



Report on Salinity Investigation and Management Plan

Proposed Residential Subdivision Stages 1 and 2, Wilton Junction, NSW

Prepared for Walker Corporation Pty Ltd

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Report on Salinity Investigation and Management Plan Proposed Residential Subdivision Stages 1 and 2, Wilton Junction, NSW

1. Introduction

This report presents the findings of a Salinity Investigation and Management Plan (SMP) undertaken for the proposed residential development of approximately 101 hectares (ha) of land located on Picton Road, Wilton, NSW ('the site') refer Drawing 1, Appendix A. The site comprises Stages 1 and 2 of the wider Wilton Junction residential subdivision proposed to be developed by Walker. The works were carried out in accordance with DP's proposal MAC180005 dated 23 January 2018.

It is understood that Walker Corporation Pty Ltd ('Walker') propose to redevelop the site for residential purposes and that Wollondilly Shire Council (Council) requires a salinity investigation for rezoning purposes.

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 fieldwork for the salinity investigation was undertaken concurrently with a contamination investigation, reported separately under DP Project 92269.00 (DP, 2018).

2. Scope of Works

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

- Review of the following documents detailing Council requirements:
 - o '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;
 - o 'Guide to Residential Slabs and Footings in a Saline Environment', Cement, Concrete and Aggregates, Australia (2005);
 - o 'Introduction to Urban Salinity', DNR (2003);
 - o 'Building in a Saline Environment' DNR (2003);
 - o 'Roads and Salinity', DNR (2003);
 - o '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;
 - Excavation of a total of 28 test pits within the site to a maximum depth of 3 m below ground level (bgl) or prior refusal¹. Of the 28 test pits completed, eight (TP77, 78, 80, 81, 101 and 124 126) were completed in the northern portion of the site mapped by DNR as having a high salinity potential (refer to Section 4.3). The remaining 20 test pits (TP 7, 9, 20, 23, 27, 42, 43, 48, 61, 71, 86, 90, 95, 97, 104, 112, 115, 120 and 123) were completed on a grid basis across the remaining balance of the site;
- Collection of soil samples from the test pits at regular 0.5 m depth intervals;
- Laboratory analysis of selected soil samples (125 samples) for electrical conductivity (EC1:5),
 pH and textural classification by a NATA accredited laboratory for classification of salinity and aggressivity;
- Laboratory analysis of selected soil samples for chloride and sulphate concentrations (40 samples) for further assessment of aggressivity; and analysis for sodicity (16 samples) and dispersibility (8 samples) 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 and discussing the suitability of the site for the proposed development.

3. Site Description

The site is roughly rectangular in shape with an approximate area of 101 hectares (ha) and lies within the Local Government Area (LGA) of Wollondilly Shire. The site is currently registered as eight separate lots, listed below:

- Lot 75 on Deposited Plan (D.P.) 837310;
- Lot 3 on D.P. 702025;
- Lot 51 on D.P. 626650;
- Lot 2 on D.P. 88145;
- Lot 1 on D.P. 445344;
- Lot 51 on D.P. 626650;
- Lot 16 on D.P. 253158; and
- Part lot 1 on D.P. 744927.

¹ A further 96 test pits were completed to inform the contamination assessment (TP1 – TP6, TP8, TP10 – TP19, TP21, TP22, TP24 – TP26, TP28 – TP34, TP36 – TP41, TP44 – TP47, TP49 – TP60, TP62 – TP70, TP72 – TP76, TP79, TP82 – TP85, TP87 – TP89, TP91 – TP94, TP96, TP98, TP99, TP100, TP102, TP103, TP105 – TP11, TP113, TP114, TP116 – TP119, TP121 and TP122, ; DP, 2018), however no salinity specific tests were conducted, therefore data from these test pits are not included in the scope of this report.



The site is bound to the north by Picton Road, to the north-west by Janderra Road, to the west by Emma Lane, to the south by a bushland associated with the designated 'Special Area²' surrounding the Nepean River.

At the time of the investigation, the site consisted of primarily grass covered pasture fields separated by trees and mixed timber and wire fencing. Farm dams were located throughout the site, particularly along drainage lines running along creeks / surface drainage lines running towards the north / north east (in the northern portion of the site), towards the north west (in the north west portion of the site) and towards the south (in the southern portion of the site). A rural residential property and sheds located in the north eastern corner of the site was tenanted at the time of the investigation.

The site traverses undulating terrain with an overall relief variation of approximately 50 m from the highest part (260 m AHD³ in the east) of the site to the lowest (190 m AHD in the west). The site currently appears to be used for a mixture of rural / residential, agricultural and commercial purposes.

The site layout is shown on Drawing 1, Appendix A.

4. Regional Geology, Soil Landscapes and Hydrogeology

4.1 Geology and Soil Landscapes

Reference to the Geological Survey of New South Wales (1985) map entitled *Wollongong to Port Hacking 1:100,000 Geological Sheet 9029 - 9129* indicates that the site is located on the southernmost extent of the Permo-Triassic Sydney Basin and key shallow lithologies below the site include laminite and dark-grey siltstone (Ashfield Shale - mapping unit Rwa) of the Wianamatta group in the northern portion and older coarse-grained quartz sandstone, very minor shale and laminite lenses (Hawkesbury sandstone - mapping unit 'Rh') in the southern portion.

Reference to the Soil Conservation Service of NSW (1990) map entitled *Soil Landscapes of the Wollongong-Port Hacking 1:100,000* indicates that the site is predominantly underlain by the Blacktown soil landscape (mapping unit bt), characterised by gently undulating rises on Wianamatta Group shales and Hawkesbury shale, with local relief to 30 m and slopes usually less than 5%. The landscape is generally represented by broad rounded crests and ridges with gently inclined slopes. Yellow, red and brown podzolic soils are characteristic of the area. Characteristics of this soil include moderately reactive, highly plastic subsoil, low fertility and poor drainage soil. Localised deposits of Luddenham soils (mapping unit lu) may occur in the eastern portion of the site which commonly have a high soil erosion hazard, localised impermeability, high plasticity and moderately reactive soils.

Reference to the above Landscape Sheet also indicates that the south-east portion of the site is underlain by the South Creek soil landscape, characterised by alluvial soils located in floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain. The landscape is generally represented by flat land with incised channels, mainly cleared. Red and yellow podzolic soils are most common on terraces with small areas of structured grey clays.

² Declared under the WaterNSW Act 2014 and regulated by WaterNSW.

³ Australian Height Datum



4.2 Hydrogeology

The site is located at the geological boundary of the Wianamatta shales (mapping unit 'Rwa') and the Hawkesbury sandstone (mapping unit 'Rh'). As such the hydrogeology will vary depending on the location within 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 the Walker site. The shale terrain of much of Western Sydney is known for saline groundwater, resulting either from the release of connate salt in shales of marine origin or from the accumulation of windblown sea salt. Seasonal groundwater level changes of 1 m - 2 m can occur in a shallow regolith aquifer or a deeper shale aquifer due to natural influences.

Groundwater investigations undertaken by DP in the South West of Sydney and previous studies of areas underlain by the Wianamatta Group indicate that:

- The shales have a very low intrinsic permeability, hence groundwater flow is 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 31 750 mg/L being reported). The dominant ions are typically sodium and chloride and the water is generally unsuitable for livestock or irrigation.

The areas underlain by Hawkesbury sandstone are typically associated with higher groundwater quality (i.e. low salinities) and higher yields. Based on available groundwater bore logs and available information on regional geology (refer to Section 4.1), shale and sandstone is present at shallow depths (< 10 m) below the Wilton area; the older Hawkesbury sandstone is typically exposed in low lying areas, e.g. built up areas and watercourses. Owing to the higher yield potential and general low salinities associated with the Hawkesbury Sandstone, groundwater from the Hawkesbury sandstone can be considered generally suitable for irrigation purposes.

4.3 Salinity Potential

Reference to the Map of Salinity Potential in Western Sydney, indicates the following:

- Approximately 8.4 ha of the site along the central area of the northern site boundary is located
 within an area of "high salinity potential" where "soil, geology, topography and groundwater
 conditions predispose a site to salinity. These conditions are similar to areas of known
 salinity. These areas are most common in lower slopes and drainage systems where water
 accumulation is high."
- The remainder of the site is located within an area of "moderate salinity potential" where "saline areas may occur, which have not yet been identified or may occur if risk factors change adversely."

These classifications are based on the 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.



4.4 Hydrology

The following surface water bodies are located at the site:

- Unnamed creek and farm dams in the north west portion of the site draining into the Nepean River 1.2 km west of the site;
- Unnamed creek and two farm dams in the south west portion of the site draining into the Nepean River 380 m south west of the site; and
- Two small creeks in the northern site draining towards the north into Stringybark Creek, a tributary of Allens Creek and ultimately into the Nepean River (located 5 km north of the site).

Surface water runoff is anticipated to flow towards the west and to a lesser extent towards the north, i.e. following the topography of the site.

5. Methods

5.1 Fieldwork Method

Field investigations were undertaken between 12 and 21 February 2018 by a DP environmental engineer. The fieldwork comprised the excavation of 28 test pits (refer Drawing 1, Appendix A) using a JCB 3CX backhoe fitted with a 300 mm toothed bucket. Test pits were excavated to a maximum depth of 3 m below ground level (bgl) or to prior refusal. Test pit locations are shown on Drawing 1, Appendix A. Representative samples were collected at 0.5 m depth intervals for laboratory testing and to assist in strata identification.

All filed measurements and mapping for this project have been carried out using the Geodetic Datum of Australia, 1993 (GDA94) and the Map Grid of Australia (MGA94), Zone 56. All reduced levels are given in relation to the AHD.

6. Results

6.1 Fieldwork Results

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

The general strata across the site are summarised as follows:

- FILLING localised filling comprised grey, light brown, dark brown and grey-brown clayey silt
 with trace rootlets, basaltic gravel and shale gravel and red, red-brown, light brown, dark brown,
 brown and orange mottled grey silty clay with trace rootlets, basaltic gravel, shale gravel, sand
 and construction and demolition material (comprising bricks, terracotta tile fragments, timber,
 cinder blocks, plastic sheeting and plastic piping) was encountered at depths of up to 1.6 m bgl.
 Filling was observed in former building footprints and within one gully only;
- CLAYEY SILT light and dark brown, grey-brown, red-brown clayey silt with trace rootlets and charcoal associated with recent grass fire encountered at depths of up to 0.9 m bgl but generally less than 0.5 m bgl;



- SILTY CLAY light brown, dark brown, red, red-brown, red-brown mottled grey, orange mottled
 grey and grey silty clay with trace rootlets, shale gravel, sandstone gravel and sand encountered
 at depths of up to 3 m bgl; and
- BEDROCK Low to high strength, low to moderately weathered grey and brown shale and sandstone with silty grey clay bands encountered at depths of up to 3 m bgl.

No free groundwater was observed in the pits during excavation for the short time that they were left open.

6.2 Spatial Mapping

Salinity and aggressivity within the site was classified by utilising maxima/minima analysis within the full investigated depth zone 0 - 3 m bgl. Maximum values were used for the mapping. The summary table (Table C1, 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.

These values were used for spatial mapping of aggressivities and salinities throughout the investigation area (refer Drawings 2 to 4, Appendix A).

6.3 Laboratory Results

The laboratory test results and assessments of aggressivity, salinity, sodicity and dispersibility are summarised in Table C1 of 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

Para	ameter	Units	Samples	Minimum	Maximum
	рН	pH units	125	4.5	9.1
Chl	orides	(mg/kg)	40	<10	530
Sul	phates	(mg/kg)	40	<10	87
Aggregativity	to Concrete	[AS2159]	-	Non-Aggressive	Moderately Aggressive
Aggressivity	to Steel	[AS2159]	-	Non-Aggressive	Mildly Aggressive
Exchangeab	le Sodium (Na)	(meq/100g)	16	0.2	2.0
1	CEC nange capacity)	(meq/100g)	16	3.1	10



Parameter	Units	Samples	Minimum	Maximum
Sodicity [Na/CEC]	(ESP%)	16	4.3	37.7
Sodicity Class	[after DLWC]	-	Non-sodic	Highly Sodic
EC1:5 [Lab.]	(mS/cm)	125	10	720
Resistivity	Ω.cm	125	1388.9	100000
ECe [M x EC1:5] 1	(dS/m)	125	0.1	5.0
Salinity Class	[after Richards 1954]	-	Non-Saline	Moderately Saline

¹ M is soil textural factor

6.3.1 Aggressivity

Figures 1 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.

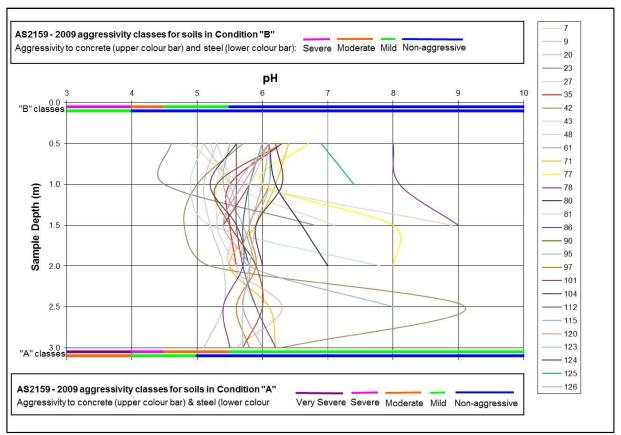


Figure 1: Vertical pH Profiles and Aggressivity Classes



Figure 1 shows non-aggressive to moderately aggressive classifications of soils based on pH values. The summary Table C1 (Appendix C) indicates that 69% of all tested samples were non-aggressive to concrete, 30% were mildly aggressive and 1% were moderately aggressive. The worst case results for each test pit were used to define approximate areas of mild (pH 4.5 - 5.5) aggressivity and moderately (pH < 4.5) aggressivity to concrete foundations and piles below current ground surface (Drawing 2, Appendix A).

The pH profiles of Figure 1 indicate that the materials throughout the site, at all investigated depths were non-aggressive to steel. This finding was generally supported by the resistivity results displayed in Table C1 (Appendix C) with the exception of TP23 TP42 and TP43 which were both classified as mildly aggressive to steel.

The worst case resistivity results for each test pit were used to define approximate areas of mild aggressivity to steel piles, represented by colour zones on Drawing 3 (Appendix A).

6.3.2 Salinity

Figure 2 presents the variations of salinity with depth, based on salinity (ECe) profiles at all sampling locations, together with the salinity classifications of Richards (1954).

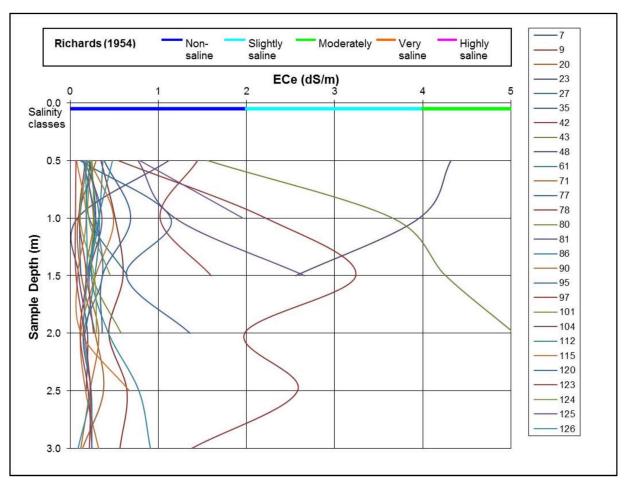


Figure 2: Vertical Salinity Profiles and Salinity Classes



Table C1 (Appendix C) indicates that 92% of soil samples were non-saline, 6% were slightly saline and 2% were moderately saline.

As, for aggressivity, worst case ECe values were interpolated and contoured to define areas of slightly saline (ECe 2 - 4 dS/m) and moderately saline (ECe 4 - 8 dS/m) (see Drawing 4, Appendix A).

6.4 Sodicity and Dispersibilty

The sodicity test reported in Table C1, Appendix C, shows non-sodic to highly sodic soils, indicating some potential for erodibility of soils left exposed. Approximately 50 % of the samples analysed were classified as highly sodic.

The dispersion potential of the soils, as measured by the Emerson Crumb Test (refer Table C1, Appendix C), were determined to be as follows:

- Class 1 (complete dispersion) TP7 (0.5 m bgl heavy clay) and TP97 (1.5 m bgl clay loam);
- Class 2 (some dispersion) TP86 (1.0 m bgl heavy clay), TP104 (0.5 m bgl heavy clay) and TP120 (1.0 m bgl – heavy clay);
- Class 3 (dispersive) TP81 (0.5 m bgl medium clay); and
- Class 6 (no dispersion) TP20 and TP27 (1.0 m bgl medium and heavy clay respectively).

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

7. Impacts of the Proposed Development

Mild to moderate aggressivity to concrete and mild aggressivity to steel, the presence of slightly saline to moderately saline material and sodic to highly sodic soils 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. As a result management will be required (refer Section 8).

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 moderately saline. Testing of other parameters associated with salinity indicates that the materials within the site are non-aggressive to moderately aggressive to concrete and non-aggressive to mildly aggressive to steel (in accordance with AS 2159). In addition, 50% of soils 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. Management should focus on capping the upper surface of the sodic soils, both exposed by excavation and placed as filling, with a more permeable material to prevent ponding, to reduce capillary rise, to act as a drainage layer and to reduce the potential for erosion.
- B. When possible, placement of excavated soils in fill areas with similar salinity characteristics (i.e. place excavated material onto in-situ soils with a similar or higher aggressivity or salinity classification). With respect to imported fill material, testing should be undertaken prior to importation, to determine the salinity characteristics of the material.
- C. 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.
- D. 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. Where wet basins are proposed, site specific investigation will be required to assess the need for liners (clay or HDPE).
- E. 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.
- F. 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.
- G. 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.

H. Where soils are classified as non-aggressive to concrete, piles should have a minimum strength of 32 MPa and a minimum cover to reinforcement of 45 mm (as per AS 2159).



- I. 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 AS 2159) to limit the corrosive effects of the surrounding soils (in accordance with AS 2159).
- J. Where soils are classified as moderately aggressive to concrete, piles should have a minimum strength of 40 MPa and a minimum cover to reinforcement of 65 mm (as per AS 2159) to limit the corrosive effects of the surrounding soils (in accordance with AS 2159).
- K. With regard to concrete structures, for non-saline and slightly saline soils (with salinities less than 4 dS/m) (refer Drawing 4):
 - Where soils are classified as non-aggressive to concrete (AS 3600 A1) (Drawing 2), 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 AS 3600) to limit the corrosive effects of the surrounding soils; and
 - Where soils are classified as mildly aggressive to concrete (AS 3600 A2) (Drawing 2), 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 AS 3600) to limit the corrosive effects of the surrounding soils.
- L. With regard to concrete structures, for moderately saline soils with salinities of 4 8 dS/m (refer Drawing 4):
 - Where soils are classified as non-aggressive to mildly aggressive to concrete (AS 3600 A1 and 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 AS 3600) to limit the corrosive effects of the surrounding soils; and
 - Where soils are classified as moderately aggressive to concrete (AS 3600 B1) (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 AS 3600) to limit the corrosive effects of the surrounding soils.
- M. 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 I, J, K and L 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 AS 4058 2007 "Precast concrete pipes" indicates that the site falls within the AS 4058 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 AS 4058 Normal durability environment. AS 4058 -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 AS 4058 compliant steel reinforced pipes of general purpose Portland cement, with minimum cover to reinforcement of 10 mm, or should be fibre reinforced.</p>



N. Resistivity results indicate localised soils that are mildly aggressive to steel (1000 - 2000 Ohm-cm, refer Drawing 3, Appendix A). For these areas of soil identified as aggressive to steel, a uniform corrosion allowance 0.01 - 0.02 mm/year (as per AS 2159 - 2009) should be taken into account by the designer.

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 as defined above.

9. Additional Recommendations and Conclusions

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. Considering the potential for mass soil movements associated with bulk earthworks, consideration should be given to updating the assessment at lot classification, to renew the mapping of salinity across the site.

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 Stages 1 and 2, Wilton Junction, NSW in accordance with DP's proposal MAC180005 dated 10 January 2018. The work was carried out under contract reference ME_132208996_5 (W2007). This report is provided for the exclusive use of Walker Corporation 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 4 About This Report

About this Report Douglas Partners O

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

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

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;
- 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

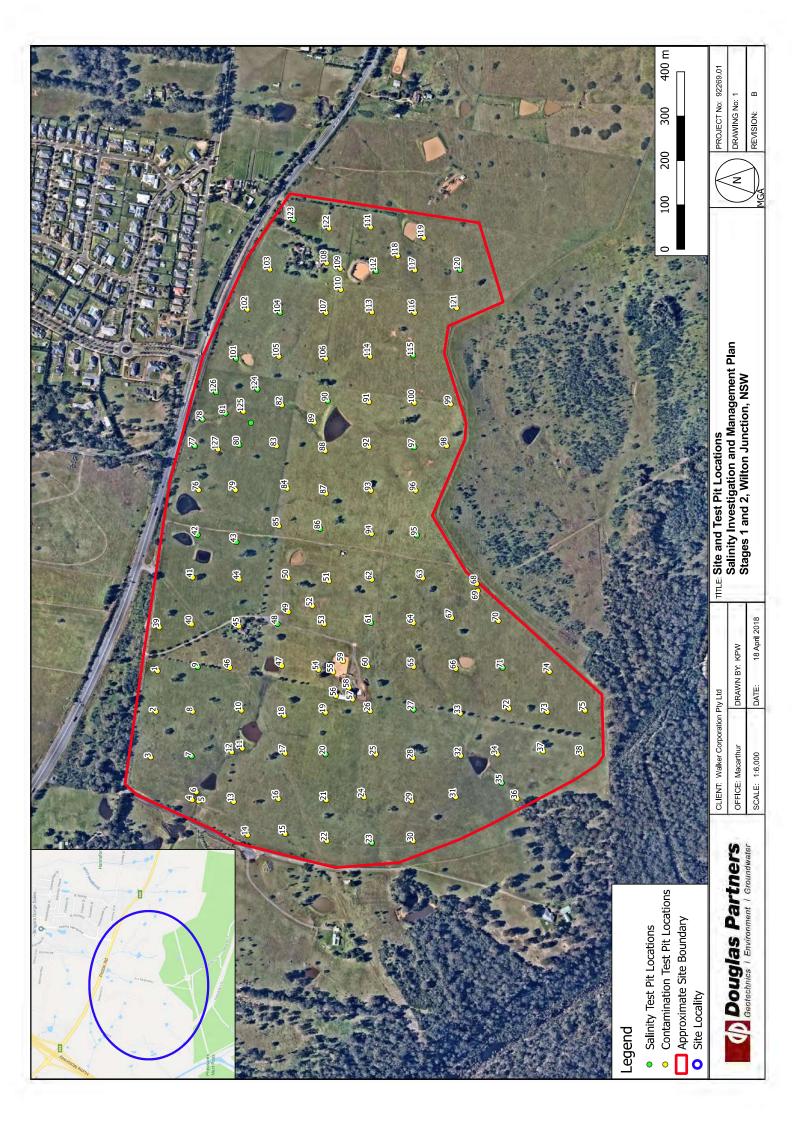
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later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

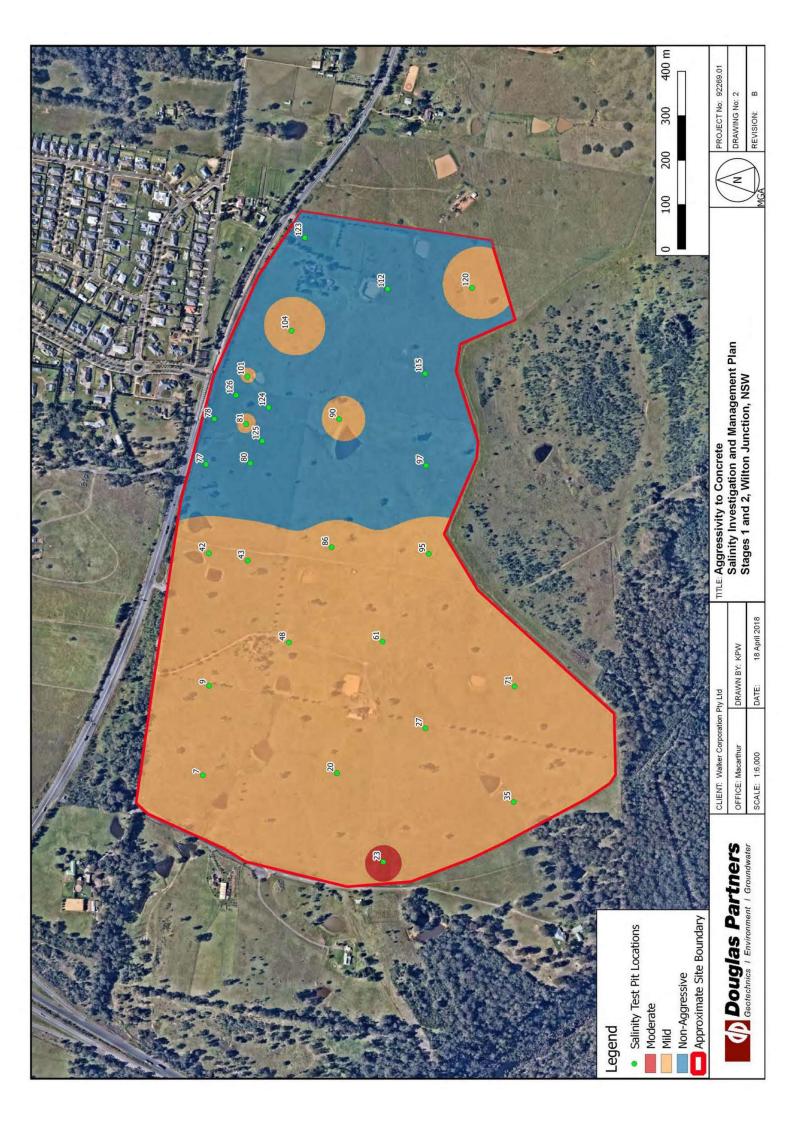
Information for Contractual Purposes

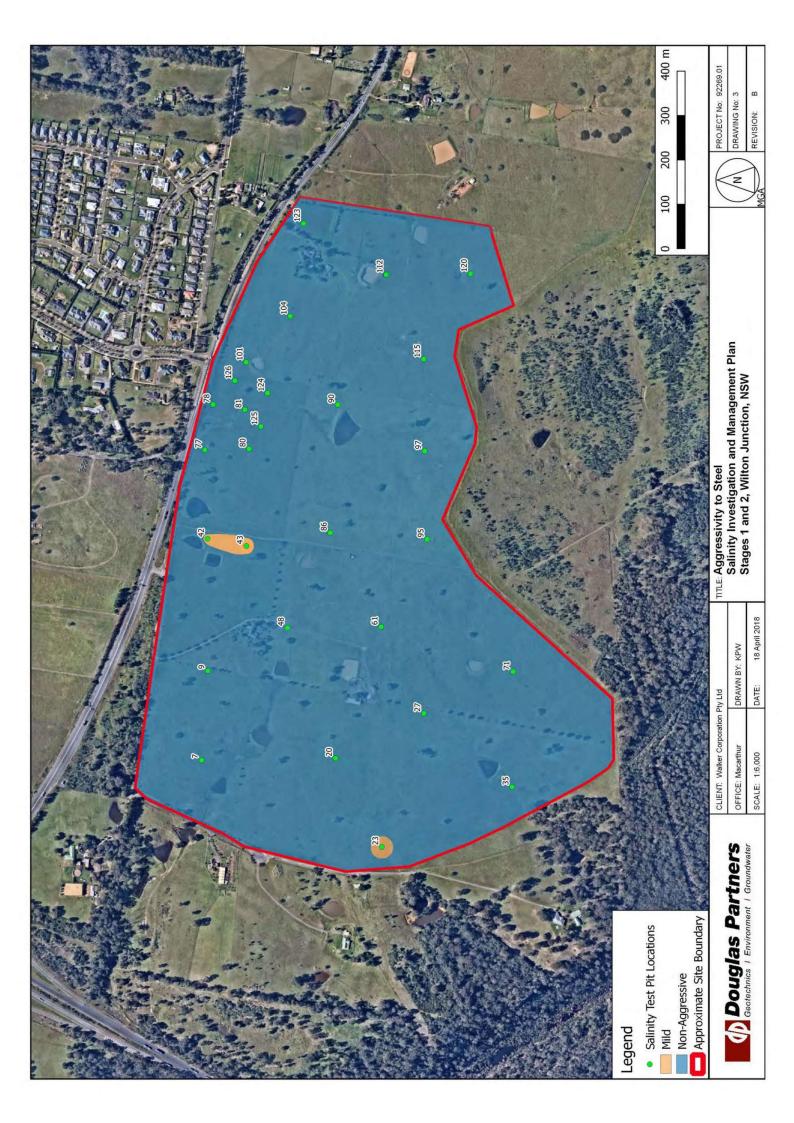
Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate 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.

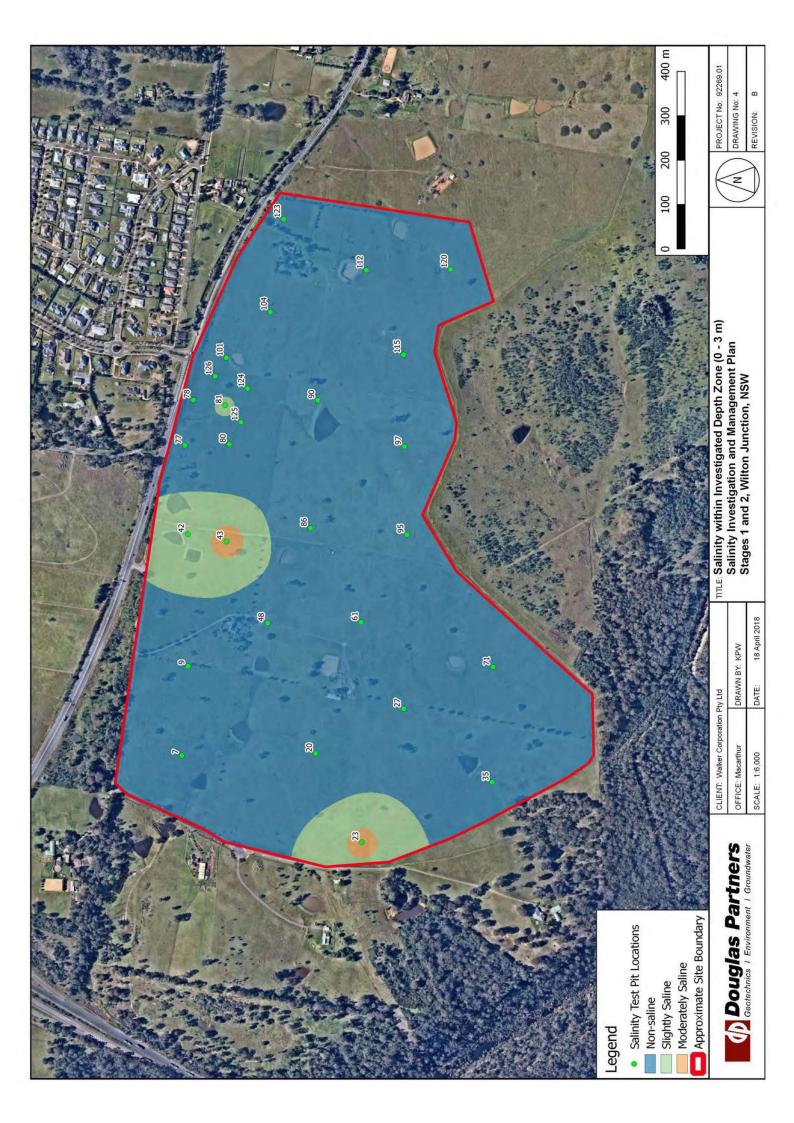
Site Inspection

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

Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 226 mAHD

EASTING: 285763

NORTHING: 6209410

PIT No: 1

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing	Į.	Dvnam	ic Penetr	ometer -	Test
R	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water		ic Penetr blows pe		
226	0.05	CLAYEY SILT - dark brown clayey silt with some rootlets			0.0	ιχ			5	10	15	20
-	- 0.03	SILTY CLAY - dark brown silty clay with a trace of rootlets	//	D*					}			
-	_				0.2				-			:
-	_								-			
-	-	- becoming firm, red brown with a trace of ironstone and							-			
-	_	 becoming firm, red brown with a trace of ironstone and shale gravel, MC<pl 0.4m<="" below="" li=""> </pl>							-		:	•
-	_								-		:	:
-	- 0.7	Pit discontinued at 0.7m									:	:
-	-	- < <n>limit of investigation</n>							-		:	:
	-								-		:	:
225	- 1								-1		:	:
-	=											:
	_								<u> </u>			
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											•	
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224	- - ว								-2			
22												
	_											
	_											
	_											
	_											
	-								. :		:	:
	-										:	•
223	-3								-3		:	:
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	_								. :		:	:
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-	-								-			:
Ш										<u>:</u>	<u>: </u>	<u>: </u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD1/120218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 222 mAHD

EASTING: 285681

NORTHING: 6209431

PIT No: 2

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

П		Description	U		Sam	npling 8	& In Situ Testing					
묍	Depth (m)	of	Graphic Log	e e				Water	Dyr	namic Po (blow	enetrom /s per m	eter Test m)
12	(111)	Strata	_ <u></u> ნ_	Туре	Depth	Sample	Results & Comments	>	5			
222	0.09	(, , ,	1/1/	D	0.0				-			
	-	SILTY CLAY - soft, dark brown silty clay with a trace of shale gravel and rootlets, MC <pl< td=""><td></td><td></td><td>0.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>			0.2							
			///		0.4				-			
				D	0.4							
			//						-			
} }												
	0.8	Pit discontinued at 0.8m - < <n>limit of investigation</n>	V 17									
221	- 1	- 1 4 William of investigation							-1			
									-		:	:
									-			
220	-2								-2			
											:	
									-			
											:	
									-			
219	- 3								-3		:	
}	.								-			
									[:	
	.								-			
	.								-			
}	.								-			
ш							1			•		•

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)

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



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 215 mAHD

EASTING: 285590

NORTHING: 6209428

PIT No: 3

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

			Description	. <u></u>		Sam		& In Situ Testing				
씸	De (n	epth n)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic (blo	Penetrome ws per mm	er Test 1)
2.5			SILTY CLAY - soft, grey brown silty clay with a trace of		 -	0.0	Sa	Comments		5	10 15 : :	20 :
-			rootlets		D	0.2				- : - :		
-	-		- becoming firm, brown mottled red silty clay with a trace of ironstone gravel, MC <pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl>		D	0.4				-		
-	-	0.9	Pit discontinued at 0.9m							-		
214	- 1 -		- < <n>limit of investigation</n>							-1		
-	-											
-	-									-		
-	-									-		
213	- -2 -									-2		
	-									-		
-	-									-		
-	-											
212	- -3									-3		
-	-									-		
-	-											
-	-									-		
-	-									-		
	_		CCV backboo 300mm bucket			CCE		1		EV DATUM:	• •	;

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



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

CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 212 mAHD

EASTING: 285457 **NORTHING**: 6209295

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

PIT No: 4

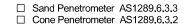
		41-	Description	ije T		Sam		& In Situ Testing] <u>,</u>	Dyna	mic Pone	tromoto	r Toet
귐	(n	pth n)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	5 Dyna	mic Pene (blows p		
2.5			SILTY CLAY - soft, grey silty clay with a trace of rootlets	///	D	0.0	S				:	15	20
-	-					0.2				-			
-	-		 becoming grey mottled orange with a trace of fine grained sand, MC<pl 0.3m<="" below="" li=""> </pl>										
			grained sand, MIC <pl 0.3m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td></td><td>į</td><td></td><td></td></pl>		D	0.4					į		
	-	0.6	SANDSTONE - high strength, moderately weathered, grey and orange sandstone	1./						-			
-		0.8	Pit discontinued at 0.8m	::::::							- :	<u>:</u>	<u>:</u>
211	- 1		- < <n>limit of investigation</n>							1			
	-												
-													
-										-			
-	-												
210	-2									-2			
-	-												
-										-			
-	-									-			
-													
209	-3									-3			
-										-			
-	-									-			
										-			
-	-									:		:	
													<u>:</u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 211 mAHD

EASTING: 285448

NORTHING: 6209299

PROJECT No: 92269.00 DATE: 12/2/2018

PIT No: 5

SHEET 1 OF 1

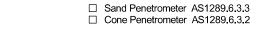
		Description	·ē		Sam		& In Situ Testing	Ļ	D	D		. T t
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynai	mic Pene (blows p	etromete per mm)	riest
-		Strata	10	ŕ		Sar	Comments		5	10	15	20
2	0.1	CLAYEY SILT - grey brown clayey silt with some rootlets (topsoil)	WY	D	0.0							
		SILTY CLAY - firm, grey silty clay with a trace of ironstone gravel and rootlets			0.2				-			
				D	0.4				-			
		 becoming grey and orange with a trace of sand and ironstone gravel, MC<pl 0.5m<="" below="" li=""> </pl>			0.5							
	0.8											
		Pit discontinued at 0.8m - < <n>limit of investigation</n>							-			
210	· 1								-1			
									-			
									-			
[[[-			
- 									-			
209	. 2								-2			
2	_								-			
-									-			
									_			
208	- 3								-3			
									_			
<u> </u>									-			
									-			
									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 212 mAHD

EASTING: 285477 **NORTHING**: 6209293

DATE: 12/2/2018

PIT No: 6

SHEET 1 OF 1

PROJECT No: 92269.00

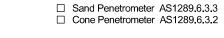
		Description	. <u>o</u>		Sam	npling &	& In Situ Testing		_			
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyn	amic Pe blow:	netrome s per mn	eter Test n)
2.2		Strata	9	Ļ	De	San	Comments		5	10	15	20
2	- 0.2	CLAYEY SILT - light brown clayey silt with a trace of sand and rootlets (topsoil)		D	0.0				-			
_	- 0.2	SILTY CLAY - firm, brown mottled red and grey silty clay with a trace of sand, grey sandstone gravel and roots, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>							-			
-				D	0.4				-			
-	_								-			
-	-								-			
211	- 1 - 1.1-	Dit discontinued at 1.1 m							-1			
-	_	Pit discontinued at 1.1m - < <n>limit of investigation</n>							-			
-	-								-			
	_											
-	-								-			
210	- -2								-2			
	-								-			
-	_								-			
-	_									:	:	
-	_								-			
	-								-			
209	-3								-3			
-	_								-	:	:	
-	-								-			
-	-								-			
	-											
-	-								-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 216 mAHD

EASTING: 285550 **NORTHING**: 6209337

PIT No: 7

DATE: 12/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

Τ		Description	. <u>o</u>		Sam		& In Situ Testing		_			
된 (I	epth (m)	of	Graphic Log	Type	oth	Sample	Results &	Water	Dyna	mic Pene (blows p	etromete oer mm)	r Test
9	,	Strata	Ō	5	Depth	Sarr	Results & Comments	>	5	10	15	20
- 5	0.1-	FILLING - grey brown clayey silt with a trace of basaltic gravel and rootlets (topsoil)		D	0.0				-			
-		SILTY CLAY - firm, brown silty clay with a trace of ironstone gravel			0.2				-			
		- becoming red with a trace of ironstone gravel below 0.3m			0.4							
-				D	0.5				-			
		- becoming red mottled grey with a trace of sand, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>										
ŀ		below 0.7m			0.9							
1 - 1				D	1.0				-1			
ŀ									-			
-	1.3	SANDSTONE - high strength, moderately weathered, grey and brown sandstone with some grey clayey sand	<u> </u>						-			
		and brown sandstone with some grey clayey sand		D	1.4 1.5				-			
-	1.6	Pit discontinued at 1.6m								:		<u>:</u>
		- < <n>refusal on high strength sandstone</n>							-			
- 214									-			
2/2									-2			
									-	:		
									-			
									-			
-									-			
									-			
213									-3			
									- :			
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-									- -	:		
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-									-			
+									-			
-									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)

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



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 220 mAHD

EASTING: 285615 **NORTHING**: 6209335

DATE: 12/2/2018

PIT No: 8

SHEET 1 OF 1

PROJECT No: 92269.00

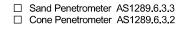
			Description	ي		Sam	npling &	& In Situ Testing	Τ.			
귒	Dept (m)	th	of	Graphic Log	Type	oth	Sample	Results &	Water	Dynamic (blo	Penetrom ws per m	eter Test m)
	()		Strata	้	Ž	Depth	Sam	Results & Comments	>		10 15	20
220	(0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	11/1	D	0.0				-		
.			SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets			0.2				-		
-					D	0.4				-		
-			- becoming dark brown and red, MC <pl 0.6m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl>							-		
.		0.9	Pit discontinued at 0.9m							:		<u>:</u>
219	1		- < <n>limit of investigation</n>							-1		
- -										-		
. [
- -										-		
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·												
218	2									-2		
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217	3									-3		
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+										† :		:
_			CV backhoo 300mm bucket			CCE		I		/EV DATUM:		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 226 mAHD

EASTING: 285741 **NORTHING**: 6209352 PIT No: 9

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

	Donth	Description	jë T		Sam		& In Situ Testing	<u>_</u>	Dyna	mic Pene	atromoto	or Toet
R	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dylla	(blows	per mm)
226		Strata	10	F	0.0	Sar	Comments		5	10	15 :	20
		CLAYEY SILT - light brown clayey silt with a trace of rootlets		D	0.0							
	- 0.19		<u> </u>		0.2							
		SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets]	0.2							
					0.4						i	
				D	0.5							
					0.5						:	
				1								
		- becoming brown mottled orange below 0.7m										
										:	i	
	-			D	0.9							
225	-1				1.0				-1		:	
	-			1						i	i	
1	-			1					-		i	
		- becoming grey mottled orange with some grey shale gravel and a trace of shale cobbles, MC <pl 1.3m<="" below="" td=""><td></td><td>]</td><td></td><td></td><td></td><td></td><td></td><td>:</td><td>i</td><td></td></pl>]						:	i	
	-	gravel and a trace of shale cobbles, MC <pl 1.3m<="" below="" td=""><td></td><td>D</td><td>1.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>		D	1.4							
	-				1.5							
+	-			1							i	
+	-								-			
+	-								. :		i	
+	-			D	1.9				-		i	
224	-2			}	2.0				-2			
+	-			1					-			
+	-			1					-		i	
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-	-			D	2.4				-	:	i	
-	-			₽"	2.5				-			
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-	-			 	2.9				-			
223	-3 3.0	Pit discontinued at 3.0m		D	-3.0-				3 :	- :	- :	-
-	-	- < <n>limit of investigation</n>							<u> </u>	i	:	
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



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

Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 225 mAHD

EASTING: 285723

NORTHING: 6209275

PIT No: 10

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

		Description	jic _		Sam		& In Situ Testing	۲	Dime	io Bon-	tromot-	r Toot
로	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynam	ic Pene (blows p	er mm)	rest
225		Strata	٥	Ту		Sar	Comments		5	10	15	20
72	0.01	CLAYEY SILT - dark brown clayey silt with a trace of rootlets (topsoil)		D*	0.0				-			
-		SILTY CLAY - stiff, brown silty clay with a trace of ironstone gravel and rootlets			0.2				-			
-		 becoming red brown with a trace of grey and brown shale gravel and cobbles, MC<pl 0.4m<="" below="" li=""> </pl>		D	0.4 0.5				-			
-	0.7	Pit discontinued at 0.7m - < <n>limit of investigation</n>	121-21						-			
224	1								- - -1			
22									-			
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-									-			
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223	2								-2			
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222	3								-3			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/120218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 216 mAHD

EASTING: 285566 **NORTHING**: 6209262 **PIT No:** 11

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

П		Description	<u>.</u> . <u>.</u>		Sam	npling	& In Situ Testing						
묍	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dy	namic F (blo	Penetro ws per	meter mm)	Test
2.6		Strata FILLING - dark brown silty clay with a trace of shale	XXX	<u> </u>	0.0	Sa	Comments			5 1	0 1	15 :	20
 		FILLING - dark brown silty clay with a trace of shale fragments and rootlets		D					-				
					0.2							:	
	0.4				0.4				-		• • •	:	:
} }		SILTY CLAY - firm, brown mottled red silty clay with a trace of ironstone gravel, MC <pl< td=""><td></td><td>D</td><td>0.5</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td>:</td><td></td></pl<>		D	0.5				-			:	
									-				
									-			:	:
-	0.9	Pit discontinued at 0.9m										:	:
215	- 1	- < <n>limit of investigation</n>							-1				
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214	-2								-2			:	
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213	- 2								- -3				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)

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



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 219 mAHD

EASTING: 285582

NORTHING: 6209209

PIT No: 12

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

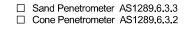
			Description	je _		Sam		& In Situ Testing		D. e	namia Ban	otromot	or Toot
R	Dept (m)	ın	of -	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyi	namic Pen (blows	per mm)
2.9		_	Strata FILLING - dark brown clavey silt with a trace of baseltic	XX	-	 	Sa	Comments		5	10	15	20 :
-	-		FILLING - dark brown clayey silt with a trace of basaltic gravel and rootlets		D					-			
-	_					0.2				-			
-	- (0.3	FILLING - dark brown silty clay with a trace of basaltic							-			
-	-		gravel and rootlets		D	0.4				}		i	:
-	-					0.5							
	-												:
	-											i	
		0.8	SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets, MC <pl< td=""><td>//</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>	//									
218	- 1		indistante graver and rootiets, ivic-r L							_1			
2	-											i	:
	_									. :		i	
-	- 1	1.3	Pit discontinued at 1.3m	1//									
-	-		- << N>limit of investigation							-			
-	-									}		i	:
-	-									-			
-	-									-			
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217	-2									-2			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 222 mAHD

EASTING: 285465 **NORTHING**: 6209230

PIT No: 13

DATE: 12/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

		Description	.je		Sam		& In Situ Testing	ڀ	D	i- D		Taat
Ζ	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyi	namic Pene (blows p	er mm)	riest
232		Strata		É.	 0.0	Sal	Comments		5	10	15	20
ŀ	-	FILLING - light brown silty clay with a trace of shale gravel and rootlets (possible re-worked natural)		D					-			
ł	-				0.2				-			
ł	_								-			
İ	0.4	SILTY CLAY - very stiff, red silty clay with a trace of ironstone gravel and rootlets, MC <pl< th=""><th></th><th>D</th><th>0.4</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></pl<>		D	0.4							
	-	nonstone graver and rootets, with a			0.5							
-	-								-			
+	_								-			
ł	0.9	Pit discontinued at 0.9m									<u>:</u>	
22	- 1	- < <n>limit of investigation</n>							-1			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 219 mAHD

EASTING: 285376 **NORTHING**: 6209171

PIT No: 14

DATE: 12/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

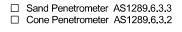
RL	Depth	Description	Graphic Log				& In Situ Testing	Water	Dyr	namic Pe	enetrom	neter T	est
	(m)	of Strata	Gra	Туре	Depth	Sample	Results & Comments	Wa	5				
2.9	0.01	CLAYEY SILT - light brown clayey silt with a trace of	//		0.0	o)				:	:	,	
-	-	\rootlets SILTY CLAY - very stiff, light brown silty clay with a trace of rootlets		D	0.2				-				
-	-	- becoming red mottled light brown below 0.4m		D	0.4 0.5				-				
-	- - - 09	- becoming red mottled grey with a trace of shale gravel, MC <pl 0.8m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl>							-				
218		Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1 -				
-									-				
-									- -				
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217	-2								-2				
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216	-3								-3				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 216 mAHD

EASTING: 285416

NORTHING: 6209102

PIT No: 15

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

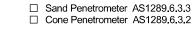
	Depth	Description	hic				& In Situ Testing	Į.	Dvnami	c Penetro	ometer ⁻	Test
씸	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynami (t	lows per		20
2.6	-	CLAYEY SILT - light brown clayey silt with a trace of rootlets	////	D	0.0	<u> </u>			-	:	:	:
-	- 0.2 -	SILTY CLAY - very stiff, light brown silty clay with a trace of ironstone gravel and rootlets			0.2				-			
-	-			D	0.4 0.5				- -			
-	-		1/						-			
2	- -	- becoming red brown with some shale gravel, MC <pl 0.8m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>							-			
215	-1 1.0- -	Pit discontinued at 1.0m - < <n>limit of investigation</n>	V 17						-1			
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4	-											
214	- 2								-2			
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213	- 3								-3			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 224 mAHD

EASTING: 285486

NORTHING: 6209053

PIT No: 16

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

	Double	Description	jć T				& In Situ Testing		Dyna	mic Pone	tromoto	r Toet
RL	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pene (blows p		
224		SILTY CLAY - very stiff, red brown silty clay with a trace of shale gravel and rootlets	1/	D	0.0	, w			-	10	15	20
	0.6		/\/ /\/ /\/	D	0.4				-			
	0.7	SHALE - low strength, extremely weathered, grey shale with some red brown silty clay, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>										
3		Pit discontinued at 0.7m - < <n>limit of investigation</n>							-			
223	-1								-1			
222	. 2								-2			
2	2								_			
									-			
221	. 3								-3			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 224 mAHD

EASTING: 285542

NORTHING: 6209091

PIT No: 17

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

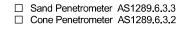
П		Description	. <u>0</u>		Sam	ıpling 8	& In Situ Testing					
씸	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyn	amic Pen (blows	etromete per mm)	r Test
224		Strata	Ŋ	Ту	De	San	Comments		5		15	20
2	0.01	CLAYEY SILT - light brown clayey silt with a trace of rootlets		D	0.0				. :			
	-	SILTY CLAY - very stiff, red brown silty clay with a trace of shale gravel and rootlets MC <pl< td=""><td></td><td></td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>			0.2				-			
				D	0.4							
	- 0.5 -	SHALE - low strength, extremely weathered, grey shale with a trace of red brown silty clay			0.5				. :			
	- 0.8								-			
	. 0.0	Pit discontinued at 0.8m - < <n>limit of investigation</n>										
223	-1	VIV IIIII O III ootgaaan							-1			
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222	-2								-2			
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221	-3								-3		:	:
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 230 mAHD

EASTING: 285688

NORTHING: 6209099

PIT No: 18

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

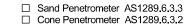
		Description	. <u>o</u>		Sam	ıpling 8	& In Situ Testing				
귐	Depth (m)	of	Graphic Log	Type	зţР	Sample	Results &	Water	Dynamic I (blo	enetrome ws per mn	ter Lest n)
	()	Strata	ō	Ty	Depth	Sam	Results & Comments	>		10 15	20
230	0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	////	D	0.0						
		SILTY CLAY - very stiff, light brown silty clay with a trace of shale gravel and rootlets			0.2				-		
		- becoming red brown with shale gravel, MC <pl 0.45m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl>		D	0.4				-		
	0.7	Pit discontinued at 0.7m - < <n>limit of investigation</n>							-		
229	-1								-1		:
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228	-2								-2		
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227	-3								-3		
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 231 mAHD

EASTING: 285655 **NORTHING**: 6209014

DATE: 12/2/2018

PIT No: 19

SHEET 1 OF 1

PROJECT No: 92269.00

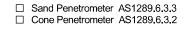
	Depth	Description	hic				& In Situ Testing		Dynam	nic Penetr	ometer	Test
귐	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		nic Penetr (blows pe		
231	-	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	////	D	0.0	Ø			5	10	15	20
	- 0.2 -	SILTY CLAY - light brown silty clay with a trace of shale gravel and rootlets	1/1		0.2				-			
-	-	- becoming red brown with some shale gravel, MC <pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4 0.5</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>		D	0.4 0.5				-			
	- 0.7 - - 1 -	Pit discontinued at 0.7m - < <n>limit of investigation</n>							- -1 -			
229	- - - - -2								-2			
228	- - - -3 -								-3			
-	-								-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 228 mAHD

EASTING: 285580 **NORTHING**: 6209030

PIT No: 20

DATE: 13/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

			Description	ji _		Sam		& In Situ Testing		Dimor	nic Pene	tromoto	
씸	Dep (m		of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyriai	(blows p	per mm)	i rest
228			Strata CLAYEY SILT - light brown clayey silt with a trace of		<u> </u>	0.0	Sa	Comments		5 :	10 :	15 :	20 :
-	-	0.1	rootlets (topsoil)		D*					-			
ŀ	_		SILTY CLAY - stiff, light brown silty clay with a trace of shale gravel			0.2				-	i	i	i
ŀ	_												
			- becoming red brown mottled grey, MC <pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>		D	0.4							
		0.6				0.5							
-	-		SHALE - low strength, moderately weathered, grey shale										
-	-		- with some grey mottled orange silty clay below 0.8m							-			
+	-		- with some grey motified triangle sitty day below 0.0111		D	0.9				-			
227	- 1					1.0				-1			
ł	-	1.1	SILTY CLAY - soft, grey mottled orange silty clay with some shale gravel, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>:</td><td></td><td></td></pl<>								:		
			some snale gravel, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>										
ļ						1.4							
-	-				D	1.5				-	i		
-	-									-			
-	-									-			
+	-									-			
۰					D	1.9							
22	-2					2.0				-2			
	-									. :	:	Ė	:
-	-									-			
-	-				D	2.4				-			
-	_				D	2.5				-			
-	-	2.6	SHALE - high strength, dark grey shale										
Ī	-												
						2.9							
225	-3	3.0		E	D	—3.0—				3			<u> </u>
- "	-		Pit discontinued at 3.0m - < <n>limit of investigation</n>										
-	_									-	:		:
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t													
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L			2CV haakhaa 200mm huakat				n. KD			/EV DATI			<u>:</u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD3/120218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 221 mAHD

EASTING: 285443 **NORTHING**: 6209030

PIT No: 21

DATE: 13/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

	Depth	Description	hic D				& In Situ Testing	_ io	Dv	namic P	enetror	neter T	est
씸	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		namic P (blov			20
221	-	FILLING - dark brown clayey silt with a trace of rootlets		D	0.0	0)			-		,		
-	0.15	SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel and rootlets	1//		0.2				-				
	_				0.4				_				
-	-			D	0.5				-				
-	_								-				
-	-	- becoming red mottled grey below 0.8m							-				
-	-	- becoming rea mottled grey below o.om	1/						-				
220		- becoming grey mottled red and orange, MC <pl 1.0m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td><td></td><td></td><td></td></pl>							-1				
-	-	Pit discontinued at 1.1m - < <n>limit of investigation</n>							_				
	-								-				
-	-								-				
	-								-				
-	-								-				
219	- 2								- -2				
-									-				
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	-								-				
-	-								-				
218	- -3								- -3				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 220 mAHD

EASTING: 285332

NORTHING: 6208982

PIT No: 22

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

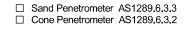
П		Docariation	0		Sam	npling 8	& In Situ Testing						
뮙	Depth	Description of	Graphic Log	Ф				Water	Dy	namic P (blov	enetron	neter ⁻	Test
	(m)	Strata	9.5	Type	Depth	Sample	Results & Comments	>		5 10			20
220	0.05	FILLING - dark brown clayey silt with a trace of basaltic gravel and rootlets			0.0	-,							:
				D	0.2								
		SILTY CLAY - very stiff, red brown silty clay with a trace of ironstone gravel and rootlets			0.2						:		:
	.	- < <n>becoming light brown mottled grey and orange with</n>			0.4								
		- < <n>becoming light brown mottled grey and orange with a trace of shale gravel, MC<pl 0.35m<="" below="" p=""></pl></n>	///	D	0.5				-				
									_				
									-				
} }	0.8	Pit discontinued at 0.8m	<u> </u>										<u>:</u>
┟┟		- << N>limit of investigation							_				
219	-1								-1				
} }									_		:		:
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 218 mAHD

EASTING: 285392

NORTHING: 6208936

PIT No: 23

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

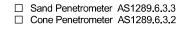
П			Description	l o		Sam	npling &	& In Situ Testing						
귎	Dep	pth	of	Graphic Log	Φ				Water	Dy	namic F	enetro ws per	meter	Test
	(m	ו (י	Strata	ı̈g	Type	Depth	Sample	Results & Comments	>				15	20
2.8			FILLING - light brown clayey silt with a trace of rootlets			0.0	(0)						:	
† †		0.1	(topsoil)		D					-				į
} }			SILTY CLAY - very stiff, brown and grey silty clay with a trace of fine grained sand and rootlets			0.2				_				į
} }				///						_				
} }				1//	D	0.4				-				i
} }				///		0.5				-				
} }										-				:
} }					ĺ					-				
} }				//						-				
} }						0.9				-				
217	- 1			VV	D	1.0				-1				
										-				
			- becoming grey mottled orange, MC <pl 1.1m<="" below="" td=""><td>Y/</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>Ė</td></pl>	Y/						-				Ė
										-				
						1.4				-				
		1.5			D	1.5								
			SANDSTONE - high strength, moderately weathered, grey and brown sandstone with a trace of fine grained sand											
		1.7											<u>:</u>	<u> </u>
		'.'	Pit discontinued at 1.7m											
			- < <n>refusal on high strength sandstone</n>											
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 220 mAHD

EASTING: 285472

NORTHING: 6208922

PIT No: 24

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

			Description	.je		Sam		& In Situ Testing		D	i- D	·	
귙	De _l (m	pth า)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyi	namic Pene (blows p	er mm)	est
220			Strata		É.	_0.0	Sal	Comments			5 10	15 2	20 :
ŀ	-		FILLING - brown clayey silt with a trace of rootlets (topsoil)		D					-			:
ŀ	_	0.2	SILTY CLAY - stiff, red brown silty clay with a trace of			0.2				-			
-	-		SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td>:</td><td>:</td></pl<>							-		:	:
ł	-				D	0.4				-			
İ	-					0.5							
													:
-	-	0.8											
-	-		Pit discontinued at 0.8m - < <n>limit of investigation</n>							-			:
219	- 1									-1			
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218	-2									-2			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW

WATER OBSERVATIONS: No free groundwater observed

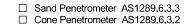
REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



SURVEY DATUM: MGA94 Zone 56



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 226 mAHD

EASTING: 285541 **NORTHING**: 6208912 **PROJECT No: 92269.00**

PIT No: 25

DATE: 13/2/2018

DAIL. 10/2/2010	,
SHEET 1 OF 1	

			Description	.je		Sam		& In Situ Testing	L.	D	i- D		. T4
귙	Depti (m)	th	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyi	namic Pene (blows p	er mm)	rest
226			Strata		Ė.	_ŏ _0.0	Sal	Comments		5	10	15 :	20 :
-	- - - 0	0.3	FILLING - brown clayey silt with a trace of rootlets		D	0.2				-			
-	-		SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel and rootlets		D	0.4				-			
225	- - 1		 becoming red mottled grey below 0.8m becoming grey mottled orange, MC<pl 1.0m<="" below="" li=""> </pl>							-1			
l		1.2											
-	-	1.2	Pit discontinued at 1.2m - < <n>limit of investigation</n>							-			
224	-									-2			
-	-									-			
-	-									-			
223	-3 -									-3 -			
-	-									-			
-	-									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa) A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 230 mAHD

EASTING: 285654 **NORTHING**: 6208918

PIT No: 26

DATE: 13/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

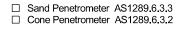
Γ.	Depth	Description	hic B				& In Situ Testing	_ io	Dyn	namic Pen	etromete	er Test
귐	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	5	namic Pen (blows	per mm)	20
230	-	FILLING - light brown silty clay with some shale gravel and a trace of rootlets (possible re-worked natural)		D	0.0	S			-			20
229	- 0.8 - -1 - 1.1	SHALE - high strength, moderately weathered, grey shale							-1			
-	-	- < <n>limit of investigation</n>							-			
228	- 2								-2			
227	- 3 								-3			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 229 mAHD

EASTING: 285637 **NORTHING**: 6208834 **PROJECT No: 92269.00 DATE**: 13/2/2018

PIT No: 27

SHEET 1 OF 1

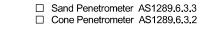
		Description	. <u>o</u>		San	npling	& In Situ Testing		_			
씸	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynar	nic Penet (blows p	romete er mm)	r Test
229		Strata	٥	Ĺ		Sar	Comments		5	10	15	20
	-	FILLING - light brown clayey silt with a trace of rootlets		D	0.0				-			
	- 0.3 - -	SILTY CLAY - stiff, red brown mottled grey silty clay with a trace of ironstone gravel		D	0.4							
228	- - -1	- becoming grey mottled orange with a trace of sandstone gravel and sand, MC <pl 0.9m<="" below="" td=""><td></td><td>D</td><td>0.9</td><td></td><td></td><td></td><td>- - -1</td><td></td><td></td><td></td></pl>		D	0.9				- - -1			
	- 1.2 · - - - 1.6 ·	SANDSTONE - high strength, moderately weathered sandstone with a trace of grey silty clay and fine grained sand	V 1/	D	1.4 1.5				-			
	-	Pit discontinued at 1.6m - < <n>refusal on high strength sandstone</n>							-			
227	-2 - -								-2			
									-			
226	-3 - -								-3 -			
	- - -								-			
-	-								-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 215 mAHD

EASTING: 285554 **NORTHING**: 6208829

PIT No: 28

DATE: 13/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

	T			Description	.je		Sam		& In Situ Testing	_		i- Donat	
8	!	Dept (m)	:h	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows pe	
2.5	1			FILLING - brown clayey silt with a trace of rootlets			0.0	ιχ				5 10	15 20
ŀ	ŀ	0).1	FILLING - brown silty clay with a trace of rootlets		D	0.0				-		
							0.2						
-	ŀ	0).4	SILTY CLAY - stiff, red brown silty clay with a trace of		_	0.4				-		
ŀ	ŀ			shale gravel and rootlets		D	0.5				-		
ŀ	ŀ										-		
ļ	ĺ												
-	-			 becoming grey mottled red with some grey shale gravel, MC<pl 0.8m<="" below="" li=""> </pl>									
212	Ī	1 1	1.0	Pit discontinued at 1.0m - < <n>refusal on high strength sandstone</n>	1/1/						-1		
-	ļ			1 To To To To To To To To To To To To To							-		
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 221 mAHD

EASTING: 285447 **NORTHING**: 6208836

DATE: 13/2/2018

PIT No: 29

SHEET 1 OF 1

PROJECT No: 92269.00

	Dep	a th	Description	hic				& In Situ Testing		Dv	namic Pen	etromete	or Tost
RL	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows	per mm)	20
221	-		FILLING - brown clayey silt with a trace of rootlets (topsoil)		D	0.0	<u> </u>			-			20
	-	0.3	FILLING - brown silty clay with a trace of basaltic gravel, possible charcoal and rootlets		D	0.4				-			
		0.7	SILTY CLAY - stiff, red mottled grey silty clay with a trace of ironstone gravel and rootlets							-			
220	-		- becoming grey mottled red, MC <pl 1.0m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-1 -</td><td></td><td></td><td></td></pl>							-1 -			
	-	1.2	Pit discontinued at 1.2m - < <n>limit of investigation</n>	17, 7						-			
219	- 2 - 2 									-2			
218	- 3 - 3 									-3			
-	-									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 217 mAHD

EASTING: 285375 **NORTHING**: 6208832 **PIT No**: 30

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

		Description	. <u>o</u>		Sam	ıpling (& In Situ Testing					
R	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynam (ic Peneti blows pe	ometer r mm)	· Test
7	(***)	Strata	Ō	<u>F</u>		San	Comments	_	5	10	15	20
2	-	FILLING - brown and grey silty clay with a trace of basaltic gravel and rootlets		D*	0.0				-			
	- 0.3	SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel and rootlets		D	0.4				-			
		- becoming grey mottled red and orange with a trace of			0.5				-			
216	- 1 - 1.1	becoming grey mottled red and orange with a trace of fine grained sand, MC <pl 0.9m="" 1.1m<="" at="" below="" discontinued="" pit="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td><td></td><td></td></pl>							-1			
	- - -	- < <n>limit of investigation</n>										
215	- 2 - 2								- -2 -			
214	-3 -3								-3			
	-								-			
-	-								-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD4/130218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 222 mAHD

EASTING: 285452 **NORTHING**: 6208747

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

PIT No: 31

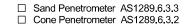
		Description	٥		Sam	ıpling 8	& In Situ Testing						
귒	Depth (m)	of	Graphic Log	e e				Water	Dyr	namic P (blov	enetror vs per r	neter ⁻ nm)	Γest
222	(,	Strata	์ 5	Type	Depth	Sample	Results & Comments	>	Ę				20
22		FILLING - grey brown clayey silt with a trace of basaltic gravel, sand and rootlets (topsoil)		D	0.0				-				
	0.3	SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel	1/	D	0.4				-				
221	- 1	- becoming grey mottled red and orange with a trace of sand, MC <pl 0.75m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>- - -1</td><td></td><td></td><td></td><td></td></pl>							- - -1				
	1.1	Pit discontinued at 1.1m - < <n>limit of investigation</n>	<u> </u>						-				<u>:</u> :
									-				
 									-				
220	-2								-2				
									-				
									-				
219	-3								- -3 -				
- - 									-				
									-				
									-				
									-				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 222 mAHD

EASTING: 285522 **NORTHING**: 6208742 **PROJECT No: 92269.00**

PIT No: 32

DATE: 13/2/2018 SHEET 1 OF 1

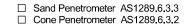
	Depth	Description	hic g				& In Situ Testing	- je	Dvnami	ic Peneti	romete	r Test
R	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	, (I	ic Penetr blows pe	er mm) 15	20
222		FILLING - light brown silty clay with a trace of shale gravel and rootlets		D	0.0	o)				:	-13	:
	_	and rootiets		D	0.2					:	:	
-	_											
-	- 0.4	SILTY CLAY - stiff, light brown mottled red silty clay with a trace of ironstone gravel		D	0.4							
	-	trace of fronstone graver			0.5							
	_	- < <n>becoming red mottled grey, MC<pl 0.7m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl></n>										
-	_	3 3,							-			
221	- - 1								-1			
-	_								-			
	- 1.2 -	Pit discontinued at 1.2m - < <n>limit of investigation</n>	<u> </u>							-	-	
	_	- < <n>imit of investigation</n>							-			
-	_											
	_										:	
	-											
	_											
220	-2								-2			
	_								-		:	
-	_								-			
	_											
-	_											
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-	-								-		:	
219	-3								-3			
	-											
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									[
-	-								-			
	-											
										<u>:</u>	<u>:</u>	

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 223 mAHD

EASTING: 285627

NORTHING: 6208757

PIT No: 33

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

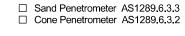
		Description	.0		Sam	ıpling 8	& In Situ Testing					
씸	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynai	mic Pene (blows p	etromete per mm)	· Test
223		Strata	0	F	 0.0	Sar	Comments		5	10	15 :	20
		FILLING - grey brown silty clay with a trace of basaltic gravel and rootlets		D	0.2				-			
	0.4	SILTY CLAY - stiff, red brown silty clay with a trace of basaltic gravel and rootlets		D	0.4				-			
222	-1 1.0-	\ 0.9m							-			
		Pit discontinued at 1.0m - < <n>limit of investigation</n>							-			
									-			
221	-2								-2			
- - 									-			
- - -									-			
220	-3								-3			
 - - - -									-			
									-			
									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 220 mAHD

EASTING: 285546 **NORTHING**: 6208666

DATE: 13/2/2018

PIT No: 34

SHEET 1 OF 1

PROJECT No: 92269.00

	Double	Description	je T		San		& In Situ Testing	<u>_</u>	Dyna	mic Pene	tromete	r Toet
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyria	(blows p	er mm)	1 1031
230		Strata		F	 	Sar	Comments		5	10	15 :	20 :
-		FILLING - light brown silty clay with a trace of basaltic gravel and rootlets		D					-			
					0.2				-			
	-	- becoming brown and orange mottled red below 0.4m		D	0.4 0.5				-			
					0.0							
219	-1			D	0.9 1.0				-1			
-	1.2	FILLING							-			
		FILLING - orange mottled red sandy silty day with a trace of ironstone gravel			1.4							
-				D	1.5				-			
	1.6	SANDSTONE - high strength, moderately weathered sandstone										
-	1.8	Pit discontinued at 1.8m - < <n>refusal on high strength sandstone</n>							-			
218	-2								-2			
-	-											
-									-			
7												
217	-3								-3			
-									-			
-												
									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa) A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 218 mAHD

EASTING: 285501

PROJECT No: 92269.00

PIT No: 35

NORTHING: 6208655 **DATE**: 13/2/2018 SHEET 1 OF 1

		Description	. <u>o</u>		San	npling	& In Situ Testing					
귒	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynam (ic Penet blows pe	romete er mm)	r Test
∞		Strata	9	Ļ		San	Comments		5	10	15	20
2.		FILLING - grey brown silty clay with a trace of shale gravel and rootlets		D*	0.0				-			
	0.5	SILTY CLAY - light brown silty clay with a trace of ironstone gravel and rootlets		D	0.4				-			
217	1	- becoming light brown mottled red below 0.9m		D	0.9				-1			
- - - - -	1.5	- becoming red mottled grey with a trace of fine grained sand, MC~PL below 1.2m		D	1.4				-			
	1.8	SANDSTONE - high strength, moderately weathered, grey							-			
216	2.2	and brown sandstone		D	2.0				-2			
215	3	Pit discontinued at 2.2m - < <n>limit of investigation</n>							-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD5/130218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample (x mm dia.)
U, Tube sample (x mm dia.)
W Water sample
D Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
PD Pocket penetrometer (kPa)

Water seep
S Standard penetration test
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 219 mAHD

EASTING: 285458 **NORTHING**: 6208599

DATE: 13/2/2018

SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 36

Depth of Strata FILLING-gray brown sity class and standstone gravel -baccoming dark brown with a trace of sandstone gravel -baccoming dark		Description	. <u>u</u>		Sam	ıpling 8	& In Situ Testing				
FILLING - grey brown sitiy clay with a trace of sandstone gravel and rootlets (possible re-worked natural) - becoming dark brown with a trace of sandstone gravel below 0.5m - pt discontinued at 0.9m - < <n>refusal on rock) - 1 - 2 - 2 - 2</n>	균 Depth (m)	of	raph Log	jbe	pth	nple	Results &	Wate	Dynamic l (blo	enetromet ws per mm	er Test)
Pit discontinued at 0.9m -< <n>refused and rootets (possible re-worked natural) - becoming dark brown with a trace of sandstone gravel below 0.5m Pit discontinued at 0.9m -<<n>refused on rock) -1 -2</n></n>			O O	È		Sar	Comments		5	10 15	20
- becoming dark brown with a trace of sandstone gravel below 0.5m Pit discontinued at 0.9m - < <n>- refusal on rock) - 1 - 2 - 2</n>		FILLING - grey brown silty clay with a trace of sandstone gravel and rootlets (possible re-worked natural)		D					-		
- Decoming dark brown with a trace of sandstone gravel below 0.5m Pit discontinued at 0.9m - < <n>refusal on rock) - 1 - 2</n>				D							
Pit discontinued at 0.9m -< <n>refusal on rock) - 1 <n>refusal on rock) - 2</n></n>		 becoming dark brown with a trace of sandstone gravel below 0.5m 			G.G						
									-1		
									-		
									-		
									-2		
									-		
									-		
									-3 -		
									-		
									-		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 224 mAHD

EASTING: 285576

NORTHING: 6208544

PIT No: 37

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

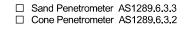
		Description	·ē		Sam		& In Situ Testing	Ļ					
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water		namic P (blov			
224		Strata FILLING - grey brown silty clay with a trace of shale gravel			0.0	Š				5 1	0 1	5	20
ŀŀ		and rootlets		D					-				
					0.2				-				
					0.4								
	0.5			D	0.5				-				
		SILTY CLAY - stiff, red brown silty clay with a trace of fine grained sand and rootlets							-				
-		becoming orange brown mottled red, MC <pl 0.6m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl>							-				
┟┟									-				
_	0.9	SANDSTONE - high strength, moderately weathered	-//						-				
223	-1 1.0	sandstone Pit discontinued at 1.0m	1						1				
		- < <n>limit of investigation</n>											
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} }									-				
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222	-2								-2				
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221	-3								-3				
 													
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}									-				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 222 mAHD

EASTING: 285561 **NORTHING**: 6208427

DATE: 13/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 38

	Da	ملغمد	Description	hic		Sam		& In Situ Testing	_ h	Dyna	mic Pene	atromete	r Toet
씸	(n	pth n)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	5	nmic Pene (blows p		
222			FILLING - dark brown silty clay with a trace of shale gravel		D	0.0	S			-	- IU - : - : - : - : - : - :	15	20
		0.5	SILTY CLAY, your stiff grange mettled gray silts along with		D	0.4 0.5				-			
			SILTY CLAY - very stiff, orange mottled grey silty clay with a trace of fine grained sand										
		0.8	- becoming grey mottled orange, MC <pl -="" 0.7m="" below="" medium="" moderately="" sandstone="" sandstone<="" strength,="" td="" weathered=""><td>/ /</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>	/ /						-			
221	- 1	1.0	Pit discontinued at 1.0m - < <n>limit of investigation</n>	:::::::						-1			
220	-2									-2			
										- -			
										-			
										-			
219	- 3									-3			
2													
										-			
										- -			
										-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: PROJECT:

Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 222 mAHD

EASTING: 285853

NORTHING: 6209392

PIT No: 39

PROJECT No: 92269.00

DATE: 14/2/2018 SHEET 1 OF 1

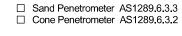
П		Description	U		Sam	npling &	& In Situ Testing						
귇	Depth	of	Graphic Log	Φ				Water	Dyr	namic P (blov	enetron	neter T	est
2	(m)	Strata	ا ق	Туре	Depth	Sample	Results & Comments	>	5				20
222	- 0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	111	D	0.0				-				
		SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets			0.2				-				
		- becoming red brown, MC <pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl>		D	0.4				-				
	0.75	SHALE - medium strength, moderately weathered, grey shale	1/						-				
221	- 0.9 -1	Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1				
									-				
									-				
									-				
220	-2								-2				
									-				
									-				
									-				
									-				
219	-3								-3 -				
 - -									-				
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Ш									:	:	:		<u>: </u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 227 mAHD

EASTING: 285874

NORTHING: 6209280

DATE: 14/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 40

		Description	. <u>o</u>		Sam	pling 8	& In Situ Testing		_	_	
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results &	Water	Dynamic I (blo	Penetrome ws per mi	eter Test n)
	(***)	Strata	ō	L _Z		Sam	Results & Comments			10 15	20
- 23	- 0.09	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	///	D*	0.0						
	-	SILTY CLAY - stiff, light brown silty clay with a trace of shale gravel and rootlets			0.2				-		
	-	- < <n>becoming red brown, MC<pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl></n>		D	0.4				-		
226	- 0.8 - - - 1 1.0 -	SHALE - medium strength, moderately weathered, grey shale							-		
2	-	Pit discontinued at 1.0m - < <n>limit of investigation</n>							_		
	-								-		
-	_								-		
225	- 2								-2		
- :	-								-		
- :	-								-		
-	-								-		
224	-3								-3		
-	_								-		
	-								-		
-	_								-		
-	-								-		
Ч		RCY backboo 300mm bucket			CCE		1		EV DATIM:		•

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD6/140218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 219 mAHD

EASTING: 285949 **NORTHING**: 6209316

PIT No: 41

DATE: 14/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

			Description	. <u>o</u>		Sam	pling 8	& In Situ Testing	1.			
귒	Dep (m	oth	of	Graphic Log)e	ţ	<u>p</u>	Resulte &	Water	Dynamic (blo	Penetror ws per r	neter Test nm)
6	(111)	"	Strata	უ	Туре	Depth	Sample	Results & Comments	>		10 1	
5.6			CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	////	D	0.0	0,			-		
 		0.2	SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets	1/1		0.2				-		
			- becoming red brown below 0.5m		D	0.4				-		
218	- 1		- becoming grey mottled orange, MC <pl 0,8m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td><td></td></pl>							-1		
		1.2	SHALE - medium strength, slightly weathered, grey shale							-		
		1.4								:		
217	-2		Pit discontinued at 1.4m - < <n>limit of investigation</n>							-2		
- - -												
216	-3									-3 -		
- - - - - -												
										-		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



☐ Sand Penetrometer AS1289.6.3.3



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 223 mAHD

EASTING: 286032 **NORTHING**: 6209281 **PIT No**: 42 **PROJECT No: 92269.00**

DATE: 14/2/2018 SHEET 1 OF 1

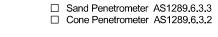
			Description	. <u>o</u>		Sam		& In Situ Testing						
씸	De (n	pth n)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyna	amic Pe (blow	enetron s per r	neter ⁻ nm)	ı est
83			Strata	٥	≥		San	Comments		5	10	15	5 :	20
223			FILLING - dark brown clayey silt with a trace of rootlets (topsoil)		D	0.0				-				
	-	0.2	FILLING - brown silty clay with a trace of shale gravel and rootlets			0.2				-	:			
	-				D	0.4				-				
	-)))					-				
222	- 1		- < <n>becoming red brown below 0.9m</n>		D	0.9				-1				
2.		4.0				1.0								
	-	1.2	SILTY CLAY - firm, orange mottled grey silty clay with a trace of sand and rootlets	1/										
	-				D	1.4				-				
	-		- <n>>becoming grey mottled orange, MC<pl 1.7m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl></n>							-				
221	- 2	2.0	SANDY CLAY - firm, grey mottled orange sandy clay with a trace of sandstone gravel, MC <pl< td=""><td>1.7.7</td><td>D</td><td>2.0</td><td></td><td></td><td></td><td>-2</td><td></td><td></td><td></td><td></td></pl<>	1.7.7	D	2.0				-2				
	-		a trace of sandstone gravel, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>							-				
		2.5	OANDOTONIS LIVE A LA LA LA LA LA LA LA LA LA LA LA LA L		D	2.4 2.5				-				
			SANDSTONE - high strength, moderately weathered, brown and grey sandstone							-				
	-				D	2.9				-				
220	- 3	3.0	Pit discontinued at 3.0m - < <n>limit of investigation</n>	1::::::		-3.0-				3				<u>:</u> :
-										- -				
	-									-				
										ļ -				
	-									-				
														<u>: </u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 216 mAHD

EASTING: 285546 **NORTHING**: 6208666

PIT No: 43

DATE: 14/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

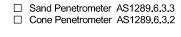
			Description	je T		Sam		& In Situ Testing	<u>_</u>	Dynamic Penetrometer Test
씸	Dep (m) 1)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
2'6	<u> </u>		FILLING - brown silty clay with a trace of shale gravel and rootlets		D	0.0	, Ж			5 10 15 20
	-	0.5	SILTY CLAY - stiff, orange mottled grey silty clay with a trace of fine grained sand and rootlets		D	0.4 0.5				
215	- - - -1				D	0.9				-1 -1
	-		- becoming grey mottled orange, MC <pl 1.5m<="" below="" th=""><th></th><th>D</th><th>1.4 1.5</th><th></th><th></th><th></th><th></th></pl>		D	1.4 1.5				
214	- - - -2	1.7	SANDSTONE - high strength, slightly weathered, grey and brown sandstone		D	1.9				-2
	- - -	2.1	Pit discontinued at 2.1m - < <n>refusal on high strength sandstone</n>	1::::::						
	-									
213	- - 3 -									-3
	-									
	-									

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 223 mAHD

EASTING: 285940 **NORTHING**: 6209234

PIT No: 44 PROJECT No: 92269.00

DATE: 14/2/2018

SHEET 1 OF 1

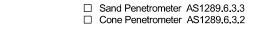
	Depth	Description	hic				& In Situ Testing	-ja	Dyna	mic Pene	tromete	r Test
씸	(m)	of Ot at	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pene (blows p		
223		Strata CLAYEY SILT - light brown clayey silt with a trace of			 	Se			5	10	15	20
-	- 0.1	rootlets (topsoil)		D					-			
-	_	SILTY CLAY - stiff, light brown silty clay with a trace of rootlets			0.2				- :	i	i	:
-	-	- becoming red brown, MC <pl 0.3m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>										
	-			D	0.4					Ė	i	:
	- 0.6				0.5							
-	-	SHALE - medium strength, moderately weathered, grey and brown shale										
ŀ	- 0.8	Pit discontinued at 0.8m								:	-	
222	-	- < <n>limit of investigation</n>										
22	_								['			
-	-								. :	:	i	:
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220	-3								-3			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 232 mAHD

EASTING: 285840

NORTHING: 6209221

PIT No: 45

PROJECT No: 92269.00

DATE: 14/2/2018 SHEET 1 OF 1

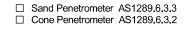
		Description	. <u>o</u>		Sam	ıpling 8	& In Situ Testing	Τ.					
귒	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyı	namic P (blow	enetror vs per r	neter nm)	Test
232	. ,	Strata	Ü	Тy		San	Comments			5 10) 1	5	20
5	. 0.4	FILLING - brown silty clay with a trace of basaltic gravel and construction and demolition material comprising bricks and terracotta tile fragments		D	0.2				- - -				
231		SILTY CLAY - stiff, red brown silty clay with a trace of ironstone and shale gravel, MC <pl< td=""><td></td><td>D</td><td>0.5</td><td></td><td></td><td></td><td>- - - - -1</td><td></td><td></td><td></td><td></td></pl<>		D	0.5				- - - - -1				
	. 1.2-	Pit discontinued at 1.2m - < <n>limit of investigation</n>	<u> </u>						-				
230	-2								-2				
229	-3 -3								-3				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 227 mAHD

EASTING: 285778 **NORTHING**: 6209316

PIT No: 46

DATE: 14/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

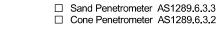
		Description	. <u>S</u>		Sam		& In Situ Testing		.	
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic P (blov	enetrometer Test vs per mm)
12		Strata	O	Ļ		Sar	Comments		5 10	0 15 20
22	-	FILLING - light brown silty clay with a trace of shale gravel and rootlets		D	0.0					
-	- 0.4 - - -	SILTY CLAY - stiff, red mottled grey silty clay with a trace of ironstone gravel and rootlets, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td></td><td></td></pl<>		D	0.4					
, , , , , , , , , , , ,	- 0.8 - - 1 10-	SHALE - medium strength, slightly weathered, grey shale	1/						-	
226	-1 1.0- - - - -	Pit discontinued at 1.0m - < <n>limit of investigation</n>								
225	- 2								-2	
224	-3								-3	

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 225 mAHD

EASTING: 285784 **NORTHING**: 6209162 **PROJECT No: 92269.00 DATE**: 14/2/2018

PIT No: 47

SHEET 1 OF 1

	5 "	Description	je _		Sam		& In Situ Testing		Dunamia Panatromator Taat
R	Depth (m)	of Strate	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	
225	-	Strata SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets	1/1	T	О	Sa	Commonte		5 10 15 20
-	-	- becoming red brown mottled grey, MC <pl 0.4m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>							
224	- - 1 - 1.1-	Pit discontinued at 1.1m							-1
-		- < <n>limit of investigation</n>							
223	- - - 2								-2
-									
, , , , , ,	-3								-3
-									
-	-								

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Geotechnics | Environment | Groundwater

☐ Sand Penetrometer AS1289.6.3.3

Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 229 mAHD

EASTING: 285855 **NORTHING**: 6209156 **PIT No**: 48

PROJECT No: 92269.00

DATE: 14/2/2018 SHEET 1 OF 1

	De _l	epth	Description of	Graphic Log	Sampling & In Situ Testing				Τ.	Durania Danatramatan Tast			
귒					e e	Depth Sample	ble.	Results &	Water	Dynamic Penetrometer Test (blows per mm)			
	ζ	,	Strata	Ō	Туре	Depth	Sam	Results & Comments	>	5	10	15	20
223			FILLING - dark grey roadbase gravel	\times		0.0							- :
† †	-	0.1	FILLING - dark brown silty clay with a trace of shale gravel	XX	D								:
}	-		. ,	\times	-	0.2				- :			
-	-	0.3	SHALE - low strength, moderately weathered, grey shale							}			i
	-		SHALE - low strength, moderately weathered, grey shale	===		0.4				. :			:
	_			===	D	0.5							
	_		 becoming medium strength, dark grey shale with grey mottled orange silty clay bands below 0.5m 										
				E									
Ħ	-			<u> </u>							:	÷	Ė
Ħ	- 1				D	0.9							
228				===		1.0				-1	÷	÷	÷
}	-									<u> </u>			Ė
-	ŀ												:
-	-			===						-			
	-					1.4							
		1.6 -		E==	D	1.5							į
	_												
			SANDSTONE - high strength, highly weathered, brown and grey sandstone							:			
	-									:	i	÷	÷
ŀ	-				D	1.9							
227	-2					2.0				-2	:	÷	Ė
} }	-									}			
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	-					2.4				. :	:	÷	:
	_				D	2.5							÷
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													:
Ī		2.8	Pit discontinued at 2.8m										:
<u> </u>	-		- < <n>refusal on high strength sandstone</n>										
226	-3									-3			
}	-									:	:	÷	:
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

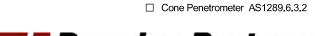
REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



☐ Sand Penetrometer AS1289.6.3.3



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 210 mAHD

EASTING: 285884

NORTHING: 6209109

PIT No: 49

PROJECT No: 92269.00

DATE: 14/2/2018 SHEET 1 OF 1

		Description	Sampling & In Situ Testing Output Ou										
씸	Depth	of of	aphi og	Φ				Water	Dy	namic F (blo	Penetro	meter	Test
	(m)	Strata	9.5	Type	Depth	Sample	Results & Comments	>				15	20
2.10		FILLING - brown silty clay with a trace of shale gravel and			0.0	0,				:	:	<u>:</u>	:
i		rootlets		D					_	:	:	:	:
iŀ	0.25		XX		0.2				-	:	:	:	:
i t		SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel and rootlets, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>:</td><td>:</td><td></td><td></td></pl<>							-	:	:		
i t				D	0.4				_	:	:	:	:
i t	0.5	SHALE - medium strength, slightly weathered, grey shale			0.5				-	:	:		
i t									_	:	:	:	
rŀ									_	:			
ſŀ									-	:	:	:	:
ſŀ	0.9	Pit discontinued at 0.9m								<u>:</u> :	<u>:</u> :	<u>:</u> :	: -
209	1	- < <n>limit of investigation</n>							-1		:		
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 224 mAHD

EASTING: 285955 **NORTHING**: 6209109

DATE: 14/2/2018

PROJECT No: 92269.00

PIT No: 50

SHEET 1 OF 1

	Double	Description	je T		Sam		& In Situ Testing	<u>_</u>	Dynamic	Panatromata	r Tost
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blo	Penetromete ows per mm)	1 1631
224		Strata CLAVEV SILT. light brown clavev silt with a trace of		-		Sa	Comments		5	10 15 : :	20
-	0.08	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)		D*					-		
	-	SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets			0.2						
-	-	- becoming red brown mottled grey below 0.5m		D	0.4						
223	- - 0.9 -1	SHALE - medium strength, slightly weathered, grey shale							-1		
-	- 1.1										
-	-	Pit discontinued at 1.1m - < <n>limit of investigation</n>							ļ <u> </u>		
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD7/140218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 227 mAHD

PIT No: 51 **EASTING**: 285968 **PROJECT No: 92269.00**

NORTHING: 6209040

DATE: 14/2/2018 SHEET 1 OF 1

		Description	. <u>o</u>		Sam	ıpling 8	& In Situ Testing	Τ.				
Ζ	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyna	mic Per blows)	netromet per mm	er Test)
227		Strata	10	F	_0.0	Sar	Comments		5	10	15 :	20
	-	FILLING - dark brown silty clay with a trace of basaltic gravel and rootlets		D	0.0				-			
	- 0.3 - - - -	SILTY CLAY - stiff, light brown and orange mottled red silty clay with a trace of ironstone gravel, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>		D	0.4							
226	-1 1.0 · - - - -	Pit discontinued at 1.0m - < <n>limit of investigation</n>							-1			
225	- 2 -								-2			
224									-3			
	-								-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 204 mAHD

EASTING: 285920

NORTHING: 9209108 **DATE**: 14/2/2018 SHEET 1 OF 1

PIT No: 52

PROJECT No: 92269.00

П			Description	ပ္		Sam	ıpling 8	& In Situ Testing					
귒	Dept (m)	th	of	Graphic Log					Water	Dy	namic P blov)	enetromet vs per mm	er Test ı)
4	(''')		Strata	G.	Type	Depth	Sample	Results & Comments	>		5 10		20
204	(0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	444	D	0.0				-			
}			SILTY CLAY - stiff, light brown silty clay with a trace of rootlets			0.2				-			
-			- becoming brown mottled red with some shale gravel, MC <pl 0.3m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>		D	0.4				-			
	(0.6		/1/		0.5				-			
-			SHALE - medium strength, slightly weathered, grey shale							_			
	(0.8	Pit discontinued at 0.8m - < <n>limit of investigation</n>							_			
203	· 1									-1			
										-			
ŀ													
-										-			
										_			
-										_			
202	· 2									- -2			
										_			
}										-			
										-			
}										_			
										-			
201	3									-3			
										_			
}										-			
-										-			
<u> </u>													
} }										-			
}										-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
P Water level
P Water sample
S Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 232 mAHD

EASTING: 285848 **NORTHING**: 6209064

DATE: 14/2/2018

PROJECT No: 92269.00

PIT No: 53

SHEET 1 OF 1

	D 11		Description	.je _		Sam		& In Situ Testing] <u></u>	Dim	omio Bon	otromot	
귐	Depth (m)	וו	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		amic Per (blows		
232			SILTY CLAY - firm, light brown silty clay with a trace of rootlets	//	Д	0.0	Š			5	10	15	20
			Todies		D	0.2				- :			
			- becoming brown mottled red, MC <pl 0.3m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>							-			
					D	0.4				-			
	0.0	6	SHALE - medium strength, slightly weathered, grey shale	<u> </u>						-			
										-			
	0.9	9-	Pit discontinued at 0.9m										
231	1		- < <n>limit of investigation</n>							-1			
										-			
										-			
										-			
										-			
230	2									-2			
-										-			
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229	2									-3 :			
2	3												
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-													<u>:</u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285768 **NORTHING**: 6209038

DATE: 14/2/2018

SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 54

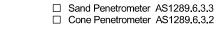
	Description	. <u>Ö</u>		Sam		& In Situ Testing		_	_	. –
로 Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic (blo	Penetron ows per r	neter Test nm)
en	Strata	Ū	Γ	Dep	San	Comments	>		10 1	
- 0.1	FILLING - dark brown clayey silt with a trace of basaltic gravel and rootlets (topsoil)		D	0.0						
-	SILTY CLAY - firm, light brown silty clay with a trace of rootlets			0.2			-			
-			D	0.4			-			
-	- becoming brown mottled red with a trace of shale gravel, MC <pl 0.6m<="" below="" td=""><td>1/</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>	1/					-			
- 28 - 1 1.0 -	Pit discontinued at 1.0m							-1		
	- < <n>limit of investigation</n>									
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-							-			
- 2							-	-2		
-							-			
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- 3							-	-3		
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	CCY hackboo 300mm hucket				ם. אם: יר	<u> </u>		EV DATUM:	• •	

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285746

NORTHING: 6209001

PIT No: 55

PROJECT No: 92269.00

DATE: 14/2/2018 SHEET 1 OF 1

П		Description	. <u>o</u>		Sam		& In Situ Testing						
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyr	namic P (blov	enetror vs per i	meter i	Test
233		Strata	0	Ĺ,	۵	Saı	Comments			5 10) 1	5	20
5	0.01	\FILLING - orange, red and light grey landscaping gravel	$\times\!\!\times$										
Ħ		FILLING - dark brown silty clay with a trace of basaltic	\otimes										
}		gravel	$\otimes \otimes$						-				
} }			$\langle \rangle \rangle$						-				
			$\otimes \otimes$						-				:
	0.5		\boxtimes										:
	0.5	SILTY CLAY - soft, red brown silty clay with a trace of	M										:
		ironstone gravel	M										
Ιt			$\mathbb{Z}_{\mathbb{Z}}$										
┟┟			\mathbb{Z}						-				
} }			X/X						-				
232	-1 10	- becoming red mottled grey with a trace of sandstone gravel and sand, MC <pl 0.9m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td><u>:</u></td></pl>							1				<u>:</u>
		Pit discontinued at 1.0m											:
		- < <n>limit of investigation</n>											
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231	-2								-2				:
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230	-3								-3				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285690

NORTHING: 6208994

PIT No: 56

PROJECT No: 92269.00

DATE: 12/2/2018 SHEET 1 OF 1

		Description	.일		Sam		& In Situ Testing				
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	ynamic blc)	Penetrome ows per mm	.er i est i)
233		Strata FILLING - light brown silty clay with a trace of basaltic gravel and construction and demolition material comprising bricks and terracotta tiles		É.	ă	Sal	Comments		5	10 15	20
	0.3	SILTY CLAY - very stiff, red brown silty clay with a trace of shale gravel, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>									
		State graver, INO VI E									
	0.7	Pit discontinued at 0.7m - < <n>limit of investigation</n>	1/_/						-		
232	-1								-1		
									-		
									-		
231	-2								-2		
									-		
									-		
230	-3								-3		
 - - -									-		
-									-		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285692

NORTHING: 6208971

PIT No: 57

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

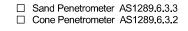
		Description	je _		Sam		& In Situ Testing		Dyma	mio Bono	stromoto	r Toot
씸	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pene (blows p		
233		FILLING - brown silty clay with a trace of basaltic gravel		· ·	0.0	Ø			5	10	15	20
				D	0.2							
	- 0.3	SILTY CLAY - firm, red brown silty clay with a trace of			0.2				-			
-	-	shale gravel			0.4				-			
	-		///		0.5				-			
	- 0.7											:
-		SHALE - low strength, highly weathered, grey shale with a trace of red brown silty clay										
-	-	Pit discontinued at 0.8m - < <n>limit of investigation</n>							-			
232	-1	-							-1			
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-	-								-			
-	-											
231	-2								-2			
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230	-3								-3			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 234 mAHD

EASTING: 285702 **NORTHING**: 6208980

PIT No: 58

PROJECT No: 92269.00

DATE: 13/2/2018 SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing		Dvn	amic Pe	enetron	neter T	est
씸	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		amic Pe (blow			
234	0.01	\FILLING - dark grey roadbase gravel	XX		0.0	Ø			5	10	15	. 2	0
-		FILLING - dark brown silty clay with a trace of basaltic gravel		D	0.2				-				
	- 0.3 - - -	SILTY CLAY - stiff, red mottled grey silty clay with a trace of shale gravel and rootlets, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>		D	0.4				-				
-	- 0.7 - 0.8	SHALE - medium strength, moderately weathered, grey shale							-				
233	-1 -1	Pit discontinued at 0.8m - < <n>limit of investigation</n>							-1				
232	2 2 								-2				
231									-3				
-	-								-				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)
W Water level
V Shear vane (kPa)



☐ Sand Penetrometer AS1289.6.3.3



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 234 mAHD

EASTING: 285775 **NORTHING**: 6209008

PIT No: 59

DATE: 14/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

	David	41-	Description	ا ا ا		Sam		& In Situ Testing	<u></u>	Dynamic F	Ponetromete	r Toet
R	Dept (m)	tn	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blo	Penetromete ws per mm)	1 1651
234	0.	.01	Strata \[\int ILLING - orange, red and light grey landscaping gravel \[\int \]		Ε.	 	Sa	Comments		5 1	0 15	20
+	-		FILLING - dark brown silty clay with a trace of basaltic	\bowtie	D					-		:
-	- (0.2	gravel	$\times \times \times$		0.2				-		
+	-		SILTY CLAY - soft, red silty clay with a trace of ironstone gravel									
ŀ	-				D	0.4				- :		:
ŀ	-			/1/		0.5				-		
			- becoming red mottled grey, MC <pl 0.6m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>									
	- (0.9										:
233			Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1		
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232	-2									-2		
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231	-3									-3		
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285766 **NORTHING**: 6208942 **PROJECT No: 92269.00 DATE**: 14/2/2018

PIT No: 60

SHEET 1 OF 1

П		Description	. <u>o</u>		Sam	ıpling 8	& In Situ Testing					
묍	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynar	mic Penet (blows pe	rometer er mm)	Test
ಜ	. ,	Strata	Ŋ	Тy		San	Comments		5	10	15	20
23	0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)		D*	0.0							
		SILTY CLAY - stiff, light brown silty clay with a trace of shale gravel and rootlets			0.2							
		- becoming red brown mottled grey below 0.3m		D	0.4				-			
					0.5							:
ļ. ,												
		- becoming grey mottled orange, MC <pl 0.8m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>							-			
232	0.95 - 1	Pit discontinued at 0.95m - < <n>limit of investigation</n>							-1			
									-			
-									-			
231	-2								-2			
									-			
230	- 3								-3			
2									-			
									-			
									-			
									-			
											<u>: </u>	<u>:</u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD8/150218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 228 mAHD

EASTING: 285846 **NORTHING**: 6208934

PIT No: 61

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

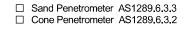
			Description	.≌		San		& In Situ Testing	L				- .
귙	Depth (m)	1	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyi	namic Per (blows	per mm	er i est)
228			Strata		É.	0.0	Sal	Comments			10	15	20
ŀ	-		FILLING - light brown silty clay with a trace of shale gravel and rootlets (possible re-worked natural)		D					-		i	
ŀ	_					0.2				-			
ŀ	-									-			
ŀ	- 0.	.4	SILTY CLAY - stiff, red brown mottled grey silty clay with a trace of shale gravel, MC <pl< td=""><td>XXX</td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td>Ė</td><td></td></pl<>	XXX	D	0.4				-		Ė	
ŀ	_		trace of shale gravel, MC <pl< td=""><td></td><td></td><td>0.5</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>			0.5				-			
ŀ	-												
Ī												i	
	0.					0.9							
27	- 1		SHALE - low strength, slightly weathered, grey shale		D	1.0				-1		:	
	-											i	
-	-									-			
-	-									-		i	i
ŀ	-				D	1.4				-			
ŀ	-					1.5				-			
ł	-		- becoming medium strength, moderately weathered, grey							-		i	
ŀ	_		shale below 1.6m							-			
İ	-											:	
ا و	-2		 becoming high strength, extremely weathered, grey shale with grey silty clay bands below 1.9m 		D	1.9 2.0				-2		į	
22	- 2.	1		===		2.0							
-	-		Pit discontinued at 2.1m - < <n>refusal on high strength shale</n>							-			
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ŀ	-									-			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 239 mAHD

EASTING: 285973

NORTHING: 6208921

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 62

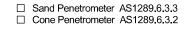
	D 41-	Description	oic 1		Sam		& In Situ Testing	<u>_</u>	Dynami	c Panatro	motor T	oet
씸	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		c Penetro lows per		
239		CLAYEY SILT - red brown clayey silt with a trace of rootlets (topsoil)	////		0.0	Š			5	10	15 2	0
-	-	rootlets (topsoil)		D					-			
	- 0.3				0.2							
	- 0	SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel, MC <pl< td=""><td></td><td></td><td>0.4</td><td></td><td></td><td></td><td>. :</td><td></td><td></td><td></td></pl<>			0.4				. :			
-	_			D	0.5				-			
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-	_		/1/									
	_								-			
38	-1 1.0								1			
-	-	Pit discontinued at 1.0m - < <n>limit of investigation</n>							-			
-	-								-			
-	_								-			
	_								-			
-	-								-			
-	-								-			
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237	-2								-2			
-	-								-			
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236	-3								-3			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 244 mAHD

EASTING: 285961 **NORTHING**: 6208831 **PIT No**: 63

PROJECT No: 92269.00

DATE: 15/2/2018 SHEET 1 OF 1

		Description	. <u>u</u>		Sam	ıpling 8	& In Situ Testing					
뮙	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyn	amic Per (blows	netromete per mm)	er Lest
244		Strata	O	È		San	Comments		5	10	15	20
5	0.15	FILLING - light brown clayey silt with a trace of shale gravel (topsoil)		D	0.0				-			
		SILTY CLAY - stiff, light brown silty clay with a trace of rootlets			0.2							
-		- becoming red mottled grey below 0.3m			0.4				-			
-				D	0.5				-			
-										i		
243		- becoming grey mottled red with a trace of shale gravel, MC <pl 0.9m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td><td></td><td></td></pl>							-1			
	1.1	Pit discontinued at 1.1m - < <n>limit of investigation</n>	1/1/									
-									-			
-									-			
-									-			
242	-2								-2			
	-											
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-									-			
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241	-3								-3			
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}									. :	:		
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}									. :	i		
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 235 mAHD

EASTING: 285870 **NORTHING**: 6208838

PIT No: 64

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

	Donth	Description	hic E				& In Situ Testing	<u></u>	Dynami	c Panet	romete	r Toet
뭅	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynami (t	lows pe	er mm)	1 1031
235		Strata	10	r		Sar	Comments		5	10	15	20
2	0.11	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)		D	0.0							
-	0.11	SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets, MC <pl< td=""><td></td><td></td><td>0.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>			0.2							
	-	- becoming red brown silty clay below 0.4m		D	0.4 0.5							
	-											
-8	-1 1.0								1			
2	-	Pit discontinued at 1.0m - < <n>limit of investigation</n>										
	-											
-	-								-			
33	- - - 2								-2			
- 2	-								-			
-	-								-			
-	-								-			
	-											
232	-3 -								-3			
-	-											
-	-								-			
	-											
	-								-	:		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 203 mAHD

EASTING: 285750 **NORTHING**: 6208850

PIT No: 65

PROJECT No: 92269.00

DATE: 15/2/2018 SHEET 1 OF 1

	Dept	th	Description	g g				& In Situ Testing	je j	Dyi	namic P (blov	enetror	meter 1	est
귐	(m)		of Charte	Graphic Log	Туре	Depth	Sample	Results & Comments	Water					
203			Strata CLAYEY SILT - light brown clayey silt with a trace of			0.0	Š				5 1	0 1	5 2	20
ŀ	0.	.08	\rootlets (topsoil)		D					-				
}	-		SILTY CLAY - stiff, light brown silty clay with a trace of rootlets			0.2				-				
ŀ	-		- Sound							-				
ŀ	-		- becoming red mottled brown below 0.4m		D	0.4				-				:
ŀ	_					0.5				-				:
ŀ	-									-				:
ŀ	_									-				
ļ	- (0.9	- becoming red mottled grey with some shale gravel, MC <pl 0.8m<="" below="" td=""><td>//</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl>	//						-				
202	ı		Pit discontinued at 0.9m							-1				
}	-		- < <n>limit of investigation</n>							-				:
}	-									-				:
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

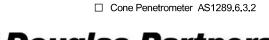
REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



☐ Sand Penetrometer AS1289.6.3.3



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 229 mAHD

EASTING: 285768 **NORTHING**: 6208736

PIT No: 66

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

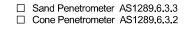
П		Description	.0		Sam		& In Situ Testing	Τ,	_		
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic (blo	Penetrometows per mm	er Test
6	()	Strata	Ō	Ту		San	Comments			10 15	20
228		FILLING - dark brown and red silty clay with a trace of basaltic gravel, sand and rootlets		D	0.0				-		
 				D	0.4						
228	1			D	1.0				- -1		
	1.5				1.2						
	1.5	SILTY CLAY - stiff, red mottled grey silty clay, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl<>							-		
227	2.1	Pit discontinued at 2.1m	1/						-2		
 		- < <n>Iimit of investigation</n>									
226	3								-3		
									-		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 236 mAHD

EASTING: 285862 **NORTHING**: 6208717

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 67

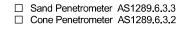
	Double	T	Description	je T		Sam		& In Situ Testing	_ h	Dv	namic Po	notromo	tor Tost
R	Depth (m)	וו	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	р	namic Pe (blows	per mn	n)
236			Strata	٥	1		Sar	Comments		:	5 10	15	20
23		1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)		D	0.0				-			
-	-		SILTY CLAY - stiff, brown silty clay with a trace of ironstone gravel and rootlets			0.2				-			
- 1	-		- becoming red brown mottled grey, MC <pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>		D	0.4				-			
	-			1/1						_			
	-									_			
235	-1 1.	ᆘ	Pit discontinued at 1.0m	r 1/ 1						1-1		:	
ŀ	-		- < <n>limit of investigation</n>							-			
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234	-2									-2			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 248 mAHD

EASTING: 285926 **NORTHING**: 6208689 **PIT No**: 68

PROJECT No: 92269.00

DATE: 15/2/2018 SHEET 1 OF 1

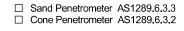
П			Description	. <u>o</u>		Sam	pling 8	& In Situ Testing	Ι.					
R	Dep (m	pth	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dy	namic F (blo	Penetro ws per	meter mm)	Test
248			Strata		Ĺ	0.0	Sar	Comments			5 1	0	15	20
}			FILLING - light brown silty clay with a trace of shale gravel		D					-				
} }			 becoming grey mottled orange with some shale gravel (possible re-worked natural) below 0.1m 			0.2				_				•
										-				
}					D	0.4				-				
<u> </u>						0.5				-				•
		0.6	SHALE - medium strength, slightly weathered, grey shale							-				
											:		:	:
														•
247	- 1									-1				
2											:	:	:	:
										-				
										-				
} }		1.4	Pit discontinued at 1.4m	<u> </u>							<u>:</u>	<u>:</u>	<u>: </u>	:
}			- <n>limit of investigation</n>							-				
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246	-2									-2	:		:	į
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245	- 3									-3				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 239 mAHD

EASTING: 285916 **NORTHING**: 6208687 **PIT No**: 69

PROJECT No: 92269.00

DATE: 15/2/2018 SHEET 1 OF 1

		Description	. <u>u</u>		Sam	npling &	& In Situ Testing		_			
Ζ	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyna	amic Pen (blows	etromete per mm)	r Test
239		Strata	٥	Ļ		Sar	Comments		5	10	15	20
[2]		SILTY CLAY - stiff, light brown silty clay with a trace of shale gravel and rootlets		D	0.0							
		- becoming red brown mottled grey below 0.1m			0.2							
					0.2					:		
	0.4	- becoming grey mottled red, MC <pl 0.3m<="" below="" td=""><td></td><td>!</td><td>0.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>		!	0.4							
	0.4	SHALE - medium strength, moderately weathered, grey shale		D	0.5							
		Silate			0.5							
	-											
	-											
[_												
238	-1 1.0	Pit discontinued at 1.0m										
	-	- < <n>limit of investigation</n>								:	i	i
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237	-2								-2			
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236	-3								-3	i		
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 235 mAHD

EASTING: 285871 **NORTHING**: 6208643

PIT No: 70

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

		Description	<u>.</u>		Sam	pling 8	& In Situ Testing				
చ	Depth (m)	of	Graphic Log	ě	Ę	<u>ble</u>	Populto 9	Water	Dynamic (blo	Penetron	neter Test nm)
	(111)	Strata	ng	Туре	Depth	Sample	Results & Comments			10 15	
235	0.07	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	77/7	D*	0.0	0)			- :		:
		SILTY CLAY - stiff, light brown silty clay with a trace of ironstone gravel and rootlets			0.2				-		
		- becoming red brown mottled grey, MC <pl 0.5m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl>		D	0.4				-		
	0.85	Division in a 1,100F							-	<u> </u>	:
234	-1	Pit discontinued at 0.85m - < <n>limit of investigation</n>							-1 -1		
									-		
									-		
233	-2								-2		
									-		
									-		
232	-3								-3		
									-		
									-		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD9/150218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 229 mAHD

EASTING: 285769 **NORTHING**: 6208657 **PIT No:** 71

PROJECT No: 92269.00

DATE: 15/2/2018 SHEET 1 OF 1

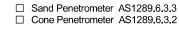
		Description	ပ		Sam	npling &	& In Situ Testing						
귇	Depth (m)	of	Graphic Log	e e	oth	<u>bl</u> d	Results &	Water	Dy	namic P blow	enetro	meter mm)	Test
223	(,	Strata	Ō	Туре	Depth	Sample	Results & Comments	>	:	5 1		5	20
2	0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)		D	0.0								
		SILTY CLAY - stiff, red brown silty clay with a trace of rootlets			0.2				-				
		- becoming red brown mottled grey below 0.6m		D	0.4				-				
228	1			D	0.9				- - -1				
				D	1.4 1.5				-				
227	2	- becoming grey mottled red and orange with some shale gravel, MC <pl 1.8m<="" below="" td=""><td></td><td>D</td><td>1.9</td><td></td><td></td><td></td><td>- -2 -</td><td></td><td></td><td></td><td></td></pl>		D	1.9				- -2 -				
	2.7	SHALE - medium strength, moderately weathered, grey		D	2.4				-				
226	·3 3.1	shale with grey silty clay bands		D	2.9				- - -3				
	5.1	Pit discontinued at 3.1m - < <n>Iimit of investigation</n>							-				
									-				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 225 mAHD

EASTING: 285672 **NORTHING**: 6208648 **PROJECT No: 92269.00 DATE**: 15/2/2018

PIT No: 72

SHEET 1 OF 1

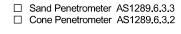
	Donth	Description	hic L				& In Situ Testing	_ io	Dyn	amic Pene	tromete	r Test
묍	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		amic Pene (blows p		
225	_	FILLING - dark brown clayey silt with a trace of basaltic gravel and rootlets (topsoil)		D	0.0	Š			- :	10	15	20
-	- 0.3 - - -	SILTY CLAY - stiff, red brown mottled grey silty clay, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>		D	0.4							
-	- - - 0.9	Pit discontinued at 0.9m							-			
224	-1	- < <n>limit of investigation</n>							-1 -			
-	-								-			
-	-								- -			
223	- -2 -								-2			
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222	- 3 - -								-3			
-	-								- -			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 225 mAHD

EASTING: 285663

NORTHING: 6208563

PROJECT No: 92269.00 DATE: 15/2/2018

PIT No: 73

SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing	- io	Dvr	namic P	enetron	neter T	est
占	(m)	of Otata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		namic Po (blow			
225		Strata FILLING - dark brown clavey silt with a trace of basaltic	XXX		0.0	Š			5	10	15	5 2	20 :
ŀ	0.11	FILLING - dark brown clayey silt with a trace of basaltic gravel and rootlets (topsoil)		D					-				
ŀ	-	SILTY CLAY - stiff, light brown silty clay with a trace of rootlets		 	0.2				}	i			:
ŀ	-								-				
t	-	- becoming red brown mottled grey, MC <pl 0.4m<="" below="" td=""><td>//</td><td>D</td><td>0.4</td><td></td><td></td><td></td><td> </td><td></td><td></td><td></td><td></td></pl>	//	D	0.4								
İ	-				0.5					i			:
	- 0.8												
-	- 0.0	Pit discontinued at 0.8m - < <n>limit of investigation</n>								i	i		:
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 228 mAHD

EASTING: 285778 **NORTHING**: 6208551

DATE: 15/2/2018

PIT No: 74

SHEET 1 OF 1

PROJECT No: 92269.00

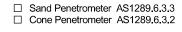
		Description	.≌		Sam		& In Situ Testing					<u> </u>
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyna	mic Pene (blows p	er mm)	ı i est
228		Strata		<u> </u>	ŏ 0.0	Sa	Comments	-	5	10	15	20
-	-	FILLING - dark brown clayey silt with a trace of basaltic gravel and rootlets (topsoil)		D					-	:	i	i
-	_			-	0.2				-			
-	- 0.3	SILTY CLAY - stiff, light brown silty clay with a trace of							-			
-	-	rootlets		D	0.4				-			
	-	 becoming red brown mottled grey with a trace of shale gravel, MC<pl 0.5m<="" below="" li=""> </pl>	1/		0.5							
		gravel, MC <pl 0.5m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>										
	- 0.8											
	- 0.0	Pit discontinued at 0.8m - < <n>limit of investigation</n>							. :		:	:
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

SURFACE LEVEL: 226 mAHD

EASTING: 285683

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 75

NORTHING: 6208442 Janderra Lane, Wilton, NSW

		Description	.je		Sam		& In Situ Testing		Director	nic Penet		. T 4
뭅	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynai	(blows pe	rometer er mm)	rest
226		Strata	0	T	 0.0	Sar	Comments		5	10	15 :	20
2	_	FILLING - dark brown clayey silt with a trace of basaltic gravel and rootlets (topsoil)		D					-			
	- 0.2	SILTY CLAY - stiff, light brown silty clay with a trace of	///		0.2							
		rootlets - becoming red mottled grey below 0.3m	///		0.4							
				D	0.4							
					0.5							
-	- 0.8	 becoming grey mottled red with a trace of shale gravel, MC<pl 0.7m<="" below="" li=""> </pl>										
ŀ	-	Pit discontinued at 0.8m							-	:	i	
225	- 1	- < <n>limit of investigation</n>							-1		į	
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Grass slightly scorched from grass fire; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 213 mAHD

EASTING: 286165 **NORTHING**: 6209327 **PIT No**: 76 **PROJECT No: 92269.00**

DATE: 15/2/2018 SHEET 1 OF 1

		Description	.e		Sam		& In Situ Testing		D) m	amic Pene	tromoto	or Toot
씸	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows p	er mm))
2.3	-	FILLING - light brown silty clay with a trace of sand, sandstone cobbles and rootlets (possible re-worked natural)		D	0.0	Š			-	10	15	20
-	0.4	SILTY CLAY - stiff, red mottled orange silty clay with a trace of sand and rootlets		D	0.4				-			
-		SANDSTONE - low strength, moderately weathered, brown sandstone	1/						-			
212	-1	Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1			
211	-2								-2			
210	-3								-3			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
P Water level
P Water sample
S Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 211 mAHD

EASTING: 286275 **NORTHING**: 6209302

PIT No: 77

DATE: 15/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

	Da:-#	Description	ы Б -				& In Situ Testing	_ <u>_</u>	Dunam	c Penetr	ometer	Toet
R	Depth (m)	Ol	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(Jyriaili	olows pe	r mm)	ı cət
-		Strata	U A	T		Sar	Comments		5	10	15	20
2	- 0.2	FILLING - dark brown clayey silt with a trace of sand, shale gravel and rootlets		D	0.0							
	. 0.2	SILTY CLAY - stiff, red silty clay with a trace of rootlets			0.2							
	-	- becoming orange mottled red below 0.5m		D	0.4 0.5							
210	- -1 -			D	0.9				-1			
	· ·	- becoming grey mottled orange with some sand and a trace of sandstone gravel, MC <pl 1.3m<="" below="" td=""><td></td><td>D</td><td>1.4 1.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>		D	1.4 1.5							
209	- 1.9 -2 - 2.2	SANDSTONE - high strength, moderately weathered, brown sandstone with some fine grained grey and orange sand	/1/1	D	1.9 2.0				-2			
	- - - -	Pit discontinued at 2.2m - < <n>refusal on high strength sandstone</n>										
208	-3 -3								-3			
-	-									:		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 210 mAHD

EASTING: 286310 **NORTHING**: 6209318 **PIT No**: 78

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

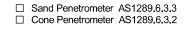
	D "	Description	.je _		Sam		& In Situ Testing] <u>.</u>	Dyma	mio Pon	atromoto	
귐	Depth (m)	of Charles	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pene (blows)		
2.0		Strata FILLING - dark brown clayey silt with a trace of sand and	XXX	-	0.0_	ပိ			5	10	15	20
} }		rootlets (topsoil)		D					-			
					0.2				-			
										:	Ė	
				D	0.4							
					0.5					:	Ė	:
	0.7		\bigotimes						- :			
	0.8	FILLING - dark brown silty clay with a trace of sand, sandstone cobbles and rootlets							- :	:		
} }		SANDY SILTY CLAY - soft, orange mottled grey sandy silty clay with a trace of sandstone gravel							-			
209	- 1	only oldy with a trace of callactoric graver							-1		Ė	i
} }									-			
										Ė	Ė	Ė
Ħ	1.4	- becoming grey mottled orange, MC~PL below 1.3m			1.4							
	1.4	SANDSTONE - high strength, moderately weathered, grey and brown sandstone		D	1.5							
	1.6											<u> </u>
		Pit discontinued at 1.6m - < <n>refusal on high strength sandstone</n>							-			
} }									-			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 209 mAHD

EASTING: 286243 **NORTHING**: 6209275

DATE: 15/2/2018 SHEET 1 OF 1

PIT No: 79

PROJECT No: 92269.00

	Janderra Lane, Wilton, NSW							SHEET	「 1 OI	= 1	
Donth	Description	hic				In Situ Testing	k	Duna	mic Pene	atromato	r Toc
Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyna	(blows p	per mm)	1 168
	Strata		<u></u> –	0.0	Saı	Comments		5 :	10 :	15	20 :
_	FILLING - red mottled grey silty clay with a trace of sand, rootlets and sandstone boulders (possible re-worked		D	0.0				. :	:	į	
	natural)			0.2							
				"							
0.4				0.4					•		
0.4	SILTY CLAY - soft, orange mottled grey silty clay with some sand and sandstone cobbles, MC~PL	///	D	0.5							
	Some sand and sandstone copples, MC TE			0.5							
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0.9	Pit discontinued at 0.9m										
· 1	- < <n>limit of investigation</n>							-1 :	:	:	i
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U, Tube sample (x mm dia.)
W Water sample
D Water seep
P Water seep
Water level
P Water sample
S Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 194 mAHD

EASTING: 286207 **NORTHING**: 6209222 **PIT No**: 80

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

	- ·	Description	.je		Sam		& In Situ Testing		Dime	umia Dan	atrom ata	
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pen (blows		
194		Strata FILLING - brown clayey silt with a trace of rootlets and	XX	 	 	SS	- Commonte		5	10	15	20
		shale gravel		D*	0.2				-			
	0.3	SILTY CLAY - stiff, brown mottled red silty clay with a trace of sand		D	0.4 0.5				- - -			
193	1	- < <n>becoming orange mottled red and grey, MC<pl 0.7m<="" below="" td=""><td></td><td>D</td><td>0.9</td><td></td><td></td><td></td><td>- - -1</td><td></td><td></td><td></td></pl></n>		D	0.9				- - -1			
 	1.2-	SANDSTONE - high strength, slightly weathered, grey sandstone with grey mottled orange silty clay bands and a trace of sand		D	1.4 1.5							
192				D	1.9				-2			
	2.1	Pit discontinued at 2.1m - < <n>refusal on high strength sandstone</n>							-			
- 191	3								-3			
									-			:

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD10/160218 collected; Soil strengths based on tactile assessment

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

			-1140	G III OII I
Α	Auger sample		G	Gas sample
В	Bulk sample		Р	Piston samp
BLK	Block sample		U,	Tube sample
С	Core drilling		WÎ	Water samp
D	Disturbed sample			Water seep
E	Environmental sar	nple	¥	Water level

SAMPLING & IN SITU TESTING LEGEND

G Cas sample
P Piston sample (xmm dia.)
W Water sample (xmm dia.)
W Water seep
Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 209 mAHD

EASTING: 286322 **NORTHING**: 6209266

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

PIT No: 81

Г		Description	. <u>e</u>		San		& In Situ Testing			. 5		- .
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyna	mic Pene (blows p	etromete er mm)	r lest
209		Strata	0	ſ	 	Sar	Comments		5	10 :	15 :	20
Ι"	-	FILLING - brown silty clay with a trace of rootlets, sand, sandstone cobbles and grey mottled orange silty clay (possible re-worked natural)	\bowtie	D	0.0				-			
ŀ	-	(possible re-worked natural)			0.2				-			
-	-		\bowtie						-	:	:	
ŀ	-		\bowtie	D	0.4				-	i	i	į
-	-			<u> </u>	0.5							
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208				D	0.9				. :	:	:	i
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	_		\bowtie									
	- 1.	3	\bowtie						. :	:	:	
-	-	FILLING - dark grey and brown silty clay with a trace of sandstone gravel and sand (possibly washed in over time)			1.4					:		
-	-		\bowtie	D	1.5				-			
-	- 1.	SANDY SILTY CLAY - soft, grey mottled grange sandy							- :	:	:	
-	_	SANDY SILTY CLAY - soft, grey mottled orange sandy silty clay with some sandstone gravel, MC~PL							-	i	i	į
ŀ	_								-			
ŀ	-											
207	-2 2. - 2.	SANDSTONE - high strength, moderately weathered, brown sandstone	////						-2			
-	-	Pit discontinued at 2.1m							-			
-	-	- < <n>refusal on high strength sandstone</n>							-			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 194 mAHD

EASTING: 286366 **NORTHING**: 6209125

PIT No: 82

DATE: 16/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

			Description	. <u>5</u>		Sam		& In Situ Testing		Dimani	- Danatus	T	
R	Dep (m	oth)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(b	c Penetro lows per	mm)	esi
194			Strata		Ε'	 	Saı	Comments		5	10 -	15 20)
	-		FILLING - dark brown clayey silt with a trace of rootlets and sandstone gravel		D	0.0				-			
	- -).25	SILTY CLAY - stiff, red mottled orange silty clay with a trace of rootlets	1/1	D	0.4				-			
	-		- becoming red mottled orange and grey, MC <pl 0.5m<="" below="" td=""><td></td><td></td><td>0.5</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>			0.5				-			
		0.8											
193	-	0.6	Pit discontinued at 0.8m - < <n>limit of investigation</n>							-1			
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191	-3 -									-3			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 217 mAHD

EASTING: 286292 **NORTHING**: 6209170 **PIT No**: 83

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

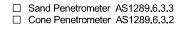
П		Description	o		Sam	ıpling 8	& In Situ Testing					
R	Depth (m)	of	Graphic Log	e e				Water	Dyn	amic Pe (blow	enetrom	eter Test im)
	(111)	Strata	Ď	Туре	Depth	Sample	Results & Comments	>	5			
5.	0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	11/1/	D	0.0				-			
		SILTY CLAY - stiff, light brown silty clay with a trace of rootlets			0.2				-			
-		Toolleis							-	i	i	
		- becoming red brown with a trace of sandstone gravel below 0.4m		D	0.4				-			
		pelow 0.4III			0.5							
									- :	:	i	
		- becoming red mottled grey with a trace of sandstone gravel, MC <pl 0.8m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>i</td><td></td><td></td></pl>							-	i		
216		Pit discontinued at 0.9m	V 17						-1	:		
2	.	- < <n>limit of investigation</n>							:	i	i	
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 222 mAHD

EASTING: 286201 **NORTHING**: 6209119 **PIT No**: 84

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

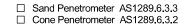
	Danth	Description	Graphic Log	Sampling & In Situ Testing				Dynamic Penetrometer Test				
Ζ	Depth (m)	of		Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)			
222		Strata	10	ŕ	 	Sar	Comments		5	10	15	20
-	-	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)		D					-			
	- 0.2 -	SILTY CLAY - stiff, light brown silty clay with a trace of rootlets and ironstone gravel	1/		0.2				-			
-	-	hazarrina vad husum MC cDI halau 0 Fra		D	0.4 0.5				- -			
	-	- becoming red brown, MC <pl 0.5m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>							-			
-	- 0.8	Pit discontinued at 0.8m	1//									
221	- - 1	- < <n>limit of investigation</n>							-1			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 218 mAHD

EASTING: 286070 **NORTHING**: 6209131 **PIT No**: 85

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

		Description	. <u>S</u>		Sam		& In Situ Testing					<u> </u>
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyna	mic Pene (blows p	erromete per mm)	rıest
2.8		Strata		F		Sar	Comments		5	10 :	15 :	20
		FILLING - light brown clayey silt with a trace of rootlets and sandstone gravel		D	0.0				-	÷	i	
	-	-	\otimes		0.2				-	i	i	
	- 0.3								-	:	i	
		SILTY CLAY - stiff, red brown silty clay with a trace of rootlets			0.4				-	:		
	-			D	0.5				-		į	
-									-		i	
		- becoming red mottled grey below 0.6m							. :			
-	- 0.8	Division of the control of the contr	1//							<u> </u>		
-	.	Pit discontinued at 0.8m - < <n>limit of investigation</n>							-	:	:	
217	-1	Ü							-1			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 86

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

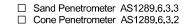
П		Description	U		Sam	ıpling 8	& In Situ Testing						
씸	Depth	of	Graphic Log	a)				Water	Dy	namic F (blo	Penetro	ometer	Test
	(m)	Strata	Gr.	Туре	Depth	Sample	Results & Comments	>				15	20
H		TOPSOIL - brown silty clay with rootlets	XX	D	0.0	(I)				:	:	:	:
1 -	0.1	SILTY CLAY - hard, brown silty clay with rootlets, MC <pl< td=""><td>1/1</td><td></td><td>0.1</td><td></td><td></td><td></td><td>-</td><td>:</td><td></td><td></td><td></td></pl<>	1/1		0.1				-	:			
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	0.4	SILTY CLAY hard rad brown mattled grow eithy alove with	1/	_	0.4				-	:		:	:
		SILTY CLAY - hard, red brown mottled grey silty clay with a trace of rootlets, MC <pl< td=""><td></td><td>D D</td><td>0.5</td><td></td><td></td><td></td><td>-</td><td>:</td><td></td><td>:</td><td></td></pl<>		D D	0.5				-	:		:	
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		 becoming orange brown mottled grey with orange grey shale 								:			
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	1.4									:			
		SHALE - extremely low strength, extremely weathered, grey and orange shale		D	1.5					:		:	i
		grey and orange shale			1.5					:			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: CLN SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 87

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

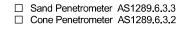
		Description	. <u>o</u>		Sam	ıpling 8	& In Situ Testing						
귒	Depth (m)	of	Graphic Log	Type	Depth	əldı	Results &	Water	Dyı	namic P (blov	enetron vs per r	neter ⁻ nm)	Test
	. ,	Strata	Ō	Ž		Sample	Results & Comments			5 10			20
	0.1	TOPSOIL - brown silty clay with rootlets	M	D	0.0 0.1								<u> </u>
	0.1	SILTY CLAY - brown silty clay with a trace of rootlets			0.1				-				
-	0.3	SHALE - extremely low strength, extremely weathered, orange and red shale with some very low to low strength, orange and grey shale bands		D	0.4				-				
-	0.6	Pit discontinued at 0.6m	===										
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: CLN SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 88

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

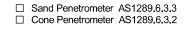
	Davida	Description	je T		Sam		& In Situ Testing	<u>_</u>	Dyna	mic Pone	stromoto	r Toet
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pene (blows p	er mm)	1 1031
		Strata			0.0	Sa	Comments		5	10	15	20
	0.1	TOPSOIL - brown silty clay with rootlets	11/1	D	0.1						Ė	Ė
-		SILTY CLAY - hard, brown silty clay with a trace of rootlets, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>							-			
-		- becoming red brown mottled grey with very low strength							-			
-		 becoming red brown mottled grey with very low strength orange and grey shale bands below 0.3m 		D	0.4				-	i	i	i
-			//		0.5							
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ŀ	0.7	Pit discontinued at 0.7m										
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: CLN SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 89

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

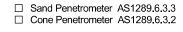
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귙	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dy	namic P (blov	'enetror ws per i	meter mm)	ı est
		Strata			_0.0	Sal	Comments			5 1	0 1	5	20
	0.1	TOPSOIL - dark brown and grey mottled orange silty clay with roots		D	0.0				-				
		SILTY CLAY - dark brown and grey mottled orange silty clay, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>							-				
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				D	0.4				-				:
		- becoming more orange below 0.5m	///		0.5				-				:
	0.6	Pit discontinued at 0.6m		_									<u> </u>
		- <n>limit of investigation</n>							-				•
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: CLN SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd Proposed Residential Subdivision

PROJECT: LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:** NORTHING:

PIT No: 90

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

П		Description	.je		Sam		& In Situ Testing	Ļ	D	ania De	-4	
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyna	mic Pene (blows)	etromete per mm)	: Test
Ш		Strata	ڻ ن	È		San	Comments		5	10	15	20
	0.1	TOPSOIL - brown silty clay with rootlets		D	0.0						į	
	0.1	SILTY CLAY - brown silty clay with a trace of rootlets	1/		0.1					:		
-	0.4 -	SILTY CLAY - hard, orange brown mottled grey silty clay with a trace of rootlets		D D	0.4				-			
-	0.85 -	SHALE - extremely low strength, extremely weathered, red brown mottled grey shale		D	1.0				-1			
-				D	1.5				-			
-	-2	- becoming orange and grey below 2.0m		D	2.0				-2			
-		- becoming very low to low strength, orange and grey below 2.5m		D	2.5				-			
-	-3 3.0-	- becoming dark grey below 2.7m		D	—3.0—				-3			
	3.9	Pit discontinued at 3.0m - < <n>limit of investigation</n>			- 5.0							
-									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: CLN SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 91

PROJECT No: 92269.00

DATE: 16/2/2018 SHEET 1 OF 1

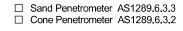
П		Description	o		Sam	ıpling 8	& In Situ Testing					
占	Depth (m)	of	Graphic Log	<u>ğ</u>	Ę	<u>ble</u>	Posulto 9	Water	Dyr	namic Pene ا blows)	etromete oer mm)	r Test
	(111)	Strata	ى ق	Type	Depth	Sample	Results & Comments	>			15	20
П	0.1	TOPSOIL - brown silty clay with some shale gravel and rootlets	M	D	0.0 0.1	0,			-			:
	0.2				•				-			
		SILTY CLAY - hard, red mottled grey silty clay with with some shale gravel and a trace of rootlets, MC <pl< td=""><td></td><td></td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>			0.4				-			
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									-			
									-			
									-			
									-			
									-			
									-			
	-3								-3			
									-			
									-			
									-			
									-			
									-			
									-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: CLN SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 221 mAHD

EASTING: 286294 **NORTHING**: 6208925 **PROJECT No: 92269.00 DATE**: 19/2/2018

PIT No: 92

SHEET 1 OF 1

			Description	. <u>Ö</u>		Sam		& In Situ Testing		_			
Ζ	Dep (m	oth)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyr	namic Pe (blows	netromet per mm	er Test)
2	,		Strata	ŋ	Ţ		San	Comments		5	10	15	20
22).15	CLAYEY SILT - grey brown clayey silt with a trace of rootlets (topsoil)	1111	D	0.0				-			
		7.10	SILTY CLAY - very stiff, orange mottled grey silty clay with a trace of sand and sandstone gravel, MC <pl< td=""><td></td><td></td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>			0.2				-			
					D	0.4				-			
					D	0.5				-			
} }										-			
220		0.9	Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1			
			G							-			
										-			
										-			
										-			
										-			
219	- 2									-2			
} }										-			
										-			
-										-			
ŀ										-			
										-			
} }										-			
218	- 3									-3			
										-			
										-			
										-			
<u> </u>													
										-			
}													:
										-			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 237 mAHD

EASTING: 286172 **NORTHING**: 6208925 **PROJECT No: 92269.00**

PIT No: 93

DATE: 19/2/2018 SHEET 1 OF 1

	Donth	Description	je C				& In Situ Testing		Dvr	namic Pene	etromete	er Test
R	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		namic Pene (blows p		
237		FILLING - red brown clayey silt with a trace of rootlets and possible charcoal (topsoil)			0.0	Š			5	10	15	20
-	-			D					-			
	- 0.2	SILTY CLAY - very stiff, red brown silty clay with a trace of rootlets, MC <pl< td=""><td>1/</td><td></td><td>0.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>	1/		0.2							
-	-				0.4				-		į	
-	-			D	0.5				-			
-	_											
	-											
-	- 0.9											
236	-1	Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1		:	
-	_								-			
	-											
-	-								-			
-	-								-		i	
-	-								-		i	
	_								-			
235	-2								-2			
-	_								-			
ŀ	_								-			
-	-								-			
-	_								-			
-	-								-			
	-											
234	-3								-3			
-	-								-			
-	-								-		į	
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	-											

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Slight scorching on nearby tree; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 286052 **NORTHING**: 6208970 **PROJECT No: 92269.00**

PIT No: 94

DATE: 19/2/2018 SHEET 1 OF 1

		Description	. <u>o</u>		Sam	pling &	& In Situ Testing				
귙	Depth (m)	of	Graphic Log	ЭС	Ę	Sample	Results &	Water	Dynamic (b	Penetro	meter Test mm)
ا س	(111)	Strata	\@	Type	Depth	Sam	Results & Comments	>	5		5 20
233	. 0.2	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	////	D	0.0	·			-		
	- 0.2 - -	SILTY CLAY - hard, light brown silty clay with a trace of rootlets	1/1		0.2						
		- becoming red brown, MC <pl 0.5m<="" below="" td=""><td></td><td>D</td><td>0.5</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl>		D	0.5				-		
	- -								-		
232	-1 1.0 -	Pit discontinued at 1.0m - < <n>limit of investigation</n>	V 1/2 1						-1		
	-								-		
-									-		
	-										
	-								-		
231	-2								-2		
	-								-		
									-		
-	-								-		
									-		
	-								-		
230	-3								-3		
									-		
	.								-		
									-		
	.								-		
	-								-		

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 95

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

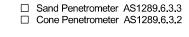
		Description	. <u>o</u>		Sam		& In Situ Testing			
씸	Depth (m)	of	Graphic Log) e	oth	eld:	Results &	Water	Dynamic Pe (blows	netrometer Test s per mm)
	١٠٠٠/	Strata	ō _	Туре	Depth	Sample	Results & Comments	>	5 10	15 20
		FILLING - light brown clayey silt with a trace of rootlets and shale gravel (topsoil)		D	0.0				-	
	0.15	FILLING - light brown silty clay with a trace of rootlets and shale gravel			0.2					
		SILTY CLAY - hard, red brown silty clay with a trace of rootlets and shale gravel, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td></pl<>		D	0.4				-	
	0.6	SHALE - low strength, slightly weathered, grey shale								
	- 1 - 1	- becoming medium to high strength, moderately weathered, grey and brown shale with grey silty clay bands below 0.85		D	0.9				-1	
	. 1.5 -			D	1.4 —1.5—				-	
		Pit discontinued at 1.5m - < <n>refusal on medium to high strength shale</n>			1.5					
	-2								-2	
									-	
									-	
	-3								-3	
									-	

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 251 mAHD

EASTING: 286151 **NORTHING**: 6208814

PIT No: 96

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

		Description	. <u>o</u>		Sam		& In Situ Testing		_			
Ζ	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynam (ic Penet blows pe	romete er mm)	: I est
281		Strata	0	F		Sar	Comments		5	10	15	20
2	-	FILLING - light brown clayey silt with a trace of rootlets and shale gravel (topsoil)		D	0.0				-			
-	- 0.2 -	SILTY CLAY - very stiff, red brown silty clay with a trace of rootlets	1/		0.2				-			
-	-			D	0.4 0.5				-			
	-											
	- 0.8	SHALE - low strength, slightly weathered, grey shale							-			
	-											
250	-1 1.0	Pit discontinued at 1.0m - < <n>limit of investigation</n>	•									
-	-	- VIVAIIIIILOI IIIVesugauoii										
ŀ	-								-			
ŀ	-								-			
ŀ	-								-			
	-											
-	-											
-	-								-			
249	-2								-2			
ŀ	-								-			
ŀ	-											
	-											
-	-								-			
-	-								-			
ŀ	-								-			
ŀ	-								-			
248	-3								-3			
2	-											
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-	-								<u> </u>			
L										;	<u>:</u>	_:

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 238 mAHD

EASTING: 286262

NORTHING: 6208808

PIT No: 97

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

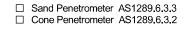
П		Description	<u>.</u> 0		Sam	npling &	& In Situ Testing	Τ.					
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyr	namic P (blov	enetror vs per r	neter ⁻ nm)	Test
238	. ,	Strata	Ö	Ļ		San	Comments		5	5 10) 1	5	20
5	- 0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	<u>M</u>		0.0								
		SILTY CLAY - hard, light brown silty clay with a trace of rootlets, MC <pl< td=""><td></td><td></td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>			0.2				-				
	-	- becoming red brown mottled grey below 0.4m		D	0.4				-				
237	- - - 1	becoming stiff, grey mottled red with a trace of ironstone gravel below 0.8m		D	0.9				- - -1				
				D	1.4				-				
236	- - 2 -	- becoming firm, grey with a trace of sand below 2.0m		D	1.9				- -2 -				
				D	2.4 2.5				-				
235	- - -3 3.0	Pit discontinued at 3.0m		D	2.9 —3.0—				- - -3				
		- < <n>Iimit of investigation</n>							-				
	-								-				
											:		<u>:</u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 247 mAHD

EASTING: 286268 **NORTHING**: 6208732

PIT No: 98

DATE: 19/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

			Description	. <u>e</u>		Sam		& In Situ Testing			<u> </u>	
묍	De (r	epth n)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic (bl	Penetror ows per r	meter Test mm)
	,		Strata	Ø	Ţ		San	Comments		5	10 1	5 20
28		0.09	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	11/1/	D	0.0						
-	-		SILTY CLAY - hard, light brown clayey silt with a trace of rootlets			0.2				-		
	-		- < <n>becoming red brown mottled grey with some shale gravel, MC<pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td></td><td></td><td></td></pl></n>		D	0.4						
		0.8	SHALE - low strength, moderately weathered, grey shale									
246	- 1	0.9	Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1		
	-		·									
	-											
										-		
	-									-		
-	-									. :		
245	-2									-2		
	-											
	-									-		
	-											
										-		
244	-3									-3		
	-											
- - -												
	-											
	-									-		
Ц			CCV hackboo. 300mm bucket			CCE				EV DATUM		:

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Scorched grass near test pit; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

LECEND
PID Photo ionisation detector (ppm)
PL(A) Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
pp Pocket penetrometer (kPa)
S Isandard penetration test
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 247 mAHD

EASTING: 286331

NORTHING: 6208736

PIT No: 99

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

П		Description	ပ္		Sam	ıpling 8	& In Situ Testing	T.					
귒	Depth (m)	of	Graphic Log	Туре	Depth	Sample		Water	Dy	namic F (blow	enetror vs per i	meter mm)	Test
247		Strata	Ō	Тy		San	Results & Comments			5 1			20
5	0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets and charcoal associated with recent grass fire, (topsoil)		D	0.0				-				
-		SILTY CLAY - very stiff, light brown silty clay with a trace of rootlets, ironstone gravel and sand, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>							-				
	0.5			D	0.4 0.5								
		SANDSTONE - low strength, moderately weathered, brown shale							-				
1	0.9	Pit discontinued at 0.9m	:::::::										:
246	-1	- < <n>limit of investigation</n>							- 1 - - -				
									-				
245	- 2								- - -2				
									- -				
									-				
									-				
244	-3								-3				
									- -				
									- - -				
									- -				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 237 mAHD

EASTING: 286338 **NORTHING**: 6208813 **PIT No:** 100

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

П			Description	ပ		Sam	npling &	& In Situ Testing						
귒	Dep (m	pth	of	Graphic Log	e	th	<u>e</u>	Results &	Water	Dyn	amic P (blov	enetror vs per r	neter ⁻ nm)	Γest
237	(.,	Strata	Ō	Type	Depth	Sample	Results & Comments	>	5				20
- 2		0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	44	D*	0.0								
			SILTY CLAY - hard, light brown silty clay with a trace of rootlets and ironstone gravel			0.2				-				
-			rootlets and ironstone gravel							-				
-					D	0.4				-				
-					D	0.5				- :				:
-														
			- becoming red brown mottled red, MC <pl 0.7m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>:</td></pl>							-				:
1										-				
9														
236	- 1	1.0	Pit discontinued at 1.0m	,										
			- < <n>limit of investigation</n>											
										. :	:			:
-										-				
-										-				
-										- :	i			
-	•									-				
-										-				:
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235	-2									-2				
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-										-				
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-										-	i			
-										-				
234	-3									-3	:			:
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Ш											:			<u>: </u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD13/190218 collected; Soil strengths based on tactile assessment

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

		DAIVIPLII
Α	Auger sample	G
В	Bulk sample	P
BLK	Block sample	L
С	Core drilling	V
D	Disturbed sample	D
E	Environmental sam	ple ₹

LING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
V Tube sample (xmm dia.)
W Water sample
V Water seep
Water level
PID Photo ionisation detector (ppm)
PL(A) Point load axial test Is(50) (MPa)
pp Pocket penetrometer (kPa)
pp Pocket penetrometer (kPa)
S Standard penetration test
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 216 mAHD

EASTING: 286449 **NORTHING**: 6209231

PIT No: 101

DATE: 19/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

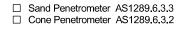
			Description	. <u>o</u>		Sam	npling &	& In Situ Testing	Τ.					
귙	De (n	pth n)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyr	namic P (blov	enetror vs per r	neter Tes nm)	st
5.6			Strata		F'	_0.0_	Sal	Comments			5 10) 1:	5 20	
 			FILLING - brown clayey silt and silty clay with a trace of rootlets, ironstone gravel and sandstone gravel		D	0.2				-				
 					D	0.4				-				
		0.9	SILTY CLAY - hard, orange brown mottled grey silty clay with a trace of rootlets and sandstone gravel, MC <pl< td=""><td></td><td>D</td><td>0.9</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>		D	0.9				-				
215	· 1		with a trace of rootlets and sandstone gravel, MC <pl< td=""><td></td><td></td><td>1.0</td><td></td><td></td><td></td><td>-1 - -</td><td></td><td></td><td></td><td></td></pl<>			1.0				-1 - -				
		1.4	SANDSTONE - high strength, highly weathered, grey and brown sandstone		D	1.4 —1.5—				-				
			Pit discontinued at 1.5m - < <n>refusal on high strength sandstone</n>							-				
- - -										-				
214	·2									-2				
										-				
- - -										-				
										-				
213	-3									-3				
										-				
- - - -										-				
										-				
										-				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT:

Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 227 mAHD

EASTING: 286572

NORTHING: 6209231

PIT No: 102

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

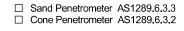
П		Description	0		Sam	npling	& In Situ Testing						
뷥	Depth	Description of	Graphic Log	ω o				Water	Dy	namic F (blo	Penetro	meter '	Test
	(m)	Strata	Sign 1	Type	Depth	Sample	Results & Comments	>					20
227		FILLING - dark brown clayey silt and silty clay with a trace of rootlets and shale gravel (possible re-worked natural)			0.0	0,				:	:	:	:
Ħ	•	of rootlets and shale gravel (possible re-worked natural)		D						:	:		:
Ħ	•				0.2					:	:		
	0.3	SILTY CLAY - hard, red brown silty clay with a trace of rootlets and shale gravel, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>_</td><td>:</td><td>:</td><td></td><td>:</td></pl<>							_	:	:		:
Ì		rootlets and shale gravel, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td></td><td>:</td><td>:</td><td></td><td></td></pl<>		D	0.4					:	:		
	0.5	SHALE - low strength, moderately weathered, grey shale	===		0.5					:	:		:
	•									:	:		:
										:			:
	0.9									:	:		<u>:</u>
226		Pit discontinued at 0.9m							-1				
2	.	- < <n>limit of investigation</n>							<u> </u>				
										:	:		:
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	•								-	:		:	
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225	-2								-2	:	:		:
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+ +									-	:	:		:
224	-3								-3	:		:	
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 203 mAHD

EASTING: 286698

NORTHING: 6209166

DATE: 19/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 103

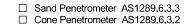
П		Description	. <u>o</u>		Sam	npling &	& In Situ Testing	Ι.					
귙	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyi	namic P (blov	'enetror ws per i	meter i mm)	Test
203		Strata	O A	Ļ		San	Comments			5 1	0 1	5	20
2		FILLING - light brown clayey silt and silty clay with a trace of sandstone gravel and rootlets		D	0.0				-				
		- becoming dark red silty clay below 0.4m		D	0.4				-				
- - - -	0.7	SILTY CLAY - hard, grey mottled orange silty clay with a trace of sandstone gravel and rootlets							-				
202	1 1.2-	Pit discontinued at 1.2m							- 1			· · · · · · · · · · · · · · · · · · ·	<u>:</u>
		- < <n>limit of investigation</n>							-				
201	2								-2				
									-				
200	3								-3 -				
									-				
									-				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 203 mAHD

EASTING: 286607 **NORTHING**: 6209147 **PIT No:** 104

PROJECT No: 92269.00 DATE: 19/2/2018

SHEET 1 OF 1

			Description	. <u>o</u>		Sam	npling	& In Situ Testing						
귒	Dep (m	oth	of	Graphic Log	e e	£	<u>p</u> e	Results &	Water	Dyr	namic F blow	'enetro vs per	meter mm)	Test
_	(111)	′	Strata	ō _	Туре	Depth	Sample	Results & Comments	>	5			15	20
500			FILLING - dark brown clayey silt and silty clay with a trace of rootlets and ceramic tiles		D	- 0.0	0,			-				
		0.2	SILTY CLAY - hard, red brown silty clay with a trace of shale gravel			0.2				-				
			- becoming red mottled grey below 0.4m		D	0.4				-				
202	-1		- < <n>becoming grey mottled red, MC<pl 0.8m<="" below="" td=""><td></td><td>D</td><td>0.9 1.0</td><td></td><td></td><td></td><td>- - -1</td><td></td><td></td><td></td><td></td></pl></n>		D	0.9 1.0				- - -1				
-		1.3	SHALE - medium strength, slightly weathered, grey shale	<u> </u>						-				
}			,,,,,,,		D	1.4 1.5				-				
						1.0				- -				
201			 becoming high strength, moderately weathered, dark grey below 1.8m 		D	1.9 2.0				-2				
		2.1	Pit discontinued at 2.1m - < <n>refusal on high strength shale</n>	<u> </u>						-				
										-				
										-				
-										-				
200	- 3									-3				
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- - -										- -			:	
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										-				
										-				

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

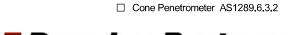
REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



☐ Sand Penetrometer AS1289.6.3.3



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 218 mAHD

EASTING: 286448 **NORTHING**: 6209172

PIT No: 105

PROJECT No: 92269.00 DATE: 19/2/2018 SHEET 1 OF 1

		41-	Description	je T		Sam		& In Situ Testing	<u>_</u>	Dv	namic Por	otromot	or Toet
뭅	(n	epth n)	of Other	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		namic Per (blows		
2.18			Strata CLAYEY SILT - grey brown clayev silt with a trace of		-	_0.0	S				5 10	15	20
ŀ	-		CLAYEY SILT - grey brown clayey silt with a trace of rootlets (topsoil)		D					-			
İ						0.2				-			
						0.4							
-	-		- becoming red brown below 0.5m		D	0.5				-			
-	-		- becoming rea brown below 0.5m							-			
ŀ	-									-			
İ		0.9		////									
217	- 1	0.5	SILTY CLAY - hard, brown clayey silt with a trace of sand ad rootlets							-1			
"	-		- becoming red mottled grey, MC <pl 1.1m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>							-			
-	}	1.2	Pit discontinued at 1.2m	<u>r '/_</u>								- :	:
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



CLIENT: Walker Corporation Pty Ltd

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 231 mAHD

EASTING: 286428 **NORTHING**: 6209058 **PROJECT No: 92269.00 DATE**: 19/2/2018

SHEET 1 OF 1

PIT No: 106

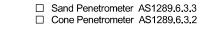
amic Penetrometer Test (blows per mm)
10 15 20

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 226 mAHD

EASTING: 286518

NORTHING: 6209040

PIT No: 107

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

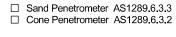
П			1		Carr	nlina (9 In City Tooting						
R	Depth	Description	ohic g				& In Situ Testing		Dy	namic F	enetror	neter ⁻	Test
	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water		(blov	ws per r	mm)	
226		CLAYEY SILT - light brown clayey silt with a trace of	1/1//	<u> </u>	0.0	Ø				5 1	0 1	5	20
} }	0.1	rootlets (topsoil)		D					-				:
		SILTY CLAY - hard, light brown silty clay with a trace of ironstone gravel and rootlets			0.2				-				
	-	- becoming red brown below 0.3m							-				:
Ħ	,			D	0.4								
					0.5								
		- becoming brown and orange below 0.6m											
		- becoming orange mottled grey below 0.8m							-				
} }	0.9	SHALE - low strength, moderately weathered, grey shale							-				
225	- 1	or will low outsings, measured weathered, groy chare							-1				:
 	1.1	Pit discontinued at 1.1m											<u>:</u>
		- < <n>limit of investigation</n>							-				:
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} }									-				
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224	-2								-2				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 234 mAHD

EASTING: 286650 **NORTHING**: 6209005 **PROJECT No: 92269.00**

PIT No: 108

DATE: 19/2/2018 SHEET 1 OF 1

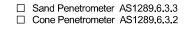
П	_		Description	.je		Sam		& In Situ Testing	ڀ			12221		
씸	De (n	epth n)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water		namic P (blov			
234		-	Strata FILLING - brown clavev silt and silty clay with a trace of	XX	-	 	Sa	Comments			5 1)	15	20
}	-		FILLING - brown clayey silt and silty clay with a trace of basaltic gravel and rootlets		D					-				
	-					0.2				-				
			- becoming red brown silty clay with a trace of shale gravel below 0.3m			0.4								
	-		5616W 6.5111		D	0.5								
-	-									-				
-	•	0.7	SHALE - low strength, moderately weathered, grey shale with a trace of grey silty clay	XXX						-				
	•		with a trace of grey silty clay							-				
233	- 1									-1				
5					-					<u>'</u>				
-	-	1.2	Pit discontinued at 1.2m	===									:	<u> </u>
-			- <n>limit of investigation</n>							-			:	
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232	-2									-2				
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 236 mAHD

EASTING: 286638 **NORTHING**: 6208984 **PIT No:** 109

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

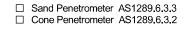
			Description	. <u>Ö</u>		Sam		& In Situ Testing					
R	Dep (m)	oth)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynai	mic Pene (blows p	er mm)	riest
236			Strata		F.	0.0	Sal	Comments		5	10	15	20
-	-		FILLING - brown silty clay with a trace of shale gravel, basaltic gravel and rootlets (possible re-worked natural)		D					-	i	i	Ė
-	_					0.2							
-	-				,							:	:
-	-				D	0.4				-	i	i	i
	-					0.5							
	-										:	i	Ė
		0.8											
		0.0	SILTY CLAY - hard, light brown silty clay with a trace of rootlets	//									
235	- 1		Todioo	1//						-1		:	
- 2	_												
	_									-			
-	-		- becoming red mottled grey with a trace of shale gravel	///						-	i	i	Ė
-	-		below 1.3m	1/									
-	-	1.5	SHALE - low strength, moderately weathered, grey shale										
-	-									-			
	-	1.7	Pit discontinued at 1.7m										-
	-		- < <n>limit of investigation</n>										
234	- - ว									-2			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 235 mAHD

EASTING: 286613 **NORTHING**: 6208998 **PROJECT No: 92269.00 DATE**: 19/2/2018

PIT No: 110

SHEET 1 OF 1

De::#5	Description	hic 1		Sam		In Situ Testing		Dvec	ımic Pene	atromet.	ar Tee
Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Б упа 5	(blows p	per mm) 20
-	FILLING - brown silty clay with a trace of shale gravel, basaltic gravel, rootlets and construction and demolition material comprising bricks, timber, cinder blocks, plastic sheeting and plastic piping		D*	0.0	6)						
			D	0.4 0.5			-				
			D	0.8							
- 1 - - 1.3-				1.0				-1			
	SHALE - medium strength, slightly weathered, dark grey shale										
- 1.8 - - - 2	Pit discontinued at 1.8m - < <n>limit of investigation</n>	<u>[</u>						-2			
-											
-3								-3			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD14/190218 collected; Soil strengths based on tactile assessment

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

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Р	P
U_x	Т
W	٧
⊳	٧
¥	٧
	G P U _x W

CLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample (x mm dia.)
W Water sample (x mm dia.)
W Water seep
Water seep
Water level
PID Photo ionisation detector (ppm)
PL(A) Point load axial test Is(50) (MPa)
PCKet penetrometer (kPa)
pp Pocket penetrometer (kPa)
S Standard penetration test
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT:

PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 231 mAHD

EASTING: 286748 **NORTHING**: 6208893 **PIT No:** 111

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

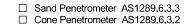
		Description	. <u>u</u>		Sam	ıpling 8	& In Situ Testing					
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyr	namic Pe (blow	enetrom s per m	eter Test im)
231		Strata	ڻ ن	Ţ		San	Comments		5	10	15	20
2	0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)	444	D	-0.0				-			
		SILTY CLAY - hard, light brown clayey silt with a trace of rootlets			0.2				-			
		- becoming red brown mottled grey, MC <pl 0.4m<="" below="" td=""><td></td><td>D</td><td>0.4 0.5</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>		D	0.4 0.5				-			
									-			
230	0.9 - 1	Pit discontinued at 0.9m - < <n>limit of investigation</n>	/ /						-1			
2		- VIVAIITIILO IITVESIIGAIIOTI							-			
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RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 241 mAHD

EASTING: 286634 **NORTHING**: 6208895

DATE: 20/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 112

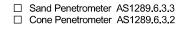
		Description	.je		Sam		& In Situ Testing	Ļ				
Ζ	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dy.	namic Pene (blows p	trometei er mm)	rest
7		Strata	٥	Ļ		San	Comments			5 10	15	20
2	- 0.1	CLAYEY SILT - light brown clayey silt with a trace of rootlets (topsoil)		D	0.0				-			
-	-	SILTY CLAY - hard, light brown silty clay with a trace of rootlets			0.2				_			
-	-	- becoming red brown below 0.4m	1/	D	0.4 0.5				-			
	-	- becoming red mottled grey below 0.7m			0.9				<u>-</u> -			
240	-1 - -	- becoming stiff, red mottled grey and orange below 1.2m		D	1.0				- 1 - -			
-	-			D	1.4 1.5				-			
, 239	- - -2 -	- becoming firm, grey mottled orange with a trace of shale gravel below 1.8m		D	1.9				- - -2			
-	· · ·	- becoming grey with some shale gravel, MC <pl 2.2m<="" below="" td=""><td></td><td>D</td><td>2.4 2.5</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl>		D	2.4 2.5				-			
7 , , , , , , , , , , , , , , , , , , ,	- - 2.8 - -3 3.0	SHALE - medium strength, moderately weathered, grey shale with grey silty day bands		D	2.9 —3.0—				- - -			
-		Pit discontinued at 3.0m - < <n>limit of investigation</n>			- 1-				-			
	-								-			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT:

Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 225 mAHD

EASTING: 286538

NORTHING: 6208968

PIT No: 113

PROJECT No: 92269.00

DATE: 19/2/2018 SHEET 1 OF 1

	Denth	Description	g g				& In Situ Testing		Dvr	namic P	enetror	neter T	est
5 RL	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water		namic Po (blow			20
225	-	FILLING - light brown clayey silt and silty clay with a trace of shale gravel, sand and rootlets		D	0.0				-				
-	-			D	0.4 0.5				-				
224	- - - 0.9 -1	FILLING - grey, red and orange silty clay with a trace of sand			1.0				- - - 1				
	- - - 1.4			D	1.2				-				
	-	Pit discontinued at 1.4m - < <n>limit of investigation</n>							-				
223	- - -2 -								- -2 -				
	-								-				
222	- - -3								- - -3				
	-								-				
-	-								-				
	-												<u>:</u>

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 229 mAHD

EASTING: 286421 **NORTHING**: 6208976 **PIT No:** 114

PROJECT No: 92269.00

DATE: 20/2/2018 SHEET 1 OF 1

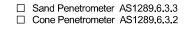
П		Description	. <u>o</u>		Sam	npling	& In Situ Testing						_
귐	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyr	namic Po (blow	enetron /s per n	neter ⁻ nm)	Test
229		Strata Strata FILLING - light brown claves silt and silts clav with a trace	XX	<u> </u>	ŏ 0.0	Sa	Comments			5 10	15	5 :	20 :
		FILLING - light brown clayey silt and silty clay with a trace of rootlets and possible charcoal		D	0.2				-				
	- 0.4 - - -	SILTY CLAY - very stiff, red mottled grey silty clay with a trace of ironstone gravel and rootlets, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>		D	0.4				-				
	- 0.9	Pit discontinued at 0.9m	1/						-				
228	- 1 - - -	- < <n>limit of investigation</n>							-1 - - -				
227	- 2 - 2 								- -2 - -				
226	-3								- - -3 -				
	-								-				

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 250 mAHD

EASTING: 286492 **NORTHING**: 6208822

PIT No: 115

DATE: 20/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

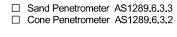
		Description	E		Sam		& In Situ Testing	L.	Б	:- D		. T t
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyn	amic Pene ا blows)	per mm)	riest
250		Strata	0	ŕ	o.o	Sar	Comments		5	10	15 :	20
-		FILLING - light brown clayey silt and silty clay with a trace of basaltic gravel and rootlets		D	0.2				-			
		- becoming red silty clay with a trace of shale gravel below 0.3m		D	0.4 0.5				-			
	0.6	SILTY CLAY - hard, orange brown mottled grey silty clay with some shale gravel	1/						-			
249	-1			D	0.9 1.0				-1			
		- becoming grey mottled orange below 1.1m							-			
				D	1.4 1.5				-			
-												
248	-2			D	1.9 2.0				- -2 -			
	2.3	SHALE - high strength, moderately weathered, grey shale with grey silty clay bands	1/		2.4				-			
-	2.6	becoming high strength, slightly weathered, grey below 2.5m		D	2.5				-			
		Pit discontinued at 2.6m - < <n>limit of investigation</n>							-			
247	-3								-3			
									- :			
									-			
									-			
										<u>.</u>		<u> </u>

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 248 mAHD

EASTING: 286562 **NORTHING**: 6208857

PIT No: 116

PROJECT No: 92269.00 DATE: 20/2/2018 SHEET 1 OF 1

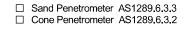
		Description	. <u>o</u>		Sam	ıpling 8	& In Situ Testing	Τ,					
R	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyr	namic Po (blow	enetron /s per n	neter Te nm)	est
248		Strata	O			Sar	Comments			10	15	20	
2		FILLING - dark brown clayey silt and silty clay with a trace of shale gravel and rootlets		D	0.2				-				
	0.4	SILTY CLAY - hard, red mottled grey silty clay with a trace of rootlets		D	0.4				-				
	. 0.9	- becoming grey mottled red and orange, MC <pl 0.75m<="" below="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl>							-				
247		Pit discontinued at 0.9m - < <n>limit of investigation</n>							-1 -				
									-				
									-				
									-				
246	-2								-2 -				
									-				
									-				
245	-3								- - -3				
									-				
									-				
 - - -									-				
									-			:	

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 241 mAHD

EASTING: 286647 **NORTHING**: 6208845 **PIT No:** 117

PROJECT No: 92269.00

DATE: 20/2/2018 SHEET 1 OF 1

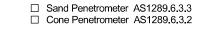
П		Description	ပ္က Sampling & In Situ Testing										
귒	Depth	of	Graphic Log	o o				Water	Dy	namic I (blo	Penetro	meter mm\	Test
	(m)	Strata	ַטָּ טַ	Type	Depth	Sample	Results & Comments	>				15	20
241		FILLING - brown silty clay with a trace of rootlets			0.0	(0)				:	:	:	-
┟┟		• •	\otimes	D					-	:	:		
┟┟	0.25				0.2				-	:	:		:
} }	0.25	SILTY CLAY - hard, red brown silty clay with a trace of	1/						-	:	:		
} }		rootlets			0.4				-	:	:		:
				D	0.5				-		:		
	0.6	- becoming red mottled grey, MC <pl 0.5m<="" below="" td=""><td>A</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td>:</td><td></td><td></td></pl>	A						-		:		
		SHALE - low strength, moderately weathered, grey shale								:	:		
	0.8		===							<u>:</u>	:	<u> </u>	:
	0.0	Pit discontinued at 0.8m								:	:		
		- < <n>limit of investigation</n>									:		
240	-1								-1	:	:	:	÷
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239	-2								-2		:		
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238	-3								-3	:	:	:	:
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RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 238 mAHD

EASTING: 286676 **NORTHING**: 6208873 **PIT No:** 118

PROJECT No: 92269.00

DATE: 20/2/2018 SHEET 1 OF 1

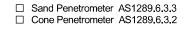
			Description	je.		Sam		& In Situ Testing		D	mio Der :	trons st :	
씸	Dep (m	oth i)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pene (blows p		
238	-		FILLING - brown silty clay with a trace of shale gravel and rootlets		D	0.0	- Š			-	10	15	20
	· ·	0.8	SILTY CLAY, you stiff red brown eilty day MCzDi		D	0.4							
237	-	1.3	SILTY CLAY - very stiff, red brown silty clay, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-1 -</td><td></td><td></td><td></td></pl<>							-1 -			
	-		Pit discontinued at 1.3m - < <n>limit of investigation</n>							-			
236	- 2 2 									-2			
235	- - -3 -									-3			
	-									-			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 236 mAHD

EASTING: 286732 **NORTHING**: 6208800

DATE: 20/2/2018

PIT No: 119

SHEET 1 OF 1

PROJECT No: 92269.00

Γ.	Description				Sampling & In Situ Testing			- io	Dynamic Penetrometer Test (blows per mm)		
씸	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows pe	er mm)	
236	-	FILLING - brown silty clay with a trace of shale gravel and rootlets		D	0.0	S			-	13 20 	
	- 0.4				0.2				-		
-	-	SILTY CLAY - hard, red mottled grey silty clay with a trace of rootlets		D	0.5				-		
-	-		1/						-		
235	-1 1.0- -	Pit discontinued at 1.0m - < <n>limit of investigation</n>							1		
-									-		
-	<u>.</u>								-		
-	-										
234	-2								-2		
-											
-	_										
-									-		
233	- -3								-3		
-	-										
-	-								-		
-	_								-		
-	-										

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 249 mAHD

EASTING: 286666 **NORTHING**: 6208699 **PIT No:** 120

PROJECT No: 92269.00

DATE: 20/2/2018 SHEET 1 OF 1

	Depth	Description	ohic g	Sampling & In Situ Testing			Te -	Dynamic Penetrometer Test			
씸	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows pe	er mm)	20
249	-	FILLING - light brown silty clay with a trace of shale gravel and rootlets		D*	0.0	S				:	
-	- - 0.5 -	SILTY CLAY - hard, red mottled grey silty clay with a trace of rootlets		D	0.4						
248	- - - 1	- becoming grey mottled red and orange with a trace of shale gravel, MC <pl 1.0m<="" below="" td=""><td></td><td>D</td><td>0.9</td><td></td><td></td><td></td><td>- - -1</td><td></td><td></td></pl>		D	0.9				- - -1		
-	-			D	1.4						
247	- - 2 - 2.1-	SHALE - low strength, moderately weathered, grey shale with a trace of grey mottled red and orange silty clay		D	1.9				- -2 -		
-	-	- becoming medium strength, moderately weathered, with grey silty clay bands below 2.5m		D	2.4				-		
, 246	- - 3 - 3.1-	Pit discontinued at 3.1m		D	2.9				-3		
-	-	- < <n>limit of investigation</n>									

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD15/190218 collected; Soil strengths based on tactile assessment

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

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample



Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 257 mAHD

EASTING: 286578 **NORTHING**: 6208719

PIT No: 121

PROJECT No: 92269.00

DATE: 20/2/2018 SHEET 1 OF 1

		T	Description	. <u>o</u>		Sam	npling &	& In Situ Testing						
귐	Depth (m)	۱	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dy	namic P (blov	enetror vs per i	meter mm)	Test
257	. ,		Strata	Ö	Ţ		San	Comments			5 10) 1	5	20
35			SILTY CLAY - hard, light brown silty clay with a trace of rootlets	1/1/1/	D	0.0				-				
- - - 			- becoming red mottled light brow and grey below 0.4m		D	0.4				-				
	0.0		SHALE - low strength, moderately weathered, grey shale							-				<u>:</u>
256			Pit discontinued at 0.7m - < <n>limit of investigation</n>							- 1 1 				
255	-2									-2				
254	-3 -3									-3				
										-				

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)

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



Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 228 mAHD

PIT No: 122 **PROJECT No: 92269.00 EASTING**: 286744

DATE: 20/2/2018 **NORTHING**: 6209008 SHEET 1 OF 1

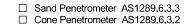
	Janderra Lane, Wilton, NSW							SHEET	1 OF	= 1	
Б ;;	Description	اة _		Sam		& In Situ Testing		Dymar	mio Dono	tromoto	r Too
Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynai	mic Pene (blows p	er mm)	1 163
, ,	Strata	ß	Ţ		San	Comments		5	10	15	20
. 0.08	FILLING - light brow clayey silt with a trace of shale gravel and rootlets (topsoil)	\bowtie	D	0.0							
	SILTY CLAY - hard, light brown silty clay with a trace of ironstone gravel and rootlets			0.2							
	ironstone gravel and rootlets										
				0.4				. :	:	:	i
	harania a sadharana balan 0 far		D	0.5					i		i
	- becoming red brown below 0.5m								:	÷	i
									:	•	
1 1.0	Pit discontinued at 1.0m	r ½)						-1 	<u>:</u>		<u>:</u>
	- < <n>limit of investigation</n>								i	i	
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RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT:

Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 226 mAHD

EASTING: 286772 **NORTHING**: 6209091 **PROJECT No: 92269.00**

PIT No: 123

DATE: 20/2/2018 SHEET 1 OF 1

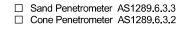
		Description	. <u>o</u>		Sam	pling &	& In Situ Testing	Τ.				
귒	Depth (m)	of	Graphic Log	Φ	£	ble	Populto 8	Water	Dyna	mic Pene (blows p	tromete er mm)	er Test
	(111)	Strata	ō _	Туре	Depth	Sample	Results & Comments	>	5	10	15	20
226		FILLING - brown clayey silt and silty clay with a trace of basaltic gravel and rootlets		D	0.0	- 0,			-			
		- becoming red brown silty clay with a trace of shale cobbles below 0.3m		D	0.4				-			
	0.7	SHALE - low strength, moderately weathered, grey shale							-			
225	-1 -1			D	0.9				-1 -1 -			
		- becoming medium strength below 1.4m		D	1.4				-			
224	-2	- becoming high strength with grey silty clay bands below 2.4m		D	1.9 2.0 2.4 2.5				-2			
223	-3 3.0			D	2.9 —3.0—				-			
		Pit discontinued at 3.0m - < <n>limit of investigation</n>			5.0				-			
									-			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 215 mAHD

EASTING: 286388 **NORTHING**: 6209204

DATE: 16/2/2018

PIT No: 124

SHEET 1 OF 1

PROJECT No: 92269.00

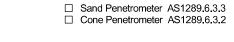
Depth (m) Strata Strata S		_	
FILLING - dark brown clayey silt with a trace of sand, sandstone gravel and rootlets (topsoil) 0.3 FILLING - red brown silty clay with a trace of sandstone gravel and sand (possible re-worked natural) 0.7 FILLING - sandstone cobbles 0.0 FILLING - sandstone cobbles 0.1 SILTY CLAY - firm, orange mottled grey silty clay with a trace of sandstone gravel and sand 1.1 - becoming grey mottled orange, MC <pl -="" 1.7m="" 2.3="" 2.3m="" <<n="" at="" becoming="" below="" discontinued="" grey="" mc<pl="" mottled="" orange,="" pit="">Investigation</pl>	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
SILTY CLAY - firm, orange mottled grey silty clay with a trace of sandstone gravel and sand (possible re-worked natural) O.7 FILLING - red brown silty clay with a trace of sandstone gravel and sand (possible re-worked natural) D O. The sandstone cobbles SILTY CLAY - firm, orange mottled grey silty clay with a trace of sandstone gravel and sand - becoming grey mottled orange, MC <pl -="" 1.7m="" 2.3="" 2.3m="" <<n="" at="" below="" brown="" discontinued="" high="" moderately="" pit="" sandstone="" strength,="" weathered,="">Imit of investigation</pl>	Comments		5 10 15 20
FILLING - red brown sitly clay with a trace of sandstone gravel and sand (possible re-worked natural) 0.7 FILLING - sandstone cobbles 1.1 SILTY CLAY - firm, orange mottled grey sitly clay with a trace of sandstone gravel and sand - becoming grey mottled orange, MC <pl -="" 1.7m="" 2.3="" 2.3m="" <<n="" at="" becoming="" below="" brown="" discontinued="" grey="" high="" mc<pl="" moderately="" mottled="" orange,="" pit="" sandstone="" strength,="" weathered,="">limit of investigation</pl>		- -	
FILLING - sandstone cobbles The state of the state of		- - -	
SILTY CLAY - firm, orange mottled grey silty clay with a trace of sandstone gravel and sand - becoming grey mottled orange, MC <pl -="" 1="" 1.7m="" 2.="" 2.3="" 2.3m="" <<n="" at="" becoming="" below="" brown="" discontinued="" grey="" high="" mc<pl="" moderately="" mottled="" orange,="" pit="" sandstone="" strength,="" weathered,="">limit of investigation</pl>		- - - -1	
- becoming grey mottled orange, MC <pl -="" 1.7m="" 2.3m="" <<n="" at="" becoming="" below="" brown="" discontinued="" grey="" high="" mc<pl="" moderately="" mottled="" orange,="" pit="" sandstone="" strength,="" weathered,="">limit of investigation</pl>			
SANDSTONE - high strength, moderately weathered, brown sandstone 2.3 Pit discontinued at 2.3m - < <n>limit of investigation</n>			
Pit discontinued at 2.3m - < <n>limit of investigation</n>		-2	
		-3	

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 212 mAHD

EASTING: 286336 **NORTHING**: 6209233

DATE: 16/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: 125

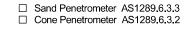
			Description	ازر _		Sam		& In Situ Testing		D.	mamia F	Ponotro	meter.	Toot
<u>8</u>		Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		namic F (blo ^r 5 1			20
2.5	7	0.12	FILLING - dark brown clayey silt with a trace of sandstone gravel, sand and rootlets (topsoil)		D	0.0	0,			-		:	:	:
ŀ	-	0.12	FILLING - light brown silty clay with a trace of sandstone cobbles and sand (possible re-worked natural)			0.2				-				
ŀ	-		ζ,			0.4				-				
[[D	0.4				[
ŀ	-									_		:	:	:
ļ		0.8								-				
-	-		SANDSTONE - high strength, moderately weathered, brown sandstone		D	0.9				-				
211	1	1.1				1.0				-1			<u>:</u>	
-			Pit discontinued at 1.1m - < <n>refusal on high strength sandstone</n>							-				
ŀ	-									_				
F	-									-			:	
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LOGGED: KPW RIG: JCB 3CX backhoe - 300mm bucket **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 190 mAHD

EASTING: 286387 **NORTHING**: 6209298

PIT No: 126

PROJECT No: 92269.00 DATE: 16/2/2018 SHEET 1 OF 1

			Description	. <u>e</u>		San		& In Situ Testing	L		– .
Ζ	D(epth m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic Pene (blows p	etrometer Test oer mm)
8			Strata	\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>	-	 	Sar	Comments	-	5 10 : :	15 20 : :
-	-		FILLING - dark brown clayey silt with a trace of sandstone gravel, sand and rootlets (topsoil)		D*	0.2				-	
	-	0.3	SILTY CLAY - stiff, red brown mottled grey silty clay with a trace of sandstone gravel and sand		D	0.4 0.5					
189	- - - 1 -		- becoming grey mottled red and orange with some sand, MC <pl 0.8m<="" below="" td=""><td></td><td>D</td><td>0.9</td><td></td><td></td><td></td><td>-1</td><td></td></pl>		D	0.9				-1	
-	-	1.4	SANDSTONE - high strength, moderately weathered, grey and brown sandstone	1/	D	1.4 1.5					
-	-	1.0	Pit discontinued at 1.6m - < <n>refusal on high strength sandstone</n>								
188	- -2 -									-2	
-	- -										
-	-										
187	- - -3									-3	
-	- -										
-	-										
-	-										
	ŀ									† ! !	: :

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD11/160218 collected; Soil strengths based on tactile assessment

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

		MINILLIN
Α	Auger sample	G
В	Bulk sample	P
BLK	Block sample	U _x W
С	Core drilling	WÎ
D	Disturbed sample	⊳
Е	Environmental sam	p l e

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample (x mm dia.)
U, Tube sample (x mm dia.)
W Water sample
D PL(D) Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
PD Pocket penetrometer (kPa)
S Standard penetration test
Water level
V Shear vane (kPa)



Walker Corporation Pty Ltd CLIENT: PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 212 mAHD

EASTING: 286244 **NORTHING**: 6209284 **PIT No:** 127

PROJECT No: 92269.00

DATE: 15/2/2018 SHEET 1 OF 1

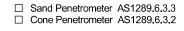
			Description	.ij		Sam		& In Situ Testing	_		· · · · D		. T I
귐	Dept (m)	th	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynan	nic Pene (blows p	romete er mm)	riest
7			Strata	0	F		Sar	Comments		5	10	15	20
2	- - -		FILLING - light brown silty clay with a trace of sand, rootlets and construction and demolition material comprising bricks		D	0.2				-			
	- - -				D	0.6 0.7				-			
	-		- becoming dark brown below 0.8m			0.7				-			
211	-1 - - -	- 0.0	SILTY CLAY - firm, orange mottled red silty clay with a trace of sand, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-1</td><td></td><td></td><td></td></pl<>							-1			
210	-	1.8	Pit discontinued at 1.8m - < <n>limit of investigation</n>							-2			
209	- 3 - 3 									-3			

RIG: JCB 3CX backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING**: 285690 **NORTHING**: 6208974 PIT No: ST1

PROJECT No: 92269.00

DATE: 21/2/2018 SHEET 1 OF 1

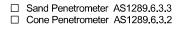
Description of Strata FILLING - dark and light thrown silty clay with a trace of shale graved and rooks at 1 to 1 to 1 to 1 to 1 to 1 to 1 to 1	П		Description	. <u>o</u>		Sam	npling &	& In Situ Testing					
FILLING - dark and light brown silty clay with a trace of shale gravel and rootiets 0.3 SILTY CLAY - very stiff, red brown silty clay Pit discontinued at 0.4m - < <n>limit of investigation -1 -1 -1</n>	귐	Depth (m)		raph	be D	oth	ple	Results &	Vater	Dynan	nic Penet (blows p	romete er mm)	r Test
FILLING- dark and light brown silty clay with a trace of shale gravel and rootlets SILTY CLAY- very stiff, red brown silty clay Pit discontinued at 0.4m -<1 -1 -1 -1 -2 -2 -2 -2 -2		()		Ō	5	Det	Sam	Comments	>				
SLITY CLYP -very suit, red provin sity clay Pit discontinued at 0.4m -< <n>limit of investigation -1 -1 -2</n>	-		FILLING - dark and light brown silty clay with a trace of shale gravel and rootlets							-			
Pit disconnue at u.4m - < <n>limit of investigation -1 -1 -1 -2 -2</n>			SILTY CLAY - very stiff, red brown silty clay							-			
		0.4	Pit discontinued at 0.4m - < <n>limit of investigation</n>	_						-			
										-			
		·1								-1		:	
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RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW **SURVEY DATUM:** MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285681 **NORTHING**: 6208979 PIT No: ST2

PROJECT No: 92269.00

DATE: 21/2/2018 SHEET 1 OF 1

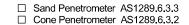
			Description	.≌		Sam		& In Situ Testing	T	_			
귙	Dep (m	pth า)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dyna	mic Pene (blows p	etromete per mm)	r lest
233			Strata	υ	T	De	Sar	Comments		5	10	15	20
			FILLING - light and dark brown silty clay with a trace of shale gravel, basaltic gravel, construction and demolition material comprising concrete cobbles, plastic piping, timber and rubbish (plastic bottles)							- -			
·		0.5	SILTY CLAY - very stiff, red brown silty clay										
		0.6	Pit discontinued at 0.6m	<u> </u>							- :	- i-	÷
232	·1		- < <n>limit of investigation</n>							-1			
231	· 2									-2			
230	- 3									-3			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285687 **NORTHING**: 6208999 **PROJECT No: 92269.00 DATE**: 21/2/2018

PIT No: ST3

SHEET 1 OF 1

	Danth	Description	je T		Sam		& In Situ Testing	_ h	Dyna	mic Dono	tromete	r Tost
R	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		mic Pene (blows p		
2\$3	- - - - 0.5	FILLING - light and dark brown silty clay with a trace of roadbase gravel, basaltic gravel, shale gravel, roots and rootlets SILTY CLAY - very stiff, red brown silty clay with a trace of rootlets			D	Š			-	10	15	20
32	- 0.7-	Pit discontinued at 0.7m - < <n>limit of investigation</n>	<u> </u>						-			
232	- 1 - - -								-			
231	- 2 - 2 								-2			
230	3 3								-3			
									-			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)

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



Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 233 mAHD

EASTING: 285685 **NORTHING**: 6209007 PIT No: ST4

PROJECT No: 92269.00

DATE: 21/2/2018 SHEET 1 OF 1

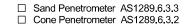
		Description	ië		Sam		& In Situ Testing	T_	_			
귐	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water				eter Test n)
233		FILLING - light and dark brown silty clay with a trace of roadbase gravel, shade gravel, roots, rootlets and construction and demolition material comprising concrete cobbles and plastic				Š			-	5 1	0 15	20
	0.6	SILTY CLAY - very stiff, red brown silty clay with a trace of rootlets							-			
232	-1	Pit discontinued at 0.8m - < <n>limit of investigation</n>	7						- -1			
									- -			
									- - -			
231	-2								- - -2			
									- -			
									-			
									- -			
230	- 3								-3 -			
									-			
- - - - -									- -			
									-			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: 211 mAHD

EASTING: 285439 **NORTHING**: 6209327 PIT No: ST5

PROJECT No: 92269.00 DATE: 21/2/2018

SHEET 1 OF 1

П		Description	ပ		Sam	ıpling 8	& In Situ Testing					
묍	Depth (m)	of	Graphic Log		멅	ble	Results &	Water	Dyr	namic Pene پ blows)	etromete per mm)	r Test
	(''')	Strata	ŏ_	Type	Depth	Sample	Results & Comments	>			15	20
5.	- 0.1	FILLING - dark brown clayey silt with a trace of rootlets (topsoil)							-			
	- 0.6	FILLING - light brown silty clay with a trace of sandstone cobbles and boulders (possible re-worked natural)							-			
	-	SILTY CLAY - stiff, grey mottled orange silty clay with a trace of sand and rootlets										
210	- 0.8 - -1	Pit discontinued at 0,8m - < <n>limit of investigation</n>							- - 1			
									- - -			
									-			
209	- - - 2								- - -2			
	-								-			
	-								-			
208	-3								- - -3			
2	·								_			
-	-								-			
	-								-			
	-											

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

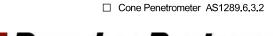
REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
U Tube sample (x mm dia.)
W Water sample
D Water seep
W Water level
V Shear vane (kPa)

W Water level
V Shear vane (kPa)



☐ Sand Penetrometer AS1289.6.3.3



CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

PROJECT No: 92269.00 NORTHING:

DATE: 21/2/2018 SHEET 1 OF 1

PIT No: ST6

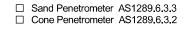
	Danth	Description	pi E		Sam		& In Situ Testing	_ h	Dyna	mic Pene	tromete	r Toet
RL	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		amic Pene (blows p		
	- 0.4	FILLING - brown silty clay with a trace of sandstone cobbles (washed in) SILTY CLAY - stiff, orange mottled grey silty clay with a trace of sand				Š			-	10	15	20
	- 0.7		1/						-			
	- 0.7 - - - - 1 - - -	Pit discontinued at 0.7m - < <n>limit of investigation</n>							-1 -1			
	- - - - - - - -								-2			
	- -3 - - - - -								-3			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





CLIENT: Walker Corporation Pty Ltd PROJECT: Proposed Residential Subdivision

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

DATE: 21/2/2018 SHEET 1 OF 1

PROJECT No: 92269.00

PIT No: ST7

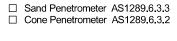
Γ	Double	Description	je T		Sam		& In Situ Testing] h	Dvn	amic Pone	tromoto	r Toet
꿉	Depth (m)	of Other	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		amic Pene (blows p		
	-	Strata FILLING - brown silty clay with a trace of basaltic gravel and construction and demolition material comprising concrete cobbles and bricks		D	 	Se			-	10	15	20
	- 0.3 -	SILTY CLAY - very stiff, red brown silty clay with a trace of ironstone gravel			0.4				-			
	- 0.5	Pit discontinued at 0,5m - < <n>limit of investigation</n>	Ϋ́						-1			
	- - 2 - -								-2 -			
	- - -3 - -								-3			
	-								-			

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Walker Corporation Pty Ltd CLIENT: Proposed Residential Subdivision PROJECT:

LOCATION: Stages 1 and 2

Janderra Lane, Wilton, NSW

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: ST8 **PROJECT No: 92269.00**

DATE: 21/2/2018 SHEET 1 OF 1

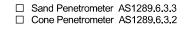
	Depth	Description	g g		_		& In Situ Testing		Dynamic P	enetrometo	er Tesf
	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic P (blow		20
_		FILLING - dark brown silty clay with a trace of basaltic gravel and construction and demolition waste material comprising concrete cobbles and bricks		D	 0.0	8			-		
	0.4	SILTY CLAY - stiff, red brown silty clay with a trace of ironstone gravel			0.4				-		
	0.6	Pit discontinued at 0.6m - < <n>limit of investigation</n>	<i>Y 'Y</i> '						-		
	1								-1		
									-		
									-		
									-		
									- -		
. :	2								-2		
									- -		
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	3								-3		
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									- -		
									- -		

RIG: John Deere 315 SG backhoe - 300mm bucket LOGGED: KPW SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Soil strengths based on tactile assessment

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample





Appendix C

Laboratory Results Summary

Sample Salinity Class (Based on sample ECe)	[Richards 1954]	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Moderately Saline	Slightly Saline	Slightly Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Slightly Saline	Slightly Saline	Non-Saline	Slightly Saline	Non-Saline
EC. S.	(declS/m)	0.2	0.3	0.2	0.3	0.5	9.0	6.4	9.0	9.0	0.3	0.1	0.1	0.3	9.4	0.1	4.3	4.0	2.6	0.2	0.2	0.7	0.4	7.0	0.4	0.4	0.5	2.2	3.2	2.0	2.6	1.4
EC ₁₈	(microS/cm)	37.0	48.0	32.0	28.0	85.0	100.0	73.0	92.0	94.0	4	13	18	47	8	92	720	099	320	37	36	83	55	86	19	25	16	370	540	330	430	230
xtural Factor (M)	(after DLWC)	9.0	0.9	0.9	6.0	0.9	6.0	0.0	0.7	6.0	6.0	7.0	0.7	6.0	9.9	0.7	6.0	6.0	8.0	6.0	6.0	0.7	0'2	7.0	6.0	2:0	6.0	0.0	6.0	6.0	9.0	6.0
Soil Texture Group Te (for detailed soil logs see Report Appendix)	[after DLWC]	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Medium clay	Heavy clay	Heavy clay	Medium clay	Medium clay	Heavy clay	Heavy clay	Medium clay	Heavy clay	Heavy clay	Light medium clay	Heavy clay	Heavy clay	Medium clay	Medium clay	Medium clay	Heavy clay	Medium clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay
ispersion? m Emerson (fc Class)	(AS1289.3.8.1)	Complete									2										2											
Emerson Dispersion? Crumb Class (from Emerson Number Class)	×	-									9										ø											
Sodicity Class	(after DLWC)	Sodic											Sodic																			
	- 1												15																			
Cation Sodicity Exchange [Na/CEC] Capacity	(mea/100a)	ıo											4.7																			
Exchangeable Sodium (Na) Concentration	(mea/100a)	-											690																			
Aggr. to Steel - S from sample Resistivity Co		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggrassive	Non-Aggrossive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggrassive	Non-Aggressive	Non-Aggressive	Mild	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Wild	Non-Aggressive	Non-Aggressive	Non-Aggressive
				Non-4	Non-A		Non-No	Non-A	Non-A	Non-A	Non-A	Non-No		Non-A	Non-A	Non-A	-	-	Non-A	Non-A	Non-A	Non-A	Non-A	Non-A	Non-A	Non-Ag	Non-A	Non-A	_	Non-A		Non-A
Aggr. to Steel - from Chloride conc.		Non-Aggressive				Non-Aggressive							Non-Aggressive																		Non-Aggressive	
ample Aggressivity Class Aggr. to Steel - from sample pH	[AS2159-2009]	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
Aggr. to Concrete -		Non-Aggressive				Non-Aggressive							Non-Aggressive																		Nor-Aggressive	
Aggr. to Concrete- from sample pH		Mild	Mild	Mild	Mild	Mild	Wild	Mild	Mild	Niid	Mild	Neid	Non-Aggressive	Mild	Non-Aggressive	Non-Aggressive	Niid	Moderate	Non-Aggressive	Mild	Mild	Non-Aggressive	Non-Aggressive	Neid	Mild	Non-Aggressive	Non-Aggressive	Mild	Mild	Mild	Non-Aggressive	Non-Aggressive
Soil Condition	(AS2159-2009)	۵	œ	ω	œ	00	0	60	g	8	00	89	00	0	00	0	8	8	8	8	0	00	8	80	00	9	80	9	8	0	ω.	8
Resistivity S By inversion of EC1:5	Dcm	27027	20833	31250	17241	11765	10000	13699	10870	10638	20408	76923	55556	21277	15873	20000	1389	1515	3126	27027	27778	10753	18182	10204	16393	19231	10989	2703	1852	3030	2326	4348
Sulphate Concentration By	(ma/ka)	4				20							9																			
Chloride Concentration C.	o/ka)	82				82							01																		530	
	Š																															
Hd.	alun Ho)	50	973	5.3	5.3	5.7	5.2	5.4	R)	5.1	Z	5.5	35.0	55	3	9.5	4.6	4.5	8.9	52	55	27.2	6.3	5,5	5.5	95	5.7	25	8.	Zł.	9.1	6.3
Sample Depth	(log lb)	0.5	1.0	1.5	0.5	1.0	1.5	2.0	2.5	3.0	0.5	1.0	1.5	2.0	2.5	3.0	0.5	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5	2.0	0.5	1.0	1.5	2.0	2.5	3.0
ocation	North (m MGA56)	6209337.0			6209352.0						6209030.0						6208936.0			6208834.0			6208655.0				6209281.0					
Test	East (m MGA56)	285550.0			285741.0						285580.0						285392.0			285637.0			285501.0				286032.0					
					o						50						53			27			35				42					

tners	Grandwaler
as Par	Erobertment (
Dougl	Geotherhold /
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Sample Salinity Class (Based on sample ECe)	[Richards 1954]	Non-Saline	Slightly Saline	Moderately Saline	Moderately Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline
EC, Si [M x EC _{1,5}] (B	(deciS/m)	9:1	3.7	4.3	9.0	2	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.1	0.1	2	9.0	1.4	4.1	1.0	9:1
EC ₁₁	(microS/cm)	560	610	710	720	160	12	41	28	26	35	47	9	24	25	31	56	22	32	70	61	190	16	160	170	170	160
Fextural Factor (M)	[after DLWC]	6.0	6.0	6.0	0'2	0.7	0'2	0.7	0'2	7.0	6.0	0'2	0.7	0'2	6.0	85 SD	0.7	6.0	7.0	6.0	6.0	6.0	0.7	8.5	89	6.0	10.0
Soil Texture Group (for detailed soil logs see Report Appendix)	[after DLWC]	Heavy clay	Heavy clay	Heavy clay	Medium clay	Medium clay	Medium clay	Medium clay	Medium clay	Medium clay	Heavy clay	Medium clay	Medium clay	Medium clay	Heavy clay	Light clay	Medium clay	Heavy clay	Medium clay	Heavy clay	Heavy clay	Heavy clay	Medium clay	Light clay	Light clay	Heavy clay	Loam
Crumb Class (from Emerson Number Class)	(AS1289.3.8.1)																										
city Class En	[after DLWC]						Sodic				Sodic					Sodic							Sodic				Non-Sodic
Sodicity Sodi	(%)						ıo				10					Ε							Ξ				4 5
Cation Sc Exchange IN Capacity	(meq/100g)						3.3				3.6					10							3.4				5.1
Exchangeable Sodium (Na) Concentration	(meq/100g)						0.18				0.37					2							0.39				0.22
		Non-Aggressive	Mild	Mild	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
Aggr. to Steel - Aggr. to Steel - from Chloride conc. from sample Resistivity							Non-Aggressive				Non-Aggressive		Non-Aggressive			Non-Aggressive		Non-Aggressive		Non-Aggressive			Non-Aggressive		Non-Aggressive		Non-Aggressive
nple Aggressivity Class Aggr. to Steel - from sample pH	[AS2159-2009]	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
San Aggr. to Concrete - from Sulphate conc.							Nor-Aggressive				Nor-Aggressive		Non-Aggressive			Nor-Aggressive		Nor-Aggressive		Nor-Aggressive			Nor-Aggressive		Non-Aggressive		Nor-Aggressive
Aggr. to Concrete - A from sample pH fro		PIIN	PISM	Mild	Non-Aggressive	Nild	Niid	Niid	Non-Aggrassive	Non-Aggressive	Mild	PijiN	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
Il Condition	AS2159-2009]		œ					80					00		60		80	00	80					8		8	80
Resistivity So By inversion of EC1:5	O.cm	3846	1639	1408	1389	6250	83333	71429	35714	38462	28571	21277	25000	41667	40000	32258	38462	18519	31250	\$0000	52632	5283	10989	0529	2882	5882	6250
Sulphate Concentration	(mg/kg)						85				50		93			01		15		93			50		17		57
Chloride	(mg/kg)						<10				23		37			56		24		<10			58		150		130
Æ	(pH units)	5.1	4.9	23	7.8	5.3	5.5	5.3	975	5.9	5.5	5.4	2.2	6.2	6.4	6.2	5.9	5.5	6.1	6.2	29	9	00	8	80	8.1	6
Sample Depth	(Bq w)	0.5	1.0	1.5	2.0	0.5	1.0	1.5	2.0	2.5	0.5	1.0	1.5	2.0	0.5	1.0	1.5	2.0	2.5	3.0	0.5	1.0	1.5	2.0	0.5	1.0	1.5
cation	North (m MGA56)	6208666.0			,	6209156.0					6208934.0				6208657.0		,				6209302.0	•			6209318.0		
Test Lo	East (m MGA56)	285546.0				285855.0					285846.0				285769.0						286275.0				286310.0		
Test Bore or Pit		£							9				77						11				82				

Sample Salinity Class (Based on sample ECe)	[Richards 1954]	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Slightly Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline
	(declS/m)	0.2	0.3	0.3	0.6	8.0	1.2	2.7	1.9	4.0	0.3	0.2	0.4	0.8	6.0	0.2	0.5	0.3	1.0	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2
EC ₁₈	(microS/cm) (i	14	39	42	89	110	170	380	270	ES.	155	9	62	130	130	37	82	84	50	25	94	32	91	17	59	17	20	16	34	59
Textural Factor (M)	[after DLWC]	9.0	7.0	6.0	8.5	2.0	7.0	0'2	7.0	7.0	6.0	6.0	2.0	0.0	0'2	6.0	6.0	6.0	9.0	7.0	7.0	6.0	7.0	0'2	6.0	6.0	9.0	7.0	6.0	45°
98 %	(after DLWC)	Heavy clay	Medium clay	Heavy clay	Light day	Medium clay	Medium clay	Medium clay	Medium clay	Medium clay	Heavy clay	Heavy clay	Medium clay	Heavy clay	Medium clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Medium clay	Medium clay	Heavy clay	Medium clay	Medium clay	Heavy clay	Heavy clay	Clay loam	Medium clay	Heavy clay	Light clay
Dispersion? (from Emerson (Class)	(AS1289.3.8.1)					Dispersive					Some																Complete			
Emerson Crumb Class Number						м					2																-			
Sodicity Class	[after DLWC]											Highly Sodic								Highly Sodic						Highly Sodic				
	(%)											30								81						61				
Cation Exchange Capacity	(meq/100g)											4.6								4						3.5				
III 0	(meq/100g)											1.4								0.7						99.0				
Aggr. to Steel - from sample Resistivity		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
Aggr. to Steel - from Chloride conc.			Non-Aggressive		Non-Aggressive		Non-Aggressive					Non-Aggressive			Non-Aggressive			Non-Aggressive		Non-Aggressive		Non-Aggressive				Non-Aggressive		Non-Aggressive		
Class	(AS2159-2009)	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggrassive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
Sam Aggr. to Concrete - from Sulphate conc.	-		Non-Aggressive		Nor-Aggressive		Nor-Aggressive					Nor-Aggressive			Non-Aggressive			Non-Aggressive		Nor-Aggressive		Non-Aggressive				Nor-Aggressive		Nor-Aggressive		
Aggr. to Concrete - from sample pH fr		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	Mild	Non-Aggressive	Mild	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
ndition	(AS2159-2009)	æ	œ	ω	89	00	9	00		8	00	00	00	0	00	0	8				0	00	0	0		9		9	80	ω
Resistivity 8 By inversion of EC1:5	D.cm	24390	25641	23810	14708	9091	5882	2632	3704	18868	18182	25000	16129	7692	7692	27027	12195	20833	90009	40000	21739	31250	62500	58824	34483	58824	20000	62500	29412	34483
<u> 5</u>	(mg/kg)		21		10		89					20			æ			10		×10		24				×10		<10		
Chloride	(mg/kg)		20		44		180					25			120			45		20		<10				10		10		
Æ	(bH nuits)	6.1	6.2	979	4	4.9	5.8	8.8	8.7	9	5.8	5.7	5.7	5.4	5.5	6.3	5.3	5.5	5.9	ø	5.7	19	5.6	4.5	1.9	13	5.8	6'5	5.6	8.8
Sample Depth	(lbq w)	0.5	1.0	1.5	2.0	0.5	1.0	1,5	2.0	0.5	1.0	1.5	2.0	2.5	3.0	0.5	1.0	1,5	2.0	2.5	3.0	0.5	1.0	1,5	0.5	1.0	1.5	2.0	2.5	3.0
cation	(m MGA56)	6209222.0				6209266.0				6209045.0						6209028.0						6208828.0			6208833.0					
Test Loc	(m MGA56)	286207.0	286227.0						286068.0						286357.0						286054.0			286253.0						
Test Bore or Pit		8	8 5							88						06						56			26					

(med/100g) (med/100g) (%) (alter DLWC) (AS/289,3.8.1] (after DLWC) (after DLWC) (microStorn) (decSim) (Richards 1954)	(megrodg) (19) plane U.M.) po loss a.d.) plane U.M.) p	ve Heavy clay 6.0 35 0.2	Mexician clay 7:0 65 0.5	2 Some Heavy clay 6.0 28 0.2	Heavy clay 6.0 6.0 0.4	Heavy chy 6.0 36 0.2	Highty Sodic Heavy city 6.0 44 0.3	Heavy clay 6.0 80 0.5	Medium clay 7:0 46 0:3	Heavy clay 6.0 34 0.2	Heery clay 6.0 25 0.2	Heavy clsy 6-0 38 0.2	Heavy clay 6.0 15 0.1	Heavy clay 6.0 12 0.1	Medium clay 7.0 26 0.2	Heavy clay 6.0 14 0.1	Heavy clay 6.0 21 0.1	Medium clay 7.0 96 0.7	Heavy clay 6:0 25 0.2	Heavy dlay 6.0 48 0.3	Heavy clay 6:0 6:1 0.4	Heavy clay 6.0 25 0.2	Medium clay 7.0 34 0.2	
(meq/100g) (%) [after DLWC] (AST289.3.8.1] [after DLWC] [after DLWC] (microS(cm)	(machana) (mach	Heavy clay 6.0 35	7.0 65	Some Heavy day 6.0 28	0.0	6.0 36	Heavy clay 6.0 44	6.0 80	7.0 46	6.0 34	6.0 25	6.0 38	6.0 15	6.0 12	7.0 26	6.0	6.0 21	2.0 96	6.0 25	8.0 48	6.0 61	6.0 25	7.0 34	
(meq/100g) (%) [after DLWC] [AS1289.3.8.1] [after DLWC]	(met roug) (met roug) (na) per curved per curved per curved per curved per curved per curved curved per curved curved curved per curved	. Heavy city		Some Heavy clay			Highly Sodic Heavy clay																	
(meq/100g) (%) [after DLWC] [AS1289.3.8.1]	Turet todd) (1/2) Barra news) (2) (1/2) (1		Medium clay	Some	Heavy clay	Heavy clay	Highly Sodio	Heavy clay	Medium clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Medium clay	Heavy clay	Heavy clay	Medium clay	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Medium clay	
(meq/100g) (%) [after DLWC]	(med. roug) (w) (med. roug)	9																						ł
(meq/100g) (%) [after DLWC]	(med. roug) (w) (med. roug)	9		2																Some				
(meq/100g) (%)	(fign./bau.) (fign./bau.)	9																		2				Ī
(meq/100g) (%)	(fign./bau.) (fign./bau.)	9.4											Highly Sodic	Sodic						Highly Sodic				
+	(Boot hau)	e, e					6						38	6						25				
(meq/100g)		9.					5.3						5.3	4.5						4				
	Non-Aggressive	9					-						2	0.39						-				
\dashv		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	
	Non-Aggressive		Non-Aggressive		Non-Aggressive		Non-Aggressive		Non-Aggressive		Non-Aggressive		Non-Aggressive	Non-Aggressive			Non-Aggressive			Non-Aggressive		Non-Aggressive		
[AS2159-2009]	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggrassive	Non-Aggrassive	Non-Aggressive	Non-Aggrassive	Non-Aggressive	Non-Aggrassive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggrassive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	l
	Non-Aggressive		Aggressive		Non-Aggressive	-	Non-Aggressive	-	Non-Aggressive h		Aggressive		Aggressive	Nor-Aggressive			Nor-Aggressive			Aggressive		Nor-Aggressive		
		ressive	Non-	ressive		ressive		ressive		rossivo	Non	rossive	Non-		ressive	ressive		ressive	ressive	Non-	Ð		ressive	
	Non-Aggressive	Non-Aggressive	Nild	Non-Aggressive	Nild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Niid	Non-Aggressive	Non-Aggressive	_
[AS2159-200	B B	œ	00	83	00	œ	00	œ	00	ω	83	00	0	80	8	80	8	8	00	ω	80	80	65	
D.cm	32258	28571	15385	35714	16667	27778	12122	12500	21739	29412	40000	26316	66867	83333	38462	71429	47619	10417	40000	20833	16393	40000	29412	
(mg/kg)	(mg/kg)		<10		V10		8		73		<10		70	10			10			017		01		
(mg/kg)	(mg/kg))		72		63		88		42		<10		<10	<10			10			46		20		
(pH units)	(pn nms)	33	5.4	9.5	52	975	8.2	975	975	5.6	5.7	5.9	62	9	5.8	8.28	5.8	80	3	5.7	5.4	5.8	2.7	İ
+	90	1.0	1.5	0.5	1.0	1.5	2.0	0.5	1.0	1.5	2.0	2.5	3.0	0.5	1.0	1.5	2.0	2.5	0.5	1.0	1.5	2.0	2.5	Ī
(lbg lm)	6209231.0	1	,	6209147.0				6208895.0						6208822.0					6208699.0					_
North (m MGA56) (m bgl)	90			286607.0				286634.0						286492.0					286666.0					_
_	28644			104				112						115					9.					_
_	North (co. MCAgg)	Morth (m MGASE) (m bgl) (pH units) (m e2009231:0 0.5 6.1	Im NG680	Com Model Com	Ton MacKellon Ton MacKello	The North The	Ton MacRoss Ton MacRoss	The Earlier The MicKelly The M	The Benist The North The	The Best The North The N	The Ballet	The Beach The Microsol The North The Microsol The North The Microsol	The Beach	The Best The Control of Contr	The Beach	The Michael The Michael	The Beach The Decision The Dec	The Beach	The Beach The	The Beach	The Beach	The Beach The	2864620 6208241.0 0.5 0.41 0.41	2864420 6200221-0 0.5 0.1

Г		П															
Sample Salinity Class	(Based on sample ECe)	[Richards 1954]	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline	Non-Saline
	[M×EC ₁₄]	(microS/cm) (deciS/m)	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.8	2.0	0.2	0.2	0.2
EC.	[Lab.]	(microS/cm)	==	01	=	27	33	31	26	91	39	25	88	780	59	31	82
Textural Factor (M)		[after DLWC]	6.0	6.0	6.0	0:9	7.0	0'2	6.0	0'2	0'2	6.0	8.5	072	6.0	6.0	072
Soil Texture Group	(from Emerson (for detailed soil logs see Class) Report Appendix)	[after DLWC]	Heavy clay	Heavy clay	Heavy clay	Heavy clay	Medium clay	Medium clay	Heavy clay	Medium clay	Medium clay	Heavy clay	Light clay	Medium clay	Heavy clay	Heavy clay	Medium clay
Dispersion?	(from Emerson Class)	[AS1289.3.8.1]															
Emerson	Crumb Class Number																
Sodicity Class		[after DLWC]				Highly Sodic											Highly Sodic
Sodicity	[Na/CEC]	(%)				18											23
Cation	Exchange	(meq/100g)				3.1											9
Exchangeable	Sodium (Na) Concentration	(meq/100g)				0.56											1.4
	Aggr. to Steel - from sample Resistivity		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
9	Aggr. to Steel - from Chloride conc.		Non-Aggressive			Non-Aggressive				Non-Aggressive		Non-Aggressive		Non-Aggressive			Non-Aggressive
male Aggressivity Clas	Aggr. to Steel - from sample pH	[AS2159-2009]	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggrassive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggrassive	Non-Aggressive	Non-Aggressive
	Aggr. to Concrete- from Sulphate conc		Non-Aggressive			Nor-Aggressive				Non-Aggrassive		Non-Aggressive		Non-Aggrossive			Non-Aggressive
1	Aggr. to Concrete- from sample pH		Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive
Soil Condition		[AS2159-2009]	ω	03	00	8	00	8	00	00	60	00	00	ω	00	00	00
Resistivity	By inversion of EC1:5	D.cm	60606	100000	60606	37037	30303	32258	29412	62500	25641	20000	10753	3571	34483	32258	35714
Sulphate	Concentration	(mg/kg)	01>			20				01>		92		27			Q1
Chloride	Concentration	(mg/kg)	<10			10				<10		14		380			20
Ha		(bH nnits)	6.1	6.1	5.9	8.8	5.7	5.7	6.2	6.3	6.2	ý	6.9	7.4	6.1	9	8,8
Sample Depth		(If m)	0.5	1:0	-S-	2.0	2.5	3.0	0.5	1.0	1.5	2.0	0.5	1:0	9:0	1:0	5.1
Test Location	Month	(m MGA56)	6209091.0						6209204.0				6209233.0		6209298.0		
Test	100	(m MGA56)	286772.0						286388.0				286336.0		286387.0		
	est Bore or Pit	1	123						124				125		126		

Project 92269.01.R.001.Rev0 March 2018

Appendix D

Laboratory Certificates of Analysis



Envirolab Services Pty Ltd

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

CERTIFICATE OF ANALYSIS 185390

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

Sample Details	
Your Reference	92269.00, WILTON, Janderra Lane, St 1 & 2, DSI
Number of Samples	42 Soil
Date samples received	15/02/2018
Date completed instructions received	16/02/2018

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	23/02/2018	
Date of Issue	22/02/2018	
NATA Accreditation Number 2901.	This document shall not be reproduced except in full.	
Accredited for compliance with ISO/	IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Long Pham, Team Leader, Metals Priya Samarawickrama, Senior Chemist **Authorised By**

David Springer, General Manager



Misc Inorg - Soil						
Our Reference		185390-1	185390-2	185390-3	185390-4	185390-5
Your Reference	UNITS	TP7/0.4-0.5	TP7/0.9-1.0	TP7/1.4-1.5	TP9/0.4-0.5	TP9/0.9-1.0
Date Sampled		12,02,18	12,02,18	12,02,18	12,02,18	12,02,18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Date analysed	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
pH 1:5 soil:water	pH Units	5.5	5.3	5.3	5.3	5.1
Electrical Conductivity 1:5 soil:water	μS/cm	37	48	32	58	85
Chloride, Cl 1:5 soil:water	mg/kg	20	[NA]	[NA]	[NA]	78
Sulphate, SO4 1:5 soil:water	mg/kg	44	[NA]	[NA]	[NA]	20
Misc Inorg - Soil						
Our Reference		185390-6	185390-7	185390-8	185390-9	185390-10
Your Reference	UNITS	TP9/1.4-1.5	TP9/1.9-2.0	TP9/2.4-2.5	TP9/2.9-3.0	TP20/0.4-0.5
Date Sampled		12.02.18	12.02.18	12.02.18	12.02.18	12.02.18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Date analysed	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
pH 1:5 soil:water	pH Units	5.2	5.4	5.4	5.1	5.1
Electrical Conductivity 1:5 soil:water	μS/cm	100	73	92	94	49
Misc Inorg - Soil						
			105000 10	185390-13	405000 44	
Our Reference		185390-11	185390-12	100000-10	185390-14	185390-15
Our Reference Your Reference	UNITS	185390-11 TP20/0.9-1.0	TP20/1.4-1.5	TP20/1.9-2.0	TP20/2.4-2.5	185390-15 TP20/2.9-3.0
	UNITS					
Your Reference	UNITS	TP20/0.9-1.0	TP20/1.4-1.5	TP20/1.9-2.0	TP20/2.4-2.5	TP20/2.9-3.0
Your Reference Date Sampled	UNITS -	TP20/0.9-1.0 12.02.18	TP20/1.4-1.5 12.02.18	TP20/1.9-2.0 12.02.18	TP20/2.4-2.5 12.02.18	TP20/2.9-3.0 13.02.18
Your Reference Date Sampled Type of sample	UNITS - -	TP20/0.9-1.0 12.02.18 Soil	TP20/1.4-1.5 12.02.18 Soil	TP20/1.9-2.0 12.02.18 Soil	TP20/2.4-2.5 12.02.18 Soil	TP20/2.9-3.0 13.02.18 Soil
Your Reference Date Sampled Type of sample Date prepared	UNITS pH Units	TP20/0.9-1.0 12.02.18 Soil 19/02/2018	TP20/1.4-1.5 12.02.18 Soil 19/02/2018	TP20/1.9-2.0 12.02.18 Soil 19/02/2018	TP20/2.4-2.5 12.02.18 Soil 19/02/2018	TP20/2.9-3.0 13.02.18 Soil 19/02/2018
Your Reference Date Sampled Type of sample Date prepared Date analysed	- -	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water	- - pH Units	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water Electrical Conductivity 1:5 soil:water	- - pH Units μS/cm	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 13	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6 18	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 47	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3 63	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6 20
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water Electrical Conductivity 1:5 soil:water Chloride, Cl 1:5 soil:water	- - pH Units μS/cm mg/kg	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 13 [NA]	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6 18 10	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 47 [NA]	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3 63 [NA]	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6 20 [NA]
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water Electrical Conductivity 1:5 soil:water Chloride, CI 1:5 soil:water Sulphate, SO4 1:5 soil:water	- - pH Units μS/cm mg/kg	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 13 [NA]	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6 18 10	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 47 [NA]	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3 63 [NA]	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6 20 [NA]
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water Electrical Conductivity 1:5 soil:water Chloride, Cl 1:5 soil:water Sulphate, SO4 1:5 soil:water	- - pH Units μS/cm mg/kg	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 13 [NA]	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6 18 10 10	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 47 [NA]	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3 63 [NA]	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6 20 [NA]
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water Electrical Conductivity 1:5 soil:water Chloride, Cl 1:5 soil:water Sulphate, SO4 1:5 soil:water Misc Inorg - Soil Our Reference	- pH Units μS/cm mg/kg mg/kg	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 13 [NA] [NA]	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6 18 10 10	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 47 [NA] [NA]	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3 63 [NA] [NA]	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6 20 [NA] [NA]
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water Electrical Conductivity 1:5 soil:water Chloride, Cl 1:5 soil:water Sulphate, SO4 1:5 soil:water Misc Inorg - Soil Our Reference Your Reference	- pH Units μS/cm mg/kg mg/kg	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 13 [NA] [NA] TP23/0.4-0.5	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6 18 10 10 185390-17 TP23/1.4-1.5	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 47 [NA] [NA] TP27/0.4-0.5	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3 63 [NA] [NA] TP27/0.9-1.0	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6 20 [NA] [NA] TP27/1.4-1.5
Your Reference Date Sampled Type of sample Date prepared Date analysed pH 1:5 soil:water Electrical Conductivity 1:5 soil:water Chloride, Cl 1:5 soil:water Sulphate, SO4 1:5 soil:water Misc Inorg - Soil Our Reference Your Reference Date Sampled	- pH Units μS/cm mg/kg mg/kg	TP20/0.9-1.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 13 [NA] [NA] TP23/0.4-0.5 13.02.18	TP20/1.4-1.5 12.02.18 Soil 19/02/2018 19/02/2018 5.6 18 10 10 185390-17 TP23/1.4-1.5 13.02.18	TP20/1.9-2.0 12.02.18 Soil 19/02/2018 19/02/2018 5.5 47 [NA] [NA] TP27/0.4-0.5 13.02.18	TP20/2.4-2.5 12.02.18 Soil 19/02/2018 19/02/2018 6.3 63 [NA] [NA] TP27/0.9-1.0 13.02.18	TP20/2.9-3.0 13.02.18 Soil 19/02/2018 19/02/2018 5.6 20 [NA] [NA] TP27/1.4-1.5 13.02.18

pH Units

μS/cm

4.6

720

6.8

320

5.2

37

Envirolab Reference: 185390 Revision No: R00

Electrical Conductivity 1:5 soil:water

pH 1:5 soil:water

7.1

93

5.5

36

Misc Inorg - Soil						
Our Reference		185390-21	185390-22	185390-23	185390-24	185390-25
Your Reference	UNITS	TP34/0.9-1.0	TP34/1.4-1.5	TP35/0.4-0.5	TP35/0.9-1.0	TP35/1.4-1.
Date Sampled		13.02.18	13.02.18	13.02.18	13.02.18	13.02.18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Date analysed	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
pH 1:5 soil:water	pH Units	6.3	6.0	6.3	5.5	5.5
Electrical Conductivity 1:5 soil:water	μS/cm	47	32	55	98	61
Misc Inorg - Soil						
Our Reference		185390-26	185390-27	185390-28	185390-29	185390-30
Your Reference	UNITS	TP35/1.9-2.0	TP42/0.4-0.5	TP42/0.9-1.0	TP42/1.4-1.5	TP42/1.9-2.
Date Sampled		13.02.18	14.02.18	14.02.18	14.02.18	14.02.18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Date analysed	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/201
pH 1:5 soil:water	pH Units	5.6	5.7	5.0	4.8	5.2
Electrical Conductivity 1:5 soil:water	μS/cm	52	91	370	540	330
Misc Inorg - Soil						
Our Reference		185390-31	185390-32	185390-33	185390-34	185390-35
Your Reference	UNITS	TP42/2.4-2.5	TP42/2.9-3.0	TP43/0.4-0.5	TP43/0.9-1.0	TP43/1.4-1.
Date Sampled		14.02.18	12.02.18	14.02.18	14.02.18	14.02.18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Date analysed	-	19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
pH 1:5 soil:water	pH Units	9.1	6.3	5.1	4.9	5.2
Electrical Conductivity 1:5 soil:water	μS/cm	430	230	260	610	710
Chloride, Cl 1:5 soil:water	mg/kg	530	[NA]	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	87	[NA]	[NA]	[NA]	[NA]
Misc Inorg - Soil						
Our Reference		185390-36	185390-37	185390-38	185390-39	185390-40
Your Reference	UNITS	TP43/1.9-2.0	TP48/0.4-0.5	TP48/0.9-1.0	TP48/1.4-1.5	TP48/1.9-2
Date Sampled		14.02.18	14.02.18	14.02.18	14.02.18	14.02.18
Type of sample		Soil	Soil	Soil	Soil	Soil
Type of Sample		26	00	00		

19/02/2018

7.8

720

pH Units

μS/cm

mg/kg

mg/kg

19/02/2018

5.3

160

19/02/2018

5.5

12

<10

<10

19/02/2018

5.3

14

Envirolab Reference: 185390 Revision No: R00

Electrical Conductivity 1:5 soil:water

Chloride, Cl 1:5 soil:water

Sulphate, SO4 1:5 soil:water

Date analysed

pH 1:5 soil:water

19/02/2018

5.6

28

Misc Inorg - Soil			
Our Reference		185390-41	185390-42
Your Reference	UNITS	TP48/2.4-2.5	TP23/0.9-1.0
Date Sampled		14.02.18	13.02.18
Type of sample		Soil	Soil
Date prepared	-	19/02/2018	19/02/2018
Date analysed	-	19/02/2018	19/02/2018
pH 1:5 soil:water	pH Units	5.9	4.5
Electrical Conductivity 1:5 soil:water	μS/cm	26	660

ESP/CEC				
Our Reference		185390-1	185390-12	185390-38
Your Reference	UNITS	TP7/0.4-0.5	TP20/1.4-1.5	TP48/0.9-1.0
Date Sampled		12.02.18	12.02.18	14.02.18
Type of sample		Soil	Soil	Soil
Date prepared	-	19/02/2018	19/02/2018	19/02/2018
Date analysed	-	19/02/2018	19/02/2018	19/02/2018
Exchangeable Ca	meq/100g	0.3	0.1	0.3
Exchangeable K	meq/100g	0.2	0.2	0.2
Exchangeable Mg	meq/100g	3.9	3.6	2.7
Exchangeable Na	meq/100g	0.59	0.69	0.18
Cation Exchange Capacity	meq/100g	5.0	4.7	3.3
ESP	%	12	15	5

Method ID	Methodology Summary
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

QUALITY	CONTROL	Misc Ino	rg - Soil		Duplicate Spike F					covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	185390-2
Date prepared	-			19/02/2018	1	19/02/2018	19/02/2018		19/02/2018	19/02/2018
Date analysed	-			19/02/2018	1	19/02/2018	19/02/2018		19/02/2018	19/02/2018
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	5.5	5.4	2	100	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	<1	1	37	36	3	98	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	20	10	67	97	113
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	44	36	20	100	110

QUALIT	QUALITY CONTROL: Misc Inorg - Soil							Duplicate			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]	
Date prepared	-			[NT]	11	19/02/2018	19/02/2018		19/02/2018		
Date analysed	-			[NT]	11	19/02/2018	19/02/2018		19/02/2018		
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	11	5.5	5.5	0	99		
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	11	13	14	7	95		

QUALITY	Duplicate				Spike Recovery %					
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	21	19/02/2018	19/02/2018		[NT]	[NT]
Date analysed	-			[NT]	21	19/02/2018	19/02/2018		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	21	6.3	6.1	3	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	21	47	51	8	[NT]	[NT]

QUALITY	Duplicate				Spike Recovery %					
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	32	19/02/2018	19/02/2018		[NT]	[NT]
Date analysed	-			[NT]	32	19/02/2018	19/02/2018		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	32	6.3	6.3	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	32	230	220	4	[NT]	[NT]

QUALITY	CONTROL	Misc Ino	rg - Soil		Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-				41	19/02/2018	19/02/2018		[NT]	
Date analysed	-				41	19/02/2018	19/02/2018		[NT]	
pH 1:5 soil:water	pH Units		Inorg-001		41	5.9	5.9	0	[NT]	
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002		41	26	34	27	[NT]	

QUAL	ITY CONTR	OL: ESP/	CEC		Duplicate Spike Reco					covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			19/02/2018	1	19/02/2018	19/02/2018		19/02/2018	
Date analysed	-			19/02/2018	1	19/02/2018	19/02/2018		19/02/2018	
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	1	0.3	0.3	0	104	
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	1	0.2	0.2	0	115	
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	1	3.9	4.2	7	108	
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	1	0.59	0.66	11	118	
ESP	%	1	Metals-009	[NT]	1	12	12	0	[NT]	[NT]

Result Definiti	ons
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 Contro	ol 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

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

Revision No:

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Envirolab Reference: 185390 Page | 10 of 10 R00

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CHAIN OF CUSTODY

Project Name:	Project Name: WILTON, Janderra Lane, St 1 & 2, DSI			To:	Envirolab Services		
Project No:	92269.00	Sampler:	KPW		12 Ashley Street, Chatswood NSW 2067	N pooms	SW 2067
Project Mgr:	Emily McGinty	Mob. Phone:	0457820847	Attn:	Tania Notaras		
Email:	emily.mcginty@douglaspartners.com.au; kur	.au; kurtis.wathe	irtis.wathen@douglaspartners.com.a Phone:	Phone:	(02) 9910 6200	Fax:	Fax: (02) 9910 6201
Date Required: Standard	Standard			Email:	tnotaras@envirolabservices.com.au	vices.con	n.au

		pe	Sample Type	Container Type					Analytes				
Sample	Lab	oldms2 əts0	S - soil W - water	G - glass P - plastic	Hd	EC	-SpinoldO	Sulphate	Sodicity			Notes/preservation	servation
TP7/0.4-0.5	-	12.02.18	S	а	×	×	×	×	×				
TP7/0.9-1.0	7	12.02.18	S	۵	×	×							X
TP7/1.4-1.5	8	12.02.18	S	Д	×	×					(
TP9/0.4-0.5	4	12.02.18	S	Д	×	×	WELL ST			В	ENVISORIAB Chatewood	12 A Shley St	
TP9/0.9-1.0	5	12.02.18	S	Д	×	×	X	X			Inb No: 18 (2)	Ph: (02) 9910 6200	
TP9/1.4-1.5	9	12.02.18	S	Ь	×	×			200	1 0	1	, 0	
TP9/1.9-2.0	t	12.02.18	S	۵	×	×	+		# 12 12 12 12	1	Time Received: 16:3	30	
TP9/2.4-2.5	do	12.02.18	S	А	×	×				N I	Received by: 4 Temp: Cool Ambient	6.52	
TP9/2.9-3.0	6	12.02.18	S	Ь	×	×				O w	Cooling: Ice/Idepack	None	
TP20/0.4-0.5	(0)	12.02.18	S	Ь	×	×	12/8/19)		
TP20/0.9-1.0	11	12.02.18	S	۵	×	×						15.0	
TP20/1.4-1.5	7	12.02.18	S	۵	×	×	×	×	×				
Lab Report No:			OF LESS OF THE										
Send Results to:		Jouglas Part	ners Pty Ltd	Address	~	laler Cres	cent Sm	eaton Gra	8 Waler Crescent Smeaton Grange NSW 2567	Phone:	(02) 4647 0075	Fax:	(02) 4646 1886
Relinquished by:		KPW			10 mm			Transpo	Transported to laboratory by:	ry by:			100
Signed:				Date & Time.	-	4 00 10		Dogwood by	l hvr	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			

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	Douglas Partners

Project Name		Will TON, Janderra Lane, St 1 & 2, DS	a ane St	& Z. US							ELVI CIA	LIVII DIAD DEI VICES	
Project No:		3.00			Sampler:		KPW		21.5		12 Ashle	12 Ashley Street, Chatswood NSW	swood NSW 2067
Project Mgr:	Emily	Emily McGinty			Mob. Phone:	one:	0457820847	1847		Attn:	Tania Notaras	otaras	
Email:	emily	emily.mcginty@douglaspartners.com.au; kurti	douglaspa	rtners.com	au; kurtis.	wathen	@dondla	is.wathen@douglaspartners.com.a	s.com.a	Phone:	(02) 9910 6200	0 6200	Fax: (02) 9910 6201
Date Required:		dard								Email:	tnotaras(tnotaras@envirolabservices.com.au	vices.com.au
		əte	Sample	Container Type					Analytes				
Sample ID	Гар] gnildms2	S - soil W - water	G - glass	Hq	EC	Chloride	Sulphate	Sodicity	a di			Notes/preservation
TP20/1.9-2.0	(3	12.02.18	S	Ь	×	×							
TP20/2.4-2.5	14	12.02.18	S	А	×	×	T. A.						
TP20/2.9-3.0	SI	13.02.18	S	Ь	×	×							
TP23/0.4-0.5	91	13.02.18	S	Ь	×	×	JAT Editor		T S				
TP23/0.9-1.0	1	13.02.18	S	Ь	×	×							
TP23/1.4-1.5	13	13.02.18	S	Ь	×	×							
TP23/1.9-2.0	(13.02.18	S	Ь	×	×							
TP23/2.4-2.5	1	13.02.18	S	Ь	×	×	×	×		, 1			
TP23/2.9-3.0	1	13.02.18	S	Ь	×	×							
TP27/0.4-0.5	18	13.02.18	S	Ь	×	×							
TP27/0.9-1.0	13	13.02.18	S	Ь	×	×							
TP27/1.4-1.5	2	13.02.18	S	А	×	×							
TP34/0.4-0.5	1	13.02.18	S	Д.	×	×	×	×	×				
Lab Report No:	:0									ŀ	- 1		
Send Results to:		Douglas Partners Pty Ltd	tners Pty Lt		Address 18 Wa	aler Cres	cent Sme	Waler Crescent Smeaton Grange NSW 2567	nge NSW	\dashv	Phone: (02	(02) 4647 0075	Fax: (02) 4646 1886
Relinquished by:		KPW						Transpor	ted to la	Transported to laboratory by:	у:		
Olamond.				i .	* *	07 00							

Douglas Partners Geotechnics | Environment | Groundwater

Fax: (02) 9910 6201 12 Ashley Street, Chatswood NSW 2067 tnotaras@envirolabservices.com.au **Envirolab Services** (02) 9910 6200 Tania Notaras emily.mcginty@douglaspartners.com.au; kurtis.wathen@douglaspartners.com.a Phone: Email: Attn: ö 0457820847 KPW Mob. Phone: Sampler: Project Name: WILTON, Janderra Lane, St 1 & 2, DSI **Emily McGinty** Date Required: Standard 92269.00 Project Mgr: Project No: Email:

		Date	Sample Type	Container Type					Analytes			
Sample ID /853%	Lab ⊡	Sampling	S - soil W - water	G - glass	Hd	EC	Chloride	Sulphate	Sodicity			Notes/preservation
TP34/0.9-1.0	7	13.02.18	S	Р	×	×		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
TP34/1.4-1.5	22	13.02.18	S	Ь	×	×	THE STATE OF		THE RESERVE			
TP35/0.4-0.5	23	13.02.18	S	Ь	×	×						
TP35/0.9-1.0	77	13.02.18	S	Д	×	×						
TP35/1.4-1.5	25	13.02.18	S	А	×	×						
TP35/1.9-2.0	8	13.02.18	S	А	×	×	34					
TP42/0.4-0.5	拉	14.02.18	S	А	×	×						
TP42/0.9-1.0	28	14.02.18	S	Ь	×	×						
TP42/1.4-1.5	X	14.02.18	S	Ь	×	×	100	1				
TP42/1.9-2.0	2	14.02.18	S	Ф	×	×						
TP42/2.4-2.5	3	14.02.18	S	Ь	×	×	×	×				
TP42/2.9-3.0	37	12.02.18	S	Ф	×	×						
TP43/0.4-0.5	*	14.02.18	S	۵	×	×				B		
Lab Report No:				No. of Parties		Name of the last		1000			A	
Send Results to:		Douglas Partners Pty Ltd	ners Pty Ltc		Address 18 V	/aler Cres	cent Sme	eaton Grai	Waler Crescent Smeaton Grange NSW 2567	Phone:	(02) 4647 0075	Fax: (02) 4646 1886
Relinquished by:		KPW						Transpor	Transported to laboratory by:	y by:		
Signed:				Date & Time:	14	.02.18		Received by:	bv:			

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Douglas Partners	I Environment
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Project Name: WILTON, Janderra Lane, St 1 & 2, [WILT	WILTON, Janderra Lane, St 1 & 2, DSI	a Lane, St	1 & 2, DSI						To:	Envirolab Services	vices	
Project No:	92269.00	9.00			Sampler:		KPW				12 Ashley Street, Chatswood NSW	eet, Chat	swood NSW 2067
Project Mgr:	Emily	Emily McGinty		Mile State of the	Mob. Ph	hone:	0457820847	847		Attn:	Tania Notaras		
Email:	emily	.mcginty@	douglaspa	emily.mcginty@douglaspartners.com.au; kurtis.wathen@douglaspartners.com.a	au; kurtis	.wathen	@donale	spartner	rs.com.a	Phone:	(02) 9910 6200	00	Fax: (02) 9910 6201
Date Required:		lard								Email:	tnotaras@envirolabservices.com.au	rirolabser	vices.com.au
		Oate	Sample	Container Type					Analytes				
Sample ID	Lab D	J gnildms2	S - soil W - water	G - glass	Hq	EC	Chloride	Sulphate	Sodicity				Notes/preservation
TP43/0.9-1.0	32	14.02.18	S	Ь	×	×							
TP43/1.4-1.5	25	14.02.18	S	Ь	×	×							
TP43/1.9-2.0	22	14.02.18	S	Ф	×	×							
TP48/0.4-0.5	米	14.02.18	S	Д	×	×							
TP48/0.9-1.0	38	14.02.18	S	Ф	×	×	×	×	×				
TP48/1.4-1.5	88	14.02.18	S	۵	×	×							
TP48/1.9-2.0	B	14.02.18	S	Д	×	×	0.0						
TP48/2.4-2.5	4	14.02.18	S	۵	×	×							
Fisher	Clis												
0.1-60/2KGT	45												
Lab Report No:													
Send Results to:		Douglas Partners Pty Ltd	tners Pty L	td Address	ess 18 W	aler Cres	scent Sme	aton Gran	18 Waler Crescent Smeaton Grange NSW 2567		Phone: (02) 4647 0075	7 0075	Fax: (02) 4646 1886
Relinquished by:	1	KPW						Transpor	ted to lab	Transported to laboratory by:			
Signed.	Test			i	1 1	0700	-						

Page 4 of 4



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, Kurtis Wathen

Sample Login Details	
Your reference	92269.00, WILTON, Janderra Lane, St 1 & 2, DSI
Envirolab Reference	185390
Date Sample Received	15/02/2018
Date Instructions Received	16/02/2018
Date Results Expected to be Reported	23/02/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	42 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	25.9
Cooling Method	None
Sampling Date Provided	YES

Comments	
Nil	

Please direct any queries to:

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

Analysis Underway, details on the following page:

ENVIROLAB

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 ID	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride, CI1:5 soil:water	Sulphate, SO41:5 soil:water	ESP/CEC
TP7/0.4-0.5	✓	✓	✓	✓	✓
TP7/0.9-1.0	✓	✓			
TP7/1.4-1.5	✓	✓			
TP9/0.4-0.5	✓	✓			
TP9/0.9-1.0	✓	✓	✓	✓	
TP9/1.4-1.5	✓	✓			
TP9/1.9-2.0	✓	✓			
TP9/2.4-2.5	✓	✓			
TP9/2.9-3.0	✓	✓			
TP20/0.4-0.5	✓	✓			
TP20/0.9-1.0	✓	✓			
TP20/1.4-1.5	✓	✓	✓	✓	✓
TP20/1.9-2.0	✓	✓			
TP20/2.4-2.5	✓	✓			
TP20/2.9-3.0	✓	✓			
TP23/0.4-0.5	✓	✓			
TP23/1.4-1.5	✓	✓			
TP27/0.4-0.5	✓	✓			
TP27/0.9-1.0	✓	✓			
TP27/1.4-1.5	✓	✓			
TP34/0.9-1.0	✓	✓			
TP34/1.4-1.5	✓	✓			
TP35/0.4-0.5	✓	✓			
TP35/0.9-1.0	✓	✓			
TP35/1.4-1.5	✓	✓			
TP35/1.9-2.0	✓	✓			
TP42/0.4-0.5	✓	✓			
TP42/0.9-1.0	✓	✓			
TP42/1.4-1.5	✓	✓			
TP42/1.9-2.0	✓	✓			
TP42/2.4-2.5	✓	✓	✓	✓	
TP42/2.9-3.0	✓	✓			



Envirolab Services Pty Ltd
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ph 02 9910 6200 fax 02 9910 6201

ph 02 9910 6200 fax 02 9910 6201 customerservice@envirolab.com.au www.envirolab.com.au

Sample ID	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride, CI1:5 soil:water	Sulphate, SO41:5 soil:water	ESP/CEC
TP43/0.4-0.5	✓	✓			
TP43/0.9-1.0	✓	✓			
TP43/1.4-1.5	✓	✓			
TP43/1.9-2.0	✓	✓			
TP48/0.4-0.5	✓	✓			
TP48/0.9-1.0	✓	✓	✓	✓	✓
TP48/1.4-1.5	✓	✓			
TP48/1.9-2.0	✓	✓			
TP48/2.4-2.5	✓	✓			
TP24/0.9-1.0	✓	✓			

The '\sqrt{'} 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.



Envirolab Services Pty Ltd ABN 37 112 535 645

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

CERTIFICATE OF ANALYSIS 185802

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

Sample Details	
Your Reference	92269.00, Wilton Janderra Lane St 1 & 2, DSI
Number of Samples	87 Soil
Date samples received	22/02/2018
Date completed instructions received	22/02/2018

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	01/03/2018
Date of Issue	01/03/2018
NATA Accreditation Number 2901. TI	nis document shall not be reproduced except in full.
Accredited for compliance with ISO/IE	EC 17025 - Testing. Tests not covered by NATA are denoted with *

Results Approved By

Long Pham, Team Leader, Metals Priya Samarawickrama, Senior Chemist **Authorised By**

David Springer, General Manager



Misc Inorg - Soil						
Our Reference		185802-1	185802-2	185802-3	185802-4	185802-5
Your Reference	UNITS	TP61	TP61	TP61	TP61	TP71
Depth		0.4-0.5	0.9-1.0	1.4-1.5	1.9-2.0	0.4-0.5
Date Sampled		15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	5.5	5.4	5.7	5.9	6.4
Electrical Conductivity 1:5 soil:water	μS/cm	35	47	40	24	25
Chloride, CI 1:5 soil:water	mg/kg	23		37	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	20		10	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		185802-6	185802-7	185802-8	185802-9	185802-10
Your Reference	UNITS	TP71	TP71	TP71	TP71	TP71
Depth		0.9-1.0	1.4-1.5	1.9-2.0	2.4-2.5	2.9-3.0
Date Sampled		15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.2	5.9	5.5	6.1	6.2
Electrical Conductivity 1:5 soil:water	μS/cm	31	26	54	32	20
Chloride, Cl 1:5 soil:water	mg/kg	26		24	[NA]	<10
Sulphate, SO4 1:5 soil:water	mg/kg	10		51	[NA]	10

Misc Inorg - Soil						
Our Reference		185802-11	185802-12	185802-13	185802-14	185802-15
Your Reference	UNITS	TP77	TP77	TP77	TP77	TP78
Depth		0.4-0.5	0.9-1.0	1.4-1.5	1.9-2.0	0.4-0.5
Date Sampled		15/02/2018	15/02/2018	15/02/2018	15/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.7	6.0	8.0	8.0	8.0
Electrical Conductivity 1:5 soil:water	μS/cm	19	190	91	160	170
Chloride, Cl 1:5 soil:water	mg/kg			85		150
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	20	[NA]	71

Misc Inorg - Soil						
Our Reference		185802-16	185802-17	185802-18	185802-19	185802-20
Your Reference	UNITS	TP78	TP78	TP80	TP80	TP80
Depth		0.9-1.0	1.4-1.5	0.4-0.5	0.9-1.0	1.4-1.5
Date Sampled		16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	8.1	9.0	6.1	6.2	6.6
Electrical Conductivity 1:5 soil:water	μS/cm	170	160	41	39	42
Chloride, Cl 1:5 soil:water	mg/kg		130		20	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg		57		21	[NA]

Misc Inorg - Soil						
Our Reference		185802-21	185802-22	185802-23	185802-24	185802-25
Your Reference	UNITS	TP80	TP81	TP81	TP81	TP86
Depth		1.9-2.0	0.4-0.5	0.9-1.0	1.4-1.5	0.5
Date Sampled		16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.9	4.9	5.8	8.9	6.0
Electrical Conductivity 1:5 soil:water	μS/cm	66	110	170	380	53
Chloride, Cl 1:5 soil:water	mg/kg	37		180	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	20		63	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		185802-26	185802-27	185802-28	185802-29	185802-30
Your Reference	UNITS	TP86	TP86	TP86	TP86	TP86
Depth		1.0	1.5	2.0	2.5	3.0
Date Sampled		16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	5.8	5.7	5.7	5.4	5.5
Electrical Conductivity 1:5 soil:water	μS/cm	55	40	62	130	130
Chloride, Cl 1:5 soil:water	mg/kg		25	[NA]	[NA]	120
Sulphate, SO4 1:5 soil:water	mg/kg		20	[NA]	[NA]	33

Misc Inorg - Soil						
Our Reference		185802-31	185802-32	185802-33	185802-34	185802-35
Your Reference	UNITS	TP90	TP90	TP90	TP90	TP90
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.3	5.3	5.5	5.9	6.0
Electrical Conductivity 1:5 soil:water	μS/cm	37	82	48	20	25
Chloride, Cl 1:5 soil:water	mg/kg			45		20
Sulphate, SO4 1:5 soil:water	mg/kg			10		<10

Misc Inorg - Soil						
Our Reference		185802-36	185802-37	185802-38	185802-39	185802-40
Your Reference	UNITS	TP90	TP95	TP95	TP95	TP97
Depth		3.0	0.4-0.5	0.9-1.0	1.4-1.5	0.4-0.5
Date Sampled		16/02/2018	16/02/2018	16/02/2018	19/02/2018	19/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	5.7	6.1	5.6	5.4	6.1
Electrical Conductivity 1:5 soil:water	μS/cm	46	32	16	17	29
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	<10	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	24	[NA]	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		185802-41	185802-42	185802-43	185802-44	185802-45
Your Reference	UNITS	TP97	TP97	TP97	TP97	TP97
Depth		0.9-1.0	1.4-1.5	1.9-2.0	2.4-2.5	2.9-3.0
Date Sampled		19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.1	5.8	5.9	5.6	5.8
Electrical Conductivity 1:5 soil:water	μS/cm	17	20	16	34	29
Chloride, Cl 1:5 soil:water	mg/kg	10		10		[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	<10	[NA]	<10	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		185802-46	185802-47	185802-48	185802-49	185802-50
Your Reference	UNITS	TP101	TP101	TP101	TP104	TP104
Depth		0.4-0.5	0.9-1.0	1.4-1.5	0.4-0.5	0.9-1.0
Date Sampled		19/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.1	5.8	5.4	5.6	5.2
Electrical Conductivity 1:5 soil:water	μS/cm	31	35	65	28	60
Chloride, Cl 1:5 soil:water	mg/kg	10		72		63
Sulphate, SO4 1:5 soil:water	mg/kg	21	[NA]	<10	[NA]	<10

Misc Inorg - Soil						
Our Reference		185802-51	185802-52	185802-53	185802-54	185802-55
Your Reference	UNITS	TP104	TP104	TP112	TP112	TP112
Depth		1.4-1.5	1.9-2.0	0.4-0.5	0.9-1.0	1.4-1.5
Date Sampled		19/02/2018	19/02/2018	20/02/2018	20/02/2018	20/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	5.6	5.8	5.6	5.6	5.6
Electrical Conductivity 1:5 soil:water	μS/cm	36	44	80	46	34
Chloride, Cl 1:5 soil:water	mg/kg		28	[NA]	42	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg		30	[NA]	22	[NA]

Misc Inorg - Soil						
Our Reference		185802-56	185802-57	185802-58	185802-59	185802-60
Your Reference	UNITS	TP112	TP112	TP112	TP115	TP115
Depth		1.9-2.0	2.4-2.5	2.9-3.0	0.4-0.5	0.9-1.0
Date Sampled		20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	5.7	5.9	6.2	6.0	5.8
Electrical Conductivity 1:5 soil:water	μS/cm	25	38	15	12	26
Chloride, Cl 1:5 soil:water	mg/kg	<10		<10	<10	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	<10	[NA]	20	10	[NA]

Misc Inorg - Soil						
Our Reference		185802-61	185802-62	185802-63	185802-64	185802-65
Your Reference	UNITS	TP115	TP115	TP115	TP120	TP120
Depth		1.4-1.5	1.9-2.0	2.4-2.5	0.4-0.5	0.9-1.0
Date Sampled		20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	5.8	5.8	8.0	6.1	5.7
Electrical Conductivity 1:5 soil:water	μS/cm	14	21	96	25	48
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	10	[NA]	[NA]	46
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	10	[NA]	[NA]	<10

Misc Inorg - Soil						
Our Reference		185802-66	185802-67	185802-68	185802-69	185802-70
Your Reference	UNITS	TP120	TP120	TP120	TP120	TP123
Depth		1.4-1.5	1.9-2.0	2.4-2.5	2.9-3.0	0.4-0.5
Date Sampled		20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	5.4	5.8	5.7	6.0	6.1
Electrical Conductivity 1:5 soil:water	μS/cm	61	25	34	41	11
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	20	[NA]	[NA]	<10
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	10	[NA]	[NA]	<10

Misc Inorg - Soil						
Our Reference		185802-71	185802-72	185802-73	185802-74	185802-75
Your Reference	UNITS	TP123	TP123	TP123	TP123	TP123
Depth		0.9-1.0	1.4-1.5	1.9-2.0	2.4-2.5	2.9-3.0
Date Sampled		20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.1	5.9	5.8	5.7	5.7
Electrical Conductivity 1:5 soil:water	μS/cm	10	11	27	33	31
Chloride, Cl 1:5 soil:water	mg/kg			10		[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	20	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		185802-76	185802-77	185802-78	185802-79	185802-80
Your Reference	UNITS	TP124	TP124	TP124	TP124	TP124
Depth		0.4-0.5	0.9-1.0	1.4-1.5	1.9-2.0	2.4-2.5
Date Sampled		16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.2	6.3	5.9	6.0	7.0
Electrical Conductivity 1:5 soil:water	μS/cm	34	16	39	50	83
Chloride, CI 1:5 soil:water	mg/kg		<10	[NA]	41	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	<10	[NA]	10	[NA]

Misc Inorg - Soil						
Our Reference		185802-81	185802-82	185802-83	185802-84	185802-85
Your Reference	UNITS	TP125	TP125	TP126	TP126	TP126
Depth		0.4-0.5	0.9-1.0	0.4-0.5	0.9-1.0	1.4-1.5
Date Sampled		16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units	6.9	7.4	6.1	6.0	5.8
Electrical Conductivity 1:5 soil:water	μS/cm	93	280	29	31	28
Chloride, Cl 1:5 soil:water	mg/kg		380	[NA]	[NA]	20
Sulphate, SO4 1:5 soil:water	mg/kg		27	[NA]	[NA]	10

ESP/CEC						
Our Reference		185802-1	185802-6	185802-13	185802-17	185802-27
Your Reference	UNITS	TP61	TP71	TP77	TP78	TP86
Depth		0.4-0.5	0.9-1.0	1.4-1.5	1.4-1.5	1.5
Date Sampled		15/02/2018	15/02/2018	15/02/2018	16/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Exchangeable Ca	meq/100g	0.7	0.5	0.3	1.8	<0.1
Exchangeable K	meq/100g	0.2	0.3	<0.1	0.1	0.2
Exchangeable Mg	meq/100g	2.4	8.6	2.6	2.9	3.1
Exchangeable Na	meq/100g	0.37	1.1	0.39	0.22	1.4
Cation Exchange Capacity	meq/100g	3.6	10	3.4	5.1	4.6
ESP	%	10	11	12	4	30

ESP/CEC						
Our Reference		185802-35	185802-41	185802-52	185802-58	185802-59
Your Reference	UNITS	TP90	TP97	TP104	TP112	TP115
Depth		2.5	0.9-1.0	1.9-2.0	2.9-3.0	0.4-0.5
Date Sampled		16/02/2018	19/02/2018	19/02/2018	20/02/2018	20/02/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018	26/02/2018	26/02/2018
Exchangeable Ca	meq/100g	0.1	0.1	<0.1	<0.1	0.3
Exchangeable K	meq/100g	0.3	0.1	0.3	0.3	0.2
Exchangeable Mg	meq/100g	3.0	2.5	3.9	2.9	3.6
Exchangeable Na	meq/100g	0.70	0.66	1,0	2.0	0.39
Cation Exchange Capacity	meq/100g	4.0	3.5	5.3	5.3	4.5
ESP	%	17	19	20	38	9

ESP/CEC				
Our Reference		185802-65	185802-73	185802-85
Your Reference	UNITS	TP120	TP123	TP126
Depth		0.9-1.0	1.9-2.0	1.4-1.5
Date Sampled		20/02/2018	20/02/2018	16/02/2018
Type of sample		Soil	Soil	Soil
Date prepared	-	26/02/2018	26/02/2018	26/02/2018
Date analysed	-	26/02/2018	26/02/2018	26/02/2018
Exchangeable Ca	meq/100g	<0.1	0.4	<0.1
Exchangeable K	meq/100g	0.2	0.3	<0.1
Exchangeable Mg	meq/100g	2.8	1.9	4.5
Exchangeable Na	meq/100g	1.0	0.56	1.4
Cation Exchange Capacity	meq/100g	4.0	3.1	6.0
ESP	%	25	18	23

Method ID	Methodology Summary
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

QUALITY	CONTROL	Misc Ino	rg - Soil		Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	185802-3
Date prepared	-			26/02/2018	1	26/02/2018	26/02/2018		26/02/2018	26/02/2018
Date analysed	-			26/02/2018	1	26/02/2018	26/02/2018		26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	5.5	5.5	0	103	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	<1	1	35	36	3	99	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	23	25	8	97	90
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	20	20	0	104	98

QUALITY	CONTROL	Misc Ino	rg - Soil		Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	185802-43
Date prepared	-			[NT]	11	26/02/2018	26/02/2018		26/02/2018	26/02/2018
Date analysed	-			[NT]	11	26/02/2018	26/02/2018		26/02/2018	26/02/2018
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	11	6.7	6.7	0	102	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	11	19	18	5	100	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	21	37	44	17	103	80
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	21	20	10	67	104	89

QUALITY	CONTROL:	Misc Ino	rg - Soil			Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			[NT]	21	26/02/2018	26/02/2018		26/02/2018	
Date analysed	-			[NT]	21	26/02/2018	26/02/2018		26/02/2018	
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	21	6.9	7.0	1	102	
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	21	66	68	3	97	
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	41	10	20	67	[NT]	
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	41	<10	<10	0	[NT]	

QUALITY	CONTROL:	Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			[NT]	31	26/02/2018	26/02/2018		26/02/2018	
Date analysed	-			[NT]	31	26/02/2018	26/02/2018		26/02/2018	
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	31	6.3	6.3	0	102	
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	31	37	37	0	95	
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	62	10	<10	0	[NT]	
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	62	10	<10	0	[NT]	[NT]

QUALIT	QUALITY CONTROL: Misc Inorg - Soil								Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			[NT]	41	26/02/2018	26/02/2018		26/02/2018	[NT]
Date analysed	-			[NT]	41	26/02/2018	26/02/2018		26/02/2018	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	41	6.1	6.1	0	102	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	41	17	16	6	95	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	51	26/02/2018	26/02/2018		[NT]	[NT]
Date analysed	-			[NT]	51	26/02/2018	26/02/2018		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	51	5.6	5.6	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	51	36	33	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]	62	26/02/2018	26/02/2018		[NT]	[NT]
Date analysed	-			[NT]	62	26/02/2018	26/02/2018		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	62	5.8	5.8	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	62	21	20	5	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]	
Date prepared	-			[NT]	71	26/02/2018	26/02/2018		[NT]	[NT]	
Date analysed	-			[NT]	71	26/02/2018	26/02/2018		[NT]	[NT]	
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	71	6.1	6.1	0	[NT]	[NT]	
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	71	10	9	11	[NT]	[NT]	

QUALITY CONTROL: Misc Inorg - Soil						Duplicate				covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	81	26/02/2018	26/02/2018			[NT]
Date analysed	-			[NT]	81	26/02/2018	26/02/2018			[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	81	6.9	6.8	1		[NT]
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	[NT]	81	93	96	3		[NT]

QUALITY CONTROL: ESP/CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			26/02/2018	1	26/02/2018	26/02/2018		26/02/2018	
Date analysed	-			26/02/2018	1	26/02/2018	26/02/2018		26/02/2018	
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	1	0.7	0.9	25	109	
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	1	0.2	0.2	0	119	
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	1	2.4	2.6	8	111	
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	1	0.37	0.40	8	114	
ESP	%	1	Metals-009	[NT]	1	10	10	0	[NT]	

QUALITY CONTROL: ESP/CEC						Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]	
Date prepared	-			[NT]	65	26/02/2018	26/02/2018			[NT]	
Date analysed	-			[NT]	65	26/02/2018	26/02/2018			[NT]	
Exchangeable Ca	meq/100g	0.1	Metals-009	[NT]	65	<0.1	<0.1	0		[NT]	
Exchangeable K	meq/100g	0.1	Metals-009	[NT]	65	0.2	0.2	0		[NT]	
Exchangeable Mg	meq/100g	0.1	Metals-009	[NT]	65	2.8	2.8	0		[NT]	
Exchangeable Na	meq/100g	0.1	Metals-009	[NT]	65	1.0	0.99	1		[NT]	
ESP	%	1	Metals-009	[NT]	65	25	25	0		[NT]	

Result Definiti	ons
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	ol 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, Eascal Enterococci, & E Coli levels are less than

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Envirolab Reference: 185802
Revision No: R00

Page | 14 of 14

Aileen Hie

From:

Ken Nguyen

Sent:

Wednesday, 7 March 2018 1:17 PM

To:

Aileen Hie

Subject:

FW: Results for Registration 185802 92269.00, Wilton Janderra Lane St 1 & 2, DSI

Regards,

Ken Nguyen | Chemist | Envirolab Services Pty Ltd (Monday to Friday 1pm to 9pm)

Great Science, Great Service.

Envirolab Lef: 185802A

Due : 14/3/16

Std TIA

12 Ashley Street Chatswood NSW 2067 T 612 9910 6200 F 612 9910 6201 E knguyen@envirolab.com.au | W www.envirolab.com.au

<u>Please note that all samples submitted to the Envirolab Group laboratories will be analysed under the Envirolab Group Terms and Conditions. The Terms and Conditions are accessible by clicking this link</u>

From: Kurtis Wathen [mailto:Kurtis.Wathen@douglaspartners.com.au]

Sent: Wednesday, 7 March 2018 10:36 AM

To: Ken Nguyen < KNguyen@envirolab.com.au>

Subject: RE: Results for Registration 185802 92269.00, Wilton Janderra Lane St 1 & 2, DSI

Hi Ken,

Could I please have sample TP81/1.9-2.0 (87) analysed for pH and EC on a standard turnaround?

Thanks for your help,

Kurtis Wathen | Environmental Engineer

Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au

18 Waier Crescent Smeaton Grange NSW 2567

P: 02 4647 0075 | F: 02 4646 1886 | M: 0457 820 847 | E: Kurtis.Wathen@douglaspartners.com.au

CLIENT CHOICE AT WINNER



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Envirolab Services Pty Ltd

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

CERTIFICATE OF ANALYSIS 185802-A

Client Details	
Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Kurtis Wathen
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details	
Your Reference	92269.00, Wilton Janderra Lane St 1 & 2, DSI
Number of Samples	Additional Testing on 1 Soil
Date samples received	22/02/2018
Date completed instructions received	07/03/2018

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	09/03/2018				
Date of Issue	09/03/2018				
NATA Accreditation Number 2901. This document shall not be reproduced except in full.					
Accredited for compliance with ISO/	EC 17025 - Testing. Tests not covered by NATA are denoted with *				

Results Approved By

Diego Bigolin, Team Leader, Inorganics

Authorised By

David Springer, General Manager



Misc Inorg - Soil		
Our Reference		185802-A-87
Your Reference	UNITS	TP81
Depth		1.9-2.0
Date Sampled		16/02/2018
Type of sample		Soil
Date prepared	-	09/03/2018
Date analysed	-	09/03/2018
pH 1:5 soil:water	pH Units	8.7
Electrical Conductivity 1:5 soil:water	μS/cm	270

Envirolab Reference: 185802-A

Method ID	Methodology Summary
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.

Envirolab Reference: 185802-A Page | 3 of 6

QUALITY	CONTROL	: Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			09/03/2018	[NT]		[NT]	[NT]	09/03/2018	
Date analysed	-			09/03/2018	[NT]		[NT]	[NT]	09/03/2018	
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]		[NT]	[NT]	102	
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	<1	[NT]		[NT]	[NT]	106	

Envirolab Reference: 185802-A

Result Definiti	ons
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
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Quality Control	ol 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.
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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.
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Envirolab Reference: 185802-A

Laboratory Acceptance Criteria

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Measurement Uncertainty estimates are available for most tests upon request.

Envirolab Reference: 185802-A Page | 6 of 6

CHAIN OF CUSTODY

(02) 9910 6201 12 Ashley Street, Chatswood NSW 2067 tnotaras@envirolabservices.com.au Fax: **Envirolab Services** (02) 9910 6200 Tania Notaras emily.mcginty@douglaspartners.com.au; kurtis.wathen@douglaspartners.com.a Phone: Email: Attn: To: 0457820847 KPW Mob. Phone: Sampler: Project Name: WILTON, Janderra Lane, St 1 & 2, DSI **Emily McGinty** 92269.00 Date Required: Standard Project Mgr: Project No: Email:

Sample Lab English Lab English Sample Crescent Smeaton Grange NSW 2667 Phone: (02) 4647 0075 Fax: (02) 4646 1886 Fax: (02) 4647 1866 Fax: (рә	Sample Type	Container Type					Analytes			
4-0.5 15.2.18 S P X X X X X X X X X	Sample ID	Lab	Date Sampl			Hq	EC	Chloride	Sulphate	Sodicity			Notes/preservation
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152.18 S P X X X X X X X X X	961/1.4-1.5	3	15.2.18	S	Ь	×	×	×	×		ETWIRD	(50)	22.6
4-0.5 \$ 15.2.18 S P X <th< td=""><td>961/1.9-2.0</td><td>7</td><td>15.2.18</td><td>S</td><td>Ь</td><td>×</td><td>×</td><td></td><td></td><td></td><td>Job N</td><td>8581</td><td></td></th<>	961/1.9-2.0	7	15.2.18	S	Ь	×	×				Job N	8581	
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19-2.0 4 15.2.18 S P X <t< td=""><td>0.1-6.0/17</td><td>٥</td><td>15.2.18</td><td>တ</td><td>Д</td><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td><td>Time</td><td>ecelved.</td><td></td></t<>	0.1-6.0/17	٥	15.2.18	တ	Д	×	×	×	×	×	Time	ecelved.	
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4-2.5 7 15.2.18 S P X <th< td=""><td>71/1.9-2.0</td><td>8</td><td>15.2.18</td><td>S</td><td>Д</td><td>×</td><td>×</td><td>×</td><td>×</td><td></td><td>Sea</td><td>7 #</td><td>one</td></th<>	71/1.9-2.0	8	15.2.18	S	Д	×	×	×	×		Sea	7 #	one
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	7	AB			Date & Time		12.18		Received	by: 665	75	817.22	Sh:21

CHAIN OF CUSTODY

(02) 9910 6201 12 Ashley Street, Chatswood NSW 2067 (02) 9910 6200 Fax: (02) tnotaras@envirolabservices.com.au **Envirolab Services** Tania Notaras emily.mcginty@douglaspartners.com.au; kurtis.wathen@douglaspartners.com.a Phone: Standard Attn: <u>ن</u> 0457820847 KPW Mob. Phone: Sampler: Project Name: WILTON, Janderra Lane, St 1 & 2, DSI **Emily McGinty** Date Required: Standard 92269.01 Project Mgr: Project No: Email:

1													
Decimal Lab	185802		ətsC	Sample Type	Container Type					Analytes			
4-1.5 1.5 15.2.18 S P X	Sample	Lab	l gnildms2			Hq	EC	Chloride	Sulphate	Sodicity			Notes/preservation
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ssults to: Douglas Partners Pty Ltd Address 18 Waler Crescent Smeaton Grange NSW 2567 Phorisched by: KPW Time: 20,03.18 Douglas Prime: 20,03.18	Lab Report No:							F 10.00					
ished by: KPW Time: 20,03.19 Described to laboratory by:	Send Results to		Douglas Part	tners Pty Lt			Valer Cres	scent Sm	eaton Gra	nge NSW 2567	Phone:	(02) 4647 0075	Fax: (02) 4646 1886
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Project Name:	WILT	WILTON, Janderra Lane, St 1 & 2, DSI	a Lane, St	& 2, DSI						To:	Envirolab Services	
Project No:	92269.01	9.01			Sampler	ני	KPW				12 Ashley Street, C	12 Ashley Street, Chatswood NSW 2067
Project Mgr:	Emily	Emily McGinty			Mob. Phone:	none:	0457820847	3847		Attn:	Tania Notaras	
Email:	emily	emily.mcginty@douglaspartners.com.au; kurtis.wathen@douglaspartners.com.a	douglaspa	rtners.com.	au; kurti:	s.wathen	@dougl:	aspartners	s.com.a	Phone:	(02) 9910 6200	Fax: (02) 9910 6201
Date Required:	1000	dard								Email:	tnotaras@envirolabservices.com.au	oservices.com.au
708581		ətsO	Sample Type	Container Type				A	Analytes			
Sample	D Pa	l gnilqms2	S - soil W - water	G - glass	Hq	EC	Chloride	Sulphate	Sodicity			Notes/preservation
TP86/1.0	56	16.2.18	S	۵	×	×						
TP86/1.5	22	16.2.18	s	۵	×	×	×	×	×			
TP86/2.0	87	16.2.18	S	Ь	×	×						
TP86/2.5	53	16.2.18	S	Д	×	×						
TP86/3.0	3	16.2.18	S	Ь	×	×	×	×				
TP90/0.5	2	16.2.18	S	Ь	×	×				THE PARTY OF		
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TP90/2.5	35	16.2.18	S	Д	×	×	×	×	×			
TP90/3.0	36	16.2.18	S	Д	×	×						
TP95/0.4-0.5	25	19.2.18	S	Д	×	×	×	×				
TP95/0.9-1.0	38	19.2.18	S	Д	×	×					Part of	
Lab Report No:												
Send Results to:		Douglas Partners Pty Ltd	ners Pty Ltc		ess 18 W	aler Cres	cent Sme	Address 18 Waler Crescent Smeaton Grange NSW 2567	ge NSW		Phone: (02) 4647 0075	5 Fax: (02) 4646 1886
Relinquished by:		KPW						Transported to laboratory by:	ed to lab	oratory by	3 3 3 3	
Signad.				Date o Time	0 00 00	0.0					4	

rtners	I Groundwater
Douglas Partners	1 Environment
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Project Name:	WILT	lame: WILTON, Janderra Lane, St 1 & 2, I	a Lane, St	1 & 2, DSI						To:	Envirolab Services	ervices		
Project No:	92269.01	9.01			Sampler:	ני	KPW				12 Ashley Street, Chatswood NSW	treet, Chats	N poom	SW 2067
Project Mgr:	Emily	Emily McGinty			Mob. Phone:	none:	0457820847	3847		Attn:	Tania Notaras	as		
Email:	emily	emily.mcginty@douglaspartners.com.au; kurt	douglaspa	irtners.com	.au; kurti	s.wather	@dougl	is.wathen@douglaspartners.com.a	s.com.a	Phone:	(02) 9910 6200	500	Fax:	(02) 9910 6201
Date Required:	22.7	dard								Email:	tnotaras@envirolabservices.com.au	virolabserv	rices.con	ı.au
708581		ətsC	Sample Type	Container Type				1	Analytes					
Sample ID	Lab ID	l gnildms2	S - soil W - water	G - glass	Hq	EC	Shloride	Sulphate	Sodicity				Notes	Notes/preservation
TP95/1.4-1.5	39	19.2.18	S	Ь	×	×								
TP97/0.4-0.5	12	19.2.18	S	Ь	×	×								
TP97/0.9-1.0	14	19.2.18	S	۵	×	×	×	×	×					
TP97/1.4-1.5	45	19.2.18	S	Ь	×	×								
TP97/1.9-2.0	43	19.2.18	S	Ь	×	×	×	×						
TP97/2.4-2.5	44	19.2.18	S	Ь	×	×								
TP97/2.9-3.0	52	19.2.18	S	Ь	×	×	Specific Land	A Comments						
TP101/0.4-0.5	94	19.2.18	S	Д	×	×	×	×						
TP101/0.9-1.0	44	19.2.18	S	Ь	×	×								Anna Carlo
TP101/1.4-1.5	48	19.2.18	S	Ь	×	×	×	×						
TP104/0.4-0.5	49	19.2.18	S	Ь	×	×								
TP104/0.9-1.0	50	19.2.18	S	Ь	×	×	×	×						
Lab Report No:							2012							
Send Results to:		Douglas Partners Pty Ltd	ners Pty Lt		ress 18 W	aler Cres	scent Sme	Address 18 Waler Crescent Smeaton Grange NSW 2567	ge NSW		Phone: (02) 4647 0075	17 0075	Fax:	(02) 4646 1886
Relinquished by:		KPW						Transported to laboratory by:	ed to lab	oratory by				
Signed:				Date & Time:	20.	02.18		Received by:	by:	JE	22.2.18			

Fax: (02) 9910 6201 12 Ashley Street, Chatswood NSW 2067 tnotaras@envirolabservices.com.au **Envirolab Services** (02) 9910 6200 Tania Notaras emily.mcginty@douglaspartners.com.au; kurtis.wathen@douglaspartners.com.a Phone: Email: Attn: <u>ان</u> 0457820847 KPW Mob. Phone: Sampler: Project Name: WILTON, Janderra Lane, St 1 & 2, DSI **Emily McGinty** Standard 92269.01 Date Required: Project Mgr: Project No: Email:

Sample Lab ID ID ID TP104/1.4-1.5 5 1 1 TP104/1.9-2.0 52 1 TP112/0.4-0.5 \$ 3 2	j 6	- 16	Type					Analytes		100 July 1	
52.	gnilqms2	S - soil W - water	G - glass P - plastic	Hq	EC	Chloride	Sulphate	Sodicity			Notes/preservation
52	19.2.18	S	Ь	×	×			COLE I			
53	19.2.18	S	Ь	×	×	×	×	×			
	20.2.18	S	·Œ	×	×				T (
TP112/0.9-1.0 54 2	20.2.18	S	Д	×	×	×	×				
TP112/1.4-1.5 55 2	20.2.18	S	Ф	×	×						
TP112/1.9-2.0 56 2	20.2.18	S	Д	×	×	×	×				
TP112/2.4-2.5 57 2	20.2.18	S	Д	×	×				The second second		
TP112/2.9-3.0 58 2	20.2.18	S	Д	×	×	×	×	×			
TP115/0.4-0.5 59 2	20.2.18	S	Ф	×	×	×	×	×			
TP115/0.9-1.0 60 2	20.2.18	S	Ф	×	×						
TP115/1.4-1.5 6 2	20.2.18	S	۵	×	×						
TP115/1.9-2.0 62 2	20.2.18	S	Д	×	×	×	×				
TP115/2.4-2.5 (43) 2	20.2.18	S	۵	×	×						
Lab Report No:											
Send Results to: Doug	iglas Partr	Douglas Partners Pty Ltd	Addre	Address 18 W	aler Creso	cent Sme	eaton Gra	Waler Crescent Smeaton Grange NSW 2567	Phone:	(02) 4647 0075	Fax: (02) 4646 1886
Relinquished by: KPW	N						Transpor	Fransported to laboratory by:	ry by:	The state of the s	
Signed:		٥	Date & Time:	: 20.02.18	2.18		Received by:	by: JE	22.2.18		

Geotechnics | Environment | Groundwater

Project Name:	MIL	ON, Janderr	WILTON, Janderra Lane, St 1 & 2, DSI	& 2, DSI					ř	To:	Envirolab Services	
Project No:	92269.01	9.01			Sampler:	ı.	KPW				12 Ashley Street, Chatswood NSW	atswood NSW 2067
Project Mgr:	Emil	Emily McGinty			Mob. Pr	hone:	0457820847	1847	Ą	Attn:	Tania Notaras	
Email:		v.mcginty@	emily.mcginty@douglaspartners.com.au; kurti	ners.com.	au; kurtis	s.wathen	@dougla	s.wathen@douglaspartners.com.a		Phone:	(02) 9910 6200	Fax: (02) 9910 6201
Date Required:	Standard	dard		A SERVICE OF THE SERV					<u> </u>	Email:	tnotaras@envirolabservices.com.au	ervices.com.au
708581		ətsO	Sample (Type	Container Type					Analytes			
Sample	Гар	l gnildms2	S - soil W - water	G - glass P - plastic	Hq	EC	Chloride	Sulphate	Sodicity			Notes/preservation
TP120/0.4-0.5	49	20.2.18	S	а	×	×						
TP120/0.9-1.0	65	20.2.18	S	Ь	×	×	×	×	×			
TP120/1.4-1.5	99	20.2.18	S	а	×	×	4.					
TP120/1.9-2.0	67	20.2.18	S	a.	×	×	×	×				
TP120/2.4-2.5	89	20.2.18	S	а	×	×						
TP120/2.9-3.0	69	20.2.18	S	Ь	×	×						
TP123/0.4-0.5	40	20.2.18	S	Ь	×	×	×	×		T.		
TP123/0.9-1.0	7	20.2.18	S	Ь	×	×						
TP123/1.4-1.5	72	20.2.18	S	Ь	×	×						
TP123/1.9-2.0	73	20.2.18	S	Ь	×	×	×	×	×			
TP123/2.4-2.5	74	20.2.18	S	Ф	×	×		100				
TP123/2.9-3.0	75	20.2.18	S	۵	×	×						
Lab Report No:												
Send Results to:		Douglas Partners Pty Ltd	ners Pty Ltd	Addre	Address 18 W	aler Cres	cent Sme	aton Grar	aler Crescent Smeaton Grange NSW 2567		Phone: (02) 4647 0075	Fax: (02) 4646 1886
Relinquished by:		KPW					-	Franspor	Transported to laboratory by:	ΙŠ		
Signed			Č	Date & Time.	20.0	210	_	Dogging Line	17-1-	00	12:00	

	Bnod (las Pai	rtners
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CHAIN OF CUSTODY

(02) 9910 6201 Envirolab Services 12 Ashley Street, Chatswood NSW 2067 tnotaras@envirolabservices.com.au Fax: (02) 9910 6200 Tania Notaras emily.mcginty@douglaspartners.com.au; kurtis.wathen@douglaspartners.com.a Phone: Email: Attn: To: 0457820847 KPW Mob. Phone: Sampler: WILTON, Janderra Lane, St 1 & 2, DSI 92269.01 Emily McGinty Standard Date Required: Project Name: Project Mgr: Project No: Email:



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, Kurtis Wathen

Sample Login Details	
Your reference	92269.00, Wilton Janderra Lane St 1 & 2, DSI
Envirolab Reference	185802
Date Sample Received	22/02/2018
Date Instructions Received	22/02/2018
Date Results Expected to be Reported	01/03/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	87 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	25.3
Cooling Method	None
Sampling Date Provided	YES

Comments	
Nil	

Please direct any queries to:

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

Analysis Underway, details on the following page:

ENVIROLAB

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 ID	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride	Sulphate, SO41:5 soil:water	ESP/CEC	On Hold
TP61-0.4-0.5	✓	✓	✓	✓	✓	
TP61-0.9-1.0	✓	✓				
TP61-1.4-1.5	✓	✓	✓	✓		
TP61-1.9-2.0	✓	✓				
TP71-0.4-0.5	✓	✓				
TP71-0.9-1.0	✓	✓	✓	✓	✓	
TP71-1.4-1.5	✓	✓				
TP71-1.9-2.0	✓	✓	✓	✓		
TP71-2.4-2.5	✓	✓				
TP71-2.9-3.0	✓	✓	✓	✓		
TP77-0.4-0.5	✓	✓				
TP77-0.9-1.0	✓	✓				
TP77-1.4-1.5	✓	✓	✓	✓	✓	
TP77-1.9-2.0	✓	✓				
TP78-0.4-0.5	✓	✓	✓	✓		
TP78-0.9-1.0	✓	✓				
TP78-1.4-1.5	✓	✓	✓	✓	✓	
TP80-0.4-0.5	✓	✓				
TP80-0.9-1.0	✓	✓	✓	✓		
TP80-1.4-1.5	✓	✓				
TP80-1.9-2.0	✓	✓	✓	✓		
TP81-0.4-0.5	✓	✓				
TP81-0.9-1.0	✓	✓	✓	✓		
TP81-1.4-1.5	✓	✓				
TP86-0.5	✓	✓				
TP86-1.0	✓	✓				
TP86-1.5	✓	✓	✓	✓	✓	
TP86-2.0	✓	✓				
TP86-2.5	✓	✓				
TP86-3.0	✓	✓	✓	✓		
TP90-0.5	✓	✓				
TP90-1.0	✓	✓				

ENVIROLAB EMPI ALABTEC

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Sample ID	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride, CI1:5 soil:water	Sulphate, SO41:5 soil:water	ESP/CEC	On Hold
TP90-1.5	✓	✓	✓	✓		
TP90-2.0	✓	✓				
TP90-2.5	✓	✓	✓	✓	✓	
TP90-3.0	✓	✓				
TP95-0.4-0.5	✓	✓	✓	✓		
TP95-0.9-1.0	✓	✓				
TP95-1.4-1.5	✓	✓				
TP97-0.4-0.5	✓	✓				
TP97-0.9-1.0	✓	✓	✓	✓	✓	
TP97-1.4-1.5	✓	✓				
TP97-1.9-2.0	✓	✓	✓	✓		
TP97-2.4-2.5	✓	✓				
TP97-2.9-3.0	✓	✓				
TP101-0.4-0.5	✓	✓	✓	✓		
TP101-0.9-1.0	✓	✓				
TP101-1.4-1.5	✓	✓	✓	✓		
TP104-0.4-0.5	✓	✓				
TP104-0.9-1.0	✓	✓	✓	✓		
TP104-1.4-1.5	✓	✓				
TP104-1.9-2.0	✓	✓	✓	✓	✓	
TP112-0.4-0.5	✓	✓				
TP112-0.9-1.0	✓	✓	✓	✓		
TP112-1.4-1.5	✓	✓				
TP112-1.9-2.0	✓	✓	✓	✓		
TP112-2.4-2.5	✓	✓				
TP112-2.9-3.0	✓	✓	✓	✓	✓	
TP115-0.4-0.5	✓	✓	✓	✓	✓	
TP115-0.9-1.0	✓	✓				
TP115-1.4-1.5	✓	✓				
TP115-1.9-2.0	✓	✓	✓	✓		
TP115-2.4-2.5	✓	✓				
TP120-0.4-0.5	✓	✓				
		_	_			



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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 ID	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride, CI1:5 soil:water	Sulphate, SO41:5 soil:water	ESP/CEC	On Hold
TP120-0.9-1.0	✓	✓	✓	✓	✓	
TP120-1.4-1.5	✓	✓				
TP120-1.9-2.0	✓	✓	✓	✓		
TP120-2.4-2.5	✓	✓				
TP120-2.9-3.0	✓	✓				
TP123-0.4-0.5	✓	✓	✓	✓		
TP123-0.9-1.0	✓	✓				
TP123-1.4-1.5	✓	✓				
TP123-1.9-2.0	✓	✓	✓	✓	✓	
TP123-2.4-2.5	✓	✓				
TP123-2.9-3.0	✓	✓				
TP124-0.4-0.5	√	✓				
TP124-0.9-1.0	✓	✓	✓	✓		
TP124-1.4-1.5	✓	✓				
TP124-1.9-2.0	√	/	✓	✓		
TP124-2.4-2.5	√	√				
TP125-0.4-0.5	√	√			_	
TP125-0.9-1.0	V	✓	√	√		
TP126-0.4-0.5	V	V				
TP126-0.9-1.0	V	V				
TP126-1.4-1.5	√	V	√	√	✓	
TP32-2.0	_	-			_	V
TP81-1.9-2.0						✓

The ' \checkmark ' 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.