date extracted	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
HCB	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	88	90
gamma-BHC	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	91	88
Heptachlor	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	86	84
delta-BHC	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	95	93
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	94	92
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	101	98
Dieldrin	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	113	110
Endrin	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	94	92
pp-DDD	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	90	90
Endosulfan II	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	81	94
Methoxychlor	mg/kg	0.1	Org-005	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	92	5	90	91	1	85	81

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	42	87	85	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225812-7
Date extracted	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	89	86
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	94	93
Dimethoate	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	88	94
Fenitrothion	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	104	100
Malathion	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	98	102
Parathion	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	110	102
Ronnel	mg/kg	0.1	Org-008	<0.1	5	<0.1	<0.1	0	94	93
Surrogate TCMX	%		Org-008	92	5	90	91	1	85	81

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	42	87	85	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225812-7
Date extracted	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			12/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	5	<0.1	<0.1	0	112	108
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	92	5	90	91	1	85	81

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	42	87	85	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	225812-7
Date prepared	-			13/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Date analysed	-			13/09/2019	5	12/09/2019	12/09/2019		12/09/2019	12/09/2019
Arsenic	mg/kg	4	Metals-020	<4	5	7	7	0	102	87
Cadmium	mg/kg	0.4	Metals-020	<0.4	5	<0.4	<0.4	0	98	87
Chromium	mg/kg	1	Metals-020	<1	5	18	17	6	107	90
Copper	mg/kg	1	Metals-020	<1	5	23	23	0	100	96
Lead	mg/kg	1	Metals-020	<1	5	20	20	0	104	82
Mercury	mg/kg	0.1	Metals-021	<0.1	5	<0.1	<0.1	0	84	75
Nickel	mg/kg	1	Metals-020	<1	5	10	10	0	100	82
Zinc	mg/kg	1	Metals-020	<1	5	39	39	0	104	95

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Date analysed	-			[NT]	42	12/09/2019	12/09/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	42	8	9	12	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	42	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	42	18	18	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	42	18	20	11	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	42	21	22	5	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	42	10	10	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	42	34	35	3	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			12/09/2019	[NT]	[NT]	[NT]	[NT]	12/09/2019	[NT]
Date analysed	-			12/09/2019	[NT]	[NT]	[NT]	[NT]	12/09/2019	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	225812-21
Date prepared	-			13/09/2019	20	13/09/2019	13/09/2019		13/09/2019	13/09/2019
Date analysed	-			13/09/2019	20	13/09/2019	13/09/2019		13/09/2019	13/09/2019
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	20	6.9	6.9	0	101	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	20	30	29	3	103	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	30	340	400	16	99	90
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	30	210	250	17	109	78

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			[NT]	30	13/09/2019	13/09/2019		13/09/2019	[NT]
Date analysed	-			[NT]	30	13/09/2019	13/09/2019		13/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	30	5.3	5.3	0	100	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	30	350	350	0	103	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			[NT]	39	13/09/2019	13/09/2019		13/09/2019	[NT]
Date analysed	-			[NT]	39	13/09/2019	13/09/2019		13/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	39	5.1	4.9	4	100	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	39	500	600	18	102	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			[NT]	49	13/09/2019	13/09/2019		13/09/2019	[NT]
Date analysed	-			[NT]	49	13/09/2019	13/09/2019		13/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	49	5.6	5.5	2	100	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	49	210	220	5	102	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			[NT]	58	13/09/2019	13/09/2019		13/09/2019	[NT]
Date analysed	-			[NT]	58	13/09/2019	13/09/2019		13/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	58	6.0	6.0	0	98	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	58	53	58	9	100	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			[NT]	68	13/09/2019	13/09/2019		13/09/2019	[NT]
Date analysed	-			[NT]	68	13/09/2019	13/09/2019		13/09/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	68	4.9	4.8	2	101	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	68	880	840	5	100	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	78	13/09/2019	13/09/2019		[NT]	[NT]
Date analysed	-			[NT]	78	13/09/2019	13/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	78	5.8	5.8	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	78	68	71	4	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	87	13/09/2019	13/09/2019		[NT]	[NT]
Date analysed	-			[NT]	87	13/09/2019	13/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	87	5.2	5.2	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	87	410	370	10	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	117	16/09/2019	16/09/2019		[NT]	[NT]
Date analysed	-			[NT]	117	16/09/2019	16/09/2019		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	117	5.1	5.6	9	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	117	570	600	5	[NT]	[NT]

QUALITY CONTROL: ESP/CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-				88					[NT]
Date analysed	-				88					[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	88					[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	88					[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	88					[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	88					[NT]
ESP	%	1	Metals-009	<1	88					[NT]

QUALITY CONTROL: Phosphorus Sorption					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Phosphorus Capacity	mg/kg	2	Ext-062	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

Asbestos: Excessive sample volumes were provided for asbestos analysis.
A portion of the supplied samples were sub-sampled according to Envirolab procedures.
We cannot guarantee that these sub-samples are indicative of the entire sample.
Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.
Note: Samples requested for asbestos testing were sub-sampled from bags provided by the client.

Aileen Hie

From: Emily McGinty <Emily.McGinty@douglaspartners.com.au>
Sent: Wednesday, 18 September 2019 10:52 AM
To: Jeremy Faircloth
Cc: Customer Service
Subject: RE: Results for Registration 225812 92240.01, Horsley Park Proposed Subdivision

Envirolab Ref: 225812A
Due: 25/9/19
Std T/A.

Thanks Jeremy,

Standard turnaround is fine (ignore recalled message!)

Emily McGinty | Senior Environmental Scientist / Environmental Manager
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
18 Waler Crescent Smeaton Grange NSW 2567
P: 02 4647 0075 | M: 0418 651 227 | E: Emily.McGinty@douglaspartners.com.au

From: Jeremy Faircloth [mailto:JFaircloth@envirolab.com.au]
Sent: Wednesday, 18 September 2019 10:32 AM
To: Emily McGinty
Cc: Customer Service
Subject: RE: Results for Registration 225812 92240.01, Horsley Park Proposed Subdivision

Good morning Emily,
No problem at all. Standard TAT ok?

Regards,

Jeremy Faircloth | Operations Manager | Envirolab Services Pty Ltd

Great Science, Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 F 612 9910 6201
E jfaircloth@envirolab.com.au | W www.envirolab.com.au

New sampling bottle provision now available for PFAS and SVOCs in water samples

From: Emily McGinty <Emily.McGinty@douglaspartners.com.au>
Sent: Wednesday, 18 September 2019 10:09 AM
To: Jeremy Faircloth <JFaircloth@envirolab.com.au>
Subject: RE: Results for Registration 225812 92240.01, Horsley Park Proposed Subdivision

Hi Jeremy,

145 146

Please can we arrange to analyse samples PP1 and PP5 for metals, TRH and BTEX?

Thanks,

Emily.

Emily McGinty | Senior Environmental Scientist / Environmental Manager
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
18 Waler Crescent Smeaton Grange NSW 2567
P: 02 4647 0075 | M: 0418 651 227 | E: Emily.McGinty@douglaspartners.com.au

From: Jeremy Faircloth [mailto:JFaircloth@envirolab.com.au]
Sent: Tuesday, 17 September 2019 4:23 PM
To: Lachlan Clement; Emily McGinty
Subject: Results for Registration 225812 92240.01, Horsley Park Proposed Subdivision

Please refer to attached for:
a copy of the Interim Certificate of Analysis
a copy of the COC/paperwork received from you
ESDAT Extracts
an Excel or .csv file containing the results
Please note that a hard copy will not be posted.

Enquiries should be made directly to:
customerservice@envirolab.com.au

Regards,

Jeremy Faircloth | Operations Manager | Envirolab Services Pty Ltd

Great Science, Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 F 612 9910 6201
E jfaircloth@envirolab.com.au | W www.envirolab.com.au

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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 225812-A

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Emily McGinty
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details

Your Reference	**92240.01, Horsley Park Proposed Subdivision**
Number of Samples	Additional Testing on 2 Soils
Date samples received	09/09/2019
Date completed instructions received	18/09/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	25/09/2019
Date of Issue	24/09/2019

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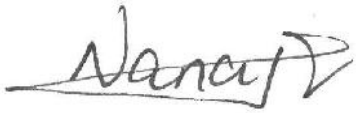
Asbestos Approved By
Analysed by Asbestos Approved Identifier: Aida Marner
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Jaimie Loa-Kum-Cheung, Metals Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		225812-A-145	225812-A-146
Your Reference	UNITS	PP1	PP5
Date Sampled		06/09/19	06/09/19
Type of sample		soil	soil
Date extracted	-	19/09/2019	19/09/2019
Date analysed	-	21/09/2019	21/09/2019
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<3	<3
Surrogate aaa-Trifluorotoluene	%	96	79

svTRH (C10-C40) in Soil			
Our Reference	UNITS	225812-A-145	225812-A-146
Your Reference		PP1	PP5
Date Sampled		06/09/19	06/09/19
Type of sample		soil	soil
Date extracted	-	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	77	75

Acid Extractable metals in soil			
Our Reference		225812-A-145	225812-A-146
Your Reference	UNITS	PP1	PP5
Date Sampled		06/09/19	06/09/19
Type of sample		soil	soil
Date prepared	-	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019
Arsenic	mg/kg	20	51
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	27	22
Copper	mg/kg	28	36
Lead	mg/kg	19	16
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	12	15
Zinc	mg/kg	90	350

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/09/2019	[NT]	[NT]	[NT]	[NT]	19/09/2019	[NT]
Date analysed	-			21/09/2019	[NT]	[NT]	[NT]	[NT]	21/09/2019	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	109	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	112	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	103	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/09/2019	[NT]	[NT]	[NT]	[NT]	19/09/2019	[NT]
Date analysed	-			19/09/2019	[NT]	[NT]	[NT]	[NT]	19/09/2019	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	125	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	125	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
Surrogate o-Terphenyl	%		Org-003	84	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			19/09/2019	[NT]	[NT]	[NT]	[NT]	19/09/2019	[NT]
Date analysed	-			19/09/2019	[NT]	[NT]	[NT]	[NT]	19/09/2019	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	100	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]

Result Definitions

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

Quality Control Definitions

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Douglas Partners
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CHAIN OF CUSTODY

Project Name:	Horsley Park Proposed Subdivision			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	Lachlan Clement		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	0427 102 041	**Attn:**	
Email:	Lachlan.Clement@DouglasPartners.com.au; Emily.McGinty@DouglasPartners.			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil W - Water M - Material)	Container Type (G - Glass P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
1/0.1	1	06-09-19	S	G/P	X	X								
1/0.6	2	06-09-19	S	G/P									X	
3/0.1	3	06-09-19	S	G/P	X									
3/0.5	4	06-09-19	S	G/P									X	
4/0.1	5	06-09-19	S	G/P			X							
4/0.5	6	06-09-19	S	G/P									X	
5/0.1	7	06-09-19	S	G/P				X						
5/0.5	8	06-09-19	S	G/P									X	
5/1.0	9	06-09-19	S	G/P	X									
5/1.5	10	06-09-19	S	G/P									X	
5/2.0	11	06-09-19	S	G/P									X	
5/2.5	12	06-09-19	S	G/P	X									
5/3.0	13	06-09-19	S	G/P									X	
6/0.1	14	06-09-19	S	G/P			X							
6/0.5	15	06-09-19	S	G/P									X	
15/0.1	16	05-09-19	S	G/P			X							
15/0.5	17	05-09-19	S	G/P									X	

ENVIROLAB

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

Job No: 225812
Date Received: 9/9/19
Time Received: 19:27
Received by: SD
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Lab Report No:		**Note:**	
Send Results to:	Douglas Partners.Pty Ltd	**Address** 18 Waler Crescent, Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	Lachlan Clement	**Transported to laboratory by:**	
Signed:	[redacted] **Date & Time:** 09-09-19	**Received by:** Jason Day ELS SYD 1900 19:27 9/9/19	

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park Proposed Subdivision			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	Lachlan Clement		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	0427 102 041	**Attn:**	
Email:	Lachlan.Clement@DouglasPartners.com.au; Emily.McGinty@DouglasPartners.			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil, W - Water, M - Material)	Container Type (G - Glass, P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
16/0.1	18	05-09-19	S	G/P	D									
16/0.5	19	05-09-19	S	G/P									X	
17/0.5	20	05-09-19	S	G					X					
17/1.0	21	05-09-19	S	G					X	X				
17/1.5	22	05-09-19	S	G					X					
18/0.1	23	05-09-19	S	G/P	X									
18/0.5	24	05-09-19	S	G					X					
18/1.0	25	05-09-19	S	G					X					
18/1.5	26	05-09-19	S	G					X					
19/0.5	27	05-09-19	S	G					X					
19/1.0	28	05-09-19	S	G					X					
19/1.5	29	05-09-19	S	G					X					
19/2.0	30	05-09-19	S	G					X	X				
19/2.5	31	05-09-19	S	G					X					
20/0.5	32	05-09-19	S	G					X					
20/1.0	33	05-09-19	S	G					X					
20/1.5	34	05-09-19	S	G					X					

Lab Report No:		**Note:**	
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Relinquished by:	Lachlan Clement	**Transported to laboratory by:**	
Signed: [redacted]	**Date & Time:** 09-09-19	**Received by:** Jason Day ELS SYD 19:27 9/9/19	

225812

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park Proposed Subdivision			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	Lachlan Clement		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	0427 102 041	**Attn:**	
Email:	Lachlan.Clement@DouglasPartners.com.au; Emily.McGinty@DouglasPartners.			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil, W - Water, M - Material)	Container Type (G - Glass, P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
20/2.0	35	05-09-19	S	G					X					
20/2.5	36	05-09-19	S	G					X	X				
20/3.0	37	05-09-19	S	G					X					
21/0.5	38	05-09-19	S	G					X					
21/1.0	39	05-09-19	S	G					X					
21/1.5	40	05-09-19	S	G					X		X			
21/2.0	41	05-09-19	S	G					X					
22/0.1	42	05-09-19	S	G/P			X							
22/0.5	43	05-09-19	S	G					X					
22/1.0	44	05-09-19	S	G					X					
22/1.5	45	05-09-19	S	G					X					
22/2.0	46	05-09-19	S	G					X					
23/0.5	47	05-09-19	S	G					X	X				
23/1.0	48	05-09-19	S	G					X					
23/1.5	49	05-09-19	S	G					X					
23/2.0	50	05-09-19	S	G					X					
23/2.5	51	05-09-19	S	G					X					

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Relinquished by:	Lachlan Clement	**Transported to laboratory by:**	
Signed: [redacted]	**Date & Time:** 09-09-19	**Received by:** Jason Day ECS SYD 9/9/19 19:27	

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Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil, W - Water, M - Material)	Container Type (G - Glass, P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
24/0.5	52	05-09-19	S	G					X					
24/1.0	53	05-09-19	S	G					X					
24/1.5	54	05-09-19	S	G					X					
24/2.0	55	05-09-19	S	G					X					
24/2.5	56	05-09-19	S	G					X					
24/3.0	57	05-09-19	S	G					X					
25/0.5	58	05-09-19	S	G					X		X			
25/1.0	59	05-09-19	S	G					X					
25/1.5	60	05-09-19	S	G					X					
25/2.0	61	05-09-19	S	G					X	X				
25/2.5	62	05-09-19	S	G					X					
25/3.0	63	05-09-19	S	G					X					
26/0.1	64	05-09-19	S	G/P	X									
26/0.5	65	05-09-19	S	G					X					
26/1.0	66	05-09-19	S	G					X					
26/1.5	67	05-09-19	S	G					X					
26/2.0	68	05-09-19	S	G					X					

Lab Report No:		**Note:**			
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent, Smeaton Grange 2567		**Phone:** (02) 4647 0075	**Fax:** (02) 4646 1886
Relinquished by:	Lachlan Clement		**Transported to laboratory by:**		
Signed:	[redacted]	**Date & Time:** 09-09-19	**Received by:** Jason Day ECLS SYD 19:27 09/9/19 225812		

Douglas Partners
Geotechnics / Environment / Groundwater

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Project Mgr:	Emily McGinty	**Mob. Phone:**	0427 102 041	**Attn:**	
Email:	Lachlan.Clement@DouglasPartners.com.au; Emily.McGinty@DouglasPartners.			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil, W - Water, M - Material)	Container Type (G - Glass, P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
26/2.5	69	05-09-19	S	G					X					
26/3.0	70	05-09-19	S	G					X					
27/0.5	71	05-09-19	S	G					X					
27/1.0	72	05-09-19	S	G					X		x			
27/1.5	73	05-09-19	S	G					X					
27/2.0	74	05-09-19	S	G					X					
27/2.5	75	05-09-19	S	G					X					
27/3.0	76	05-09-19	S	G					X					
28/0.1	77	05-09-19	S	G/P									X	
28/0.5	78	05-09-19	S	G					X					
28/1.0	79	05-09-19	S	G					X					
28/1.5	80	05-09-19	S	G					X	X				
28/2.0	81	05-09-19	S	G					X					
30/0.5	82	05-09-19	S	G					X					
30/1.0	83	05-09-19	S	G					X					
30/1.5	84	05-09-19	S	G					X					
30/2.0	85	05-09-19	S	G					X					

Lab Report No:		**Note:**			
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Relinquished by:	Lachlan Clement		**Transported to laboratory by:**		
Signed:	[redacted]	**Date & Time:** 09-09-19	**Received by:** Jason Day ECS SYD 19:27 9/9/19		

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Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park Proposed Subdivision			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	Lachlan Clement		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	0427 102 041	**Attn:**	
Email:	Lachlan.Clement@DouglasPartners.com.au; Emily.McGinty@DouglasPartners			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil, W - Water, M - Material)	Container Type (G - Glass, P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
30/2.5	86	05-09-19	S	G					X					
30/3.0	87	05-09-19	S	G					X					
31/0.5	88	05-09-19	S	G					X	X	X			
31/1.0	89	05-09-19	S	G					X					
31/1.5	90	05-09-19	S	G					X					
31/2.0	91	05-09-19	S	G					X					
32/0.1	92	06-09-19	S	G/P	X	X								
32/0.5	93	06-09-19	S	G/P									X	
32/1.0	94	06-09-19	S	G/P									X	
32/1.5	95	06-09-19	S	G/P									X	
32/2.0	96	06-09-19	S	G/P			X							
32/2.5	97	06-09-19	S	G/P									X	
32/3.0	98	06-09-19	S	G					X					
32/0.3	99	06-09-19	S	G/P									X	
33/0.1	100	06-09-19	S	G/P				X						
33/0.5	101	06-09-19	S	G					X					
33/1.0	102	06-09-19	S	G					X	X				

Lab Report No:	**Note:**		
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent, Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	Lachlan Clement	**Transported to laboratory by:**	
Signed:	[redacted] **Date & Time:** 09-09-19	**Received by:** Jasan Day ELS SYD 19:27 9/9/19	

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Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil, W - Water, M - Material)	Container Type (G - Glass, P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
33/1.5	103	06-09-19	S	G					X					
33/2.0	104	06-09-19	S	G					X					
33/2.5	105	06-09-19	S	G					X					
70/0.1	106	06-09-19	S	G/P									X	
70/0.5	107	06-09-19	S	G/P									X	
70/1.0	108	06-09-19	S	G					X					
70/1.5	109	06-09-19	S	G					X	X	X			
70/2.0	110	06-09-19	S	G					X					
70/2.5	111	06-09-19	S	G					X					
70/3.0	112	06-09-19	S	G					X					
71/0.1	113	06-09-19	S	G/P	X									
71/0.5	114	06-09-19	S	G					X					
71/1.0	115	06-09-19	S	G					X					
71/1.5	116	06-09-19	S	G					X					
71/2.0	117	06-09-19	S	G					X					
71/2.5	118	06-09-19	S	G					X					
72/0.1	119	06-09-19	S	G/P									X	

Lab Report No:		**Note:**	
Send Results to:	Douglas Partners Pty Ltd	**Address** 18 Waler Crescent, Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	Lachlan Clement	**Transported to laboratory by:**	
Signed: [redacted]	**Date & Time:** 09-09-19	**Received by:** Jason Dog ELS SYD 1044 19:27 9/9/19	

225812

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

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Email:	Lachlan.Clement@DouglasPartners.com.au; Emily.McGinty@DouglasPartners			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil W - Water M - Material)	Container Type (G - Glass P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
72/0.5	120	06-09-19	S	G					X					
72/1.0	121	06-09-19	S	G					X					
72/1.5	122	06-09-19	S	G					X					
72/2.0	123	06-09-19	S	G					X					
78/0.1	124	05-09-19	S	G/P									X	
78/0.5	125	05-09-19	S	G/P									X	
79/0.1	126	06-09-19	S	G/P									X	
79/0.5	127	06-09-19	S	G/P									X	
80/0.1	128	06-09-19	S	G/P									X	
80/0.5	129	06-09-19	S	G/P									X	
81/0.5	130	06-09-19	S	G/P	X									
81/1.0	131	06-09-19	S	G/P									X	
82/1.0	132	06-09-19	S	G/P									X	
82/2.0	133	06-09-19	S	G/P	X									
82/2.5	134	06-09-19	S	G/P									X	
BD1 060919	135	06-09-19	S	G	X									
BD2 060919	136	06-09-19	S	G									X	

Lab Report No:		**Note:**	
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent, Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	Lachlan Clement	**Transported to laboratory by:**	
Signed: [redacted]	**Date & Time:** 09-09-19	**Received by:** Jason Day ELS SYD 9/9/19 19:27	

225812

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY

Project Name:	Horsley Park Proposed Subdivision			**To:**	Envirolab Services
Project No:	92240.01	**Sampler:**	Lachlan Clement		12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily McGinty	**Mob. Phone:**	0427 102 041	**Attn:**	
Email:	Lachlan.Clement@DouglasPartners.com.au; Emily.McGinty@DouglasPartners.			**Phone:**	(02) 9910 6200 **Fax:** (02) 9910 6201
Date Required:	Standard			**Email:**	tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type (S - Soil W - Water M - Material)	Container Type (G - Glass P - Plastic)	Analytes: Combo 1m	Asebstos (50g)	Combo 6a	Combo 8a	EC + pH	Chloride, Sulphate and Sodicity	Phosphorus sorption capacity		HOLD	Notes/preservation
BD3 060919	137	06-09-19	S	G									X	
BD1 050919	138	05-09-19	S	G									X	
BD2 050919	139	05-09-19	S	G									X	
BD3 050919	140	05-09-19	S	G									X	
BD4 050919	141	05-09-19	S	G									X	
TB	142		S	G	TRH AND BTEX									
TS	143		S	G	BTEX									
SS1	144	5/9/19	S	G									X	
PP1	145	6/9/19	S	G	PAH	ONLY								
PP5	146	6/9/19	S	G	PAH +	PCB								
36/0.1	147	5/9/19	S	G	Extra	Sample	Received	-3D						

Lab Report No:		**Note:**	
Send Results to:	Douglas Partners Pty Ltd	**Address:** 18 Waler Crescent, Smeaton Grange 2567	**Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by:	Lachlan Clement	**Transported to laboratory by:**	
Signed:	[redacted] **Date & Time:** 09-09-19	**Received by:** Jason Day ELS SYD 19:27 9/9/19	

225812

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Lachlan Clement

Sample Login Details

Your reference	92240.01, Horsley Park Proposed Subdivision
Envirolab Reference	225812
Date Sample Received	09/09/2019
Date Instructions Received	09/09/2019
Date Results Expected to be Reported	17/09/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	147 soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4.9
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Document Set ID: 9293507
Version: 1, Version Date: 11/09/2020

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils	Misc Inorg - Soil	ESP/CEC	Phosphorus Sorption	On Hold
1/0.1	✓	✓					✓		✓				
1/0.6													✓
3/0.1	✓	✓					✓						
3/0.5													✓
4/0.1	✓	✓	✓	✓	✓	✓	✓		✓				
4/0.5													✓
5/0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
5/0.5													✓
5/1.0	✓	✓					✓						
5/1.5													✓
5/2.0													✓
5/2.5	✓	✓					✓						
5/3.0													✓
6/0.1	✓	✓	✓	✓	✓	✓	✓		✓				
6/0.5													✓
15/0.1	✓	✓	✓	✓	✓	✓	✓		✓				
15/0.5													✓
16/0.1	✓	✓					✓						
16/0.5													✓
17/0.5										✓			
17/1.0										✓	✓		
17/1.5										✓			
18/0.1	✓	✓					✓						
18/0.5										✓			
18/1.0										✓			
18/1.5										✓			
19/0.5										✓			
19/1.0										✓			
19/1.5										✓			
19/2.0										✓	✓		
19/2.5										✓			
20/0.5										✓			

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils	Misc Inorg - Soil	ESP/CEC	Phosphorus Sorption	On Hold
20/1.0.										✓			
20/1.5										✓			
20/2.0										✓			
20/2.5										✓	✓		
20/3.0										✓			
21/0.5										✓			
21/1.0										✓			
21/1.5										✓		✓	
21/2.0										✓			
22/0.1	✓	✓	✓	✓	✓	✓	✓		✓				
22/0.5										✓			
22/1.0										✓			
22/1.5										✓			
22/2.0										✓			
23/0.5										✓	✓		
23/1.0										✓			
23/1.5										✓			
23/2.0										✓			
23/2.5										✓			
24/0.5										✓			
24/1.0										✓			
24/1.5										✓			
24/2.0										✓			
24/2.5										✓			
24/3.0										✓			
25/0.5										✓		✓	
25/1.0										✓			
25/1.5										✓			
25/2.0										✓	✓		
25/2.5										✓			
25/3.0										✓			
26/0.1	✓	✓					✓						

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Version: 1, Version Date: 11/09/2020

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils	Misc Inorg - Soil	ESP/CEC	Phosphorus Sorption	On Hold
26/0.5										✓			
26/1.0										✓			
26/1.5										✓			
26/2.0										✓			
26/2.5										✓			
26/3.0										✓			
27/0.5										✓			
27/1.0										✓		✓	
27/1.5										✓			
27/2.0										✓			
27/2.5										✓			
27/3.0										✓			
28/0.1													✓
28/0.5										✓			
28/1.0										✓			
28/1.5										✓	✓		
28/2.0										✓			
30/0.5										✓			
30/1.0										✓			
30/1.5										✓			
30/2.0										✓			
30/2.5										✓			
30/3.0										✓			
31/0.5										✓	✓	✓	
31/1.0										✓			
31/1.5										✓			
31/2.0.										✓			
32/0.1	✓	✓					✓		✓				
32/0.5													✓
32/1.0													✓
32/1.5													✓
32/2.0	✓	✓	✓	✓	✓	✓	✓		✓				

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils	Misc Inorg - Soil	ESP/CEC	Phosphorus Sorption	On Hold
32/2.5													✓
32/3.0										✓			
32/0.3													✓
33/0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
33/0.5										✓			
33/1.0										✓	✓		
33/1.5										✓			
33/2.0										✓			
33/2.5										✓			
70/0.1													✓
70/0.5													✓
70/1.0										✓			
70/1.5										✓	✓	✓	
70/2.0										✓			
70/2.5										✓			
70/3.0										✓			
71/0.1	✓	✓					✓						
71/0.5										✓			
71/1.0										✓			
71/1.5										✓			
71/2.0										✓			
71/2.5										✓			
72/0.1													✓
72/0.5										✓			
72/1.0										✓			
72/1.5										✓			
72/2.0										✓			
78/0.1													✓
78/0.5													✓
79/0.1													✓
79/0.5													✓
80/0.1													✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils	Misc Inorg - Soil	ESP/CEC	Phosphorus Sorption	On Hold
80/0.5													✓
81/0.5	✓	✓					✓						
81/1.0													✓
82/1.0													✓
82/2.0	✓	✓					✓						
82/2.5													✓
BD1 060919	✓	✓					✓						
BD2 060919													✓
BD3 060919													✓
BD1 050919													✓
BD2 050919													✓
BD3 050919													✓
BD4 050919													✓
TB	✓												
TS	✓												
SS1													✓
PP1			✓										
PP5			✓			✓							
36/0.1													✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Document Set ID: 9293507
Version: 1, Version Date: 11/09/2020

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Macarthur Laboratory
18 Waler Crescent Smeaton Grange NSW 2567
Phone: (02) 4647 0075
Fax: (02) 4646 1886
Email: meregal.henakaa@douglaspartners.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Meragal Henaka Arachchi
clean lab

NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320A
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 17 (0.5 m)**
Material: SILTY CLAY - red silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Macarthur Laboratory
18 Waler Crescent Smeaton Grange NSW 2567
Phone: (02) 4647 0075
Fax: (02) 4646 1886
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Approved Signatory: Meragal Henaka Arachchi
clean lab

NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320B
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 18 (1.0 m)**
Material: SILTY CLAY - grey mottled red silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Macarthur Laboratory
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Fax: (02) 4646 1886
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NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320C
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 20 (1.5 m)**
Material: SILTY CLAY - grey mottled silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Macarthur Laboratory
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Approved Signatory: Meragal Henaka Arachchi
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NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320D
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 21 (0.5 m)**
Material: SILTY CLAY - grey mottled silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Macarthur Laboratory
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clean lab

NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320E
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 22 (0.5 m)**
Material: SILTY CLAY - red silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Macarthur Laboratory
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Approved Signatory: Meragal Henaka Arachchi
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NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320F
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 24 (1.5 m)**
Material: SILTY CLAY - red mottled silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**1**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
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Macarthur Laboratory
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Approved Signatory: Meragal Henaka Arachchi
clean lab

NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320G
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 25 (2.5 m)**
Material: SILTY CLAY - grey mottled silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Macarthur Laboratory
18 Waler Crescent Smeaton Grange NSW 2567
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Fax: (02) 4646 1886
Email: meregal.henakaa@douglaspartners.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Meragal Henaka Arachchi
clean lab
NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320H
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 26 (2.0 m)**
Material: SILTY CLAY - grey mottled silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
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Fax: (02) 4646 1886
Email: meregal.henakaa@douglaspartners.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Meragal Henaka Arachchi
clean lab

NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320I
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 27 (1.5 m)**
Material: SILTY CLAY - grey mottled red silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
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Approved Signatory: Meragal Henaka Arachchi
clean lab

NATA Accredited Laboratory Number: 828

Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320J
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 30 (1.5 m)**
Material: SILTY CLAY - grey mottled silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320K
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 33 (1.0 m)**
Material: CLAY - grey silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320L
Date Sampled: 05/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 71 (0.5 m)**
Material: SILTY CLAY - red mottled grey silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-1**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1320
Sample Number: MA-1320N
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 37 (1.5 m)**
Material: SILTY CLAY - grey mottled silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322A
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 29 (1.0 m)**
Material: CLAY - grey mottled red clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322B
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 34 (1.5 m)**
Material: SILTY CLAY - grey mottled red silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**6**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322C
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 35 (0.5 m)**
Material: CLAY - grey mottled red clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
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Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322D
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 35 (1.0 m)**
Material: SILTY CLAY - light brown silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322E
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 36 (2.0 m)**
Material: SILTY CLAY - light brown grey silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322F
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 37 (1.0 m)**
Material: SILTY CLAY - light brown silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322G
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 39 (0.5 m)**
Material: SILTY CLAY - red silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**6**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
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Report Number: **92240.01-2**
Issue Number: 1
Date Issued: 19/09/2019
Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322H
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 43 (0.5 m)**
Material: CLAY - red brown clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

Douglas Partners
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Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322I
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 46 (1.0 m)**
Material: CLAY - light brown grey clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322J
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 48 (1.0 m)**
Material: CLAY - grey mottled clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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NATA Accredited Laboratory Number: 828

Report Number: **92240.01-2**
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Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322K
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 53 (1.0 m)**
Material: CLAY - red brown clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**6**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Client: Jacfin Pty Ltd
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Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322L
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 56 (0.5 m)**
Material: CLAY - grey mottled clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Report Number: **92240.01-2**
Issue Number: 1
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Client: Jacfin Pty Ltd
PO Box 598, Spit Junction NSW 2088
Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322M
Date Sampled: 02/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 58 (1.0 m)**
Material: SILTY CLAY - grey silty clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		

Material Test Report

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Contact: Carla Carreno
Project Number: 92240.01
Project Name: Proposed Residential Subdivision
Project Location: Lot A in DP 392643 and Lot 21 in DP 1010514, Horsley Park
Work Request: 1322
Sample Number: MA-1322N
Date Sampled: 18/09/2019
Dates Tested: 18/09/2019 - 18/09/2019
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP 59 (1.0 m)**
Material: CLAY - red mottled grey clay

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	As above		
Nature of Water	Distilled water		
Temperature of Water (^{o}C)	22		