Remedial Action Plan

Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW

5046200019

Prepared for Goulburn Mulwaree Council 29/07/2020





Contact Information

Construction Sciences Pty Ltd ABN 74 128 806 735

31 Anvil Road Seven Hills NSW 2147

Telephone: + 612 8646 2000 Facsimile: + 612 8646 2025

www.constructionsciences.net

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Executive Summary

Construction Sciences Pty Ltd (CS) was engaged by Goulburn Mulwaree Council (the client), to prepare a remedial action plan (RAP) for land located at the corner of Dossie Street and Sloane Street, Goulburn, NSW (the site).

At the commencement of this work, CS understood that this project was being undertaken because:

- > The site is defined as Lot 1 in DP1034565 and Lot 3 in DP1008818.
- > The site is being considered for rezoning, comprising five rural residential lots, one environmental living lot, one general industrial lot, and a road corridor.
- It is the Client's intent to undertake subdivision works for the site, following rezoning, including undertaking remediation, relevant civil works, and registering the subdivision, so that resulting land parcels can be divested.
- > CS notes that Lot 1 in DP157664 was specifically excluded from this project by the client. This Lot is located immediately to the north of Lot 1 in DP1034565, but is not the subject of the rezoning proposal.
- > This project is being undertaken to inform land rezoning decision making (as set out in State Environmental Planning Policy (SEPP) No. 55).
- Previous contamination assessments undertaken for the site in November 2019 and March 2020 identified a number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) at the site.
- > A RAP is needed to address unacceptable land contamination exposure risks identified for the site in previous contamination assessments.

The objectives of this project was to prepare a RAP to address unacceptable land contamination exposure risks identified for the site in previous contamination assessments, in the context of the proposed land use scenario.

The scope of work undertaken to address the project objective included:

- > A desktop review of site history; and
- > Data assessment and reporting.

A number of areas of environmental concern (AEC) on the site, and contaminants of potential concern (COPC) associated with those AEC, were identified for the site as requiring management and/or remediation.

| ID | AEC | COPC | |
|-------|---------------------------|------------------------------------|--|
| AEC01 | North west dam curtilage | Hydrocarbons, PAH pathogens | |
| AEC02 | Dam waters and sediments | Hydrocarbons, pathogens, nutrients | |
| AEC05 | Area between mounds | Pathogens | |
| AEC06 | Mound | Pathogens | |
| AEC07 | Area between mounds | Pathogens | |
| AEC09 | Mound | Pathogens | |
| AEC10 | Dam waters and sediments | Hydrocarbons, pathogens, nutrients | |
| AEC11 | Dam wall | Pathogens | |
| AEC13 | Potential former road | РАН | |
| AEC14 | Material bays | Pathogens | |
| AEC19 | South of greenhouses | Asbestos | |
| AEC20 | First flush catchment dam | Pathogens | |
| AEC21 | First flush catchment dam | Pathogens | |

The identified AEC and the COPC associated with those AEC are presented in the table below.



| ID | AEC | COPC | |
|-----------------|-------------------------------------|--|--|
| AEC22 | Pit (to be validated, post removal) | Hydrocarbons, metals, nutrients, pathogens | |
| AEC23 | Pit (to be validated, post removal) | Hydrocarbons, metals, nutrients, pathogens | |
| AEC27 (new AEC) | Areas surrounding ABC01 | Asbestos | |

The remedial goal for this project is to remediate identified land contamination exposure risks to a level that does not present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario.

The preliminary inferred extent of remedial works required to address the remedial goal, is set out in the table below and Figure 6. However, the inferred extents are based on limited data, and may be subject to change based on temporal or seasonal fluctuations (particularly water content in dams) and the results of supplementary contamination assessment works proposed in this RAP.

The supplementary assessment may also remove the need for management and/or remediation in one or more areas of concern (based on statistical analysis of additional data and/or site specific risk assessment. Should there be a need to change the inferred extents based on supplementary assessment works, these changes would be presented in an addendum to this RAP.

Based on the current understanding of the inferred extent of remedial works required, the proposed land use scenario for the site, and the client's preferred remedial outcomes for the site, the preferred remedial options for the site are presented in the table below.

| AEC | Contamination Risk | Preferred Remedial Option | | |
|--|---|---|--|--|
| AEC01, AEC02, AEC05, AEC06, AEC07, AEC09, AEC10, AEC11, AEC14, AEC20, AEC21 | Soils and sediments impacted with pathogens and/or petroleum hydrocarbons | Excavate, spread, dewater and UV treatment with sunlight (along with bioremediation for petroleum hydrocarbons). Some turning and aeration of the soil may be required to facilitate treatment of contaminants. Addition of lime or similar may be required to facilitate drying of the soils / sediments. Treated material will be tyned back into existing site | | |
| 45040 | | soils, as a soil amendment material. | | |
| AEC13 | Soils and sediments impacted with benzo(a)pyrene TEQ | Excavate and dispose offsite. | | |
| AEC19 | Asbestos pipe | Excavate and dispose offsite. | | |
| AEC27 Surface soils (up to 0.1m) impacted with bonded | | The surface will be systematically visually inspected and fragments on the surface hand-picked. | | |
| | asbestos containing materials | The area will then be treated via raking to a depth of 0.1m below ground level, using an excavator fitted with a tooth bucket. | | |
| | | Fragments of bonded ACM observed during raking will be hand-picked and removed for offsite disposal in accordance with the relevant waste classification. | | |
| | | A minimum of two passes of raking and picking will be undertaken, using a grid pattern, with a 90° direction change between each pass. | | |
| AEC22 and AEC23 | Trade Wastewater Pit | Demolition, excavation and disposal offsite. | | |
| AEC02, AEC10 and 20 | Dam Waters | Pump and remove for offsite disposal. | | |
| | | Cumulative flow metering for each AEC to be undertaken during pumping, as well as quantitative volume assessment to be measured at disposal facility. | | |

Based on CS's assessment of the information presented in the available historical contamination assessment reports, CS considers that the remedial goal can be achieved and the site made suitable for the proposed land use, subject to:



- > The implementation of the strategies and methodologies set out in this remedial action plan; and
- > Preparation of a site validation report.

This report must be read in conjunction with the attached explanatory notes, limitations and general notes.



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1 Introduction

1.1 Background

Construction Sciences Pty Ltd (CS) was engaged by Goulburn Mulwaree Council (the client), to prepare a remedial action plan (RAP) for land located at the corner of Dossie Street and Sloane Street, Goulburn, NSW (the site).

At the commencement of this work, CS understood that this project was being undertaken because:

- > The site is defined as Lot 1 in DP1034565 and Lot 3 in DP1008818.
- > The site is being considered for rezoning, comprising five rural residential lots, one environmental living lot, one general industrial lot, and a road corridor.
- It is the Client's intent to undertake subdivision works for the site, following rezoning, including undertaking remediation, relevant civil works, and registering the subdivision, so that resulting land parcels can be divested.
- CS notes that Lot 1 in DP157664 was specifically excluded from this project by the client. This Lot is located immediately to the north of Lot 1 in DP1034565, but is not the subject of the rezoning proposal.
- > This project is being undertaken to inform land rezoning decision making (as set out in State Environmental Planning Policy (SEPP) No. 55).
- Previous contamination assessments undertaken for the site in November 2019 and March 2020 identified a number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) at the site.
- > A RAP is needed to address unacceptable land contamination exposure risks identified for the site in previous contamination assessments; and
- > The client's preferred outcome at the completion of remedial works, is to not have:
 - a notation on a planning certificate for the site;
 - a covenant registered on the title to the land; or
 - a long term environmental management plan (EMP).

1.2 Objectives

The objectives of this project was to prepare a RAP to address unacceptable land contamination exposure risks identified for the site in previous contamination assessments, in the context of the proposed land use scenario.

1.3 Scope of Work

The scope of work undertaken to address the project objective included:

- > A desktop review of site history; and
- > Data assessment and reporting.



2 Site Identification

2.1 Site Locality

The locality of the site is presented in Figure 1.

2.2 Site Layout

The general layout of the site is present in Figure 2.

The site covers an area of approximately 11.2 hectares.

2.3 Lot Number and Deposited Plan

The site is identified as Lot 1 in DP1034565 and Lot 3 in DP1008818.

2.4 Zoning

The site is currently zoned RU2 Rural Landscape.

2.5 Geographic Coordinates

The geographic coordinates of the general centre of the site obtained from Google Earth were 34°46'30" S and 149°42'24" E.

2.6 Detail and Level Survey

A copy of a detail and level survey of the site was not provided to CS. A copy of a site contour plan was provided by the client. A copy of this contour plan is presented in Appendix A.

3 Geology, Hydrogeology, Topography and Acid Sulfate Soils

3.1 Topography and Elevation

The topography of the site is undulating with south and south east facing slopes towards Sloane Street located to the east of the site, and towards a creek line located in the southern portion of the site.

Google Earth data indicated that the surface of the site was located at an elevation of approximately 675m Australian Height Datum (AHD) in the north-west and 643m AHD in the south east.

3.2 Geology

The NSW Department of Primary Industries Provisional Geological Survey of Goulburn Provisional Geology 1:100,000 Sheet 8828 (First Edition) 2008, indicated that the site is likely to be underlain by Quaternary residual deposits.

Information on site specific geology reported in CS (2020b) is presented in logs in Appendix B.

3.3 Hydrogeology and Hydrology

A search of <u>https://realtimedata.waternsw.com.au/water.stm</u> indicated that there were no registered groundwater features located within a 500m radius of the site.

A review of readily available maps held on file by CS, indicated that surface water bodies near the site included:

- > a potentially intermittent or ephemeral creek located in the southern portion of the site; and
- > Mulwaree River, located approximately 600m to the south and 870m to the east of the site.

Based on the location of the identified surface water courses and site topography, the inferred groundwater flow direction at the site is considered likely to be towards the south.

Based on site surface topography and elevation, the inferred general surface water flow direction on the site is considered likely to be towards the south east and south.

3.4 Acid Sulfate Soils

A review of the NSW Department of Land and Water Conservation's Acid Sulfate Soil Risk Map series indicated that the site is not addressed in that series.

Acid sulfate soils typically occur at elevations less than 10m AHD, in coastal areas, and in proximity to estuarine waterways and swamps. The site is located at an elevation of between 643m and 675m.

The planning certificates for the site (refer CS (2019)) indicate that the site is not affected by a policy that restricts development because of acid sulfate soils.

Further assessment of acid sulfate soils, in the context of this project is considered not warranted.

4 **Previous Contamination Assessments**

CS were provided with the following previous contamination assessment reports, which were considered during the undertaking of this project:

- CS (2020a), 'Stage 1 Preliminary Site Investigation, Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW' dated 22 January 2020, ref: 5046200019-R01R1.
- > CS (2020b), 'Stage 2 Detailed Site Investigation, Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW' dated 30 March 2020, ref: 5046200019-R02.

A summary of that report is presented in Section 4.1.

4.1 CS (2020a)

The objectives of this project were to:

- > assess the potential for contamination to be present on the site, as a result of past and present land use activities;
- > provide advice on the suitability of the site (in the context of land contamination) for the proposed rezoning; and
- > provide recommendations for further investigation, management and/or remediation of the site (if warranted).

The scope of work undertaken to address the project objectives included the following:

- > A desktop review of site history.
- > A walkover of the site.
- > Data assessment and reporting.

The scope of works was undertaken with reference to the relevant sections of NEPC (2013a), NEPC (2013b), NSW OEH (2011), and WA DOH (2009).

A number of AECs, and COPCs associated with those AECs, were identified for the site.

Based on CS's assessment of desktop review information and site walkover, in the context of the proposed land use scenario, CS made the following conclusions:

- > There is a potential for contamination to be present at the site, arising from past and present land use activities.
- > 26 areas of environmental concern have been identified for the site.
- > There is insufficient information available to determine whether the site is suitable for the proposed rural residential and industrial subdivision.

The AECs identified in the PSI are presented in Figure 3.

Based on these conclusions, CS made the following recommendations:

- > A stage 2 detailed site investigation (DSI) should be undertaken at the site to further assess potential contamination risks associated with the identified AECs and to assess the suitability of the site, from a contamination perspective, for the proposed land use.
- > The stage 2 DSI should be undertaken by a suitably experienced environmental consultant.

4.2 CS (2020b)

The objectives of this project were to:

> assess the potential for, and nature of, contamination to be present on the site, in the identified areas of environmental concern;



- > provide advice on the suitability of the site (in the context of land contamination) for the proposed land use scenario; and
- > provide recommendations for management and/or remediation of the site (if warranted), based on the information obtained from the investigation.
- The scope of work undertaken to address the project objectives included the following:
- > A review of CS (2019).
- > Intrusive sampling and laboratory analysis.
- > Data assessment and reporting.

The location of sampling points established during the DSI, are presented in Figure 4.

Based on CS's review of CS (2019), fieldwork observations and laboratory analytical data, in the context of the proposed land use scenario, CS made the following conclusions.

- > The concentrations of benzo(a)pyrene TEQ detected at soil sample locations SS11, SS15, SS16 and TP01 could present an unacceptable direct contact exposure risk to human health.
- The reported concentration of pathogens in soil sample locations TP01, TP21, TP23, TP28, TP32, TP38, TP45, TP46, TP51, TP53, TP71 and TP74 could present an unacceptable direct contact exposure risk to human health.
- > The reported concentration of pathogens in dam sediment samples collected from all dams onsite could present an unacceptable direct contact exposure risk to human health.
- > The observed presence of asbestos on the surface of the site at sample locations ACM01 and ABC01 could present an unacceptable exposure and aesthetic risk to human health.
- > The concentrations of TRH C16-C34 detected at soil sample locations SS11 and TP01 could present an unacceptable ecological risk.
- > The concentrations of TRH C16-C34 and zinc detected at dam sediment samples collected from Dam 1 and Dam 2 (AEC2 and AEC10) could present an unacceptable ecological risk.
- > The sludge material present in all dams across the site could present an unacceptable aesthetic impact.
- > The concentrations of ammonia detected in Dam 1 and Dam 2 (AEC2 and AEC10) could present an unacceptable ecological risk.
- > The site could be made suitable for the proposed land use scenario, subject to:
 - Appropriate management and/or remediation of the identified contamination risk in site soils, dam sediments and dam water; and
 - Appropriate management and/or dewatering of the dam.

Based on these conclusions, CS made the following recommendations:

- > A remedial action plan (RAP) should be prepared to address the identified contamination risks on site.
- > The RAP should include a methodology for supplementary assessment of the identified contamination risks, which could include quantitative human health and ecological risk assessment, delineation of known unacceptable contamination risks, and conceptual remedial strategies to address known and likely unacceptable contamination risks.
- > A site validation report (SVR) should be prepared at the completion of all management / remedial works, confirming that the site has been made suitable for the proposed land use scenario.
- Preparation of the RAP, undertaking of the supplementary assessment works, and preparation of the SVR, should be undertaken by a suitably experienced environmental consultant.

5 Data Gap Assessment

Based on a desktop review of CS (2020a) and CS (2020b), CS considers the following data gaps¹ are present, in the context of site contamination characterisation and management:

- Detected concentrations of benzo(a)pyrene TEQ and E Coli in samples collected from AEC01 were marginally above relevant adopted screening criteria, while a detected concentrations of TRH (C16-C34) was above the relevant adopted screening criteria. Statistical analysis of the detected benzo(a)pyrene (TEQ) concentrations in soil in AEC01 is considered warranted, in order to assess whether the detected concentration of benzo(a)pyrene TEQ in AEC01 presents an unacceptable direct contact human health exposure risk. Collection of additional TRH (C16-C34) and E Coli field and laboratory data (and subsequent statistical analysis) for soils in AEC01, is considered warranted, in order to assess whether the TRH (C16-C34) and/or E Coli presents an unacceptable exposure risk, and the likely extent of TRH (C16-C34) and/or E Coli that requires management / remediation.
- Detected concentrations of E Coli in samples collected from AEC06 were marginally above relevant adopted screening criteria. Collection of additional E Coli field and laboratory data (and subsequent statistical analysis) for soils in AEC06, is considered warranted, in order to assess whether the E Coli presents an unacceptable exposure risk, and the likely extent of E Coli that requires management / remediation.
- > Detected concentrations of E Coli and faecal coliforms in samples collected from AEC07 were marginally above relevant adopted screening criteria. Collection of additional E Coli and faecal coliform field and laboratory data (and subsequent statistical analysis) for soils in AEC07, is considered warranted, in order to assess whether the E Coli or faecal coliforms present an unacceptable exposure risk, and the likely extent of E Coli and faecal coliforms that requires management / remediation.
- > Detected concentrations of E Coli and faecal coliforms in samples collected from AEC09 were above relevant adopted screening criteria. Collection of additional E Coli and faecal coliform field and laboratory data (and subsequent statistical analysis) for soils in AEC09, is considered warranted, in order to assess whether the E Coli or faecal coliforms present an unacceptable exposure risk, and the likely extent of E Coli and faecal coliforms that requires management / remediation.
- > Detected concentrations of E Coli and faecal coliforms in samples collected from AEC11 were above relevant adopted screening criteria. Collection of additional E Coli and faecal coliform field and laboratory data (and subsequent statistical analysis) for soils in AEC11, is considered warranted, in order to assess whether the E Coli or faecal coliforms present an unacceptable exposure risk, and the likely extent of E Coli and faecal coliforms that requires management / remediation.
- Detected concentrations of E Coli and faecal coliforms in samples collected from AEC14 were above relevant adopted screening criteria. Collection of additional E Coli and faecal coliform field and laboratory data (and subsequent statistical analysis) for soils in AEC14, is considered warranted, in order to assess whether the E Coli or faecal coliforms present an unacceptable exposure risk, and the likely extent of E Coli and faecal coliforms that requires management / remediation.
- > Detected concentrations of faecal coliforms in samples collected from AEC21 were marginally above relevant adopted screening criteria. Collection of additional faecal coliforms field and laboratory data (and subsequent statistical analysis) for soils in AEC21, is considered warranted, in order to assess whether the faecal coliforms present an unacceptable exposure risk, and the likely extent of faecal coliforms that requires management / remediation.
- > Asbestos was detected in a surface sample collected from ABC01, which was above relevant adopted screening criteria. Collection of asbestos in soil field and laboratory data for soils I the vicinity of ABC01, is considered warranted, in order to assess whether the asbestos presents an unacceptable exposure risk, and the likely extent of E Coli and faecal coliforms that requires management / remediation.

¹ CS notes that these data gaps were not addressed prior to preparing this RAP, on the basis that the client wanted to incorporate supplementary assessment works into the RAP, rather than undertake them beforehand, while still addressing planning consent decision making processes.



- > The concentrations of COPC in the dam waters have not been assessed against Council's liquid trade waste policy.
- > The acceptable discharge rate of dam water to Council's trade waste water system is not understood.

Provision for addressing these data gaps is presented in Section 7.5.2 of this RAP.



6 Conceptual Site Model

The site history review and observations made during the site walkover, were assessed in the context of the project objectives, in order to develop a conceptual site model (CSM) for the site.

6.1 Areas of Environmental Concern and Contaminants of Potential Concern

A number of areas of environmental concern (AEC) on the site, and contaminants of potential concern (COPC) associated with those AEC where detected concentrations may present an unacceptable land contamination exposure risk, were identified for the site.

The identified AEC are presented in Figure 5, and the COPC associated with those AEC are presented in Table 6.1.

| ID | AEC | COPC | |
|-----------------|--------------------------------------|------------------------------------|--|
| AEC01 | North west dam curtilage | Hydrocarbons, PAH, pathogens | |
| AEC02 | Dam waters and sediments | Hydrocarbons, pathogens, nutrients | |
| AEC05 | Area between mounds | Pathogens | |
| AEC06 | Mound | Pathogens | |
| AEC07 | Area between mounds | Pathogens | |
| AEC09 | Mound | Pathogens | |
| AEC10 | Dam waters and sediments | Hydrocarbons, pathogens, nutrients | |
| AEC11 | Dam wall | Pathogens | |
| AEC13 | Potential former road | РАН | |
| AEC14 | Material bays | Pathogens | |
| AEC19 | South of greenhouses (asbestos pipe) | Asbestos | |
| AEC20 | First flush catchment dam | Pathogens | |
| AEC21 | First flush catchment dam | Pathogens | |
| AEC22 | Pit (to be validated, post removal) | Hydrocarbons, metals, pathogens | |
| AEC23 | Pit (to be validated, post removal) | Hydrocarbons, metals, pathogens | |
| AEC27 (new AEC) | Areas surrounding ABC01 | Asbestos | |

Table 6.1 AEC and COPC

6.2 Land Use Scenario and Receptors

CS understands the proposed development of the site includes a rural residential, environmental living and general industrial subdivision. CS considers potential receptors at the site to include the following:

- > Future residents, visitors and ecological ecosystems within the proposed rural residential and environmental living subdivision.
- > Future industrial/commercial land users and visitors within the proposed industrial subdivision.

6.3 Exposure Pathways

6.3.1 <u>Human Health – Direct Contact</u>

Site history information and walkover observations indicated a potential for contaminants, which may present a direct contact exposure risk, may be present on site. The proposed land use scenario is likely to include unsealed and open space areas, where a direct contact exposure pathway may be complete.



6.3.2 <u>Human Health – Asbestos</u>

Bonded asbestos containing materials (ACM) comprises asbestos which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin.

Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material, which can be broken or crumbled by hand pressure.

Asbestos fines (AF) include free fibres, small fibre bundles and small fragments of bonded ACM that can pass through a 7mm x 7mm sieve.

Asbestos poses a risk to human health when asbestos fibres are made airborne and inhaled. The assessment of sites contaminated with asbestos in soil should aim to describe the nature and quantity of asbestos in soil in sufficient detail to enable a risk management plan to be developed for the proposed land use scenario.

Site history information indicate a potential for bonded ACM, FA and AF to be present in selected areas of the site.

The proposed land use scenario is likely to included unsealed and open space areas, where an asbestos exposure pathway may be complete.

6.3.3 <u>Human Health – Aesthetics</u>

Section 3.6.3 of NEPC (1999a) indicates that there are no specific numeric aesthetic guidelines, however site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. For example, higher expectations for soil quality would apply to residential properties with gardens compared with industrial settings.

Site history information and walkover observations indicated a potential for contaminants, which may present an aesthetics exposure risk, may be present on site.

The proposed land use scenario is likely to include unsealed and open space areas, where an aesthetics exposure pathway may be complete.

6.3.4 Ecological – Terrestrial Ecosystems

Site history information and walkover observations indicated a potential for contaminants, which may present an ecological risk, may be present on site.

Section 3.4.2 of NEPC (1999a) indicates that:

- > a pragmatic risk-based approach should be taken when assessing ecological risk in residential and commercial / industrial land use settings;
- in existing residential and urban development sites, there are often practical considerations that enable soil properties to be improved by addition of ameliorants with a persistent modifying effect or by the common practice of backfilling or top dressing with clean soil;
- > in other cases, all of the site soils will be removed during site development works or relocated for the formation of new land forms;
- > sites may also be backfilled with clean soil/fill and the fate of any excavated contaminated soil should be considered in process; and
- > commercial and industrial sites may have large building structures and extensive areas covered with concrete, other pavement or hardstand materials and may have limited environmental values requiring consideration while in operational use.

The proposed land use scenario is likely to include unsealed, open space and landscaped areas, where an ecological exposure pathway may be complete.



7 Remedial Action Plan

7.1 Remedial Goal

The remedial goal for this project is to remediate identified land contamination exposure risks to a level that does not present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario.

It is noted that the client's preferred outcome at the completion of remedial works, is to not have:

- > a notation on a planning certificate for the site;
- > a covenant registered on the title to the land; or
- > a long term environmental management plan (EMP).

7.2 Preliminary Inferred Remedial Extent

The preliminary inferred extent of remedial works required to address the remedial goal, is set out in Table 7.2.1.

However, the inferred extents are based on limited data, and may be subject to change based on temporal or seasonal fluctuations (particularly water content in dams) and the results of supplementary contamination assessment works proposed in this RAP in section 7.5.2.

The supplementary assessment may also remove the need for management and/or remediation in one or more areas of concern (based on statistical analysis of additional data and/or site specific risk assessment. Should there be a need to change the inferred extents based on supplementary assessment works, these changes would be presented in an addendum to this RAP.

| ID | Area | rea Indicative In- situ Quantities Assumptions ² | | | |
|-------|--|--|---|--|--|
| AEC01 | Mounded soils in vicinity of TP01 | 270m ³ | 380m ² , depth of 1m, mound slope conversion factor of 0.6 | | |
| AEC02 | Dam waters Dam sediments | 180kL 90m ³ | 450m ² , 0.3m deep, dam wall slope conversion factor of 0.4 450m ² , 0.3m thick, dam base slope conversion factor of 0.6 | | |
| AEC05 | Surface soils | 80m ³ | 800m ² , depth of 0.1m | | |
| AEC06 | Soil mound | 120m ³ | 65m long, 5m wide, 0.6m high, mound slope conversion factor of 0.6 | | |
| AEC07 | Surface soils | 70m ³ | 700m ² , depth of 0.1m | | |
| AEC09 | Mound | 200m ³ | 50m long, 5m wide, 1.3m high, mound slope conversion factor of 0.6 | | |
| AEC10 | Dam waters and sediments | 180kL 160m ³ | 850m ² , dam wall slope conversion factor of 0.4 450m ² , 0.3m thick, dam base slope conversion factor of 0.6 | | |
| AEC11 | Mounded soils in vicinity of TP45 and TP51 | 40m ³ | 400m ² , depth of 0.1m | | |
| AEC13 | Surface soils between SS10 and SS17 | 300m ³ | 3000m ² , depth of 0.1m | | |
| AEC14 | Material bays | 20m ³ | 700m ² , depth of 0.1m (including demolition of material bays) | | |
| AEC19 | South of greenhouses | Asbestos pipe | Localised | | |
| AEC20 | First flush catchment dam | 180kL 140m ³ | $700m^2$, 0.3m deep, dam wall slope conversion factor of 0.4 $700m^2$, 0.3m thick, dam base slope conversion factor of 0.6 | | |

Table 7.2.1 Inferred Remedial Extent

² Dam wall slope conversion factor sourced from

http://www.water.nsw.gov.au/ data/assets/pdf file/0010/547237/licensing rights harvest dams what size are your existing dams.p



| ID | Area | Indicative In- situ Quantities | Assumptions ² | |
|-------|-------------------------------------|---|---|--|
| AEC21 | Surface soils between TP71 and TP74 | 20m ³ 200m ² and 50m ² , depth of 0.1m | | |
| AEC22 | Pit (to be validated, post removal) | Concrete pit | - | |
| AEC23 | Pit (to be validated, post removal) | Concrete pit | - | |
| AEC27 | Areas surrounding ABC01 | 5m ³ | m ³ 50m ² , depth of 0.1m | |

The inferred extent of remedial works is also presented graphically in Figure 6.

7.3 Remediation Options

The preferred hierarchy of remedial options for site clean-up and/or management, as set out in s.6(6) Assessment of Site Contamination Policy Framework of Schedules A and B of NEPC (1999) is as follows:

- 1. On-site treatment of contamination, so that it is destroyed or the associated risk is reduced to an acceptable level;
- 2. Off-site treatment of excavated soil so that the contamination is destroyed or the associated risk is reduced to an acceptable level, after which the soil is returned to the site; or

if the above are not practicable;

- 3. Consolidation and isolation of the soil by on-site containment with a properly designed barrier; and
- 4. Removal of contaminated material to an approved site or facility, followed, where necessary, by replacement with appropriate material; or
- 5. Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

For the purpose of assessing remedial options, a selection of qualitative remedial option ranking criteria have been adopted. These criteria and the ranking system are presented in Table 7.3.1.

| | Score | | | | | | |
|---------------------------|--|----------|---|---|--|--|--|
| Criteria | 0 | 1 | 2 | 3 | 4 | | |
| Applicability | Not applicable | ◀ | | | Widely available | | |
| Technical Feasibility | Unfeasible | ▲ | | | Feasible | | |
| Effectiveness | Limited effectiveness for intended purpose | 4 | | | Highly effective for intended purpose | | |
| Stakeholder Acceptance | Unlikely acceptable to stakeholders (EPA, Council and community) | 4 | | | Highly likely to be acceptable to stakeholders | | |
| Cost | Likely highest | | | | Likely lowest | | |
| Sustainability | Unsustainable | 4 | | | Sustainable in terms of environmental management and corporate / social responsibility | | |
| Duration | Long term | ◀ | | | Short term | | |

Table 7.3.1 Remedial Option Assessment Ranking Criteria

The options considered, along with a qualitative ranking, are presented in Table 7.3.2.



Table 7.3.2 Remedial Options

| Applicability 4 1 4 Onsite treatment of pathogens and hydrocations in soil integrates well with proposed development work. Containment solution would not integrate well with proposed development work. Devaleting dams for offsite disposal integrates well with proposed development work. Devaleting dams for offsite disposal integrates well with proposed development work. Technical 3 2 4 Industry accepted onsite treatment methods readily available, with some methods readily available, with some methods readily available. Technical 3 3 4 Onsite treatment effective if implemented constraints downing site construction and long term site maintance with containment. Excavation and disposal methods readily available. Effectiveness 3 3 4 Onsite treatment acceptable in the constraints downing site construction and disposal methods readily available. Stakeholder Acceptance 3 1 3 Onsite treatment acceptable in not consol type/structure. Containment effective at managing unacceptable firsk removed from site. The complete site maintend acceptable in not consistent with our consistent with our consistent with our consistent with our constraint deficities a potential unacceptable firsk removed from site. The complete site reatment considered as not sustainable in policy. Excavation and disposal would be acceptable in not consistent with our consistent acceptable. Contaimment short term costs acceptable, but long t | Criteria | Onsite Treatment | Containment | Excavation and Disposal | Comment |
|---|----------------|---------------------|-------------|----------------------------|---|
| well with proposed development work. Dewatering dams for offsted disposal integrates well with proposed development work. Dewatering dams for offsted disposal integrates well with proposed development work.Technical Peasibility324Industry accepted onsite treatment | Applicability | 4 | 1 | 4 | hydrocarbons in soil integrates well with |
| with proposed development work. Dewatering dams for offsite disposal integrates well with proposed development work.Technical Feasibility324Industry accepted onsite treatment methods readily available. Excavation and disposal methods readily available.Effectiveness Stakeholder Acceptance334Onsite treatment effective if implemented constructore. Potential constraints during site construction and disposal methods readily available.Stakeholder Acceptance313Onsite treatment effective if implemented correctly, with some limitations based on soil type/structure. Containment effective as potential unacceptable risks are removed from site, however, may be acceptable. Consistent with local Council contaminated land policy. Excavation and disposal costs are significantly however, may be considered as not sustainable buy be stakeholders.Cost421Onsite treatment cost acceptable. Containment acceptable. Consistent with local Council contaminated land policy. Excavation and disposal costs are significantly higher.Sustainability421Onsite treatment cost acceptable. Containment and disposal costs are significantly higher.Duration234Onsite treatment cost disposal disposal would be acceptable. Excavation and disposal costs are significantly higher.Duration234Onsite treatment cost acceptable. Excavation and disposal costs are significantly higher.Cost421Onsite treatment cost disposal consistent with sustainability or require longer ter | | | | | |
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| Image: Second | | 3 | 2 | 4 | methods readily available, with some |
| Effectiveness334Onsite treatment effective if implemented correctly, with some limitations based on soil type/structure. Containment effective at managing unacceptable risks. Excavation is highly effective as potential unacceptable risks. Excavation is highly effective as potential unacceptable risks are removed from site.Stakeholder Acceptance313Onsite treatment acceptable. Containment effective at managing unacceptable risks are removed from site.Stakeholder Acceptance313Onsite treatment acceptable. Containment may not be acceptable if not consistent with local Council contaminated land policy. Excavation and disposal would be acceptable - risk removed from site, however, may be considered as not sustainable by some stakeholders.Cost421Onsite treatment is cost effective. Containment short term costs acceptable, but long term cost (future land value) may be unacceptable. Excavation and disposal costs are significantly higher.Sustainability421Onsite treatment considered sustainable, given relatively minor quantities of waste generated, and re-use of soils onsite. A capping solution is likely to require longer term passive maintenance. Excavation and considered to be consistent with sustainability principles.Duration234 | | | | | construction and long term site |
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| Duration234Onsite treatment would likely impact project timeframe. Excavation and offsite disposal comparatively faster; therefore remediation is unlikely to significantly impact project timeframe. | Sustainability | 4 | 2 | 1 | given relatively minor quantities of waste |
| Duration234Onsite treatment would likely impact project timeframe. Capping design and implementation, would likely impact project time. Excavation and offsite disposal comparatively faster; therefore remediation is unlikely to significantly impact project timeframe. | | | | | |
| project timeframe. Capping design and implementation, would likely impact project time. Excavation and offsite disposal comparatively faster; therefore remediation is unlikely to significantly impact project timeframe. | | | | | |
| Capping design and implementation, would likely impact project time. Excavation and offsite disposal comparatively faster; therefore remediation is unlikely to significantly impact project timeframe. | Duration | 2 | 3 | 4 | |
| comparatively faster; therefore remediation is unlikely to significantly impact project timeframe. | | | | | Capping design and implementation, would |
| | | | | | comparatively faster; therefore remediation is unlikely to significantly impact project |
| | Score | 23 | 14 | 21 | |



7.4 Preferred Remedial Option

Based on the current understanding of the inferred extent of remedial works required, the proposed land use scenario for the site, and the client's preferred remedial outcomes for the site, the preferred remedial options for the site are presented in Table 7.4.1.

However, the preferred remedial options are based on limited data, and may be subject to change based on temporal or seasonal fluctuations (particularly water content in dams) and the results of supplementary contamination assessment works proposed in this RAP in section 7.5.2.

The supplementary assessment may also remove the need for management and/or remediation in one or more areas of concern (based on statistical analysis of additional data and/or site specific risk assessment. Should there be a need to change the inferred extents based on supplementary assessment works, these changes would be presented in an addendum to this RAP.

| AEC | Contamination Risk | Preferred Remedial Option |
|--|---|--|
| AEC01, AEC02, AEC05, AEC06, AEC07, AEC09, AEC10, AEC11, AEC14, AEC20, AEC21 | Soils and sediments impacted with pathogens and/or petroleum hydrocarbons | Excavate, spread, dewater and UV treatment with sunlight (along with bioremediation for petroleum hydrocarbons). Some turning and aeration of the soil may be required to facilitate treatment of contaminants. Addition of lime or similar may be required to facilitate drying of the soils / sediments. Treated material will be tyned back into existing site soils, as a soil amendment material. |
| AEC13 | Soils and sediments impacted with benzo(a)pyrene TEQ | Excavate and dispose offsite. |
| AEC19 | Asbestos pipe | Excavate and dispose offsite. |
| AEC27 | Surface soils (up to 0.1m) impacted with bonded asbestos containing materials | The surface will be systematically visually inspected and fragments on the surface hand-picked. The area will then be treated via raking to a depth of 0.1m below ground level, using an excavator fitted with a tooth bucket. Fragments of bonded ACM observed during raking will be hand-picked and removed for offsite disposal in accordance with the relevant waste classification. A minimum of two passes of raking and picking will be undertaken, using a grid pattern, with a 90° |
| | | direction change between each pass. The contractor will undertake the works in a manner that avoids further damage or burial of the ACM by the process. This method is proposed, to accommodate the physical properties of the soil combined with the likely presence of anthropogenic materials, as hand raking of these soils is not considered practical. Validation of the raked area will be in accordance with Section 8.7.1. |

Table 7.4.1 Preferred Remedial Option – Soils and Sediments



| AEC | Contamination Risk | Preferred Remedial Option |
|---|---|--|
| AEC27 (if bonded ACM found at depth) | Soils at depth (beyond 0.1m below ground surface) impacted with unacceptable concentrations of bonded asbestos, observed during supplementary assessment works and/or subsequent remediation works | Soils will be excavated using an excavator. The excavated soil will be spread on a 'cleared pad' area, to a maximum thickness of 0.1m, and the soil will then be treated via raking, using an excavator fitted with a tooth bucket. Fragments of bonded ACM observed during raking will be hand-picked and removed for offsite disposal in accordance with the relevant waste classification. The contractor will undertake the works in a manner that avoids further damage or burial of the ACM by the process. A minimum of two passes of raking and picking will be undertaken, using a grid pattern, with a 90° direction change between each pass. This method is proposed, to accommodate the physical properties of the soil combined with the likely presence of anthropogenic materials), as hand raking of these soils is not considered practical. Validation of the raked area will be in accordance with Section 8.7.1. The excavation will be backfilled (if required) with the validated soil. |
| AEC27 (only if AF or FA is detected) | Soils impacted with unacceptable concentrations of friable asbestos | Soils will be excavated using an excavator, and disposed offsite to a suitably licensed facility, with an appropriate waste classification. Validation of the excavation base and walls will be in accordance with Section 8.7.1. |
| AEC22 and AEC23 | Trade Wastewater Pit | Demolition, excavation and disposal offsite. Validation of excavation will be done in accordance with Section 8.7.1. |

Table 7.4.2 Preferred Remedial Option – Waters

| AEC | Contamination Risk | Preferred Remedial Option |
|--------------|--------------------|---|
| AEC02, AEC10 | Dam Waters | Pump and remove for offsite disposal. Cumulative flow metering for each AEC to be undertaken during pumping, as well as quantitative volume assessment to be measured at disposal facility. |
| AEC20 | Dam Waters | Pump and remove for offsite disposal. Cumulative flow metering for each AEC to be undertaken during pumping, as well as quantitative volume assessment to be measured at disposal facility. |

7.5 Remediation Works Sequence

7.5.1 Schedule of Remediation

Remedial works are expected to take three to six months to complete. This timeframe will be refined following appointment of a remediation contractor.



7.5.2 Supplementary Contamination Assessment Works

7.5.2.1 Background

Based on a desktop review of CS (2020a) and CS (2020b), a number of data gaps were identified in the context of site contamination characterisation and management. Those data gaps are presented in Section 5 of this RAP.

7.5.2.2 Soil Sampling Point Density

Table A in NSW EPA (1995) includes guidance on minimum sampling point densities required characterising a site, based on detecting circular hot spots by using a systematic sampling pattern. Application of this guidance is recommended when:

- > There is little knowledge about the probable locations of the contamination;
- > The distribution of the contamination is expected to be random (e.g. landfill sites); or
- > The distribution of the contamination is expected to be fairly homogenous (e.g. agricultural lands).

Section 3.1 of NSW EPA (1995) states that judgemental or stratified sampling methods can be used if there is sufficient information about the probable distribution of the contamination. Additionally, Section 6.2.1 in NEPC (1999b) states that judgemental sampling, the selection of samples (number, location, timing, etc) is based on knowledge of the site and professional judgement. Sampling would be expected to be localised to known or potentially contaminated areas identified from knowledge of the site either from the site history or an earlier phase of site assessment. Judgemental sampling can be used to investigate sub-surface contamination issues in site assessment.

Section 4.1 and Table 1 of WA DOH (2009) provides guidance on asbestos in soil sampling densities, relative to the likelihood of asbestos being present on the site.

The scope of this project has included collection of data that provides an understanding of site history, the locations of potentially contaminated areas, and the likelihood of asbestos being present on the site. On that basis, it is considered reasonable to adopt a mix of grid based / judgemental sampling pattern, using the sampling point densities set out in Section 7.5.2.3 and sampling point locations set out in Figure 5.

7.5.2.3 Sampling Methods

The sampling methods set out in Table 7.5.2.3.1 will be used on this project. These methods are based on a number of factors that are relevant to this project, based on site history, and include:

- > The identified COPC;
- > The assessed laydown mechanisms for COPC in each AEC;
- > The assessed likely lateral and vertical extent of potential contamination in each AEC; and
- > Constraints on site which may restrict the use of certain sampling techniques.

Table 7.5.2.3.1 Soil and Sediment Sampling Methods

| ID | AEC | Sampling Point ID | Method ³ | Target Depth (mbgs) |
|-------|--|----------------------|---------------------|------------------------------------|
| AEC01 | Mounded soils in vicinity of TP01 | TP101-TP102 | Test pit (EX) | 1.5m, refusal or 0.3m into natural |
| AEC06 | Soil mound | TP103-TP105 | Test pit (EX) | 0.5m, refusal or 0.3m into natural |
| AEC07 | Surface soils | SS101-SS106 | Surface Sample (SS) | 0.1m or refusal |
| AEC09 | Soil mound | TP106-TP108 | Test pit (EX) | 1.5m, refusal or 0.3m into natural |
| AEC11 | Surface soils in vicinity of TP45, TP46 and TP51 | SS107-SS112 | Test pit (EX) | 0.5m, refusal or 0.3m into natural |

³ EX = excavation, PT = push tube auger, SFA = solid flight auger, HA = hand auger, SS = surface sample



| ID | AEC | Sampling Point ID | Method ³ | Target Depth (mbgs) |
|-------|---|----------------------|---------------------|------------------------------------|
| AEC13 | Surface soils between SS10 and SS17 | SS113-SS139 | Surface Sample (SS) | 0.1m or refusal |
| AEC14 | Material bays | TP109-TP114 | Test pit (EX) | 1.0m, refusal or 0.3m into natural |
| AEC21 | Surface soils between TP71 and TP74 | SS140-SS146 | Surface Sample (SS) | 0.1m or refusal |
| AEC27 | Surface soils surrounding ABC01 | SS147-SS150 | Surface Sample (SS) | 0.1m or refusal |

Samples requiring asbestos gravimetric screening will be 10L in volume, and will be collected and screened with reference to Table 5 in WA DOH (2009).

Samples requiring calculation of asbestos fines (AF) and fibrous asbestos (FA) concentrations, will be collected as 500mL samples from the 10L bulk samples, prior to screening.

7.5.2.4 Decontamination

Non-disposable sampling equipment will be decontaminated between sampling points to mitigate potential for cross contamination of samples. The decontamination method to be used will be:

- Wash the non-disposable sampling equipment with a solution of potable water and phosphate free detergent (e.g. Decon 90);
- > Rinse the washed equipment with distilled or de-ionised water; and
- > Air dry the rinsed equipment.

7.5.2.5 Sample Identification, Preservation, Handling and Transport

Soil samples will be identified using the CS project number, sampling point identification number and sampling depth interval (e.g. TP01/0.0-1.0 or BH04/0.2-0.4), and date the sample was collected.

Samples will be placed in laboratory prepared containers (containing preservatives as appropriate), bulk sample bags and zip lock bags.

Soil samples will be stored in insulated containers with ice (where applicable).

Samples will be transported to the analytical laboratory by CS field staff or a third party courier, using the analytical laboratory's chain of custody (COC) documentation.

7.5.2.6 Laboratory Selection

Analytical laboratories used for this project will be NATA accredited for the analytical methods used.

7.5.2.7 Laboratory Analytical Schedule

Samples scheduled for laboratory analysis will be selected based on:

- > The COPC identified for the AEC the sample was collected from;
- > Observations made of the sample when collected (including staining, odour and discolouration); and
- > The results of PID headspace screening (if applicable).

The proposed laboratory analytical schedule (including upper limiting sample quantities) for the project is set out in Table 7.5.2.7

Table 7.5.2.7 Laboratory Analytical Schedule



| ID | AEC | Sampling Point ID | E Coli | Faecal Coliforms | TRH >C10- C40⁴ | РАН | Asbestos 0.001% |
|-------|--|----------------------|--------|---------------------|-------------------|-----|--------------------|
| AEC01 | Mounded soils in vicinity of TP01 | TP101-TP102 | 4 | - | 4 | 4 | - |
| AEC06 | Soil mound | TP103-TP105 | 6 | - | - | - | - |
| AEC07 | Surface soils | SS101-SS106 | 6 | 6 | - | - | - |
| AEC09 | Soil mound | TP106-TP108 | 6 | 6 | - | - | - |
| AEC11 | Surface soils in vicinity of TP45, TP46 and TP51 | SS107-SS112 | 6 | 6 | - | - | - |
| AEC13 | Surface soils between SS10 and SS17 | SS113-SS139 | - | - | - | 27 | - |
| AEC14 | Material bays | TP109-TP114 | 12 | 12 | - | - | - |
| AEC21 | Surface soils between TP71 and TP74 | SS140-SS146 | - | 7 | - | - | - |
| AEC27 | Surface soils surrounding ABC01 | SS147-SS150 | - | - | - | - | 4 |

7.5.2.8 Laboratory Holding Times, Analytical Methods and Limits of Reporting

Sample holding times, laboratory analytical methods and limits of reporting applicable to this project, are set out in Table 7.5.2.8.

Table 7.5.2.8 Laboratory Holding Times, Analytical Methods and Limits of Reporting

| Analyte | Holding Time | Method | LOR (mg/kg) |
|----------------------------|--------------|-----------------------------------|-------------|
| TRH >C10-C40 | 14 days | USEPA 8015B & C | 0.2-0.5 |
| РАН | 14 days | USEPA 8270 | 0.1-0.2 |
| E.Coli and Faecal Coliform | 72 hours | AS 4276.7:2007 and AS 4276.5:2007 | 10 MPN/g |
| Asbestos (WA DOH (2009)) | No limit | In-house | 0.001% w/w |

7.5.2.9 Supplementary Contamination Assessment Reporting

The findings of the supplementary contamination assessment will be presented as an addendum to this RAP. The RAP addendum report will include:

- > An executive summary;
- > The scope of reporting work undertaken;
- > Site identification details;
- > Information on supplementary contamination assessment works undertaken;
- > Field and laboratory analytical data;
- > Field and laboratory data QA/QC assessment;
- > Supplementary site characterisation;
- > Information on the inferred remedial extent;
- > Information on the revised remedial strategy (if any);
- > Information on revised validation strategy (if any);
- > Information on revised site monitoring requirements (if any); and

⁴ Silica gel clean up may assist in assessing whether detected concentrations of TRH contain biogenic and/or petrogenic hydrocarbons. proportion of Section 2.6.5 of NEPC (2013a) advises that ecological screening levels were derived on the basis of fresh contamination, and that aged contamination is generally of less human health risk and environmental concern. Assessment of GC-MS analysis and chromatograph output data may assist in differentiating between fresh and aged TPH contamination.



> Conclusions and recommendations.

7.5.3 Approvals and Notifications

A notification of intent to undertake remedial works will be submitted to the relevant planning authority, 30 days prior to the intended commencement date of remedial works.

The proposed remedial works are considered likely to class as Category 2 under State Environmental Planning Policy (SEPP) 55. It is understood that Category 2 remedial works do not require consent from the planning authority.

The following information will be provided to the relevant planning authority, with the notice of intent to undertake remedial works:

- > a copy of previous contamination assessment reports;
- > a copy of this RAP;
- > the contact details of the party responsible for ensuring remedial works comply with relevant regulatory requirements; and
- > the contact details of the remediation contractor.

Development consent or a construction certificate will be obtained (if required) from the planning authority for demolition, excavation or shoring works.

Demolition works (if required) will be undertaken by a contractor holding an appropriate SafeWork NSW demolition licence. That licence will hold a chemical endorsement, in the event that demolition works includes underground and/or aboveground storage tanks.

Approvals will be obtained (if required) from Roads and Maritime Services (RMS) for remedial works being undertaken adjacent to (or on) RMS assets.

A notification of asbestos removal work will be submitted to SafeWork NSW by the remediation contractor. The remediation contractor will hold:

- > a Class A licence for removal of friable asbestos / asbestos fines; and
- > a Class B licence for removal of bonded asbestos.

Within seven days of completion of underground storage tank abandonment / decommissioning / removal works (if applicable), a notification will be sent to SafeWork NSW by the remediation contractor.

Within 30 days of completion of remediation and validation works, a notice of completion of the remedial works will be submitted to the relevant planning authority by the client's project manager.

7.5.4 <u>Stability of Structures</u>

The stability of structures (including, but not necessarily limited to footings, walls, buildings and roads), which may be impacted by the proposed remedial works) will be assessed by a suitably experienced structural consultant before commencing remedial works. Recommendations made by the structural consultant will be incorporated by the remediation contractor, into the execution of all relevant site works.

7.5.5 Demolition Works

A hazardous materials survey (if required), will be prepared prior to demolition of structures (if required). The survey will identify the location, nature and extent of all hazardous materials (including asbestos, lead, PCB and synthetic mineral fibres) in those structures.

Identified hazardous materials will be treated (where appropriate), removed from site, and a clearance certificate obtained from a competent person, prior to commencing demolition of the structures.

The remediation contractor will retain records of the transport and disposal of demolition wastes (including hazardous materials), removed from the site.



7.5.6 <u>Remedial Works</u>

The remedial strategies to be adopted for each of the identified AEC or potential contamination risks, are presented in Section 7.3, and any addenda prepared for this the RAP.

Remedial works will be undertaken by the remediation contractor with guidance provided by the appointed environmental consultant. The environmental consultant will assist the remediation contractor in setting out the inferred extents of remediation required, based on refined remedial extents set out in the supplementary contamination assessment report referred to in Section 7.5.2, any subsequent addenda prepared for this RAP. The environmental consultant will provide guidance to the remediation contractor on:

- > where to extend remedial works beyond the inferred extent (if observations indicate a need for chasing out additional contamination); and
- > when to stop remedial works, to allow validation works to be undertaken.

The remediation contractor will be responsible for:

- > Coordinating right of way access through third party properties (as required) with the site owner and owners/tenants of third party properties
- > Site establishment, including stabilising of site access entry/exit points
- > Provision of worker amenities on site;
- > Establishment of sediment and erosion controls;
- > Establishing soil / sediment treatment areas, which may require localised minor earthworks to create cleared and 'flat' treatment pads;
- > Tyning treated material back into onsite soils; and
- > Retaining records of the transport and disposal of all wastes generated during remedial works.

7.5.7 Backfilling of Remedial Excavations

Should backfilling of remedial excavations be required, then backfill material will be limited to:

- > Virgin excavated natural material (VENM);
- > Excavated natural material (ENM); and
- > Other materials that:
 - have been certified as compliant with a NSW EPA issued resource recovery exemption; and
 - the placement on the site is within the constraints of the resource recovery exemption; and
 - do not present an unacceptable human health or ecological exposure risk, in the context of the proposed land use scenario.

Material proposed for importing will be compatible with existing soil characteristics for site drainage purposes. Nominating engineering properties (compaction, density, moisture content) is not within the scope of this RAP and will be specified by others.

Certification of VENM, ENM or other resource recovery material, will be reviewed by the environmental consultant, before the remediation contractor commences importation.

The remediation contractor will be responsible for:

- > Inspecting every load of imported material for consistency with the material described in the relevant certification, including that the material is free of anthropogenic materials, odours or staining.
- > Maintaining a record of inspection of each load;
- Maintaining detailed records of all material imported to site, including details of the supplier/s, source of the material, quantity of the material, importing vehicle registration numbers, and dates/times the material is received on site; and



> The remediation contractor will be responsible for retaining records of the certification, importation and placement of all remedial excavation backfill materials.

7.5.8 Unexpected Finds and Contingency Plans

There is a degree of uncertainty inherent in site assessment and remediation works. Based on the site history information made available to CS prior to preparing this RAP, it is considered the unexpected scenarios presented in Table 7.5.8 could occur during remedial works.

Contingency plans and protocols to be implemented, should those scenarios arise, are also presented in Table 7.5.8.

Table 7.5.8 Contingency Plan

| Scenario | Contingency Plan | |
|---|--|--|
| Unexpected buried contamination or underground | Cease remedial works. | |
| structures encountered during remedial works (e.g. buried waste, underground storage tank, underground sump/pit). | Consider undertaking intrusive soil investigations into and around the unexpected find, to assess the potential nature and extent of the contamination / structure. | |
| | Consider undertaking groundwater assessment works, if the potential nature and extent of the contamination / structures suggest a risk to groundwater. | |
| | Prepare an amendment to the remediation and/or validation strategy in the RAP (if required), pending the outcomes and of the soil and/or groundwater assessment works. | |
| | Remediate the unexpected contamination. | |
| | Undertake validation of the remedial works. | |
| Potential asbestos containing materials encountered | Cease remedial works. | |
| beyond the inferred extent of remediation. | Consider undertaking intrusive soil investigations into and around the potential asbestos identified beyond the inferred remedial extent, and assess whether the asbestos is bonded and/or friable. | |
| | Submit notification to SafeWork NSW for asbestos removal works (if not already addressed in an existing notification). | |
| | Prepare an amendment to the remediation and/or validation strategy in the RAP. | |
| | Remediate the unexpected contamination. | |
| | Undertake validation of the remedial works. | |
| Failure of the biopiling remediation strategy for | Consider amendments to the soil. | |
| pathogens / petroleum hydrocarbons. | Consider excavation and offsite disposal, with appropriate waste classification assessment, to facility licensed to received that class of waste. | |
| Dam water quality and/or volume doesn't meet acceptance criteria of offsite waste disposal facility. | Consider pre-treatment of water. | |



8 Data Quality Objectives

Appendix B in NEPC (1999b) provides guidance on the data quality objective (DQO) process, which is a seven step iterative planning approach that can be used to define the type, quantity and quality of data needed to inform decisions relating to the environmental condition of a site.

8.1 Step 1: State the problem

The reason the project is being undertaken, is set out in Section 1.1 of this report.

The objective of this project is set out in Section 1.2 of this report.

The project team and technical support experts identified for the project include the CS project director, CS project manager, CS field staff and CS's subcontractors.

The design and undertaking of this project will be constrained by the client's financial and time budgets.

The regulatory authorities associated with this project include NSW EPA, the local planning authority, and SafeWork NSW.

8.2 Step 2: Identify the decision/goal of the study

The decisions that need to be made during this project, to address the project objectives, include:

- > Is the data collected for the project, suitable for assessing land contamination exposure risks?
- > Do the detected concentrations of contaminants of potential concern identified in the CSM, present an unacceptable exposure risk to the receptors identified in the CSM, based on the proposed land use scenario?
- > Is the site suitable, in the context of land contamination, for the proposed land use scenario?

8.3 Step 3: Identify the information inputs

The information inputs required to make the decisions for the project set out in Section 8.2, include:

- > Data obtained during the site history review and site walkover;
- > Identification of sample media that needs to be collected, as set out in Section 8.7;
- > Parameters that will be measured in each relevant sample, as set out in Section 8.7;
- > The analytical methods required for each identified COPC, so that assessment can be made relative to adopted site criteria. These are set out in Section 8.7 of this report; and
- > The basis for decisions to be made from field screening, including photo-ionisation detector (PID) data, and what action is to be taken if a defined concentration is attained, as set out in Section 8.7; and
- The site criteria for the media of concern. These criteria are set out in Table 8.3 and will be adopted based on the proposed land use scenario⁵ and identified receptors.

Table 8.3 Adopted Site Assessment Criteria

| Exposure Pathway | Land Use Setting ⁶ | Reference |
|-----------------------------|-------------------------------|---|
| Human health direct contact | HIL A | Table 1A(1) in NEPC (2013a) Table 3-5 in NSW EPA (2000) for E.coli and faecal coliforms |
| Human health (asbestos) | Residential A | Table 7 in NEPC (2013a) ⁷ |

⁵ The land use scenarios in Section 2.2 of NEPC (1999a) will be considered when adopting human health assessment criteria. The land use scenarios in Section 2.5 of NEPC (1999a) will be considered when adopting ecological assessment criteria.

⁶ Consideration will be given to soil type, soil texture, soil depth, groundwater depth and appropriate species protection levels.

⁷ A depth of up to 10cm below ground level is adopted to define 'surface soil'.



| Exposure Pathway | Land Use Setting ⁶ | Reference |
|---------------------------|---------------------------------------|---|
| Human health (aesthetics) | All | Characteristics and processes in Section 3.6.2 and 3.6.3 in NEPC (1991a) |
| Ecological | Urban residential / public open space | Table 1B(6) in NEPC (2013a) |

8.4 Step 4: Define the boundaries of the study

The geographical and spatial extent of the project will be limited to:

- > the site as defined by the boundaries set out in Section 2; and
- > any physical constraints or existing infrastructure on site that prevents safe and reasonable access by the project team and/or typical industry equipment used for projects of this nature.

The time and budget constraints of the project will be as per those set out in the contract (and subsequent variations) between CS and the client.

The temporal boundaries of the project will include:

- > Weather conditions including rain, wind, heat and cold, which may adversely affect execution of fieldwork tasks and/or data quality;
- > Availability of the site for access to execute fieldwork tasks; and
- > Availability of project team members to execute the project.

The lateral and vertical intervals in which contamination distribution is believed to be uniformly distributed, based on the CSM, will be:

- > The inferred lateral boundaries of each AEC; and
- > The inferred vertical extent of each AEC, as indicated in Section 7.2.

The scale of the decisions required will be based on the site, as defined by its boundaries.

8.5 Step 5: Develop the analytical approach

8.5.1 **Duplicates and Triplicates**

Field duplicates and triplicates will be collected at a rate of one set per 20 samples collected (an equivalent of 5%). Sample collection will include splitting of one bulk sample across three separate sample containers. Soil samples will not be homogenised, particularly where the COPC are volatile or semi volatile in nature.

Analysis of the duplicate and triplicates will be based on at least one of the analytes that the parent sample is being analysed for (excluding asbestos).

The relative percent difference (RPD) of the detected concentrations in the parent and duplicate, and the parent and triplicate, will be calculated.

8.5.2 Trip Blanks and Trip Spikes

One trip blank and trip spike will be used for each day of sampling⁸. A minimum of one trip blank and one trip spike will be scheduled for BTEX analysis, during the project, provide sample handling, preservation and storage procedures the same for each day of sampling.

8.5.3 Rinsate Blanks

One rinsate blank will be used for each day of sampling⁹. A minimum of one trip blank and one trip spike will be scheduled for BTEX analysis, during the project, provide sample handling, preservation and storage procedures the same for each day of sampling.

⁸ Only where samples being collected on that day are expected to be analysed for BTEX and/or TRH C6-C10.

⁹ Only where non-disposable sampling equipment is being used on that day.

Analysis of the rinsate blank will be based on at least one of the analytes that the parent sample is being analysed for (excluding asbestos).

8.5.4 Laboratory Quality Assurance and Quality Control

The quality assurance and quality control (QA/QC) program of the primary analytical laboratory will typically include analysis of method blanks, matrix spikes, surrogate spikes, laboratory control samples and laboratory duplicates. The laboratory will report on whether the QA/QC analysis meets the laboratory's adopted data quality objectives.

8.5.5 Data Quality Indicators

Data quality indicators (DQI) will be adopted to facilitate an assessment of the completeness, comparability, representativeness, precision and accuracy (bias) of the field and laboratory data collected. These DQI are set out in Table 8.5.5.

Table 8.5.5 Data Quality Indicators

| Completeness | | | | | |
|--|--------|--|--------|--|--|
| Field Considerations | Target | Laboratory Considerations | Target | | |
| Experienced sampling team used | Yes | Complete SRA and COA attached | Yes | | |
| Sampling devices and equipment set out in sampling plan were used (refer Section 8.7.1). | Yes | Critical samples identified in sampling plan, analysed | Yes | | |
| Critical locations in sampling plan, sampled (refer Section 8.7.1). | Yes | Analysis undertaken addresses COPC in sampling plan (refer Section 8.7.6) | Yes | | |
| Critical samples in sampling plan, collected (refer Section 8.7.1). | Yes | Analytical methods reported in laboratory documentation and appropriate LOR used | Yes | | |
| Completed field and calibration logs attached | Yes | Sample holding times met (refer Section 8.7.7) | Yes | | |
| Completed COC attached | Yes | | | | |

| Comparability | | | | | |
|--|--------|---|--------|--|--|
| Field Considerations | Target | Laboratory Considerations | Target | | |
| Same sampling team used for all work. | Yes | Same laboratory used for all analysis (refer Section 8.7.5). | Yes | | |
| Weather conditions suitable for sampling. | Yes | Comparable methods if different laboratories used Refer Section 8.7.7). | Yes | | |
| Same sample types collected and preserved in same way (refer Section 8.7.4). | Yes | Comparable LORs if different laboratories used. | Yes | | |
| Relevant samples stored in insulated containers and chilled (refer Section 8.7.4). | Yes | Comparable units of measure if different laboratories used (refer Section 8.7.7). | Yes | | |

| Representativeness | | | | | |
|---|--------|--|--------|--|--|
| Field Considerations | Target | Laboratory Considerations | Target | | |
| Media identified in sampling plan, sampled (refer Section 8.7.1). | Yes | Samples identified in sampling plan, analysed. | Yes | | |
| Samples required by sampling plan, collected (refer Section 8.7.1). | Yes | | | | |

| Precision | | | | | |
|---|--------|--|--------|--|--|
| Field Considerations | Target | Laboratory Considerations | Target | | |
| Minimum 5% duplicates and triplicates collected and analysed (refer Section 8.5.1). | Yes | All laboratory duplicate RPDs within laboratory acceptance criteria (refer Section 8.5.4). | Yes | | |
| RPD unlimited where detected concentrations are <10 times the LOR. | Yes | | | | |
| RPD within 30% where detected concentrations are 10-20 times the LOR. | Yes | | | | |
| RPD within 50% where detected concentrations are >20 times the LOR. | Yes | | | | |

| Accuracy (bias) | | | | | |
|---|--------|---|--------|--|--|
| Field Considerations | Target | Laboratory Considerations | Target | | |
| Trip blank analyte results less than LOR (refer Section 8.5.2). | Yes | Laboratory method blank results within laboratory acceptance limits (refer Section 8.5.4). | Yes | | |
| Trip spike analyte results less between 60% and 140% (refer Section 8.5.2). | Yes | Laboratory control sample results within laboratory acceptance limits (refer Section 8.5.4). | Yes | | |
| Rinsate blank analyte results less than LOR (refer Section 8.5.3). | Yes | Laboratory spike sample results within laboratory acceptance limits. | Yes | | |

8.5.6 If/Then Statements

If field and laboratory analytical dataset is within the DQI assessment parameters, then the data may be considered to be adequately complete, comparable, representative, precise and accurate, for decision making within the objectives of this project.

If field and laboratory analytical dataset is outside the DQI assessment parameters, then additional data may be collected to address identified data gaps.

If field and laboratory analytical results are within adopted contamination assessment criteria, then the site may be considered suitable for the proposed land use scenario.

If field and laboratory analytical results are outside adopted contamination assessment criteria, then the site may be considered unsuitable for the proposed land use scenario, or additional data collected to further inform the decision making process.

8.6 Step 6: Specify the performance or acceptance criteria

8.6.1 If / Then Decisions

There are two types of decision error:

- > sampling errors occur when the sampling program does not adequately detect the variability of a contaminant from point to point across the site. That is, the samples collected are not representative of site conditions (e.g. an appropriate number of representative samples have not been collected from each stratum to account for estimated variability); and
- > measurement errors occur during sample collection, handling, preparation, analysis and data reduction.

In the assessment of land contamination, these errors can result in either:

- > a Type I error, where contamination exposure risks are considered to be acceptable, when they are not; or
- > a Type II error, where contamination exposure risks are considered to be not acceptable, when they are.



In order for decision rules to be sound, they should be designed to minimise decision errors. The risk of decision error will be mitigated by:

- > Ensuring fieldwork tasks are undertaken by suitably experienced field staff and sub-contractors, with reference to the DQO presented in this report;
- > Ensuring laboratory analyses are undertaken by NATA accredited laboratories; and
- > Ensuring interpretation of data is undertaken by suitably experienced environmental consultants and/or outsourcing interpretation to technical experts (if warranted).

8.7 Step 7: Develop the plan for obtaining data

8.7.1 Validation Sampling

Section 3.1 of NSW EPA (1995) states that judgemental or stratified sampling methods can be used if there is sufficient information about the probable distribution of the contamination. Additionally, Section 6.2.1 in NEPC (1999b) states that judgemental sampling, the selection of samples (number, location, timing, etc) is based on knowledge of the site and professional judgement. Section 4 and Table 1 in WA DOH (2009) provides guidance on sampling density for asbestos in soils, based on a range of scenarios and the likelihood of asbestos being present. Table 1 in NSW EPA (1994) provides guidance on sampling densities associated with underground storage tanks and associated infrastructure.

The scope of this project has included collection of data that provides an understanding of site history and the locations of potentially contaminated areas. On that basis, it is considered reasonable to adopt a judgemental sampling pattern, using the sampling point densities set out in Table 8.7.1.

| AEC | Contamination Risk | Preferred Validation Strategy |
|--|--|---|
| AEC01, AEC02, AEC05, AEC06, AEC07, AEC09, | Soils and sediments impacted with pathogens and/or | A visual inspection of the residual remedial excavation and photographic record. |
| AEC10, AEC11, AEC14, AEC20, AEC21 | petroleum hydrocarbons | Collect one sample per 10m x10m of excavation base, |
| | | Collect one sample per ten lineal metres of excavation wall, for each relevant stratum, or per vertical metre of excavation depth, whichever is the greater frequency, minimum four. |
| | | A visual inspection of the treated material, and photographic record (prior to any tyning back into onsite soils). |
| | | Collect one sample per 25m ³ of treated material, per AEC. |
| | | A visual inspection of the material after being tyned back into natural soils and photographic record. |
| | | Laboratory analysis of all samples for relevant contaminants of concern. |
| AEC13 | Soils and sediments impacted with benzo(a)pyrene TEQ | A visual inspection of the residual remedial excavation and photographic record. |
| | | Collect one sample per 10m x10m of excavation base. |
| | | Collect one sample per ten lineal metres of excavation wall, for each relevant stratum, or per vertical metre of excavation depth, whichever is the greater frequency, minimum four. |
| | | Laboratory analysis of all samples for relevant contaminants of concern. |

Table 8.7.1 Validation Sampling Plan



| AEC | Contamination Risk | Preferred Validation Strategy | |
|---|--|---|--|
| AEC19 and AEC27 | Surface soils (up to 0.1m) impacted with bonded asbestos containing materials | A visual inspection of the residual remedial excavation and photographic record. A visual inspection of the treated material. Collect one 10L sample per 70m³ of treated material for bonded ACM field screening. Visual validation of excavation base, if on natural material, otherwise Collect one 10L sample and one 500mL sample per 10m x 10m of excavation base; and Collect one 10L sample and one 500mL sample per ten lineal metres of excavation wall, minimum four for bonded ACM field screening and laboratory analysis. | |
| AEC27 (if bonded ACM found at depth) | Soils at depth (beyond 0.1m below ground surface) impacted with unacceptable concentrations of bonded asbestos | A visual inspection of the residual remedial excavation and photographic record. A visual inspection of the treated material. Collect one 10L sample per 70m³ of treated material for bonded ACM field screening. Visual validation of excavation base, if on natural material, otherwise Collect one 10L sample per 10m x 10m of excavation base; and Collect one 10L sample per ten lineal metres of excavation wall, for each relevant stratum, or per vertical metre of excavation depth, whichever is the greater frequency, minimum four for bonded ACM field screening. | |
| AEC27 (if AF or FA is detected) | Soils impacted with unacceptable concentrations of friable asbestos | A visual inspection of the residual remedial excavation and photographic record. Collect one 500mL sample per 10m x 10m of excavation base. Collect one 500mL sample per ten lineal metres of excavation wall, for each relevant stratum, or per vertical metre of excavation depth, whichever is the greater frequency, minimum four. Laboratory analysis of all samples for relevant contaminants of concern. | |
| AEC22 and AEC23 | Trade Wastewater Pit | A visual inspection of the residual remedial excavation and photographic record. Collect one sample per 10m x10m of excavation base. Collect one sample per ten lineal metres of excavation wall, for each relevant stratum, or per vertical metre of excavation depth, whichever is the greater frequency, minimum four. Laboratory analysis of all samples for relevant contaminants of concern. | |
| Remedial Excavations | Imported VENM for backfilling | 1 per 100m ³ or minimum of 3 samples. Laboratory analysis of all samples for TRH, BTEX, PAH, OCP, PCB, metals and asbestos. | |



| AEC | Contamination Risk | Preferred Validation Strategy |
|----------------------|--------------------------------|---|
| Remedial Excavations | Imported ENM for backfilling | Quantity dependent – refer to The Excavated Natural Material (ENM) resource recovery exemption. |
| | | Laboratory analysis of all samples as per Order and Exemption. |
| Remedial Excavations | Imported Other for backfilling | Quantity dependent – refer to the relevant resource recovery exemption. |
| | | Laboratory analysis of all samples as per Order and Exemption. |

Samples requiring asbestos gravimetric screening will be 10L in volume, will be collected and screening with reference to Table 5 in WA DOH (2009).

Samples requiring calculation of asbestos fines (AF) and fibrous asbestos (FA) concentrations in soils, will be collected from the 10L bulk sample, prior to screening.

If olfactory or visual observations of remedial works, or headspace analysis of screening samples, indicate a potential for contamination to be present, then consideration will be given to collection of additional validation samples / data.

The location of collected validation sampling data will be recorded on a site plan.

8.7.2 Field Screening

When identified COPC include volatiles (e.g. BTEX, TRH or VOC), collected soil samples will be screening for ionisable volatile organic compounds using a photo-ionisation detector (PID). A sub sample from each sample collected at each sampling point will be placed in a zip lock bag, sealed, and shaken. Each zip lock bag will then be pierced with the tip of a PID and the results recorded on the relevant sampling point log.

8.7.3 <u>Decontamination</u>

Non-disposable sampling equipment will be decontaminated between sampling points to mitigate potential for cross contamination of samples. The decontamination method to be used will be:

- > Wash off the non-disposable sampling equipment with a solution of potable water and phosphate free detergent (e.g. Decon 90), noting that Decon 90 will not be used on equipment used for collection of samples that will be analysed for PFAS compounds;
- > Rinse the washed equipment with distilled or de-ionised water; and
- > Air dry the rinsed equipment.

8.7.4 Sample Identification, Preservation, Handling and Transport

Soil samples will be identified using the CS project number, date the sample was collected one, and the AEC, number of sample and depth/interval the sample was collected from (e.g. the second validation sample collected from AEC06 at a depth of 0.4m below ground level, would be identified as AEC06/02/0.4).

Groundwater samples will be identified using the CS project number, sampling point identification number (e.g. MW03) and date the sample was collected.

Surface water samples will be identified using the CS project number, sampling point identification number (e.g. SW06) and date the sample was collected.

Vapour samples will be identified using the CS project number, sampling point identification number and the sampling depth interval (e.g. SV01/0.6-0.8), and date the sample was collected.

Samples will be placed in laboratory prepared containers (containing preservatives as appropriate), bulk sample bags and zip lock bags.

Soil, water and vapour samples will be stored in insulated containers with ice.

Samples will be transported to the analytical laboratory by CS field staff or a third party courier, using the analytical laboratory's chain of custody (COC) documentation.



8.7.5 <u>Laboratory Selection</u>

Analytical laboratories used for this project will be NATA accredited for the analytical methods used.

8.7.6 Laboratory Analytical Schedule

Samples scheduled for laboratory analysis will be selected based on:

- > The COPC identified for the AEC the sample was collected from;
- > Observations made of the sample when collected (including staining, odour and discolouration); and
- > The results of PID headspace screening (if applicable).

The proposed laboratory analytical schedule (including upper limiting sample quantities) for the project is set out in Table 8.7.6.

Table 8.7.6 Laboratory Analytical Schedule

| ٩ | AEC | | РАН | Metals (8) | E Coli | Faecal Coliforms | Field Screen and 0.001% |
|-------|--|--|-----|------------|--------|---------------------|----------------------------------|
| AEC01 | Mounded soils in vicinity of TP01 | All | | | All | | |
| AEC02 | Dam 01 sediments | | | | All | | |
| AEC05 | Surface soils | | | | All | All | |
| AEC06 | Soil mound | | | | All | | |
| AEC07 | Surface soils | | | | All | All | |
| AEC09 | Mound | All All | | | | | |
| AEC10 | Dam 02 sediments | All | | | | All | |
| AEC11 | Surface soils in vicinity of TP45, TP46 and TP51 | | | | All | All | |
| AEC13 | Surface soils between SS10 and SS17 | A | | | | | |
| AEC14 | Material bays | All All | | | | | |
| AEC19 | Asbestos pipe | All | | All | | | |
| AEC20 | Dam 03 sediments | | | | All | All | |
| AEC21 | Surface soils between TP71 and TP74 | | | | | All | |
| AEC22 | Pit (to be validated, post removal) | All | | All | All | All | |
| AEC23 | Pit (to be validated, post removal) | All | | All | All | All | |
| AEC27 | Areas surrounding ABC01 | All | | All | | | |
| - | VENM | All samples for analytical suite set out in VENM order | | | | | |
| - | ENM | All samples for analytical suite set out in ENM order | | | | | |
| - | Other material | All samples for analytical suite set out in relevant resource recovery order | | | | | |

8.7.7 Laboratory Holding Times, Analytical Methods and Limits of Reporting

Sample holding times, laboratory analytical methods and limits of reporting applicable to this project, are set out in Table **8.7.7**.

Table 8.7.7 Laboratory Holding Times, Analytical Methods and Limits of Reporting

| Analyte | Holding Time | Method | LOR (mg/kg) |
|-------------|-----------------|-----------------|-------------|
| TRH C10-C40 | 14 days | USEPA 8015B & C | 20-100 |
| PAH | 14 days | USEPA 8270 | 0.1-0.2 |



| Analyte | Holding Time | Method | LOR (mg/kg) |
|------------------|-----------------|-----------------|-------------|
| Metals | 6 months | USEPA 8015B & C | 0.05-2 |
| Coliforms | 24 hours | AS 4276.5:2007 | 10 MPN/g |
| E. Coli | 24 hours | AS 4276.7:2007 | 10 MPN/g |
| Asbestos (AF/FA) | No limit | In-house method | 0.001% w/w |



9 Site Validation Report

At the completion of remedial works, a site validation report will be prepared with reference to the relevant sections of NSW OEH (2011) The site validation report will include:

- > An executive summary;
- > The scope of reporting work undertaken;
- > Site identification details;
- > A summary of site history;
- > A summary of site condition and the surrounding environment;
- > A summary of geology and hydrogeology;
- > Information on supplementary contamination assessment works undertaken (if any);
- > Information on the remedial works undertaken;
- > Information on the estimated volume of waste taken offsite (including receipts from the receiving facility, and a reconciliation of waste receipts with remediation contractor waste disposal logs);
- > The results of field work and laboratory analysis;
- > An assessment of field and laboratory quality assurance / quality control data;
- > A discussion on site validation;
- > Information on ongoing site monitoring requirements (if any); and
- > Conclusions and recommendations.



10 Site Management Plan

10.1 Register of Contacts

A register of contact details of stakeholders considered relevant to the project, is presented in Table 10.1.

Table 10.1 Emergency Response Register of Contacts

| Role | Person | Organisation | Contact |
|------------------------------------|---------------|---------------------------|---------------|
| Emergency Services | - | Fire / Police / Ambulance | 000 |
| Site Owner | Ken Wheeldon | Goulburn Mulwaree Council | 02 4826 4444 |
| Project Manager | Ken Wheeldon | Goulburn Mulwaree Council | 02 4826 4444 |
| Planning Authority | - | Goulburn Mulwaree Council | 02 4826 4444 |
| Environmental Regulatory Authority | - | NSW EPA | 131 500 |
| WHS Regulatory Authority | - | SafeWork NSW | 131 050 |
| Remediation Contractor | To be advised | To be advised | To be advised |
| Environmental Consultant | Craig Cowper | Construction Sciences | 0407 989 885 |

10.2 Hours of Operation, Signage and Security

The hours of operation at the site will be limited to:

- > days and times set out in the relevant development consent conditions (if available); or
- > Monday to Friday between 7:00am and 5:00pm, and Saturday between 8:00am and 1:00pm.

The 24-hour contact details of the remediation contractor will be put on a sign, and posted on the site boundary, adjacent to the site access point. The sign will be maintained by the remediation contractor until completion of remedial works.

Security of the site will be maintained for the duration of the remedial works, with appropriate boundary fencing/barricades and access point locks.

10.3 Workplace Health and Safety

10.3.1 Safe Work Method Statement

All parties intending to undertake tasks in the remediation area/s will prepare a safe work method statement (SWMS) that documents:

- > The task/s to be undertaken;
- > Hazards associated with undertaking those task/s;
- > A risk assessment of each hazard, considering consequence and likelihood;
- > Control measures to be implemented to mitigate identified risks; and
- > A re-assessment of each hazard, assuming control measure implementation, and showing a demonstrable decrease to the risk.

10.3.2 Personal Protective Equipment

The following personal protective equipment (PPE) will be worn (as a minimum) by all persons working on, or visiting, the remediation work area/s:

- > Long sleeves and long pants;
- > A high visibility vest (or clothing);
- > Hard hat;



- > Protective foot wear (e.g. safety boots);
- > Eye protection (e.g. safety glasses or goggles); and
- > Cut resistant gloves.

Additional PPE or respiratory protective equipment (RPE) may also be required, subject to the control measures set out in the SWMS for the task.

10.3.3 Decontamination

The following decontamination procedure will apply to all persons existing the remediation work area/s:

- Cleaning of protective footwear, including removal of potentially contaminated material from the soles of the footwear;
- > Washing of hands (including prior to eating, drinking or smoking).

10.3.4 Occupational Hygiene

Atmospheric monitoring will be undertaken (subject to the findings of the risk assessment in the relevant SWMS), or as may be recommended by a suitably experienced occupational hygienist. Monitoring may include airborne fibre monitoring during asbestos remedial works, vapour monitoring during hydrocarbon remediation, or gas/explosion risk monitoring during land fill remediation.

Plant and equipment will be appropriately decontaminated before leaving a remedial works zone.

10.3.5 Biological Risks

Works include the handling and treatment of materials impacted with potential biological human health risks, including E.coli and faecal coliforms. Exposure pathways for workers may include ingestion of soil/dust, inhalation of dust, and dermal contact with soil / dust.

Safe work method statements prepared for workers undertaking works where these biological risks are present, will include management controls to mitigate those risks. Controls for workers may include, but not necessarily include, disposable coveralls, gloves, respiratory protection, and showering / hand washing facilities onsite.

10.4 Stormwater and Soil Management

10.4.1 Access and Egress

Vehicle and plant site access/egress will be managed to prevent soils being tracked onto roads and pathways external to the site (e.g. gravels, gabions, cattle grids). Soil will be broomed or washed off tyres/tracks prior to the vehicle or plant leaving the remediation work area. Broomed/washed soil will be managed onsite, depending on its likely contamination status.

In the event soils are tracked onto roads or pathways external to the site, these soils will be removed by sweeping and/or shovelling.

A sediment and erosion control plan will be prepared by the remediation contractor, to suit the nature and staging of the remedial works. Control measures will be operated and maintained by the remediation contractor, until completion of the remedial works.

Surface stormwater generated from (or travelling through) the remediation works area, will be managed using relevant measures set out in the Blue Book¹⁰.

10.4.2 Excavation Pump Out and Groundwater

Should excavations require water to be pumped out, the water will be sampled and analysed by a suitably experienced environmental consultant, for total suspended solids (TSS), pH, metals (8) and petroleum hydrocarbons.

¹⁰ Landcom 2004, 'Managing Urban Stormwater – Soils and Construction'



If the laboratory analytical results are less than the relevant¹¹ aquatic ecosystem groundwater investigation levels (GILs) set out in ANZECC (2000), then the excavation water may be discharged to the local stormwater system.

If the laboratory analytical results are greater than the relevant¹² aquatic ecosystem groundwater investigation levels (GILs) set out in ANZECC (2000), then other options for the excavation water will be considered, including:

- > Assessment of proposed receiving waters, in the context of the contaminant concentrations found in the excavation water;
- > Removal and offsite disposal by a liquid waste contractor; and
- > Discharge to sewer under an approval obtained from the relevant sewerage infrastructure operator.

In the event the site requires dewatering, development consent from the relevant planning authority and/or approvals from the state water authority, will be obtained (if required).

10.4.3 Stockpiles

Stockpiles of material generated during remedial works will be:

- > generally constructed as low elongated mounds on level surfaces;
- > stored in secure areas and covered if remaining on site for more than 24 hours;
- > placed away from stormwater pits, drainage lines and gutters;
- > kept damp if containing (or suspected of containing) asbestos;
- > not located on footpaths or nature strips, unless approved by the local planning authority.

10.4.4 Rehabilitation

Areas of the site that become exposed as a result of remedial works, will be stabilised progressively, as remedial works are completed. Stabilisation methods will be maintained until such time as they are no longer required (e.g. vegetation becomes established and self-sustaining, or site development work commences).

10.5 Noise and Vibration Control

Plant and equipment being utilised for remedial works, will be fitted with noise attenuation devices (e.g. exhaust mufflers). Where possible, selection and use of reversing alarms will avoid standard tonal pulse alarms.

Vehicle access roads will be designed to mitigate the need for vehicles and mobile plant to reverse during travel (e.g. creation of turning circles in the immediate vicinity of remediation work area/s).

'Offensive noise', as defined under the Protection of the Environment Operations Act 1997, will not be emitted beyond the site boundary, during remedial works.

Vibrations generated during remedial works will be managed to mitigate risk of damage to structural assets and risk of amenity loss to adjacent land occupiers. Advice from geotechnical, structural or vibration consultants will be sought, if required.

10.6 Dust Control

Consideration will be given to the following control measures, to mitigate risk of dust emissions migrating beyond the boundary of the remediation work area/s:

- > Maintaining site access / egress stabilisation methods;
- > Covering loads during site access / egressing;
- > Covering stockpiles of contaminated soil that remain on site for greater than 24 hours;

¹¹ Freshwater or marine

¹² Freshwater or marine



- Use of water sprays in areas prone to dust generation, including excavation surfaces and fill material (during offloading and spreading);
- Establishing screens around the perimeter of remediation work area/s (e.g. application of shade cloth to fencing);
- > Minimising soil excavation and/or handling during windy days; and
- > Sweeping of accumulated soil on hardstand areas.

10.7 Odour Control

Should odours be detected at the site boundary during remediation works, monitoring of those odours may be undertaken, using methods¹³ suited to the odour type, based on recommendations from a suitably experienced odour consultant (if required).

10.8 Atmospheric Monitoring

Airborne asbestos monitoring will be undertaken on site by a suitably competent person during friable asbestos removal or handling. Monitoring during bonded asbestos removal, will be undertaken, subject to advice provided by the occupational hygienist appointed to the project.

Monitoring will be used to validate controls put in place to mitigate potential asbestos exposure.

Portable battery operated air monitors will be placed in static positions approximately 1.5m above the ground surrounding the asbestos handling / removal area.

Analysis of monitors will be undertaken by a NATA-accredited laboratory. The results of analysis will be compared to the criteria presented in Table 10.8 and the appropriate action applied.

Table 10.8 Atmospheric Monitoring Concentrations and Actions

| Detected Concentration (fibres per millilitre) | Action |
|--|--|
| <0.01 | Continue with established control measures |
| 0.01 to 0.02 | Review established control measures |
| | Investigate probably cause |
| | Establish additional control to mitigate further fibre release |
| >0.02 | Stop works |
| | Notify the relevant regulatory authority that work has ceased |
| | Investigate probably cause |
| | Extent the works exclusion zone |
| | Establish additional control to mitigate further fibre release |
| | Do not re-commence work until detected concentrations are at or below 0.01 fibres per millilitre |

10.9 Traffic

The remediation contractor will:

- > Utilise suitable experienced and qualified traffic controllers (as required);
- > Ensure vehicles exit the site in a forward direction; and
- > Arrange for receipt and dispatch of materials during approved remedial working hours (refer Section 10.1).

Traffic and haulage routes will be selected based on:

¹³ Methods could include instrumental, chemical analysis, electronic, sensory tests or olfactometry.



- > Preference for state controlled roads (as opposed to local roads);
- > Compliance with traffic road rules; and
- > Opportunities to mitigate noise, vibration, dust and odour impacts to properties/occupants adjacent to the site.

10.10 Waste Management

Wastes generated during remedial works will be removed from site for recycling / disposal, with reference to NSW EPA (2014) and the relevant provisions of the Protection of the Environment Operations Act 1997.

The remediation contractor will maintain detailed records of each load of waste materials generated during remedial works, including:

- > The date and time the waste was removed from the site;
- > The location the waste was generated from;
- > The classification of the waste;
- > The vehicle registration number of the waste transport vehicle;
- > The quantity of the load of waste removed from site;
- > Waste receipt docket from the waste receiving facility; and
- > Weighbridge docket from the waste receiving facility.

10.11 Emergency Preparedness and Response

An emergency assembly point will be established at an appropriate location, and this location communicated to workers and visitors during the site induction process. In the event an emergency situation arises, workers and visitors will assemble at this location (if safe to do so) and await further instructions from the site supervisor, project manager or emergency services.

Spill control kits and fire extinguishers will be located at appropriate locations at the site.

10.12 Community Relations

Occupants of properties adjoining the site and located immediately across the road from the site, will be provided with a notification of intent to undertake remedial works on the site, a minimum of two business days before commencing those remedial works.

A register will be maintained on site, for the recording of remedial works related communications from the community.

Communication received from community about the remedial works, will be directed to the project manager in the first instance. The project manager will arrange for the communication to responded to, in accordance with arrangements agreed to between the remediation contractor and the principal.

11 Conclusions and Recommendations

Based on CS's assessment of the information presented in the available historical contamination assessment reports, CS considers that the remedial goal can be achieved and the site made suitable for the proposed land use, subject to:

- > The implementation of the strategies and methodologies set out in this remedial action plan; and
- > Preparation of a site validation report.

This report must be read in conjunction with the attached explanatory notes, limitations and general notes.



12 References

CS (2020a), 'Stage 1 Preliminary Site Investigation, Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW' dated 22 January 2020, ref: 5046200019-R01R1.

CS (2020b), 'Stage 2 Detailed Site Investigation, Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW' dated 30 March 2020, ref: 5046200019-R02.

Friebel, E & Nadebaum, P 2011, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 2: Application document', CRC CARE Technical Report No. 10.

National Environment Protection Council (NEPC) 1999a, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

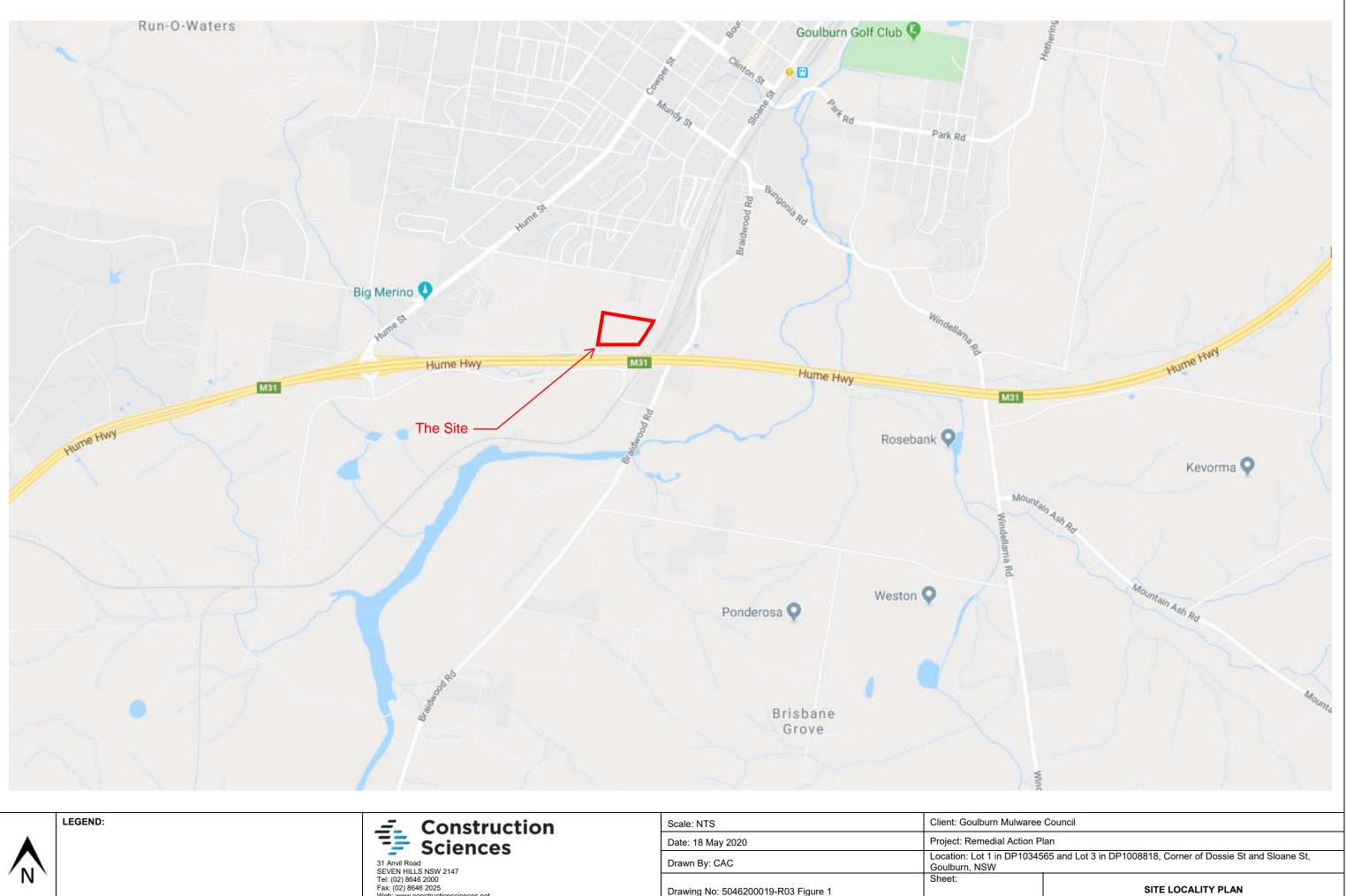
National Environment Protection Council (NEPC) 1999b, 'Schedule B(2) Guideline on Site Characterisation, National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

NSW EPA 1995, 'Contaminated Sites: Sampling Design Guidelines', dated September 1995, ref: EPA 95/59.

NSW EPA 2017, 'Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme (3rd edition)', dated October 2017, ref: EPA 2017P0269.

NSW OEH 2011, 'Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites' dated August 2011, ref: OEH 2011/0650.

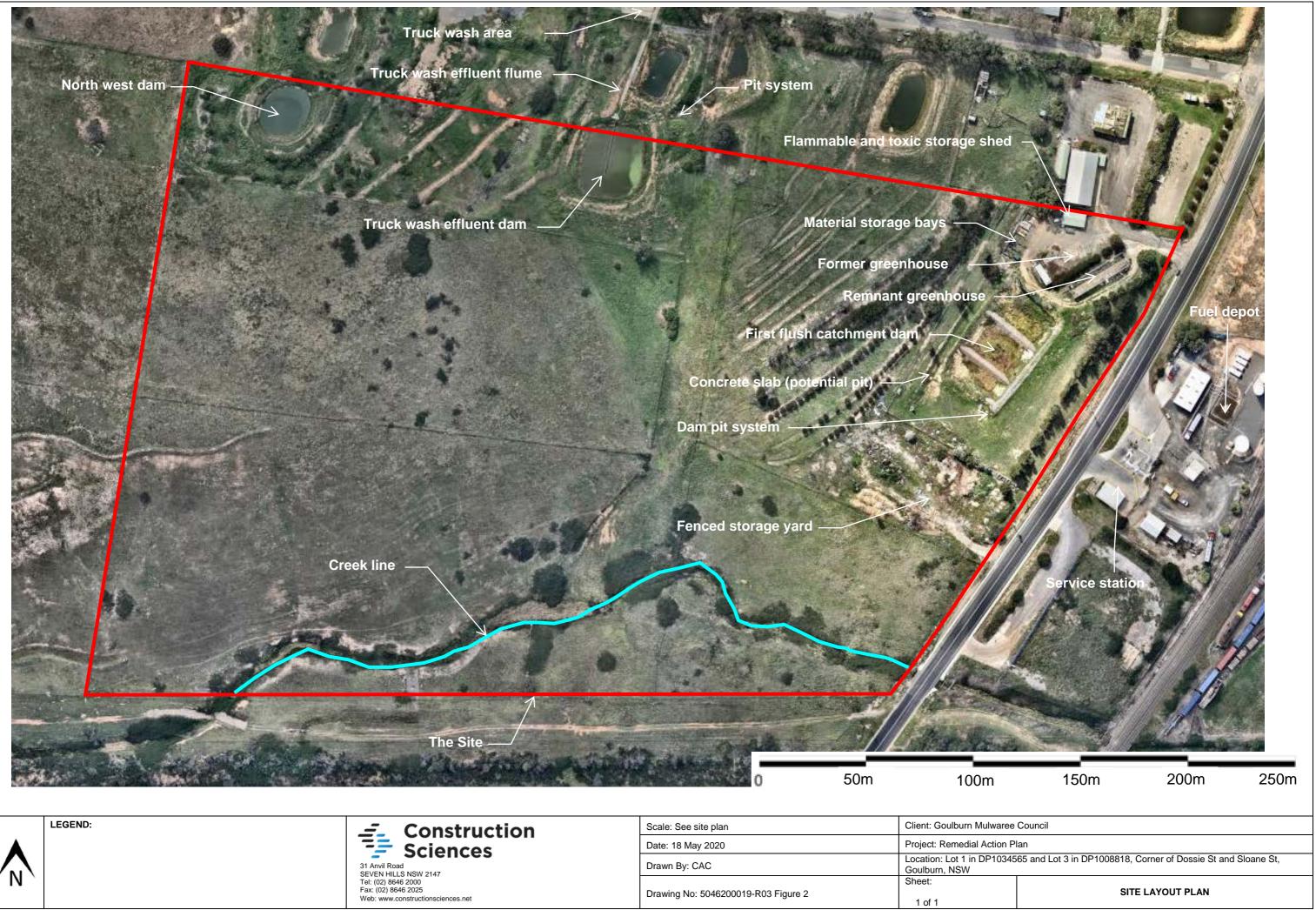
WA DOH 2009, 'Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia', dated May 2009.







| Scale: NTS | Client: Goulburn Mulw |
|-------------------------------------|---|
| Date: 18 May 2020 | Project: Remedial Acti |
| Drawn By: CAC | Location: Lot 1 in DP1 Goulburn, NSW |
| Drawing No: 5046200019-R03 Figure 1 | Sheet: |
| | 1 of 1 |

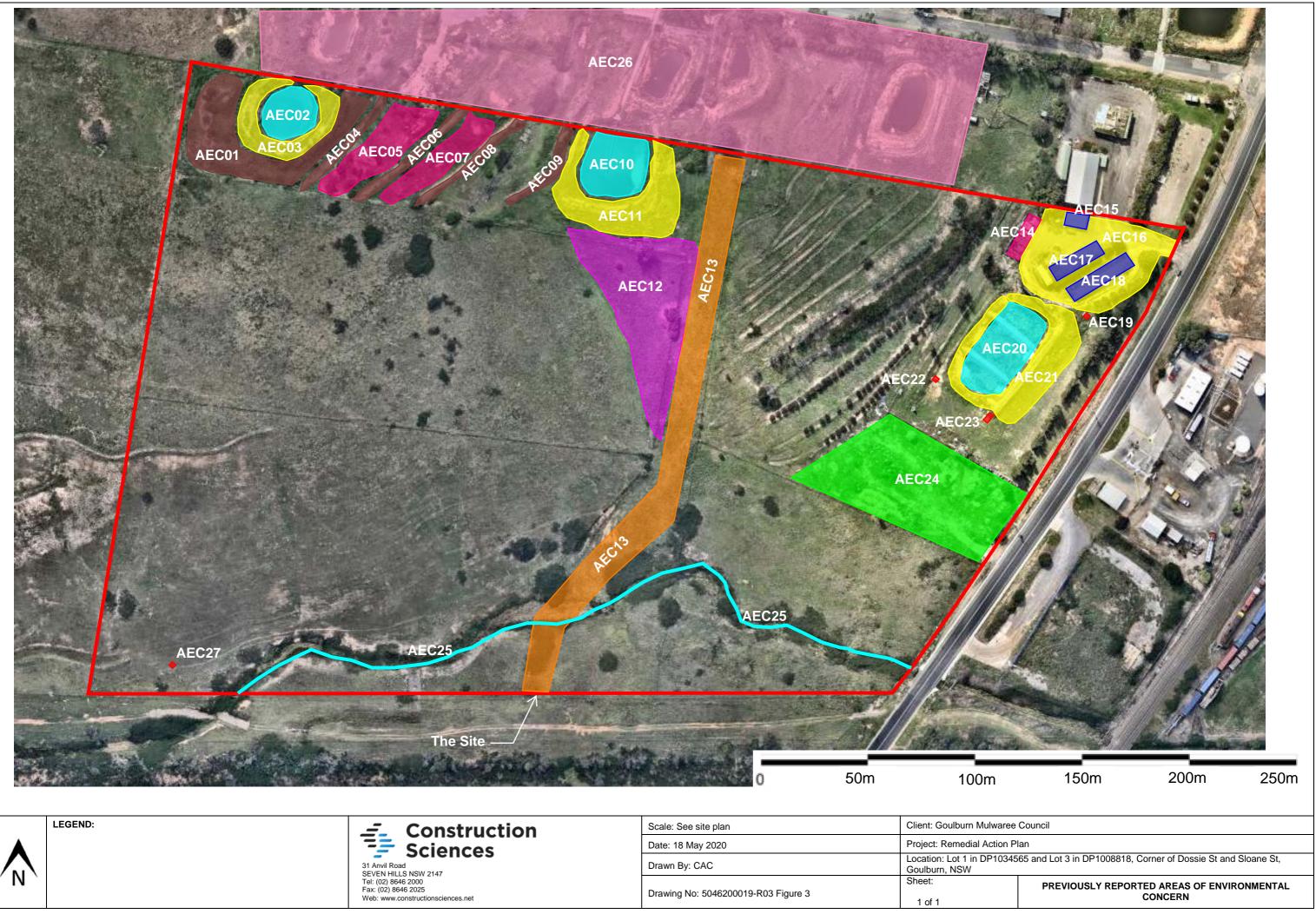


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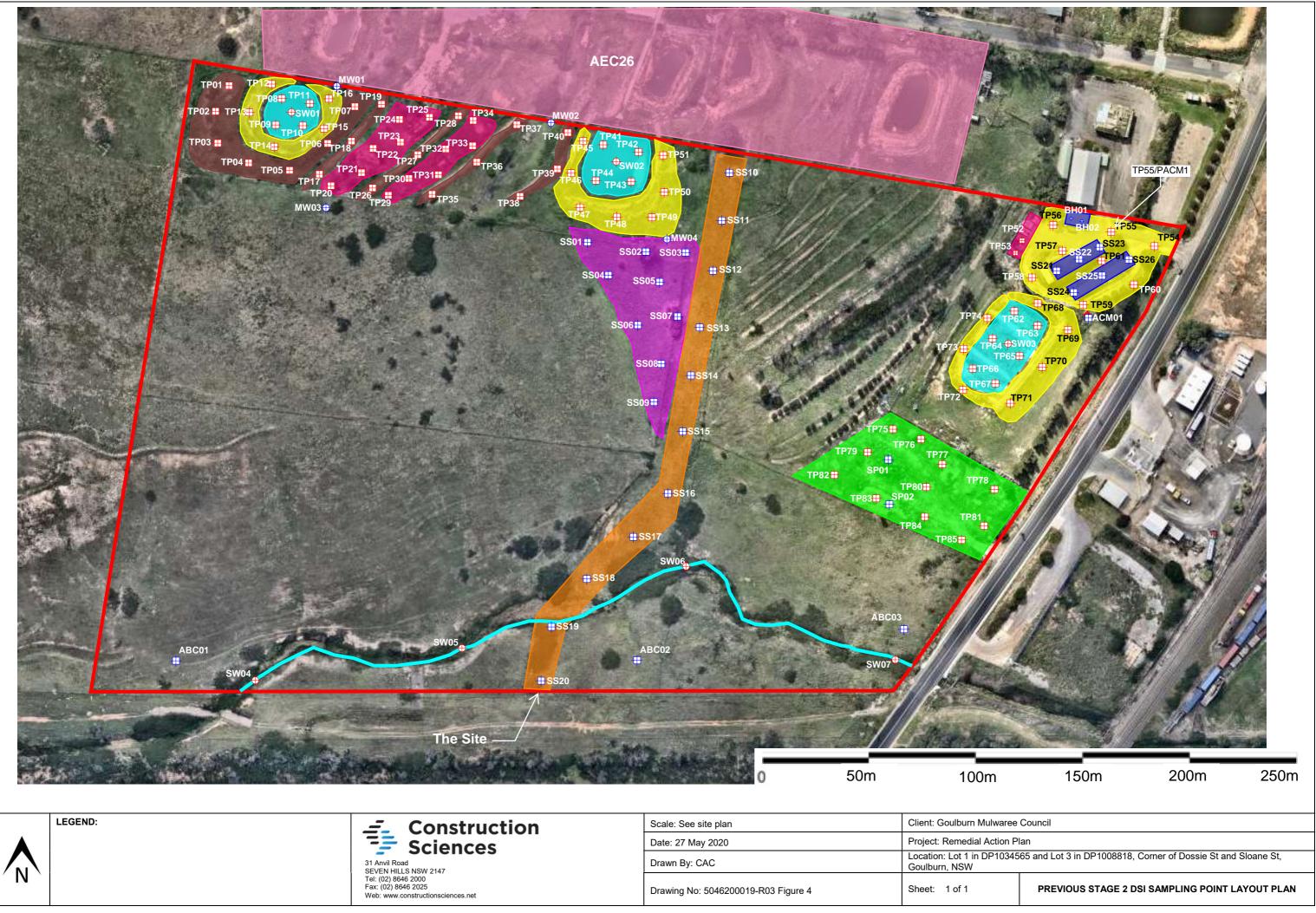
| Scale: See site plan | Client: Goulburn Mulw |
|-------------------------------------|---|
| Date: 18 May 2020 | Project: Remedial Act |
| Drawn By: CAC | Location: Lot 1 in DP1 Goulburn, NSW |
| Drawing No: 5046200019-R03 Figure 2 | Sheet: 1 of 1 |
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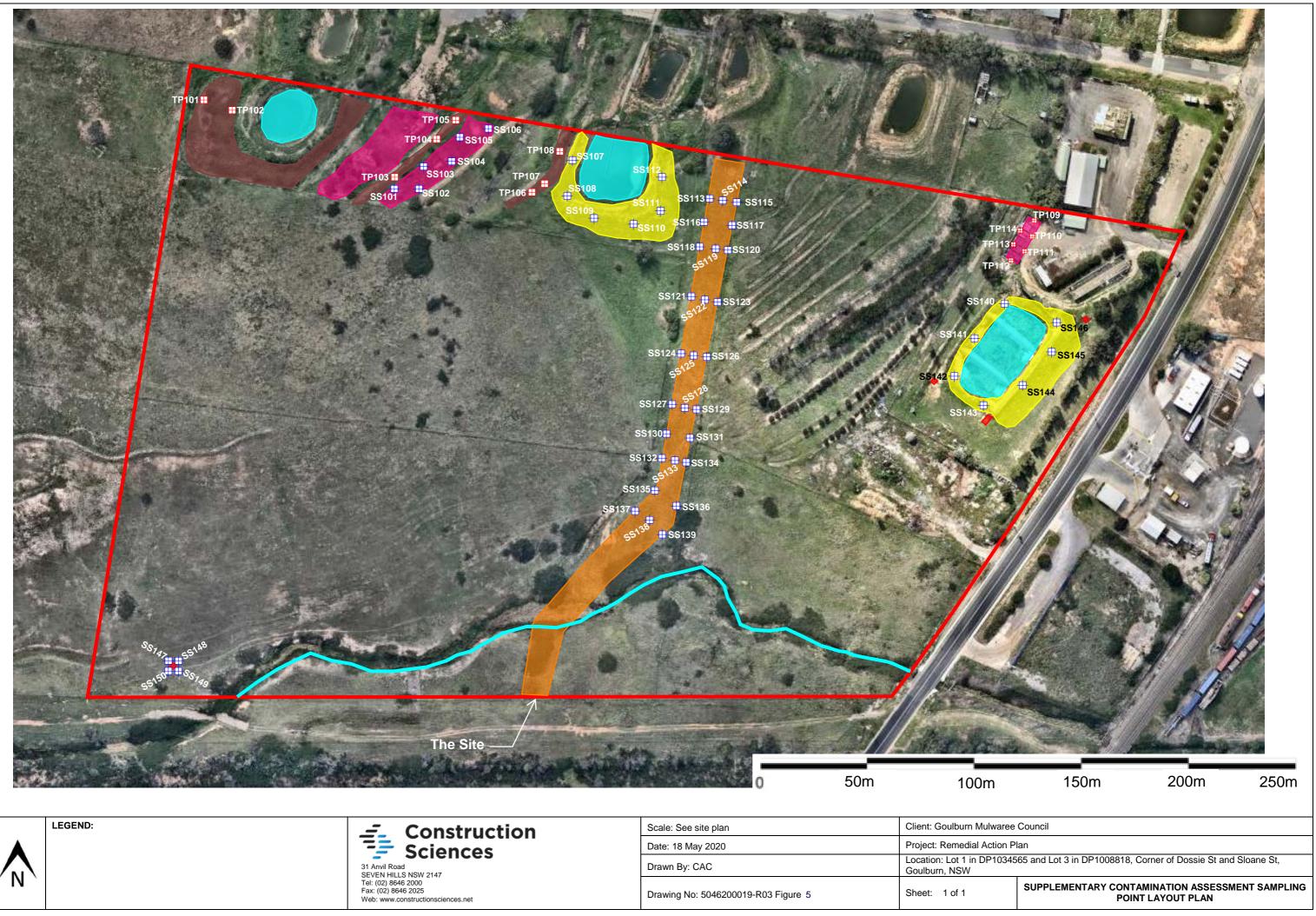
| Scale: See site plan | Client: Goulburn Mulwa |
|-------------------------------------|---|
| Date: 18 May 2020 | Project: Remedial Acti |
| Drawn By: CAC | Location: Lot 1 in DP1 Goulburn, NSW |
| Drawing No: 5046200019-R03 Figure 3 | Sheet: 1 of 1 |
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| Fax: (02) 8646 2025 |
| Web: www.constructionsciences.net |

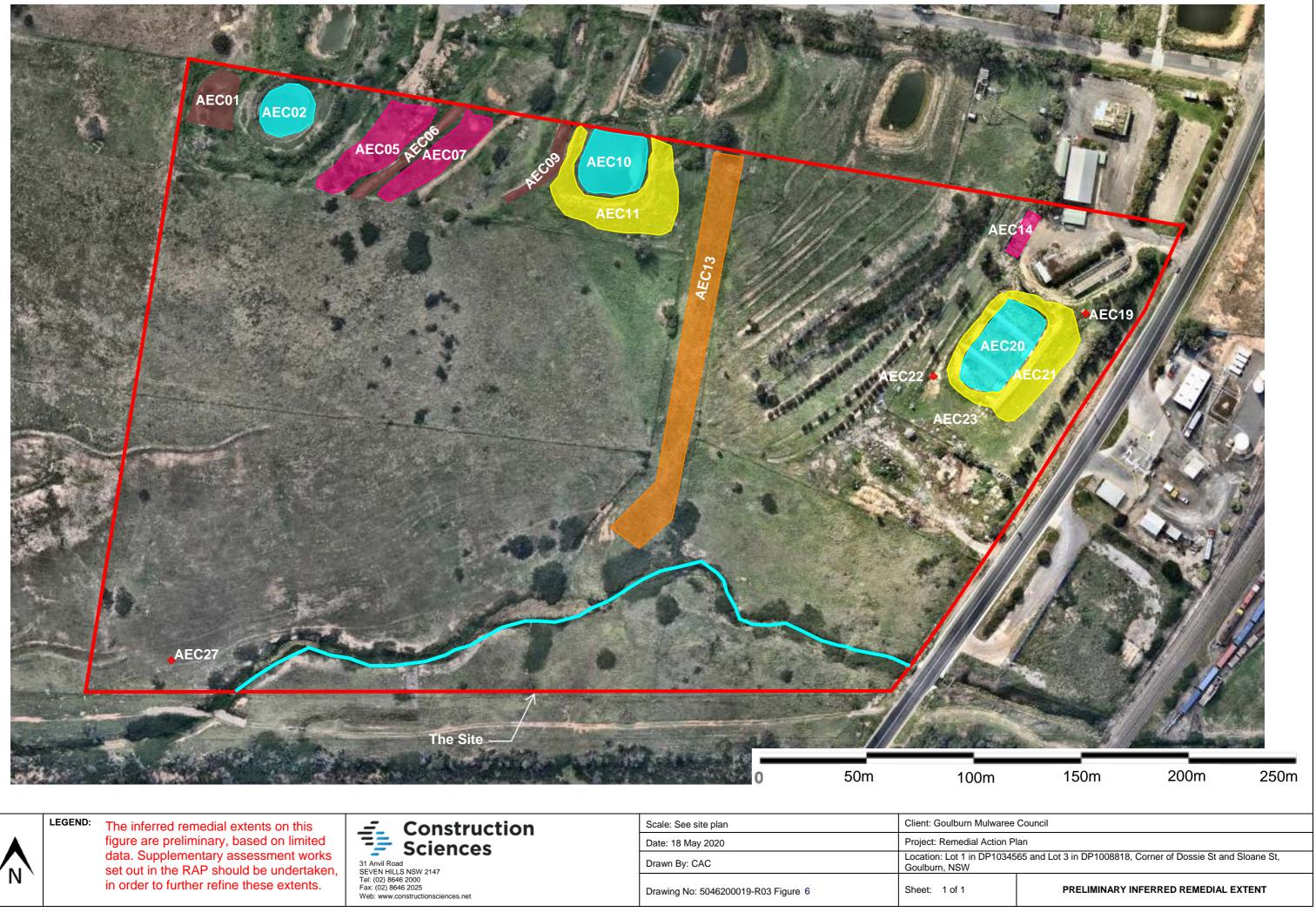
| Scale: See site plan | Client: Goulburn Mulw |
|-------------------------------------|---|
| Date: 27 May 2020 | Project: Remedial Act |
| Drawn By: CAC | Location: Lot 1 in DP1 Goulburn, NSW |
| Drawing No: 5046200019-R03 Figure 4 | Sheet: 1 of 1 |



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| Scale: See site plan | Client: Goulburn Mulwa |
|-------------------------------------|--|
| Date: 18 May 2020 | Project: Remedial Action |
| Drawn By: CAC | Location: Lot 1 in DP10 Goulburn, NSW |
| Drawing No: 5046200019-R03 Figure 5 | Sheet: 1 of 1 |





| Scale: See site plan | Client: Goulburn Mulw |
|-------------------------------------|---|
| Date: 18 May 2020 | Project: Remedial Acti |
| Drawn By: CAC | Location: Lot 1 in DP1 Goulburn, NSW |
| Drawing No: 5046200019-R03 Figure 6 | Sheet: 1 of 1 |

| Corner of Dossie and Sloane St, Goulburn | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|-----|---|---|---|--|--|-----------------------|------------|-----------|------------|------------|--------------|--------------|------------|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | Ĩ | Field ID A | BC01 | ABC02 | ABC03 | BH01 0.0-0.1 | BH02 0.0-0.1 | DUP01 | DUP04 | DUP06 | DUP10 | DUP13 | DUP14 | DUP16 | SS01 | SS02 | SS03 | SS04 | SS05 | SS06 | SS07 | SS08 | SS09 | SS10 | SS11 |
| | | | | | | | | | Date 2 | 1/02/2020 | 21/02/2020 | 21/02/2020 | 17/02/2020 | 17/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 19/02/2020 | 19/02/2020 | 20/02/2020 | 20/02/2020 | 17/02/2020 | 17/02/2020 | 17/02/2020 | 17/02/2020 | 17/02/2020 | 17/02/2020 | 17/02/2020 | 17/02/2020 | 17/02/2020 | 18/02/2020 | 18/02/2020 |
| | Unit | N | EPM 2013 Table 1B(7 Management Limits in Res / Parkland, Coarse Soil | NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | NEPM 2013 Table 1B(6) ESLs for Urbar Res, Coarse Soil | NEPM 2013 Table 1A(1) HILs Res A Soil | NSW EPA 2000 Table 3-5 Microbiological Standards | Site Specific EILs | | | | | | | | | | | | | | | | | | | | | | | | |
| втех | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | mg/kg | 0.1 | | 0.5 | 50 | 100 | | | | | | | <0.1 | <0.1 | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 |
| Toluene | mg/kg | 0.1 | | 160 | 85 | 14000 | | | | | | | <0.1 | <0.1 | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 |
| Ethylbenzene | mg/kg | 0.1 | | 55 | 70 | 4500 | | | | | | | <0.1 | <0.1 | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 |
| Xylene (m & p) | mg/kg | 0.2 | | | | | | | | | | | <0.2 | <0.2 | | | | | | <0.2 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | | <0.2 | <0.2 | <0.2 | | <0.2 |
| Xylene (o) | mg/kg | 0.1 | | | | | | | | | | | <0.1 | <0.1 | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 |
| Xylene Total | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 0.3 | | 40 | 105 | 12000 | | | | | | | <0.3 | <0.3 | | | | | | <0.3 | | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | | <0.3 | <0.3 | <0.3 | | <0.3 |
| TRH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 45 | 180 | 4400 | | | | | | | <20 | <20 | | | | | | <20 | | <20 | <20 | <20 | <20 | <20 | | <20 | <20 | <20 | | <20 |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | 110 | 120 | 3300 | | | | | | | <50 | <50 | | | | | | <50 | | <50 | <50 | <50 | <50 | <50 | | <50 | <50 | <50 | | <50 |
| C16-C34 | mg/kg | 100 | 2,500 | | 300 | 4500 | | | | | | | <100 | <100 | | | | | | <100 | | <100 | <100 | <100 | <100 | <100 | | <100 | <100 | <100 | | 360 |
| C34-C40 | mg/kg | 100 | 10,000 | | 2,800 | 6300 | | | | | | | <100 | <100 | | | | | | <100 | | <100 | <100 | <100 | <100 | <100 | | <100 | <100 | <100 | | 150 |
| Biological | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E. Coli | MPN/G | 1 | | | | | 100 | | | | | | | | | | | | | | | <10 | 20 | <10 | <10 | <10 | | <10 | <10 | <10 | | |
| Thermotolerant Coliforms | MPN/G | 1 | | | | | 1000 | | | | | | | | | | | | | | | <10 | 20 | <10 | <10 | <10 | | 10 | <10 | <10 | | |
| Metals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Arsenic | mg/kg | 2 | | | | 100 | | 100 | | 4 | 4.1 | 6.3 | 11 | 5.8 | 8.7 | 13 | 12 | 7.2 | 12 | | 19 | 3.8 | 3.5 | 3.8 | 2.6 | 2.3 | 2.1 | 2.5 | <2 | 2.8 | 14 | 8.4 |
| Cadmium | mg/kg | 0.4 | | | | 20 | | | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 |
| Chromium (III+VI) | mg/kg | 5 | | | | 100 | | 350 | | 15 | 39 | 32 | 11 | <5 | 21 | 54 | 22 | 12 | 27 | | 36 | 18 | 17 | 19 | 23 | 17 | 18 | 16 | 12 | 13 | 25 | 38 |
| Copper | mg/kg | 5 | | | | 6,000 | | 300 | | <5 | 24 | 13 | 17 | <5 | 27 | 41 | 33 | <5 | 26 | | 16 | 18 | 16 | 16 | 18 | 9.1 | 12 | 7.9 | 12 | 19 | 37 | 20 |
| Lead | mg/kg mg/kg mg/kg mg/kg | 5 | | | | 300 | | 1,100 | | 15 | 23 | 25 | 29 | 21 | 51 | 22 | 21 | 15 | 25 | | 27 | 21 | 18 | 18 | 21 | 15 | 17 | 14 | 14 | 18 | 58 | 23 |
| Mercury | mg/kg | 0.1 | | | | 40 | | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nickel | mg/kg | 5 | | | | 400 | | 50 | ∥ ⊩ | <5 | 20 | 11 | <5 | <5 | 8.4 | 19 | 12 | <5 | 16 | | 9.2 | 5.9 | 5.9 | 5.9 | 6.2 | <5 | <5 | <5 | <5 | 6.2 | 11 | 12 |
| Zinc | mg/kg | 5 | | | | 7,400 | | 250 | ∥ ⊩ | 6.5 | 47 | 15 | 75 | 64 | 66 | 91 | 66 | 12 | 54 | | 29 | 100 | 58 | 77 | 86 | 26 | 49 | 20 | 38 | 44 | 79 | 50 |
| Organochlorine Pesticides | | | | | | | | | il F | | | | | | | | | | | | | | | | | | | | | <u>†</u> | | |
| Total OCP | mg/kg | 2.5 | | | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | ∥ ┣ | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | mg/kg | 0.5 | | | 0.7 | | | | ∥ ⊩ | | | | <0.5 | <0.5 | | | <0.5 | | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | | 7.8 |
| Benzo(a) pyrene Benzo(a) pyrene TEQ (LOR) PAHs (Sum of total) | mg/kg mg/kg | 0.5 | | | 0.1 | 3 | | | ╢ ┣- | | | | 1.2 | 1.2 | | | 1.2 | 1 | 1.2 | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | | 1.2 | 1.2 | 1.2 | | 12 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | | 300 | | | ∥ ⊩ | | | | <0.5 | <0.5 | | | <0.5 | 1 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | | 65.5 |
| PCBs | | | | | | | | | ╣ ┣ | | | I | | | I | | -0.0 | + | -0.5 | | | .0.0 | | -0.0 | -0.0 | | | | | 1 | I | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | | 1 | | | ╢╟ | | | | | | | | <0.5 | | | | | | | | | | | | | + | | <0.5 |
| | 6/ 16 | 0.5 | | | | ± | | | | | | | | | | | NU.5 | | | | | | | | | | | | | | | <u> </u> |

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| | Sciences |

| Corner of Dossie and Sloane St, Goulburn | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | _ Scien |
|--|----------------------------------|-----|--|---|---|--|--|-------|----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | | | Field ID | SS12 | SS13 | SS14 | SS15 | SS16 | SS17 | SS18 | SS19 | SS20 | TP01 0.0-0.1 | TP01 0.4-0.5 | TP01 0.9-1.0 | TP02 0.0-0.1 | TP03 0.0-0.1 | TP03 0.4-0.5 | TP03 0.9-1.0 | TP04 0.0-0.1 | TP04 0.3-0.4 | TP04 1.3-1.4 | TP04 1.8-1.9 | TP05 0.0-0.1 |
| | | | | | | | | | Date | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 |
| | Unit | | IEPM 2013 Table 1B(7 Management Limits ir Res / Parkland, Coarse Soil | NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | NEPM 2013 Table 1A(1) HILs Res A Soil | NSW EPA 2000 Table 3-5 Microbiological Standards | | | | | | | | | | | | | | | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | mg/kg | 0.1 | | 0.5 | 50 | 100 | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | | |
| Toluene | mg/kg | 0.1 | | 160 | 85 | 14000 | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | | |
| Ethylbenzene | mg/kg | 0.1 | | 55 | 70 | 4500 | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | | |
| Xylene (m & p) | mg/kg | 0.2 | | | | | | | | <0.2 | | <0.2 | <0.2 | <0.2 | <0.2 | | <0.2 | <0.2 | | <0.2 | <0.2 | <0.2 | | <0.2 | | | | <0.2 | | |
| Xylene (o) Xylene Total | mg/kg | 0.1 | | | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | | |
| Xylene Total | mg/kg mg/kg mg/kg mg/kg | 0.3 | | 40 | 105 | 12000 | | | | <0.3 | | <0.3 | <0.3 | <0.3 | <0.3 | | <0.3 | <0.3 | | <0.3 | <0.3 | <0.3 | | <0.3 | | | | <0.3 | | |
| TRH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 45 | 180 | 4400 | | | | <20 | | <20 | <20 | <20 | <20 | | <20 | <20 | | <20 | <20 | <20 | | <20 | | | | <20 | | |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | 110 | 120 | 3300 | | | | <50 | | <50 | <50 | <50 | <50 | | <50 | <50 | | <50 | 63 | <50 | | <50 | | | | <50 | | |
| C16-C34 | mg/kg | 100 | 2,500 | | 300 | 4500 | | | | <100 | | <100 | 150 | 260 | <100 | | <100 | <100 | | 300 | 1,300 | <100 | | 110 | | | | <100 | | |
| C34-C40 | mg/kg mg/kg mg/kg mg/kg | 100 | 10,000 | | 2,800 | 6300 | | | | <100 | | <100 | <100 | 120 | <100 | | <100 | <100 | | 110 | 310 | <100 | | <100 | | | | <100 | | |
| Biological | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Biological E. Coli | MPN/G | 1 | | | | | 100 | | | | | | | | | | | | 110 | | | <10 | <10 | | | <10 | | | | <10 |
| Thermotolerant Coliforms | MPN/G | 1 | | | | | 1000 | | | | | | | | | | | | 390 | | | <10 | <10 | | | <10 | | | | 52 |
| Metals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/kg | 2 | | | | 100 | | 100 | | 11 | 30 | 61 | 15 | 9.3 | 6.9 | 6.6 | 8 | 20 | | 16 | | 15 | | 14 | 8 | 13 | | | 36 | |
| Cadmium | mg/kg | 0.4 | | | | 20 | | | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | | <0.4 | | <0.4 | | <0.4 | <0.4 | <0.4 | | | <0.4 | |
| Chromium (III+VI) | mg/kg mg/kg mg/kg | 5 | | | | 100 | | 350 | | 41 | 73 | 27 | 43 | 44 | 28 | 25 | 36 | 30 | | 42 | | 51 | | 38 | <5 | 64 | | | 23 | |
| Copper | mg/kg | 5 | | | | 6,000 | | 300 | | 20 | 20 | 10 | 24 | 30 | 9.2 | 8.9 | 21 | 44 | | 39 | | 17 | | 41 | <5 | 36 | | | <5 | |
| Lead | mg/kg | 5 | | | | 300 | | 1,100 | | 26 | 42 | 33 | 35 | 41 | 36 | 27 | 25 | 31 | | 28 | | 33 | | 29 | 9.8 | 35 | | | 24 | |
| Mercury | mg/kg | 0.1 | | | | 40 | | | | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | | | <0.1 | |
| Mercury Nickel Zinc | mg/kg | 5 | | | | 400 | | 50 | | 12 | 23 | 6.3 | 14 | 14 | 6.7 | <5 | 19 | 20 | | 12 | | 10 | | 19 | <5 | 24 | | | <5 | |
| Zinc | mg/kg mg/kg mg/kg | 5 | | | | 7,400 | | 250 | | 47 | 37 | 19 | 70 | 66 | 16 | 15 | 41 | 47 | | 71 | | 35 | | 100 | 7.5 | 77 | | | 18 | |
| Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Organochlorine Pesticides Total OCP | mg/kg | 2.5 | | | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| Benzo(a) pyrene | mg/kg | 0.5 | | | 0.7 | | | | | 1.6 | | <0.5 | 3.1 | 4.7 | <0.5 | | <0.5 | <0.5 | | 2.6 | | <0.5 | | <0.5 | <0.5 | | | <0.5 | <0.5 | |
| Benzo(a) pyrene TEQ (LOR) | mg/kg | 0.5 | | | | 3 | | | | 2.6 | | 1.2 | 4.8 | 7.2 | 1.2 | | 1.2 | 1.2 | | 4 | | 1.2 | | 1.2 | 1.2 | | | 1.2 | 1.2 | |
| Benzo(a) pyrene TEQ (LOR) PAHs (Sum of total) | mg/kg | 0.5 | | | | 300 | | | | 12.9 | | <0.5 | 27.1 | 39.1 | <0.5 | | <0.5 | <0.5 | | 29.2 | | <0.5 | | <0.5 | <0.5 | | | <0.5 | <0.5 | |
| PCBs | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | + |
| PCBs (Sum of total) | mg/kg | 0.5 | | | | 1 | | | | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | | <0.5 | | <0.5 | <0.5 | | | | <0.5 | | | <0.5 |
| | 0, 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Construction Sciences

| Corner of Dossie and Sloane St, Goulburn | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----|---|---|---|---|---------------------|-------|-------------------|--------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | | | Field ID TP05 0.4 | -0.5 T | TP06 0.0-0.1 | TP07 0.0-0.1 | TP07 0.9-1.0 | TP12 0.0-0.1 | TP12 1.4-1.5 | TP13 0.0-0.1 | TP13 0.5-0.6 | TP13 1.5-1.6 | TP14 0.0-0.1 | TP14 0.4-0.5 | TP14 1.9-2.0 | TP15 0.0-0.1 | TP15 1.4-1.5 | TP16 0.0-0.1 | TP16 0.4-0.5 | TP16 1.9-2.0 | TP17 0.0-0.1 | TP18 0.0-0.1 | TP18 0.4-0.5 | TP19 0.0-0.1 |
| | | | | | | | | | Date 18/02/20 | 020 1 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 18/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 |
| | Unit | N | EPM 2013 Table 1B(7 Management Limits in Res / Parkland, Coarse Soil |) NEPM 2013 Table 1A(3) Re A/B Soil HSL for Vapour Intrusion, Sand | s NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | NEPM 2013 Table 1A(1) HILs Res A Soi | 3-5 Microbiological | | | | | | | | | | | | | | | | | | | | | | | |
| BTEX Benzene | mg/kg | 0.1 | | 0.5 | 50 | 100 | | | | :0.1 | <0.1 | <0.1 | | | <0.1 | | | <0.1 | | <0.1 | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 |
| Toluene | mg/kg | 0.1 | | 160 | 85 | 14000 | | | | :0.1 | <0.1 | <0.1 | | | <0.1 | | | <0.1 | | <0.1 | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 |
| Ethylbenzene | mg/kg | 0.1 | | 55 | 70 | 4500 | | | | (0.1 | <0.1 | <0.1 | | | <0.1 | | | <0.1 | | <0.1 | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | + | <0.1 |
| Xylene (m & p) | mg/kg | 0.2 | | | | 1000 | | | | (0.2 | <0.2 | <0.2 | | | <0.2 | | | <0.2 | | <0.2 | | | <0.2 | | <0.2 | <0.2 | <0.2 | <0.2 | + | <0.2 |
| Xylene (o) | mg/kg mg/kg mg/kg mg/kg mg/kg | 0.1 | | | | | | | < | :0.1 | <0.1 | <0.1 | | | <0.1 | | | <0.1 | | <0.1 | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 |
| Xylene Total | mg/kg | 0.3 | | 40 | 105 | 12000 | | | < | :0.3 | <0.3 | <0.3 | | | <0.3 | | | <0.3 | | <0.3 | | | <0.3 | | <0.3 | <0.3 | <0.3 | <0.3 | | <0.3 |
| TRH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | <u> </u> | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 45 | 180 | 4400 | | | | <20 | <20 | <20 | | | <20 | | | <20 | | <20 | | | <20 | | <20 | <20 | <20 | <20 | | <20 |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | 110 | 120 | 3300 | | | < | <50 | <50 | <50 | | | <50 | | | <50 | | <50 | | | <50 | | <50 | <50 | <50 | <50 | | <50 |
| C16-C34 | mg/kg mg/kg mg/kg mg/kg | 100 | 2,500 | | 300 | 4500 | | | < | 100 | 140 | 200 | | | <100 | | | <100 | | 150 | | | <100 | | <100 | <100 | <100 | <100 | | 140 |
| C34-C40 | mg/kg | 100 | 10,000 | | 2,800 | 6300 | | | < | 100 | <100 | 140 | | | <100 | | | <100 | | <100 | | | <100 | | <100 | <100 | <100 | <100 | | <100 |
| Biological E. Coli | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MPN/G | 1 | | | | | 100 | | | | 10 | <10 | | <10 | | <10 | | | <10 | | | 20 | | 30 | | | <10 | <10 | | <10 |
| Thermotolerant Coliforms | MPN/G | 1 | | | | | 1000 | | | | 20 | <10 | | 52 | | <10 | | | <10 | | | 62 | | 74 | | | 300 | 110 | | <10 |
| Metals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/kg | 2 | | | | 100 | | 100 | | 2.6 | 12 | 9.8 | 10 | 10 | | | 14 | 10 | | 6.3 | | | 7.7 | | 11 | 13 | 4.9 | 8.2 | 5.8 | |
| Cadmium | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 0.4 | | | | 20 | | | < | :0.4 | <0.4 | <0.4 | <0.4 | <0.4 | | | <0.4 | <0.4 | | <0.4 | | | <0.4 | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | |
| Chromium (III+VI) | mg/kg | 5 | | | | 100 | | 350 | | <5 | 23 | 21 | 41 | 31 | | | 28 | 45 | | 26 | | | 16 | | 31 | 33 | <5 | 5.4 | 8.7 | |
| Copper | mg/kg | 5 | | | | 6,000 | | 300 | | 5.4 | 48 | 66 | 25 | 37 | | | 29 | 32 | | 31 | | | 40 | | 52 | 59 | <5 | <5 | 6.3 | |
| Lead | mg/kg | 5 | | | | 300 | | 1,100 | | 5.9 | 17 | 21 | 26 | 18 | | | 26 | 31 | | 13 | | | 16 | | 21 | 34 | 11 | 12 | 12 | |
| Mercury | mg/kg | 0.1 | | | | 40 | | | < | :0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | | <0.1 | <0.1 | | <0.1 | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |
| Nickel | mg/kg | 5 | | | | 400 | | 50 | | <5 | 11 | 12 | 14 | 11 | | | 12 | 25 | | 11 | | | 8.5 | | 16 | 12 | <5 | <5 | <5 | |
| Zinc | mg/kg | 5 | | | | 7,400 | | 250 | | 20 | 99 | 140 | 68 | 46 | | | 81 | 46 | | 67 | | | 88 | | 150 | 81 | 14 | 9.5 | 21 | |
| Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total OCP | mg/kg | 2.5 | | | | | | | < | :2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a) pyrene | mg/kg mg/kg | 0.5 | | | 0.7 | | | | < | :0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | <0.5 | <0.5 | | <0.5 | | | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Benzo(a) pyrene TEQ (LOR) | mg/kg | 0.5 | | | | 3 | | | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | | | 1.2 | 1.2 | | 1.2 | | | 1.2 | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | |
| PAHs (Sum of total) | mg/kg | 0.5 | | | | 300 | | | < | :0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | <0.5 | <0.5 | | <0.5 | | | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| PCBs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | | 1 | | | | | | <0.5 | | <0.5 | | | <0.5 | | | | <0.5 | <0.5 | | <0.5 | | | <0.5 | <0.5 | | |

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| Construction | |
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| Sciences | |

| Corner of Dossie and Sloane St, Goulburn | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----|---|---|---|--|--|---|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | | F | ield ID TP19 0.3-0.4 | TP20 0.0-0.1 | TP20 0.4-0.5 | TP21 0.0-0.1 | TP22 0.0-0.1 | TP23 0.0-0.1 | TP24 0.0-0.1 | TP25 0.0-0.1 | TP26 0.0-0.1 | TP26 0.3-0.4 | TP27 0.0-0.1 | TP27 0.5-0.6 | TP27 0.7-0.8 | TP28 0.0-1 | TP29 0.0-0.1 | TP29 0.3-0.4 | TP30 0.0-0.1 | TP31 0.0-0.1 | TP32 0.0-0.1 | TP33 0.0-0.1 |
| | | | | | | | | | Date 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | | | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 |
| | Unit | N | EPM 2013 Table 1B(7 Management Limits ir Res / Parkland, Coarse Soil | 7) n A/B Soil HSL for Vapour Intrusion, Sand | NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | NEPM 2013 Table 1A(1) HILs Res A Soil | NSW EPA 2000 Table 3-5 Microbiological Standards | | | | | | | | | | | | | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | mg/kg | 0.1 | | 0.5 | 50 | 100 | | | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Toluene | mg/kg | 0.1 | | 160 | 85 | 14000 | | | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Ethylbenzene | mg/kg | 0.1 | | 55 | 70 | 4500 | | | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene (m & p) | mg/kg | 0.2 | | | | | | | | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | | <0.2 | | <0.2 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene (o) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 0.1 | | | | | | | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene Total | mg/kg | 0.3 | | 40 | 105 | 12000 | | | | | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | | <0.3 | | <0.3 | | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| TRH | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg mg/kg mg/kg | 20 | | 45 | 180 | 4400 | | | | | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | | <20 | | <20 | | <20 | <20 | <20 | <20 | <20 |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | 110 | 120 | 3300 | | | | | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | | <50 | | <50 | | <50 | <50 | <50 | <50 | <50 |
| C16-C34 | mg/kg | 100 | 2,500 | | 300 | 4500 | | | | | <100 | <100 | 100 | 100 | <100 | <100 | <100 | <100 | | <100 | | <100 | | <100 | <100 | <100 | <100 | <100 |
| C34-C40 | mg/kg | 100 | 10,000 | | 2,800 | 6300 | | | | | <100 | <100 | <100 | <100 | <100 | <100 | <100 | <100 | | <100 | | <100 | | <100 | <100 | <100 | <100 | <100 |
| Biological | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E. Coli | MPN/G | 1 | | | | | 100 | | | <10 | | 540 | <10 | <10 | <10 | <10 | <10 | | 10 | | | 190 | <10 | | <10 | <10 | 110 | 10 |
| Thermotolerant Coliforms | MPN/G | 1 | | | | | 1000 | | | 500 | | >24,000 | 31 | 2,000 | <10 | 10 | <10 | | 10 | | | 190 | <10 | | 540 | 120 | 1,100 | 41 |
| Metals | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/kg | 2 | | | | 100 | 100 |) | 5.5 | | 5.9 | 5.6 | 8 | 4.7 | 8.9 | 5.7 | 21 | 4.7 | | 5.6 | 10 | 6.3 | | 7.3 | 3.9 | 7.3 | 8.9 | 9.8 |
| Cadmium | mg/kg | 0.4 | | | | 20 | | | <0.4 | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | | <0.4 | <0.4 | <0.4 | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 |
| Chromium (III+VI) | mg/kg mg/kg mg/kg mg/kg | 5 | | | | 100 | 350 |) | 6.4 | | 13 | 6.8 | 5.8 | <5 | 7.9 | 7.4 | 6.6 | 5.3 | | 5.3 | 7.1 | 19 | | 7.6 | <5 | 14 | 11 | 11 |
| Copper | mg/kg | 5 | | | | 6,000 | 300 |) | <5 | | <5 | 17 | 9.3 | 21 | 11 | 5.2 | <5 | <5 | | <5 | <5 | 5.1 | | <5 | <5 | 8.6 | 8.6 | 5.7 |
| Lead | mg/kg mg/kg mg/kg | 5 | | | | 300 | 1,10 | 0 | 10 | | 15 | 17 | 17 | 14 | 17 | 12 | 14 | 7.8 | | 8.6 | 8.1 | 19 | | 12 | 6.5 | 18 | 15 | 17 |
| Mercury | mg/kg | 0.1 | | | | 40 | | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | 0.1 | <0.1 | <0.1 |
| Nickel | mg/kg | 5 | | | | 400 | 50 | | <5 | | <5 | 7.9 | <5 | <5 | <5 | <5 | <5 | <5 | | <5 | <5 | <5 | | <5 | <5 | 5.1 | <5 | <5 |
| Zinc | mg/kg | 5 | | | | 7,400 | 250 |) | 17 | | 14 | 30 | 19 | 40 | 32 | 14 | 5.7 | 6 | | 9.1 | <5 | 12 | | 5.2 | 5.6 | 16 | 15 | 9.3 |
| Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total OCP | mg/kg | 2.5 | | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a) pyrene | mg/kg mg/kg | 0.5 | | | 0.7 | | | | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a) pyrene TEQ (LOR) PAHs (Sum of total) | mg/kg | 0.5 | | | | 3 | | | 1.2 | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | | | 1.2 | 1.2 | 1.2 | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | | 300 | | | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| PCBs | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | | 1 | | | | | | | | | | | | | <0.5 | | | <0.5 | | | | | | |

| _ | Construction |
|-----------|--------------|
| 7 | Sciences |

| Corner of Dossie and Sloane St, Goulburn | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----|--|---|---|---|---|----------------------------|---------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | | | Field I | D TP34 0.0-0.1 | TP34 0.4-0.5 | TP35 0.0-0.1 | TP36 0.0-0.1 | TP36 0.6-0.7 | TP37 0.0-0.1 | TP37 0.9-1.0 | TP38 0.0-0.1 | TP39 0.0-0.1 | TP39 0.5-0.6 | TP39 1.7-1.8 | TP40 0.0-0.1 | TP40 0.4-0.5 | TP40 1.0-1.1 | TP45 0.0-0.1 | TP46 0.0-0.1 | TP47 0.0-0.1 | TP47 0.3-0.4 | TP47 0.8-0.9 | TP47 1.5-1.6 |
| | | | | | | | | | Date | e 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 19/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 |
| | Unit | м | EPM 2013 Table 1B(7 Ianagement Limits in es / Parkland, Coarse Soil | NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | NEPM 2013 Table 1B(6) ESLs for Urbar Res, Coarse Soil | NEPM 2013 Table 1A(1) HILs Res A Soi | NSW EPA 2000 Tabl 3-5 Microbiological Standards | e Site Specific EILs | | | | | | | | | | | | | | | | | | | | | |
| ВТЕХ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |) |
| Benzene | mg/kg mg/kg | 0.1 | | 0.5 | 50 | 100 | | | | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | , |
| Toluene | mg/kg | 0.1 | | 160 | 85 | 14000 | | | | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | , |
| Ethylbenzene | mg/kg | 0.1 | | 55 | 70 | 4500 | | | | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | |
| Xylene (m & p) | mg/kg mg/kg mg/kg | 0.2 | | | | | | | | | <0.2 | <0.2 | | <0.2 | <0.2 | <0.2 | <0.2 | | <0.2 | | | | <0.2 | <0.2 | <0.2 | | <0.2 | <0.2 | |
| Xylene (o) Xylene Total | mg/kg | 0.1 | | | | | | | | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | |
| Xylene Total | mg/kg | 0.3 | | 40 | 105 | 12000 | | | | | <0.3 | <0.3 | | <0.3 | <0.3 | <0.3 | <0.3 | | <0.3 | | | | <0.3 | <0.3 | <0.3 | | <0.3 | <0.3 | , |
| TRH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 45 | 180 | 4400 | | | | | <20 | <20 | | <20 | <20 | <20 | <20 | | <20 | | | | <20 | <20 | <20 | | <20 | <20 | , |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | 110 | 120 | 3300 | | | | | <50 | <50 | | <50 | <50 | <50 | <50 | | <50 | | | | <50 | <50 | <50 | | <50 | <50 | , |
| C16-C34 | mg/kg | 100 | 2,500 | | 300 | 4500 | | | - | | <100 | <100 | | <100 | <100 | <100 | <100 | | <100 | | | | <100 | <100 | <100 | | <100 | <100 | 1 |
| C34-C40 | mg/kg mg/kg mg/kg mg/kg | 100 | 10,000 | | 2,800 | 6300 | | | | | <100 | <100 | | <100 | <100 | <100 | <100 | | <100 | | | | <100 | <100 | <100 | | <100 | <100 | 1 |
| Biological | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Biological E. Coli | MPN/G | 1 | | | | | 100 | | | <10 | | <10 | <10 | | <10 | | 4,900 | <10 | | | <10 | | | 640 | 360 | <10 | <10 | | , |
| Thermotolerant Coliforms | MPN/G | 1 | | | | | 1000 | | | 86 | | 20 | <10 | | <10 | | 4,900 | <10 | | | <10 | | | 17,000 | 540 | <10 | <10 | | |
| Metals | | | | | | | | | - | | | | | | | | | | | | | | | | | | | | 1 |
| Arsenic | mg/kg | 2 | | | | 100 | | 100 | | 8.4 | | 7 | | 6.2 | 50 | 29 | 7.1 | | 5.2 | 12 | | 12 | 6.9 | 9.2 | 7.4 | | 6.7 | | 13 |
| Cadmium | mg/kg | 0.4 | | | | 20 | | | | <0.4 | | <0.4 | | <0.4 | <0.4 | <0.4 | <0.4 | | <0.4 | <0.4 | | <0.4 | <0.4 | <0.4 | <0.4 | | <0.4 | | <0.4 |
| Chromium (III+VI) | mg/kg mg/kg mg/kg mg/kg mg/kg | 5 | | | | 100 | | 350 | | 11 | | 7.1 | | 11 | 23 | 18 | 13 | | 14 | 19 | | 29 | 21 | 25 | 17 | | 21 | | 22 |
| Copper | mg/kg | 5 | | | | 6,000 | | 300 | - | 5.6 | | <5 | | 5.2 | 13 | 8 | 6.5 | | 6 | 8.1 | | 24 | 9.6 | 23 | 12 | | 12 | | 9.4 |
| Lead | mg/kg | 5 | | | | 300 | | 1,100 | | 18 | | 8.9 | | 15 | 22 | 16 | 15 | | 10 | 17 | | 24 | 12 | 19 | 15 | | 17 | | 20 |
| Mercury | mg/kg | 0.1 | | | | 40 | | | | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 |
| Mercury Nickel | mg/kg mg/kg | 5 | | | | 400 | | 50 | | <5 | | <5 | | <5 | 6 | 5.3 | <5 | | <5 | <5 | | 15 | <5 | 9.2 | 5.1 | | 5.5 | | <5 |
| Zinc | mg/kg | 5 | | | | 7,400 | | 250 | | 9.8 | | 6.2 | | 7 | 17 | 14 | 12 | | 15 | 14 | | 46 | 14 | 71 | 35 | | 19 | | 13 |
| Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Total OCP | mg/kg | 2.5 | | | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | ++ |
| Benzo(a) pyrene | mg/kg | 0.5 | | | 0.7 | | | | - | <0.5 | | <0.5 | | <0.5 | <0.5 | | <0.5 | | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | | <0.5 |
| Benzo(a) pyrene TEQ (LOR) | mg/kg | 0.5 | | | | 3 | | | | 1.2 | | 1.2 | | 1.2 | 1.2 | | 1.2 | | 1.2 | 1.2 | | 1.2 | 1.2 | 1.2 | 1.2 | | 1.2 | | 1.2 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | | 300 | | | | <0.5 | | <0.5 | | <0.5 | <0.5 | | <0.5 | | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | | <0.5 |
| PCBs | | | | | | | | | - | | | | | | | | | | | | | | | | | | | | + |
| PCBs (Sum of total) | mg/kg | 0.5 | | | | 1 | | | - | | | <0.5 | | <0.5 | <0.5 | | <0.5 | | <0.5 | | | | <0.5 | <0.5 | <0.5 | <0.5 | | | ++ |
| | | 0.5 | | | | | | | | 1 | | 10.5 | | 10.0 | 10.0 | | -0.5 | | 50.5 | | | | 10.5 | 10.5 | 10.0 | 10.5 | | | |

| _ | Construction |
|----------|--------------|
| 7 | Sciences |

| Corner of Dossie and Sloane St, Goulburn | | | | | | | |] | Field ID | TP48 0.0-0.1 | TP48 1.2-1.3 | TP49 0.0-0.1 | TP49 0.5-0.6 | TP51 0.0-0.1 | TP51 0.4-0.5 |
|--|-------|-----|---|---|---|--|--|-----------------------|----------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | | | | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 |
| | Unit | EQL | NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | NEPM 2013 Table 1A(1) HILs Res A Soil | NSW EPA 2000 Table 3-5 Microbiological Standards | Site Specific EILs | | | | | | | |
| BTEX | | | | | | | | | | | | | | | |
| Benzene | mg/kg | 0.1 | | 0.5 | 50 | 100 | | | | <0.1 | | | <0.1 | <0.1 | |
| Toluene | mg/kg | 0.1 | | 160 | 85 | 14000 | | | | <0.1 | | | <0.1 | <0.1 | |
| Ethylbenzene | mg/kg | 0.1 | | 55 | 70 | 4500 | | | | <0.1 | | | <0.1 | <0.1 | |
| Xylene (m & p) | mg/kg | 0.2 | | | | | | | | <0.2 | | | <0.2 | <0.2 | |
| Xylene (o) | mg/kg | 0.1 | | | | | | | | <0.1 | | | <0.1 | <0.1 | |
| Xylene Total | mg/kg | 0.3 | | 40 | 105 | 12000 | | | | <0.3 | | | <0.3 | <0.3 | |
| TRH | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 45 | 180 | 4400 | | | | <20 | | | <20 | <20 | |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | 110 | 120 | 3300 | | | | <50 | | | <50 | <50 | |
| C16-C34 | mg/kg | 100 | | | 300 | 4500 | | | | <100 | | | <100 | <100 | |
| C34-C40 | mg/kg | 100 | | | 2,800 | 6300 | | | | <100 | | | <100 | <100 | |
| Biological | | | | | | | | | | | | | | | |
| E. Coli | MPN/G | 1 | | | | | 100 | | | <10 | | <10 | | <10 | |
| Thermotolerant Coliforms | MPN/G | 1 | | | | | 1000 | | | 10 | | <10 | | 1,400 | |
| Metals | | | | | | | | | | | | | | | |
| Arsenic | mg/kg | 2 | | | | 100 | | 100 | | 7.3 | 13 | | 31 | 14 | 14 |
| Cadmium | mg/kg | 0.4 | | | | 20 | | | | <0.4 | <0.4 | | <0.4 | <0.4 | <0.4 |
| Chromium (III+VI) | mg/kg | 5 | | | | 100 | | 350 | | 28 | 23 | | 30 | 29 | 25 |
| Copper | mg/kg | 5 | | | | 6,000 | | 300 | | 10 | 11 | | 34 | 18 | 14 |
| Lead | mg/kg | 5 | | | | 300 | | 1,100 | | 18 | 20 | | 23 | 19 | 18 |
| Mercury | mg/kg | 0.1 | | | | 40 | | | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 |
| Nickel | mg/kg | 5 | | | | 400 | | 50 | | 6.5 | 6.3 | | 31 | 10 | 9.1 |
| Zinc | mg/kg | 5 | | | | 7,400 | | 250 | | 30 | 15 | | 40 | 30 | 26 |
| Organochlorine Pesticides | | | | | | | | | | | | | | - | |
| Total OCP | mg/kg | 2.5 | | | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | | | | | - | - | |
| Benzo(a) pyrene | mg/kg | 0.5 | | | 0.7 | | | | | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 |
| Benzo(a) pyrene TEQ (LOR) | mg/kg | 0.5 | | | | 3 | | | | 1.2 | 1.2 | | 1.2 | 1.2 | 1.2 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | | 300 | | | | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 |
| PCBs | | | | | | | | | | | | | | | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | | 1 | | | | <0.5 | | <0.5 | | <0.5 | |



5046200019 Stage 2 - Detailed Site Investigation Corner of Dossie and Sloane St, Goulburn

LR01 - Soil Results (Comm./Indus. Land Use)

| Corner of Dossie and Sidarie St, GC | | | | | | _ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|------|--|--|----------|---|----------------|----------|-----------|------------|------------|------------|------------|------------|-------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | Field ID DUP 2 | | UP25 | SP01 | SP02 | SS21 | SS22 | SS23 | SS24 | SS25 | SS26 | TP52 0.0-0.1 | TP53 0.0-0.1 | TP53 0.2-0.3 | TP54 0.0-0.1 | TP55 0.0-0.1 | TP55 0.4-0.5 | TP56 0.0-0.1 | TP57 0.0-0.1 | TP58 0.0-0.1 | TP59 0.0-0.1 | TP59 0.4-0.5 | TP60 0.9-1.0 | TP60 1.9-2.0 | TP61 0.0-0.1 | TP62 0.1-0.3 | TP63 0.1-0.3 | TP64 0.1-0.3 | TP65 0.1-0.3 | TP66 0.1-0.3 |
| | | | | | | | Date 20/02, | /2020 21 | 1/02/2020 | 21/02/2020 | 21/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 |
| | Unit | EQL | 1B(7) Management Sc imits Comm / | EPM 2013 Table (3) Comm/Ind D il HSL for Vapour Intrusion, Sand | HILS 5 M | A 2000 Table 3- Microbiological Standards | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | |
| Benzene | mg/kg | 0.1 | | 3 | 430 | | | | | <0.1 | <0.1 | | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Toluene | mg/kg | 0.1 | | | 99000 | | | | | <0.1 | <0.1 | | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Ethylbenzene | mg/kg | 0.1 | | | 27000 | | | | | <0.1 | <0.1 | | | | | | | <0.1 | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene (m & p) | mg/kg | 0.2 | | | | | | | | <0.2 | <0.2 | | | | | | | <0.2 | | <0.2 | <0.2 | 0.9 | | <0.2 | | <0.2 | | | <0.2 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Xylene (o) | mg/kg | 0.1 | | | | | | | | <0.1 | <0.1 | | | | | | | <0.1 | | <0.1 | <0.1 | 0.3 | | <0.1 | | <0.1 | <0.1 | | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene Total | mg/kg | 0.3 | | 230 | 81000 | | | | | <0.3 | <0.3 | | | | | | | <0.3 | | <0.3 | <0.3 | 1.1 | | <0.3 | <0.3 | <0.3 | <0.3 | | <0.3 | | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| TRH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 260 | 26000 | | | | | <20 | <20 | | | | | | | <20 | | <20 | <20 | <20 | | <20 | <20 | <20 | <20 | | <20 | | <20 | <20 | <20 | <20 | <20 | <20 |
| C10-C16 (F2 minus Naphthalen | | 50 | | | 20000 | | | | | <500 | <50 | | | | | | | <50 | | <50 | <50 | <50 | | <50 | <50 | <50 | <50 | | <50 | | <50 | <50 | <50 | <50 | 51 | <50 |
| C16-C34 C34-C40 | mg/kg | 100 | 3,500 | | 27000 | | | | | 2,300 | 570 | | | | | | | <100 | _ | <100 | <100 | <100 | | <100 | <100 | <100 | <100 | | <100 | | <100 | <100 | <100 | <100 | 230 | <100 |
| | mg/kg | 100 | 10,000 | | 38000 | | | | | 1,700 | 160 | | | | | | | <100 | _ | <100 | <100 | <100 | | <100 | <100 | <100 | <100 | | <100 | | <100 | <100 | <100 | <100 | <100 | <100 |
| Biological F. Coli | MPN/G | | | | | 100 | | | | | | | | | | | | <10 | 1.600 | | | | | | | | | | | | | <10 | <10 | <10 | 10 | <10 |
| Thermotolerant Coliforms | MPN/G | 1 | | | | 100 | | | | | | | | | | | | <10 | 4,900 | | | | | | | | | | | | | 150 | 330 | <10 | 63 | 1.300 |
| memotolerant contornis | WIF N/G | 1 | | | _ | 1000 | | | | | | | | | | _ | | 52 | 4,900 | - | _ | | | _ | | | _ | _ | | | | 150 | 330 | 41 | 63 | 1,300 |
| Arsenic | malka | 2 | | | 3.000 | | | 8.8 | 13 | <2 | 0 | 6.7 | 6 | 5.7 | 4.2 | - | 6.9 | 3 | | 5.5 | 8.3 | 6.9 | 9.1 | 11 | 9,9 | 3.4 | 2.3 | 4.2 | 38 | 14 | 7.3 | 5.9 | 6.5 | 6.8 | 21 | 7.1 |
| Cadmium | mg/kg | 2 | | | 3,000 | | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | 4.z <0.4 | <0.4 | <0.4 | <0.4 | | <0.4 | <0.4 | <0.4 | | <0.4 | | <0.4 | | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 |
| Chromium (III+VI) | mg/kg mg/kg | 5 | | | 500 | | | 53 | 40 | <5 | 6.6 | <5 | 5 | 11 | 14 | 8.9 | <0.4 | <5 | | 20 | 42 | 16 | 27 | 13 | | 7.4 | 8 | 17 | 26 | 57 | 32 | 12 | 19 | 31 | 80 | 36 |
| Conner | mg/kg | 5 | | | 240.000 | | | 20 | 40 | 130 | 6.0 | 6.1 | 16 | 42 | 91 | 5.1 | | <5 | | 11 | 17 | 34 | 34 | 69 | 33 | 11 | 11 | 14 | 18 | 16 | 14 | 54 | 68 | 27 | 30 | 18 |
| Lead | mg/kg | 5 | | | 1.500 | | | 41 | 57 | 14 | 4 | 31 | 28 | 24 | 15 | 23 | 29 | 12 | | 10 | 25 | 28 | 110 | 17 | 20 | 12 | 8.8 | 34 | 23 | 20 | 25 | 13 | 16 | 17 | 26 | 10 |
| Mercury | mg/kg | 0.1 | | | 730 | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | 0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nickel | mg/kg | 5 | | | 6,000 | | | 8.9 | 15 | <5 | <5 | <5 | <5 | 5.2 | <5 | <5 | <5 | <5 | | <5 | 12 | 5.4 | 6.4 | 5.4 | 6.2 | <5 | <5 | 6.6 | 9.5 | 7.7 | 6.3 | 6.5 | 9.7 | 11 | 19 | 9.7 |
| Zinc | mg/kg | 5 | | | 400,000 | | | 63 | 300 | 26 | 18 | 75 | 110 | 110 | 93 | 88 | 69 | 43 | | 21 | 28 | 120 | 410 | 51 | 52 | 30 | 27 | 50 | 25 | 20 | 43 | 81 | 100 | 30 | 29 | 22 |
| Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total OCP | mg/kg | 2.45 | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| PAH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Benzo(a) pyrene | mg/kg | 0.5 | | | | | | <0.5 | | 0.6 | < 0.5 | <0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a) pyrene TEQ (LOR) PAHs (Sum of total) | mg/kg | 0.5 | | | 40 | | | 1.2 | | 1.4 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | 4,000 | | | <0.5 | | 3.6 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| PCBs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | 7 | | | | | < 0.5 | < 0.5 | | | | | | | < 0.5 | | < 0.5 | <0.5 | < 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | | | | <0.5 | | | | | |



5046200019 Stage 2 - Detailed Site Investigation Corner of Dossie and Sloane St, Goulburn

LR01 - Soil Results (Comm./Indus. Land Use)

| | | | | | | | Field ID | TP67 0.1-0.3 | TP68 0.0-0.1 | TP69 0.0-0.1 | TP69 0.3-0.4 | TP70 0.0-0.1 | TP71 0.0-0.1 | TP72 0.0-0.1 | TP72 0.2-0.3 | TP72 0.6-0.7 | TP73 0.0-0.1 | TP74 0.0-0.1 | TP74 0.8-0.9 | TP75 0.0-0.1 | TP76 0.0-0.1 | TP76 1.5-1.6 | TP77 0.2-0.3 | TP78 0.0-0.2 | TP78 1.1-1.2 |
|--------------------------------|-------|------|---|--|--|---|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | Date | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 |
| | | 7 | NEPM 2013 Table 1B(7) Management Limits Comm / | NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour | NEPM 2013 Table 1A(1) HILs Comm/Ind D | EPA 2000 Table 3- 5 Microbiological Standards | - | | | | | | | | | | | | | | | | | | |
| | | | Ind, Coarse Soil | Intrusion, Sand | Soil | | | | | | | | | | | | | | | | | | | | |
| BTEX | Unit | EQL | | | | | - | | | | - | | - | - | | | | 1 | - | | - | | - | | |
| Benzene | mg/kg | 0.1 | | 3 | 430 | | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 |
| Toluene | mg/kg | 0.1 | | 3 | 99000 | | | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 |
| Ethylbenzene | mg/kg | 0.1 | | | 27000 | | - | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 |
| Xylene (m & p) | mg/kg | 0.1 | | | 27000 | | | <0.2 | <0.2 | <0.1 | - | <0.2 | <0.1 | - | <0.1 | | <0.2 | <0.2 | 1 | <0.2 | <0.1 | | <0.2 | <0.2 | <0.1 |
| Xylene (o) | mg/kg | 0.1 | | | | | | <0.1 | <0.1 | <0.2 | - | <0.1 | <0.1 | - | <0.1 | | <0.1 | <0.1 | 1 | <0.1 | <0.1 | | <0.2 | <0.1 | <0.2 |
| Xylene Total | mg/kg | 0.3 | | 230 | 81000 | | | <0.3 | <0.3 | <0.3 | 1 | <0.3 | <0.3 | | <0.3 | | <0.3 | <0.3 | | <0.3 | <0.3 | | <0.3 | <0.3 | <0.3 |
| TBH | 0, 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 260 | 26000 | | | <20 | <20 | <20 | | <20 | <20 | | <20 | | <20 | <20 | | <20 | <20 | | <20 | <20 | <20 |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | | 20000 | | | <50 | <50 | <50 | | <50 | <50 | | <50 | | <50 | <50 | | <500 | <500 | | <50 | <50 | <50 |
| C16-C34 | mg/kg | 100 | 3,500 | | 27000 | | | <100 | <100 | 130 | | <100 | <100 | | <100 | | <100 | <100 | | <1,000 | <1,000 | | <100 | <100 | <100 |
| C34-C40 | mg/kg | 100 | 10,000 | | 38000 | | | <100 | <100 | <100 | | <100 | <100 | | <100 | | <100 | <100 | | <1,000 | <1,000 | | <100 | <100 | 120 |
| Biological | | | | | | | | | | | | | | | | | | | | | | | | | |
| E. Coli | MPN/G | 1 | | | | 100 | | 24,000 | <10 | <10 | | <10 | <10 | <10 | | | <10 | <10 | | <10 | <10 | <10 | <10 | <10 | <10 |
| Thermotolerant Coliforms | MPN/G | 1 | | | | 1000 | | >24,000 | 400 | 460 | | <10 | 1,400 | 220 | | | 510 | 1,500 | | 10 | <10 | <10 | 10 | 50 | <10 |
| Metals | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/kg | 2 | | | 3,000 | | | 12 | 5.8 | 6.4 | 3.6 | 6.8 | 9.5 | | 5.4 | 7.8 | 6.1 | 8 | 4 | 12 | 10 | 12 | 8.2 | 15 | 12 |
| Cadmium | mg/kg | 0.4 | | | 900 | | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 |
| Chromium (III+VI) | mg/kg | 5 | | | | | | 44 | 35 | 27 | 28 | 5.5 | 39 | | 42 | 38 | 36 | 33 | 39 | 22 | 17 | 55 | 30 | 54 | 24 |
| Copper | mg/kg | 5 | | | 240,000 | | | 36 | 29 | 21 | 18 | 20 | 23 | | 15 | 18 | 12 | 25 | 18 | 39 | 38 | 18 | 31 | 20 | 43 |
| Lead | mg/kg | 5 | | | 1,500 | | | 24 | 16 | 19 | 15 | 9.2 | 19 | | 17 | 17 | 16 | 20 | 15 | 32 | 25 | 33 | 180 | 23 | 29 |
| Mercury | mg/kg | 0.1 | | | 730 | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 | <0.1 | <0.1 |
| Nickel | mg/kg | 5 | | | 6,000 | | | 14 | 17 | 7.2 | 12 | <5 | 6.1 | | 10 | 11 | <5 | 8.3 | 11 | 8 | 6.2 | 11 | 12 | 9.9 | 9.8 |
| Zinc | mg/kg | 5 | | | 400,000 | | | 27 | 27 | 48 | 22 | 28 | 15 | | 20 | 20 | 10 | 39 | 29 | 55 | 27 | 39 | 230 | 29 | 55 |
| Organochlorine Pesticides | | | | | | | | | | | | | | _ | | | | | | | | | | | |
| Total OCP | mg/kg | 2.45 | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| PAH | | | | | | | | | | | | | | _ | | | | | | | | | | | |
| Benzo(a) pyrene | mg/kg | 0.5 | | | | | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1 | <0.5 | <0.5 |
| Benzo(a) pyrene TEQ (LOR) | mg/kg | 0.5 | | | 40 | | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | _ | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.9 | 1.2 | 1.2 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | 4,000 | | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 9.3 | <0.5 | <0.5 |
| PCBs | | | | | | | | | | | | | | _ | | | | | | | | | | | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | 7 | | | | <0.5 | <0.5 | | <0.5 | <0.5 | | <0.5 | | <0.5 | < 0.5 | 1 | <0.5 | <0.5 | | <0.5 | <0.5 | |



| | | | | | | | | | Field ID TP08 0.1-0 | в ТРО9 | 9 0.1-0.3 | TP10 0.1-0.3 | TP11 0.1-0.3 | TP41 0.1-0.3 | TP42 0.1-0.3 | TP43 0.1-0.3 | TP44 0.1-0.3 |
|--------------------------------|-------|------|---|---|---|--|--|--------------------|---------------------|--------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | | | Date 18/02/202 | 18/0 | 02/2020 | 18/02/2020 | 18/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 |
| | Unit | EQL | NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | NEPM 2013 Table 1A(1) HILs Res A Soil | EPA 2000 Table 3-5 Microbiological Standards | Site Specific EILs | | | | | | | | | |
| ВТЕХ | | | | | | | | | | | | | | | | | |
| Benzene | mg/kg | 0.1 | | 0.5 | 50 | 100 | | | <0. | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Toluene | mg/kg | 0.1 | | 160 | 85 | 14000 | | | <0. | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Ethylbenzene | mg/kg | 0.1 | | 55 | 70 | 4500 | | | <0. | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene (m & p) | mg/kg | 0.2 | | | | | | | <0. | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene (o) | mg/kg | 0.1 | | | | | | | <0. | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene Total | mg/kg | 0.3 | | 40 | 105 | 12000 | | | <0. | | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| TRH | | | | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 45 | 180 | 4400 | | | <2 | | <20 | <20 | <20 | <20 | <20 | <20 | <20 |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | 110 | 120 | 3300 | | | <50 | | <50 | <50 | <50 | 84 | <50 | 89 | <50 |
| C16-C34 | mg/kg | 100 | 2,500 | | 300 | 4500 | | | 16 | | <100 | 290 | 340 | 2,300 | <100 | 1,300 | <100 |
| C34-C40 | mg/kg | 100 | 10,000 | | 2,800 | 6300 | | | <10 |) | <100 | 120 | <100 | 890 | <100 | 540 | <100 |
| Biological | | | | | | | | | | | | | | | | | |
| E. Coli | MPN/G | 1 | | | | | 100 | | 10 | | 210 | 450 | 10 | | <10 | 86 | 31 |
| Thermotolerant Coliforms | MPN/G | 1 | | | | | 1000 | | 10 | | 360 | 470 | 63 | | 10,000 | 2,500 | 630 |
| Metals | | | | | | | | | | | | | | | | | |
| Arsenic | mg/kg | 2 | | | | 100 | | 100 | 28 | | 9.9 | 9.5 | 27 | 9.7 | 16 | 8 | 14 |
| Cadmium | mg/kg | 0.4 | | | | 20 | | | <0. | | <0.4 | <0.4 | <0.4 | 0.5 | <0.4 | 0.6 | <0.4 |
| Chromium (III+VI) | mg/kg | 5 | | | | | | 350 | 6.9 | | 9.6 | 5.5 | 14 | 28 | 34 | 36 | 33 |
| Copper | mg/kg | 5 | | | | 6,000 | | 300 | 15 | | 6.9 | 22 | 37 | 53 | 15 | 77 | 14 |
| Lead | mg/kg | 5 | | | | 300 | | 1,100 | 20 | | 18 | 23 | 29 | 12 | 14 | 17 | 21 |
| Mercury | mg/kg | 0.1 | | | | 40 | | | <0. | , | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nickel | mg/kg | 5 | | | | 400 | | 50 | <5 | | <5 | <5 | 7.8 | 16 | 6.7 | 19 | 8.1 |
| Zinc | mg/kg | 5 | | | | 7,400 | | 250 | 54 | | 22 | 78 | 180 | 260 | 22 | 310 | 21 |
| Organochlorine Pesticides | | | | | | | | | | | | | | | | | |
| Total OCP | mg/kg | 2.45 | | | | | | | <2. | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | | | | | | | | | |
| Benzo(a) pyrene | mg/kg | 0.5 | | | 0.7 | | | | <0. | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a) pyrene TEQ (LOR) | mg/kg | 0.5 | | | | 3 | | | 1.2 | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | | 300 | | | <0. | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| PCBs | | | | | | | | | | | | | | | | | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | | 1 | | | | | | | | | | | |



Construction Sciences

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| corner of Dossie and Stoane St, Godibul | | | | | | | Field ID | TP62 0.1-0.3 | TP63 0.1-0.3 | TP64 0.1-0.3 | TP65 0.1-0.3 | TP66 0.1-0.3 | TP67 0.1-0.3 |
|---|-------|------|--|---|--|---|----------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | Date | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 |
| | Unit | | NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil | NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | EPA 2000 Table 3-5 Microbiological Standards | | | | | | | |
| BTEX | | | | | | | | | | | | | |
| Benzene | mg/kg | 0.1 | | 3 | 430 | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Toluene | mg/kg | 0.1 | | | 99000 | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Ethylbenzene | mg/kg | 0.1 | | | 27000 | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene (m & p) | mg/kg | 0.2 | | | | | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene (o) | mg/kg | 0.1 | | | | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Xylene Total | mg/kg | 0.3 | | 230 | 81000 | | | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| TRH | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | mg/kg | 20 | | 260 | 26000 | | | <20 | <20 | <20 | <20 | <20 | <20 |
| C10-C16 (F2 minus Naphthalene) | mg/kg | 50 | | | 20000 | | | <50 | <50 | <50 | 51 | <50 | <50 |
| C16-C34 | mg/kg | 100 | 3,500 | | 27000 | | | <100 | <100 | <100 | 230 | <100 | <100 |
| C34-C40 | mg/kg | 100 | 10,000 | | 38000 | | | <100 | <100 | <100 | <100 | <100 | <100 |
| Biological | | | | | | | | | | | | | |
| E. Coli | MPN/G | 1 | | | | 100 | | <10 | <10 | <10 | 10 | <10 | 24,000 |
| Thermotolerant Coliforms | MPN/G | 1 | | | | 1000 | | 150 | 330 | 41 | 63 | 1,300 | >24,000 |
| Metals | | | | | | | - | | | | | | |
| Arsenic | mg/kg | 2 | | | 3,000 | | | 5.9 | 6.5 | 6.8 | 21 | 7.1 | 12 |
| Cadmium | mg/kg | 0.4 | | | 900 | | | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 |
| Chromium (III+VI) | mg/kg | 5 | | | | | | 12 | 19 | 31 | 80 | 36 | 44 |
| Copper | mg/kg | 5 | | | 240,000 | | | 54 | 68 | 27 | 30 | 18 | 36 |
| Lead | mg/kg | 5 | | | 1,500 | | | 13 | 16 | 17 | 26 | 17 | 24 |
| Mercury | mg/kg | 0.1 | | | 730 | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nickel | mg/kg | 5 | | | 6,000 | | | 6.5 | 9.7 | 11 | 19 | 9.7 | 14 |
| Zinc | mg/kg | 5 | | | 400,000 | | | 81 | 100 | 30 | 29 | 22 | 27 |
| Organochlorine Pesticides | | | | | | | | | | | | | |
| Total OCP | mg/kg | 2.45 | | | | | | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| РАН | | | | | | | | | | | | | |
| Benzo(a) pyrene | mg/kg | 0.5 | | | | | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a) pyrene TEQ (LOR) | mg/kg | 0.5 | | | 40 | | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| PAHs (Sum of total) | mg/kg | 0.5 | | | 4,000 | | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| PCBs | | | | | | | | | | | | | |
| PCBs (Sum of total) | mg/kg | 0.5 | | | 7 | | | | | | | | |



| Corner of Dossie and Sloane St, Goulb | | | | | | rialdup. | 01001 | SW01 | SW02 | SW03 | SW04 | SW05 | SW06 | SW07 |
|---------------------------------------|--------------|--------|--------------------------|-------------------------------------|----------------------------|----------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | Field ID | | | | | | | | |
| <u>[</u> | - I I | 1 | l | | | Date | 20/02/2020 | 20/02/2020 | 20/02/2020 | 20/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 | 21/02/2020 |
| | | | ANZECC 2000 Recreational | ANZECC 2000 FW 95% Adopted Criteria | ANZECC 2000 FW 95% Adopted | | | | | | | | | |
| | Unit | EQL | Secondary Contact | (Dam Water) | Criteria (Creek Water) | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | |
| Benzene | μg/L | 1 | | 950 | 950 | | | <4 | <1 | <1 | <1 | <1 | <1 | <1 |
| Toluene | μg/L | 1 | | | | | | <4 | <1 | <1 | <1 | <1 | <1 | <1 |
| Ethylbenzene | μg/L | 1 | | | | | | 6 | <1 | <1 | <1 | <1 | <1 | <1 |
| Xylene (m & p) | μg/L | 2 | | | | | | 20 | <2 | <2 | <2 | <2 | <2 | <2 |
| Xylene (o) | μg/L | 1 | | 350 | 350 | | | 4 | <1 | <1 | <1 | <1 | <1 | <1 |
| Xylene Total | μg/L | 3 | | | | | | 25 | <3 | <3 | <3 | <3 | <3 | <3 |
| TRH | | | | | | | | | | | | | | |
| C6-C10 (F1 minus BTEX) | μg/L | 20 | | | | | | <80 | <20 | <20 | <20 | <20 | <20 | <20 |
| C10-C16 (F2 minus Naphthalene) | μg/L | 50 | | | | | | 1,100 | <50 | <50 | <50 | <50 | <50 | <50 |
| C16-C34 | μg/L | 100 | | | | | | 2,800 | <100 | <100 | <100 | <100 | <100 | <100 |
| C34-C40 | μg/L | 100 | | | | | | 500 | <100 | <100 | <100 | <100 | <100 | <100 |
| Biological | | | | | | 1 | | | | | | | | |
| E. Coli | cfu/100 ml | 1 | 250 | | | | | 160 | <10 | <10 | 41 | 31 | 10 | 20 |
| Thermotolerant Coliforms | cfu/100 mL | 1 | 1,000 | | | | | 580 | 51 | <10 | 120 | 400 | 150 | 110 |
| Inorganics | | | | | | 1 | | | | | | | | |
| Ammonia as N | mg/L | 0.01 | | 0.9 | 0.9 | | | 11 | 14 | 0.16 | 0.02 | 0.11 | 0.16 | 0.12 |
| Nitrate (as N) | mg/L | 0.02 | | 0.7 | 0.7 | | | <0.5 | <0.5 | < 0.02 | 0.03 | < 0.02 | < 0.02 | <0.02 |
| pH (Lab) | - | 0.1 | | | | | | 9 | 8.4 | 8.1 | 7.7 | 7.1 | 7.8 | 7.8 |
| Phosphate total (P) | mg/L | 0.01 | | | | | | 12 | 8 | 2 | 0.08 | 0.06 | 0.11 | 0.1 |
| Hardness as CaCO3 | mg/L | 5 | | | | | 135 | 870 | 480 | 220 | 130 | 130 | 140 | 140 |
| Metals | | | | | | 1 | | | | | | | | |
| Arsenic (filtered) | mg/L | 0.001 | | 0.024 | 0.024 | | 0.018 | 0.13 | 0.018 | 0.014 | < 0.001 | < 0.001 | 0.002 | 0.002 |
| Cadmium (filtered) | mg/L | 0.0002 | | 0.002 | 0.0008 | | < 0.0002 | < 0.002 | < 0.0002 | <0.0002 | < 0.0002 | <0.0002 | < 0.0002 | <0.0002 |
| Chromium (III+VI) (filtered) | mg/L | 0.001 | | 0.0084 | 0.0037 | | < 0.001 | <0.01 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Copper (filtered) | mg/L | 0.001 | | 0.0126 | 0.0055 | | 0.011 | 0.016 | 0.015 | 0.026 | 0.021 | 0.014 | 0.026 | 0.015 |
| Lead (filtered) | mg/L | 0.001 | | 0.0908 | 0.0258 | | < 0.001 | <0.01 | < 0.001 | <0.001 | 0.002 | 0.002 | 0.002 | <0.001 |
| Mercury (filtered) | mg/L | 0.0001 | | 0.0006 | 0.0006 | | < 0.0001 | < 0.001 | < 0.0001 | <0.0001 | < 0.0001 | <0.0001 | < 0.0001 | < 0.0001 |
| Nickel (filtered) | mg/L | 0.001 | | 0.099 | 0.0429 | | 0.016 | 0.067 | 0.017 | 0.007 | 0.006 | 0.005 | 0.015 | 0.005 |
| Zinc (filtered) | mg/L | 0.005 | | 0.072 | 0.0312 | | 0.018 | 0.083 | 0.027 | 0.046 | 0.11 | 0.15 | 0.13 | 0.065 |



Construction Sciences

Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW

APPENDIX



SITE CONTOUR PLAN



Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW

APPENDIX B STAGE 2 DSI LOGS

| | | | ces | | | | | | | | E | | HOLE LOG SHEET |
|--|--|--|---|--|------------------------------------|-------------------|--------------------------|----------------|----------------------------|---|---|------------------------------------|---|
| Clier Proje Loca | ect: | 0 | Detai | led Site lı | varee Con nvestigat St and S | ion | St | | | Job No: 5046200019 | | ł | Hole No: SS01 Sheet: 1 of 1 |
| Posi | | | | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Rig 1 | Гуре | : Ha | nd T | ools | | | | | | | | Driller | : Construction Sciences |
| Bore | | | | | | | | | | | | Contra | |
| Data | | | 17/2 | | | i | olete | d: 17/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| | Drilling | | | Sampl | ing & Testir | ng | ~ | | | Material Descrip | otion | 1 | |
| Method | Resistance | Casing | Water | | ample or ield Test | | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristi colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | c, Moisture | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | ned | B 0.00 - 0.1 ES 0.00 - 0 | | | | 000 | | Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics | | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| HAND TOOLS | | | Groundwater Not Observed | | | | | | ML | 0.10m | D to M | | |
| - | | | | | | | | | | TERMINATED AT 0.10 m Target depth | | | |
| | | | | | | | | | | | | | |
| MET EX R HA PT SON AH PS AD/A HFA WB RR | Rip Har Pus Air Sor Sho V Sol T Sol Ma | per nd aug sh tub nic dril hamm cussic ort spir id fligh id fligh low fli | e ling er on sam ral aug nt auge nt auge ght aug ght aug e drillir | pler er er: V-Bit er: TC-Bit ger | s s | <u>_</u> ₹ N | Refusa evel on low | | S H D P N P | IP - Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer U SP Perth Sand Penetrometer U IC Moistre Content MOIS' BT Plate Bearing Test D IP Borehole Impression Test M ID Phito Ionization Detector W S Vane Shear; P=Peak, L | Bulk disturb Disturbed sa Environmen Thin wall tul TURE Dry | ample tal sampl be 'undis | le F - Firm |
| | | | | or details of | | | | | | | | | |
| Refer | r to expl eviations | anatory s and ba | notes f asis of d | or details of escriptions | | | | CC | NS | STRUCTION SCIENCES | | | |

| | | nces | | | | | | | | | HOLE LOG SHEET |
|---|---|--|--|---|-----------|----------------|----------------------------|---|--|---|---|
| Client Proje Locat | ct: | Detai | led Site I | waree Cour nvestigatio e St and Slo | on | | | Job No: 5046200019 | | ł | Hole No: SS02 Sheet: 1 of 1 |
| Positi | | | | | | | | Angle from Horizontal: 90° | 1 | Surfac | e Elevation: |
| Rig T | ype: I | Hand T | ools | | | | | | | Driller | : Construction Sciences |
| | | iamete | | | | | | | | Contra | |
| | | d: 17/2 | | | Complete | d: 17/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| Dr | illing | _ | Samp | ling & Testing | | | 1 | Material Desc | ription | | |
| Method | Casing | Water | | ample or ield Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteris colour, secondary and minor component ROCK TYPE, grain size and type, colour fabric & texture, strength, weathering, defects and structure | ts Pig | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | ved | B 0.00 - 0.1 ES 0.00 - 0 | | | 0 0 0 0 0 | | Gravelly SILT: low plasticity, dark brown, fine medium grained gravel, with organics | to | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| HAND TOOLS | | Groundwater Not Observed | | | | | ML | 0.10m | D to M | 1 | |
| | | | | | | | | TERMINATED AT 0.10 m Target depth | | | |
| | | | | | | | | | | | |
| METH EX HA PT SON AH PS AD/V AD/T HFA WB RR | Excava Ripper Hand a Push t Sonic o Air har Percus Short s Solid fl Solid fl | auger ube drilling nmer ssion sam spiral aug light aug flight aug ore drilli | npler jer er: V-Bit er: TC-Bit ger | WATER Washo | | I | S H D P N P | PT - Standard Penetration Test B P - Hand/Pocket Penetrometer D CP - Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U IC - Moisure Content MO BT - Plate Bearing Test D IP - Borehole Impression Test M | MPLES - Bulk distur Disturbed - Environme - Thin wall t ISTURE - Dry - Moist - Wet - Plastic limi - Liquid limit - Moisture c | sample ntal sampl ube 'undis t | le F - Firm |
| Refer t abbrev | to explanat viations and | tory notes f d basis of c | or details of lescriptions | 1 | | СС | NS | TRUCTION SCIENCES | | | |

| | Scier | | | | | | | | | HOLE LOG SHEET |
|---|--|--|---|----------------------------------|----------------|----------------------------|--|-------------------------------------|------------------------------------|---|
| Client Projec Locati | ct: | Detail | urn Mulwaree Counci ed Site Investigation r Dossie St and Sloar | | | | Job No: 5046200019 | | ŀ | Hole No: SS03 Sheet: 1 of 1 |
| Positi | on: | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Rig Ty | /pe: Ha | and To | ools | | | | | l | Driller | : Construction Sciences |
| | ole Dia | | | | | | | | Contra | |
| | Started | : 17/2/ | | nplete | d: 17/2 | 2/20 | Logged By: SI | | Checke | ed By: AN |
| Dril | lling | 4 | Sampling & Testing | | | 1 | Material Description | | 1 | |
| Method | Kesistance Casing | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | B 0.00 - 0.10 m ES 0.00 - 0.10 m | | 0 0 0 0 0 | | Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics | | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| HAND TOOLS | | Groundwater Not Observed | | | | ML | 0.10m | D to M | | |
| - | | | | | | | TERMINATED AT 0.10 m Target depth | | | |
| | | | | | | | | | | |
| METH EX R HA PT SON AH PS AD/V AD/T HFA WB RR | IOD Excavato Ripper Hand au Push tut Sonic dr Air hamr Percussi Short sp Solid flig Solid flig Hollow fl Washbo Rock roll | iger be illing ner ion samp iral auge ht auge ht auge ight auge re drilling | bler fr V-Bit tr TC-Bit er water | – No Res – Refusa Level on | | S H D P N P | IP Hand/Pocket Penetrometer D Display ICP Dynamic Cone Penetrometer U Th ISP Perth Sand Penetrometer U Th IC Moisture Content MOISTURE IBT Plate Bearing Test D D IP Borehole Impression Test M Mu ID Phito Ionization Detector W W IS Vane Shear; P=Peak, LL LL | in wall tul : y pist et | ample tal sampl be 'undist | le F - Firm |
| Refer to abbrevia | o explanator ations and b | y notes fo basis of de | r details of scriptions | | CO | NS | STRUCTION SCIENCES | | | |

| Ę | | ons cien | | tion | | | | | | | | В | ORE | EHOLE | E LOG | SHEET |
|---|--|--|---|--|--------------------------|-----------|------------|----------------|----------------------------|---|---|---|------------------------------------|-----------------------------------|--|--|
| Clie Proi | | (| Goul | burn Mul | waree Cou Investigati | | | | | | | | ŀ | lole | No: | SS04 |
| Loc | atior | n: (| Corn | er Dossi | e St and S | oane St | | | | Job No: 5046200019 | | | | | | eet: 1 of 1 |
| | ition Type | | nd T | ools | | | | | | Angle from Horizonta | l: 90° | | | e Elevati | ion: uction Sc | ioncos |
| | ehole | | | | | | | | | | | | Contra | | | iences |
| | a Sta | | 17/2 | | | Comple | tec | d: 17/ | 2/20 | Logged By: SI | | (| Check | ed By: A | N | |
| | Drilling | 9 | | Sam | oling & Testin | - | ' | | - | Materi | al Description | | | | | |
| Method | Resistance | Casing | Water | 1 | Sample or Field Test | Denth (m) | | Graphic Log | Classification | SOIL TYPE, plasticity or particle ch colour, secondary and minor cor ROCK TYPE, grain size and typ fabric & texture, strength, weal defects and structure | nponents e, colour, | Moisture Condition | Consistency Relative Density | & | STRUCTU Other Obser | JRE rvations |
| HAND TOOLS | | | Groundwater Not Observed | B 0.00 - 0. ES 0.00 - | | | | | ML | Gravelly SILT: low plasticity, dark br medium grained gravel, with organic: | own, fine to s | D to M | | TOPSOIL 0.00 m: No observed | staining, odo | ur or PACM |
| | | | | | | | | | | 0.10m | | | | | | |
| | | | | | | | | | | TERMINATED AT 0.10 m Target depth | | | | | | |
| ME EX R HA PT SC AH PS AD HF WE RR | Rip Pu N So Air Pe Sh /V So /T So A Ho 3 Wa | cavato pper and aug ish tub onic dri hamm ercussio ort spi olid flig | ger e lling her on san ral aug nt aug ght au ght au | ipler jer er: V-Bit er: TC-Bit ger | si w | H N | usal on | | S ⊢ □ ₽ ₽ ₽ | ELD TESTS PT - Standard Penetration Test P - Hand/Pocket Penetrometer CP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer C - Moisture Content BT - Plate Bearing Test IP - Borehole Impression Test ID - Phito Ionization Detector S - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) | D - Dist ES - Env U - Thir MOISTURE D - Dry M - Moi W - Wei PL - Plas LL - Liqu | turbed sa rironment n wall tub st st t | tal sampl | le | S - S F - F St - S VSt - V H - H RELATIVE VL - V L - L MD - D | /ery Soft ioft irm tiff /ery Stiff lard |
| Ref | er to exp | planator | / notes f | or details of escriptions | | | | CC |)NS | TRUCTION SCIENC | ES | | | | | , |
| aub | - c viatiOľ | പവവ | ມລາວ ປາ (| comptions | | | | | | | | | | | | |

| Ę | | | truc | tion | | | | | | | | | B | OR | EHOL | ELO | g she | EET |
|--|--|--|---|--|-------------------------|-------------|-----------|----------------|-----------------------|----------------------------|--|--|-----------------------|------------------------------------|----------------------------------|---|--|-----------------------|
| Clie Proi | | (| Goul | burn Mul | waree C Investiga | | | | | | | | | ł | lole | No: | SS | 05 |
| Loc | atior | n: (| Corn | er Dossi | e St and | Sloane | e St | | | | Job No: 5046200019 | | | | | | heet: 1 | of 1 |
| | ition Type | | Ind T | ools | | | | | | | Angle from Horizonta | 1: 90° | | | e Eleva : Constr | tion: ruction § | Sciences | • |
| | ehole | | | | | | | | | | | | | Contra | | | | - |
| | a Sta | | 17/2 | | | e Com | plete | d: 17 | /2/2 | 0 | Logged By: SI | | (| Check | ed By: / | AN | | |
| | Drilling | | - | Samp | oling & Tes | ting | Ē | <u> </u> | Τ. | _ T | Materi | ial Description | | | 1 | | | |
| Method | Resistance | Casing | Water | S | Sample or Field Test | | Depth (m) | Graphic Log | Classification | Classification | SOIL TYPE, plasticity or particle ch colour, secondary and minor con ROCK TYPE, grain size and typ fabric & texture, strength, wea defects and structure | mponents e, colour, | Moisture Condition | Consistency Relative Density | ٤ | STRUC & Other Obs | TURE servations | |
| HAND TOOLS | | | Groundwater Not Observed | B 0.00 - 0. ES 0.00 - | | | | | 。 。 。 。 。 | IL | Gravelly SILT: low plasticity, dark br medium grained gravel, with organic | own, fine to s | D to M | | TOPSOIL 0.00 m: N observed | o staining, o | dour or PAC | CM |
| V | | | | | | | | 0 0 | 0 | 0 | .10m TERMINATED AT 0.10 m | | | | | | | |
| | | | | | | | - | | | | Target depth | | | | | | | |
| ME EX HA PT SO AH PS AD AD HF RR | Riµ Ha Pu N Sc Air Pe Sh /V Sc /T Sc A Hc 3 Wa | cavato oper ind aug ish tub nic dri hamm rcussio lid flig lid flig lid flig lid flig | ie Iling ner ral aug ht aug ht aug ight au ight au | ipler jer er: V-Bit er: TC-Bit ger | | H H H | nflow | I | 9 | SP HP DC PS MC | P Dynamic Cone Penetrometer P Perth Sand Penetrometer C Moisture Content T Plate Bearing Test P Borehole Impression Test O Phito Ionization Detector | D - Dis ES - Env U - Thin MOISTURE D - Dry M - Moi W - We PL - Pla LL - Liqu | st t stic limit | ample tal sampl be 'undis | e | VS - S - F - St - VSt - H - RELATI VL - L - MD - D - | Very Soft Soft Firm Stiff Very Stiff Hard VE DENSIT Very Loose Loose Medium D Dense Very Dens | Y e ense |
| | | | | or details of | | | | C | | S | TRUCTION SCIENC | ES | | | | | | |
| abb | reviatior | is and b | asis of o | escriptions | | | | | | 5 | | ,LO | | | | | | |

| | | | ces | | | | | | | | | | HOLE LOG SHEE |
|---|--|---|--|--|--------------------------------------|----------------|-----------------------|----------------|--------------------|---|--|------------------------------------|---|
| Clie Proj Loca | ect: | | Detai | led Site Ir | varee Cou nvestigati St and Sl | on | St | | | lak No. 504000040 | | ŀ | Hole No: SS0 |
| Posi | | | JOIN | er Dossie | St and St | ioane s | 51 | | | Job No: 5046200019 Angle from Horizontal: 90° | | Surfac | Sheet: 1 of e Elevation: |
| | | | nd T | ools | | | | | | | | | : Construction Sciences |
| - | | | mete | | | | | | | | | Contra | |
| Data | a Sta | rted | 17/2 | /20 | Date | Compl | lete | d: 17/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| | Drilling | 9 | | Sampli | ing & Testin | • | - | | | Material Description | 1 | 1 | 1 |
| Method | Resistance | Casing | Water | | ample or ield Test | | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | bed | B 0.00 - 0.1 ES 0.00 - 0. | | | | 0 0 0 0 0 | | Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics | | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| HAND TOOLS | | | Groundwater Not Observed | | | | | | ML | 0.10m | D to M | | observed |
| | | | | | | | | | | TERMINATED AT 0.10 m Target depth | | | |
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| MEX EX R HAT SOH PS ASD/ HF/ WBR R R | | | | | DENETRA | | | | | | | | |
| EX R HA PT SOI AH PS AD/ AD/ HF/ WB RR | Rip Ha Pu N So Air Pe Sh V So T So A Ho Wa | cavato oper ind aug ish tub nic dri hamm rcussio lid flig lid flig lid flig lilow fli | e lling on sam ral auge nt auge ght au ght au e drillir | ipler ler er: V-Bit er: TC-Bit ger | WATER Water sl | . T | efusa /el on ow | | SH DP P P | P Hand/Pocket Penetrometer D - CP Dynamic Cone Penetrometer U - SP Perth Sand Penetrometer U - CF Moisture Content MOISTUR BT Plate Bearing Test D - ID Borehole Impression Test M - ID Phito Ionization Detector W - Vane Shear; P=Peak, PL - PL | ulk disturb isturbed s nvironmen nin wall tu E | ample tal sampl be 'undis' | le F - Firm |
| Refe | er to exp | planator | / notes f | or details of escriptions | | | | CO | NS | TRUCTION SCIENCES | | | |

| | | | ces | | | | | | | | | | HOLE LOG SHEE |
|--|--|--|--|--|-----------------------|------|--------------------------|----------------|----------------------------|--|--|------------------------------------|---|
| Clier Proje Loca | ect: | | Detai | burn Mulv led Site li er Dossie | nvestigati | ion | St | | | Job No: 5046200019 | | ŀ | Hole No: SS07 Sheet: 1 of |
| Posi | | | | 200010 | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Rig | | | nd T | ools | | | | | | | | | : Construction Sciences |
| Bore | ehole | e Dia | mete | er: | | | | | | | | Contra | ctor: |
| Data | sta | rted: | 17/2 | /20 | Date | Comp | olete | d: 17/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| | Drilling | 1 | | Sampl | ing & Testin | ng | _ | | | Material Description | ۱ ۲ | | |
| Method | Resistance | Casing | Water | | ample or ield Test | | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | bev | B 0.00 - 0.1 ES 0.00 - 0 | | | | | , | Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel | | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| HAND TOOLS | | | Groundwater Not Observed | | | | | | ML | 0.10m | D to M | | |
| _ | | | | | | | | | | TERMINATED AT 0.10 m Target depth | | | |
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| MET EX R HA PT SOT AH PS AD/ AD/ HFA WB | Rip Ha Pu So Air Pe Sh V So T So A Ho | oper nd aug sh tub nic dril hamm rcussio ort spi lid fligl lid fligl llow fli | e lling ner on sam ral aug nt auge nt auge ght au | ipler ler er: V-Bit er: TC-Bit ger | WATER V s | L ₹ | Refusa evel on low | | S H D P M P | P Hand/Pocket Penetrometer D ES ES CP Dynamic Cone Penetrometer U T SP Perth Sand Penetrometer U T IC Moisture Content MOISTUR BT Plate Bearing Test D D ID Phito Ionization Detector W W S Vane Shear; P=Peak, L PL | ulk disturb isturbed s nvironmen hin wall tu E | ample tal sampl | le F - Firm |
| RR Refe | Ro er to exp | ck roll | / notes f | or details of | | | | 00 | NS | R=Resdual (uncorrected kPa) | loisture co | ntent | VD - Very Dense |
| ລມມໂ | - viauUN | | | | | | | | | | | | |

| Sciences | | | | | | | | HOLE LOG SHEET |
|---|--|------------------|-------------------|------------------------|--|-------------------------|------------------------------------|---|
| Client: Goulbu Project: Detaile | Irn Mulwaree Council d Site Investigation | | | | | | ŀ | Hole No: SS08 |
| Location: Corner | Dossie St and Sloane | St | | | Job No: 5046200019 | | | Sheet: 1 of / |
| Position: | | | | | Angle from Horizontal: 90° | | | e Elevation: |
| Rig Type: Hand To Borehole Diameter: | | | | | | | Driller: Contra | Construction Sciences |
| Data Started: 17/2/2 | | leted: | 17/2 | /20 | Logged By: SI | | | ed By: AN |
| Drilling | Sampling & Testing | | | | Material Description | | | • |
| Method Resistance Casing Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | 3 0.00 - 0.10 m :S 0.00 - 0.10 m | 0 0 0 0 | | ML | Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics | D to M | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| | | 0 0 | 0 0 0 0 0 0 | | 0.10m TERMINATED AT 0.10 m Target depth | | | |
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| METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampl AS Short spiral auger AD/V Solid flight auger: AD/T Solid flight auger: HFA Hollow flight auge WB Washbore drilling RR Rock roller | er WATER V-Bit TC-Bit r | evel on D low | | SI H D P M | P Hand/Pocket Penetrometer D D CP Dynamic Cone Penetrometer U S SP Perth Sand Penetrometer U Thi C Moisture Content MOISTURE 3T Plate Bearing Test D D IP Borehole Impression Test M Moisture D Phito Ionization Detector W We S Vane Shear; P=Peak, L L | in wall tut / ist | ample tal sampl be 'undist | e S - Soft F - Firm |

| | | | ces | | | | | | | | | | EHOLE LOG SHEE |
|--|--|---|---|--|-------------------------------------|-------------|--------------------------|----------------|-----------------------|---|---|------------------------------------|--|
| | nt: ect: atior | [| Detai | led Site I | waree Co nvestigat e St and S | ion | St | | | Job No: 5046200019 | | ł | Hole No: SSO Sheet: 1 of |
| Pos | ition | : | | | | | | | | Angle from Horizontal: 90° | ; | Surfac | e Elevation: |
| Rig | Туре | e: Ha | nd T | ools | | | | | | | | Driller | : Construction Sciences |
| | | | mete | | | | | | | | | Contra | |
| | | | 17/2 | | | Comp | blete | d: 17/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| | Drilling | 9 | | Samp | ling & Testir | ng | | | - | Material Descrip | tion | | 1 |
| Method | Resistance | Casing | Water | | ample or ield Test | | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | ved | B 0.00 - 0.1 ES 0.00 - 0 | | | | 0 0 0 0 0 | , | Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics | | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| HAND TOOLS | | | Groundwater Not Observed | | | | | | ML | 0.10m | D to M | | |
| | | | | | | | | | | TERMINATED AT 0.10 m Target depth | | | |
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| ME EX R HA PT SO AH SO AD AD HF. WE | Riµ Ha Pu N So Air Pe Sh V So V So A Ho | cavato pper and aug ish tub pnic dril hammercussion fort spi plid flig plid flig plid flig | e lling ner on sam ral aug nt auge nt auge ght aug | pler er er: V-Bit er: TC-Bit ger | | ± ₹ 1 | Refusa evel on low | | S F P M P | IP - Hand/Pocket Penetrometer D CP - Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U IC - Moisture Content MOIST BT - Plate Bearing Test D ID - Phito Ionization Detector W S - Vane Shear; P=Peak, IL | Bulk disturb Disturbed sa Environmen Thin wall tul 'URE Dry | ample tal sampl | le S - Soft turbed' St - Stiff VSt - Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense |
| RR | Ro | ock roll | | - | | | alow | | | R=Resdual (uncorrected kPa) W - | | ntent | D - Dense VD - Very Dense |
| abb | reviation | ns and bi | asis of d | or details of escriptions | | | | CC | NNS | STRUCTION SCIENCES | | | |

| Project: De Location: De Position: Rig Type: Han Borehole Diam Data Started: 1 Drilling De Dur Borehole Diam Data Started: 1 | meter: 18/2/20 Sampli Sampli Sampli Sampli B.0.00 - 0.1 | nvestigation | e St | | 2/20 | Job No: 5046200019 Angle from Horizontal: 90° Logged By: SI | (| Surface Driller: Contra | Hole No: SS10 Sheet: 1 of 1 e Elevation: Construction Sciences ctor: |
|--|--|---------------|--|----------------|----------------------------------|--|-----------------------|------------------------------------|--|
| Position: Rig Type: Han Borehole Diam Data Started: 1 Drilling Uasilia Drilling | nd Tools meter: 18/2/20 Sampli be Fi B 0.00 - 0.1 | Date Con | npleted | | 2/20 | Angle from Horizontal: 90° | (| Driller: Contra | e Elevation: Construction Sciences |
| Rig Type: Han Borehole Diam Data Started: 1 Drilling Casilid Kessistance Started: Started: Versitid Started: Versitid Started: Hand Started: Versitid Started: | meter: 18/2/20 Sampli Sampli Sampli Sampli B.0.00 - 0.1 | ing & Testing | | | 2/20 | - | (| Driller: Contra | Construction Sciences |
| Borehole Diam Data Started: 1 Drilling Westived Sesion Coasing Second Second Coasing C | meter: 18/2/20 Sampli Sampli Sampli Sampli B.0.00 - 0.1 | ing & Testing | | | 2/20 | Logged By: SI | (| Contra | |
| Method Resistance Casing | Sampli Se Se Fi B 0.000 - 0.1 | ing & Testing | | | 2/20 | Logged By: SI | (| | |
| Method Resistance Casing | Sa S | ample or | spth (m) | | | | | Checke | ed By: AN |
| A | B 0.00 - 0.1 | | epth (m) | | | Material Description | | | |
| TOOLS | | | Ď | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| HAND | PES 0.000 - 0. | | | | ML | Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organics | D to M | | TOPSOIL 0.00 m: PID=1.0 No staining, odour or PACM observed |
| | | | - | | | 0.10m TERMINATED AT 0.10 m Target depth | | | |
| | ger e ling er sampler ral auger ta auger: V-Bit tt auger: TC-Bit ght auger e drilling | PENETRATION | - No Res - Refusal Level on nflow | Date | SI H D P I N P | $\begin{array}{rcl} P & - & Hand/Pocket Penetrometer \\ CP & - & Dynamic Cone Penetrometer \\ SP & - & Perth Sand Penetrometer \\ C & - & Moisture Content \\ BT & - & Plate Bearing Test \\ IP & - & Borehole Impression Test \\ ID & - & Phito Ionization Detector \\ S & - & Vane Shear, P=Peak, \\ P = Peadulal (uncorrected UPc) \\ P = Pactignal (uncorrected UPc) \\ \end{array}$ | E y pist | ample tal sample be 'undist | e S - Soft F - Firm |

| | Sc | | | | | | | | | | | | HOLE LOG SHEET |
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| Clier Proje Loca | | | Detai | led Site I | varee Cou nvestigati St and S | ion | St | | | Job No: 5046200019 | | ł | Hole No: SS11 Sheet: 1 of 1 |
| Posi | ition: | | | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| - | Туре | | | | | | | | | | | Driller | : Construction Sciences |
| | ehole | - | | | | | | | | | | Contra | |
| | a Sta | | 18/2 | | | i | blete | d: 18/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| | Drilling | | | Sampi | ing & Testin | ng | | | | Material Descri | ption | | |
| Method | Resistance | Casing | Water | | ample or ield Test | | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristi colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | bserved | B 0.00 - 0.1 ES 0.00 - 0 | | | | | | Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organi | | | TOPSOIL 0.00 m: PID=2.9 No staining, odour or PACM observed |
| HAND TOOLS | | | Groundwater Not Observed | | | | | | ML | | D to M | | |
| | | | | | | | | 0 0 | | 0.10m TERMINATED AT 0.10 m | | | |
| | | | | | | | | | | Target depth | | | |
| MET EX R HA PT OF AF AD/ HFA WB R | Rip Hai Pu: N Soi Air Pei Shi Soi T Soi T Soi A Hoi Wa | per nd aug sh tub nic dril hamm cussic ort spir id fligh id fligh low fli | e ling er on sam ral aug nt auge nt auge ght aug ght aug e drillir | pler er er: V-Bit er: TC-Bit ger | s s | | Refusa evel on low | | S H D P N P | IP - Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer U SP Perth Sand Penetrometer U IC Moisture Content MOIS BT Plate Bearing Test D IP Borehole Impression Test M ID Phito Ionization Detector W S Vane Shear; P=Peak, L | Bulk disturb Disturbed si Environmen Thin wall tu | ample tal sampl be 'undis | Ie F - Firm |
| Refe abbr | er to exp reviations | lanatory s and ba | notes f asis of d | or details of escriptions | | | | CC | NS | STRUCTION SCIENCES | | | |

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|--------------------------------|---|---|-----------|----------------|----------------------------|--|-----------------------|------------------------------------|--|
| Project: D | etailed Site I | waree Council nvestigation St and Sloan | | | | Joh No. 504000040 | | ŀ | Hole No: SS12 |
| Position: C | USSIE | Stanu Siuan | 8 31 | | | Job No: 5046200019 Angle from Horizontal: 90° | | Surface | Sheet: 1 of relevation: |
| Rig Type: Har | nd Tools | | | | | Angle Irolli Horizontal. 50 | | | Construction Sciences |
| Borehole Diar | | | | | | | | Contra | |
| Data Started: | 18/2/20 | Date Con | nplete | d: 18/2 | 2/20 | Logged By: SI | | Checke | ed By: AN |
| Drilling | Samp | ling & Testing | | | | Material Description | | | |
| Method Resistance Casing | | ample or ïeld Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| HAND TOOLS | B 0.00 - 0.0 ES 0.00 - 0 Opserved | | | | ML | Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organics | D to M | | TOPSOIL 0.00 m: PID=2.1 No staining, odour or PACM observed |
| | | | - | | | 0.10m TERMINATED AT 0.10 m Target depth | | | |
| | er ing er n sampler al auger t auger: V-Bit t auger: TC-Bit ht auger ofilling | PENETRATION → w | nflow | I | S H D M P M | P Hand/Pocket Penetrometer D Display CP Dynamic Cone Penetrometer U Th SP Perth Sand Penetrometer U Th CF Moisture Content MOISTURE BT Plate Bearing Test D Dr ID Phito Ionization Detector M Mc VB Vane Shear; P=Peak, PL Plate | y pist | ample tal sampl be 'undist | e S - Soft F - Firm |

| Sc | | | | | | | | | | HOLE LOG SHEE |
|--|---|--|---|--|----------------|-------------------------|--|-----------------------|------------------------------------|--|
| Client: Project: Location: | Deta | iled Site Ir | varee Cound vestigation St and Sloa | 1 | | | Job No: 5046200019 | | ŀ | Hole No: SS13 Sheet: 1 of |
| Position: | | | | - | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| Rig Type: | Hand 1 | Tools | | | | | | | | : Construction Sciences |
| Borehole | | | | | | | | | Contra | |
| Data Star | ted: 18/2 | 1 | Date Co | omplete | d: 18/2 | 2/20 | Logged By: SI | | Checke | ed By: AN |
| Drilling | | Sampli | ng & Testing | | ļ | | Material Description | 1 | 1 | |
| Method Resistance | Casing Water | | ample or eld Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | lot Observed | B 0.00 - 0.10 ES 0.00 - 0. | | | | | Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organics | | | TOPSOIL 0.00 m: PID=1.4 No staining, odour or PACM observed |
| HAND TOOLS | Groundwater Not Observed | | | | | ML | | D to M | | |
| * | | | | | 0 0 | | 0.10m TERMINATED AT 0.10 m | | | |
| | | | | - | | | Target depth | | | |
| R Ripp HA Han PT Pus SON Son AH Air h PS Perc AS Sho AD/V Solic AD/T Solic HFA Holl WB Was | d auger h tube ic drilling aammer cussion sar rt spiral aug d flight aug d flight aug d flight aug shbore drilli k roller | npler ger er: V-Bit er: TC-Bit iger ing | WATER Wate show wate | ── No Res ा── Refusa er Level on | l Date | SH □P ₽ ₽ V | P Hand/Pocket Penetrometer D Display CP Dynamic Cone Penetrometer ES En SP Perth Sand Penetrometer U Thi C Moisture Content MOISTURE BT Plate Bearing Test D Dry IP Borehole Impression Test M Mo ID Phito Ionization Detector W We S Vane Shear; P=Peak, LL Lit | / ist | ample tal sampl be 'undist | le F - Firm |

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| Clie Proj | | 1 | Detai | led Site I | waree Cou nvestigation St and Slo | on | St | | | | Job No: 5046200040 | | ł | Hole No: SS14 |
| | ition | | 50110 | DOSSIG | | | 51 | | | | Job No: 5046200019 Angle from Horizontal: 90° | | Surfac | Sheet: 1 of e Elevation: |
| | | i. e: Ha | nd T | ools | | | | | | | Angle Iron Honzontal. 30 | | | Construction Sciences |
| | | e Dia | | | | | | | | | | | Contra | |
| Data | a Sta | arted | 18/2 | /20 | Date (| Compl | leteo | d: 1 | 8/2 | /20 | Logged By: SI | | Check | ed By: AN |
| | Drillin | g | | Sampl | ing & Testing | J | | | | | Material Description | ۱ | | 1 |
| Method | Resistance | Casing | Water | | ample or ield Test | | Depth (m) | Graphic | Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | erved | B 0.00 - 0.1 ES 0.00 - 0 | | | | | | | SILT: low plasticity, dark brown, with organics | | | TOPSOIL 0.00 m: PID=2.0 No staining, odour or PACM observed |
| | | | Groundwater Not Observed | | | | | | | ML | | D to M | | |
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| ME EX HA PT SO AH SO AD AD HF | Ri Ha Pu N So Aiu Pe Sh V So V So A Ho | cavato pper and augush tub onic dri r hamm ercussio nort spi olid flig olid flig oliow fli | ger lling ner on sam ral aug ht auge ht auge | ipler ler er: V-Bit er: TC-Bit ger | WATER W sh wa | × ≻ | vel on | | | S H P N N | P Hand/Pocket Penetrometer D - Es - Es CP Dynamic Cone Penetrometer U - Til SP Perth Sand Penetrometer U - Til C Moisture Content MOISTUR BT Plate Bearing Test D - D IP Borehole Impression Test M M ID - Phito Ionization Detector W W Vane Shear; P=Peak, L - Li | ulk disturb isturbed si nvironmen hin wall tu E ry loist /et lastic limit quid limit | ample tal sampl be 'undis | le F - Firm |
| RR | Ro | ashbor | er | - | | | 101 | | | | R=Resdual (uncorrected KPa) w - M | loisture co | ntent | VD - Very Dense |
| Ref abb | er to ex reviatior | planatory | / notes f asis of d | or details of escriptions | | | | С | O | NS | TRUCTION SCIENCES | | | |

| ences | | | | | | | - | HOLE LOG SHEET | |
|--|---|---|---|--|--|--|--|--|--|
| Detai | led Site Investigation | on | | | Job No: 5046200040 | | ŀ | Hole No: SS15 | |
| COLLE | | Jane St | | | | | Surfac | Sheet: 1 of e Elevation: | |
| Hand T | ools | | | | Angle from honzontal. 50 | | | : Construction Sciences | |
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| d: 18/2 | /20 Date (| Completee | d: 18/2 | 2/20 | Logged By: SI | | Check | ed By: AN | |
| _ | Sampling & Testing | | | | Material Description | | | 1 | |
| Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | |
| Groundwater Not Observed | B 0.00 - 0.10 m ES 0.00 - 0.10 m | | | ML | Gravelly SILT: low plasticity, dark brown, fine to medium grained, sub-angular gravel, with organics | D to M | | TOPSOIL 0.00 m: PID=1.6 No staining, odour or PACM observed | |
| | | | 000 | | 0.10m TERMINATED AT 0.10 m Target depth | | | | |
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| auger ube drilling nmer ssion sam spiral aug light auge flight auge | pler er v:: V-Bit r: TC-Bit ger | No Res No Res Refusal ater Level on own ater inflow | I | S H D P N P | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer U - Thi SP - Perth Sand Penetrometer U - Thi CF - Moisture Content MOISTURE BT - Plate Bearing Test D - Dry MP - Borehole Impression Test M - Moi ID - Phito Ionization Detector W - We S - Vane Shear; P=Peak, PL - Place | sturbed sa vironmen in wall tul vist vist et astic limit uid limit | ample tal sampl be 'undis' | le F - Firm | |
| | Goult Detail Corner iamete d: 18/2 b b b b b c c c c c c c c c c c c c c | Goulburn Mulwaree Cou Detailed Site Investigation Corner Dossie St and Ski iameter: dand Tools iameter: d: 18/2/20 Date O Sampling & Testing P Sample or Field Test B0.00 - 0.10 m ES 0.00 - 0.10 m P B0.00 - 0.10 m P B0.00 - 0.10 m P P B0.00 - 0.10 m P < | Goulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St Hand Tools Tools Tools Tools Corner Dossie St and Sloane St Tools Tools Sample or Field Test 0 B 0.00 - 0.10 m 0 <td< td=""><td>Goulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St Immediate St and Sloane St Immediate Stampling & Testing Immediatesting <th co<="" td=""><td>Goulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St tand Tools iameter: d: 18/2/20 Date Completed: 18/2/20 Sampling & Testing up to the second second</td><td>Boulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St Job No: 5046200019 Angle from Horizontal: 90° amoter: c: 18/220 Date Completed: 18/220 Logged By: Sl Sampling & Testing Image: Sampling of Testing Material Description g: Sampling & Testing Image: Sampling of Testing Sampling of Testing g: g: g: g: g: g: Sampling of Testing Sa</td><td>Boulburn Mulwares Council Detailed Site Newslightion Corner Dossie St and Sloane St Job No: 504200019 Image: Construction of the second state of the</td><td>Boulburn Mulvaree Council Detriled Site Investigation Corner Dossie St and Stoare St Job No: 504620019 iand Tools Only No: 504620019 iand Tools Driller Corner Dossie St and Stoare St iand Tools Date Completed: 18/20 Logged By: Sl iand Tools Sampling & Testing Material Description iand Starpelor Singling & Testing Singling & Testing Sold Starpelor iand Stoare Starpelor Singling & Testing Sold Starpelor Material Description iand Stoare Starpelor Singling & Testing Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Starpelor Sold Starpelor Sold</td></th></td></td<> | Goulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St Immediate St and Sloane St Immediate Stampling & Testing Immediatesting <th co<="" td=""><td>Goulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St tand Tools iameter: d: 18/2/20 Date Completed: 18/2/20 Sampling & Testing up to the second second</td><td>Boulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St Job No: 5046200019 Angle from Horizontal: 90° amoter: c: 18/220 Date Completed: 18/220 Logged By: Sl Sampling & Testing Image: Sampling of Testing Material Description g: Sampling & Testing Image: Sampling of Testing Sampling of Testing g: g: g: g: g: g: Sampling of Testing Sa</td><td>Boulburn Mulwares Council Detailed Site Newslightion Corner Dossie St and Sloane St Job No: 504200019 Image: Construction of the second state of the</td><td>Boulburn Mulvaree Council Detriled Site Investigation Corner Dossie St and Stoare St Job No: 504620019 iand Tools Only No: 504620019 iand Tools Driller Corner Dossie St and Stoare St iand Tools Date Completed: 18/20 Logged By: Sl iand Tools Sampling & Testing Material Description iand Starpelor Singling & Testing Singling & Testing Sold Starpelor iand Stoare Starpelor Singling & Testing Sold Starpelor Material Description iand Stoare Starpelor Singling & Testing Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Starpelor Sold Starpelor Sold</td></th> | <td>Goulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St tand Tools iameter: d: 18/2/20 Date Completed: 18/2/20 Sampling & Testing up to the second second</td> <td>Boulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St Job No: 5046200019 Angle from Horizontal: 90° amoter: c: 18/220 Date Completed: 18/220 Logged By: Sl Sampling & Testing Image: Sampling of Testing Material Description g: Sampling & Testing Image: Sampling of Testing Sampling of Testing g: g: g: g: g: g: Sampling of Testing Sa</td> <td>Boulburn Mulwares Council Detailed Site Newslightion Corner Dossie St and Sloane St Job No: 504200019 Image: Construction of the second state of the</td> <td>Boulburn Mulvaree Council Detriled Site Investigation Corner Dossie St and Stoare St Job No: 504620019 iand Tools Only No: 504620019 iand Tools Driller Corner Dossie St and Stoare St iand Tools Date Completed: 18/20 Logged By: Sl iand Tools Sampling & Testing Material Description iand Starpelor Singling & Testing Singling & Testing Sold Starpelor iand Stoare Starpelor Singling & Testing Sold Starpelor Material Description iand Stoare Starpelor Singling & Testing Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Starpelor Sold Starpelor Sold</td> | Goulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St tand Tools iameter: d: 18/2/20 Date Completed: 18/2/20 Sampling & Testing up to the second | Boulburn Mulwaree Council Detailed Site Investigation Corner Dossie St and Sloane St Job No: 5046200019 Angle from Horizontal: 90° amoter: c: 18/220 Date Completed: 18/220 Logged By: Sl Sampling & Testing Image: Sampling of Testing Material Description g: Sampling & Testing Image: Sampling of Testing Sampling of Testing g: g: g: g: g: g: Sampling of Testing Sa | Boulburn Mulwares Council Detailed Site Newslightion Corner Dossie St and Sloane St Job No: 504200019 Image: Construction of the second state of the | Boulburn Mulvaree Council Detriled Site Investigation Corner Dossie St and Stoare St Job No: 504620019 iand Tools Only No: 504620019 iand Tools Driller Corner Dossie St and Stoare St iand Tools Date Completed: 18/20 Logged By: Sl iand Tools Sampling & Testing Material Description iand Starpelor Singling & Testing Singling & Testing Sold Starpelor iand Stoare Starpelor Singling & Testing Sold Starpelor Material Description iand Stoare Starpelor Singling & Testing Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Stoare Starpelor Sold Starpelor Sold Starpelor Sold Starpelor iand Starpelor Sold Starpelor Sold |

| | Sc | | | | | | | | | | | | HOLE LOG SH | |
|---|--|--|--|---------------------------------------|-----------------------|---|-----------|----------------|----------------------------|---|-----------------------|------------------------------------|--|--------------|
| Clier Proje Loca | ect: | | Detai | burn Mulv led Site li er Dossie | nvestigat | ion | St | | | Job No: 5046200040 | | ŀ | Hole No: Stoot | |
| Posi | | | 201110 | 005516 | St anu 3 | Juane | JL | | | Job No: 5046200019 Angle from Horizontal: 90° | | Surfac | Sheet: | 1 OT |
| Rig | | | nd T | ools | | | | | | | | | : Construction Science | es |
| Bore | | | | | | | | | | | | Contra | | |
| Data | stai | rted: | 18/2 | /20 | Date | Com | olete | d: 18/2 | 2/20 | Logged By: SI | | Check | ed By: AN | |
| | Drilling | | | Sampl | ing & Testir | ng | - | | | Material Description | | | 1 | |
| Method | Resistance | Casing | Water | | ample or ield Test | | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observation | s |
| HAND TOOLS | | | Groundwater Not Observed | B 0.00 - 0.1 ES 0.00 - 0 | | | | | ML | Gravelly SILT: low plasticity, dark brown, fine to medium grained, sub-angular gravel, with organics | D to M | | TOPSOIL 0.00 m: PID=1.7 No staining, odour or PACM observed | |
| • | | | | | | | _ | | | 0.10m TERMINATED AT 0.10 m Target depth | | | | |
| | | | | | | | - | | | | | | | |
| | | | | | | | - | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | - | | | | | | | |
| MET EX R HA PT SON AH PS AS | Rip Har Pus N Sor Air Per | per nd aug sh tub nic dril hamm rcussio | e ling | ıpler | WATER | ± [₹] 1 1 2 3 3 4 7 | Refusa | | S H D P N P | IP - Hand/Pocket Penetrometer D - Di CP - Dynamic Cone Penetrometer ES - Er SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr | E y | ample tal sampl | Ie S - Soft F - Firm | ft |
| AD/' AD/ HFA WB RR | V Sol T Sol A Hol Wa Roo | id fligh id fligh low fli ishbor ck rolle | nt auge nt auge ght aug e drillir er | er: V-Bit er: TC-Bit ger | | Water Le shown water inf water ou | flow | | P V | MP - Borehole Impression Test M - Mt ID - Phito Ionization Detector W - Wt S - Vane Shear; P=Peak, PL - PL R=Resdual (uncorrected kPa) - Mt - Mt | bist | ntent | VL - Very Loc L - Loose MD - Medium D - Dense VD - Very De | ose Dense |
| abbr | eviations | s and ba | asis of d | escriptions | | | | | SVIN | STRUCTION SCIENCES | | | | |

| | | | | | | | | | | EHOLE LOG SHEE |
|--|--|--|--|-----------|----------------|---------------------------------------|--|---|------------------------------------|--|
| Client: Project: Location: | Detai | led Site Inv | ree Council estigation t and Sloan | | | | Job No: 5046200019 | | ŀ | Hole No: SS1 Sheet: 1 of |
| Position: | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Rig Type: | Hand T | ools | | | | | | | Driller | : Construction Sciences |
| Borehole | | | | | | | | | Contra | |
| Data Star | ted: 19/2 | | Date Con | nplete | d: 19/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| Method Resistance | Casing Water | Sam | y & Testing nple or d Test | Depth (m) | Graphic Log | Classification | Material Descri SOIL TYPE, plasticity or particle characteristi colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | c, | Consistency Relative Density | STRUCTURE & Other Observations |
| HAND TOOLS | Groundwater Not Observed | B 0.00 - 0.10 r ES 0.00 - 0.10 | | | | CL | Gravelly Silty CLAY: low plasticity, grey/brown/orange, fine to medium grained (sandstone) gravel | D to M | | TOPSOIL 0.00 m: PID=1.3 No staining, odour or PACM observed |
| | | | | - | | | Target depth | | | |
| R Ripp HA Han. PT Pusl SON Soni AH Air h PS Perc AS Shoi AD/V Solic AD/V Solic HFA Holl WB Was | d auger n tube c drilling ammer ussion sam t spiral aug d flight aug d flight aug d flight aug hbore drilli < roller | et Ipler ler sr: V-Bit sr: TC-Bit ger 1g | PENETRATION → w ± ± WATER Water → water i water o | nflow | I Date | SI H P P I P I V | P - Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U C - Moisture Content MOIS ST - Plate Bearing Test D IP - Borehole Impression Test M D - Phito Ionization Detector W | Bulk distur Disturbed s Environmei Thin wall tu TURE Dry Moist Wet Plastic limit | sample ntal sampl ibe 'undis | le F - Firm |

| Scie | | | | | | | | | IULE LUG SHEET |
|---|--|--|----------------------------|----------------|--------------------------------------|--|--|------------------------------------|---|
| Client: Project: Location: | Detai | ourn Mulwaree Council led Site Investigation er Dossie St and Sloane | e St | | | Job No: 5046200019 | | He | ole No: SS18 Sheet: 1 of |
| Position: | | | | | | Angle from Horizontal: 90° | | Surface E | Elevation: |
| Rig Type: | Hand T | ools | | | | | I | Driller: C | onstruction Sciences |
| Borehole D | | | | | | | | Contracto | - |
| Data Starte | ed: 19/2 | | plete | d: 19/2 | 2/20 | Logged By: SI | (| Checked | By: AN |
| Method Resistance Resistance | Casing Water | Sampling & Testing Sample or Field Test | Depth (m) | Graphic Log | Classification | Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| HAND TOOLS | Groundwater Not Observed | B 0.00 - 0.10 m ES 0.00 - 0.10 m | | | ML | SILT: low plasticity, brown, with organics | D to M | 0. No | DPSOIL 00 m: PID=1.1 o staining, odour or PACM oserved |
| | | | | | | TERMINATED AT 0.10 m Target depth | | | |
| R Rippe HA Hand PT Push SON Sonic AH Air ha PS Percu AS Short AD/V Solid AD/T Solid HFA Hollov | auger tube chilling ammer ission sam spiral auge flight auge flight auge w flight auge bore drillir | pler er er: V-Bit ger Water L Shown water in water in | Refusa .evel or flow | | S H D P M P I P | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test ID - Phito Ionization Detector ID - Phito Ionization Detector S - Vane Shear; P=Peak, | turbed sa vironment n wall tub v ist | tal sample be 'undisturb | bed' SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Refer to explana abbreviations ar | | | | СО | NS | STRUCTION SCIENCES | | | <u> </u> |

| Client: | Gou | Iburn Mul | waree Counci | il | | | | | | Hole No: SS19 |
|---|---|--|---|---|----------------|---|---|--|---|--|
| Project: Location: | Deta : Cori | ailed Site I ner Dossie | nvestigation St and Sloar | ne St | | | Job No: 5046200019 | | | Sheet: 1 of |
| Position: | | | | | | | Angle from Horizontal: 90° | | Surfac | ce Elevation: |
| Rig Type: | | | | | | | | | | : Construction Sciences |
| Borehole Data Star | | | Date Co | nnloto | d. 19/2 | 2/20 | Logged By: SI | | Contra | actor: acd By: AN |
| Data Star | | | ling & Testing | Inpiece | u. 13/2 | ./20 | Material Descr | iption | Check | |
| Method Resistance | Casing Water | s | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteris colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | tic, | Condition Consistency Relative Density | STRUCTURE & Other Observations |
| HAND TOOLS | Groundwater Not Observed | B 0.00 - 0. ES 0.00 - C | | | | СІ | Gravelly CLAY: medium plasticity, brown, fine I medium grained, sub-angular (sandstone) grav with organics 0.10m TERMINATED AT 0.10 m | to vel, D to | M | TOPSOIL 0.00 m: PID=2.0 No staining, odour or PACM observed |
| | | | | | | | | | | |
| R Rip HA Har PT Pus SON Sor AH Air I PS Per AS Sho AD/V Soli HFA Hol WB Wa | nd auger sh tube nic drilling hammer ccussion sa ort spiral au id flight au low flight au low flight au shbore dril ck roller | mpler iger jer: V-Bit jer: TC-Bit uger ling | PENETRATION → u u. ± → wu u. ± → WATER Water water water water | – No Res – Refusa · Level or n inflow | n Date | S H P M P I N P V | PT - Standard Penetration Test B P - Hand/Pocket Penetrometer D CP - Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U C - Moisture Content MOIS BT - Plate Bearing Test D IP - Borehole Impression Test M ID - Phito Ionization Detector W S - Vane Shear: P=Penak PL | Disturbe Environn | nental samp tube 'undis nit nit | le F - Firm |

| | ences | | | | | | | | TOLE LOG SHEET |
|---|--|---|----------------------------|----------------|----------------------------|---|---|------------------------------------|---|
| Client: Project: Location: | Detai | burn Mulwaree Council led Site Investigation er Dossie St and Sloane | e St | | | Job No: 5046200019 | | H | ole No: SS20 Sheet: 1 of |
| Position: | | | | | | Angle from Horizontal: 90° | ; | Surface | Elevation: |
| Rig Type: | Hand T | ools | | | | | l | Driller: C | Construction Sciences |
| Borehole I | Diamete | | | | | | | Contract | |
| Data Start | ed: 19/2 | | plete | d: 19/2 | 2/20 | Logged By: SI | | Checked | By: AN |
| Drilling | | Sampling & Testing | | | | Material Description | | | |
| Method Resistance | Casing Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| HAND TOOLS | Groundwater Not Observed | B 0.00 - 0.10 m ES 0.00 - 0.10 m | | | ML | Clayey SILT: low plasticity, brown, with organics | D to M | 0 N | OPSOIL .00 m; PID=1.2 lo staining, odour or PACM bserved |
| | | | | | | TERMINATED AT 0.10 m Target depth | | | |
| R Rippe HA Hand PT Push SON Sonic AH Air ha PS Percu AS Shori AD/V Solid HFA Hollo WB Wast | vator bucke er l auger tube c drilling ammer ussion sam t spiral aug flight auge flight auge w flight aug mbore drillin roller | ppler ler er: V-Bit er: TC-Bit ger WATER Water L shown water in | Refusa .evel or flow | | S H D P N P | P Hand/Pocket Penetrometer D Display CP Dynamic Cone Penetrometer ES En SP Perth Sand Penetrometer U Thi IC Moisture Content MOISTURE BT Plate Bearing Test D Dry ID Phito Ionization Detector M Mo ID Phito Ionization Detector W We S Vane Shear; P=Peak, LL LI | sturbed sa vironmen in wall tul / ist et | tal sample be 'undisturl | bed" SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Refer to explar abbreviations a | natory notes f | | | СО | NS | STRUCTION SCIENCES | | | |

| Location: Convert Dossies 31 and Steiner St. Job No: 504800019 Since 1: Source 1: Source 1: Destination: Since 1: Source 1: Destination: Source 1: Destination: S | Sc Sc | | | | | | | | | E | - | HOLE LOG SHEE |
|--|---|--|---|----------------------------------|--|----------------|----------------|----------------------------|--|--|------------------------------------|--|
| Position: Angle from Horizontal: 90° Surface Elevation: Rig Type: Hand Tools Driller: Construction Science Borehold Diameter: Contractor: Contractor: Data Started: 19/2/20 Date Completed: 19/2/20 Logged By: Sl Checked By: AN Drilling Sampling & Testing (i) (i) (i) (i) (i) (i) Diameter: Sampling & Testing (ii) (iii) (iii) (iii) (iii) (iii) Diameter: Sampling & Testing (iiii) (iiii) (iiii) (iiii) (iiii) (iiii) Drilling Sample or Field Test (iiii) (iiiii) (iiiii) (iiii) (iiii) (iiii) Diameter: Sample or Field Test (iiiii) (iiiiii) (iiiiii) (iiiii) (iiiii) (iiiii) (iiii) Output (iiiiiiiiii) Sample or Field Test (iiiiiii) (iiiiiiii) (iiiiiiiii) (iiiiiiii) (iiiiiiii) Output (iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii | Project: | D |)etail | ed Site Investiga | tion | t | | | Job No: 5046200019 | | ŀ | Hole No: SS21 Sheet: 1 of |
| Contractor: Contractor: Contractor: Data Startics: 19/2/20 Data Compoletics: 19/2/20 Logged By: 31 Checked By: AN Data Startics: 19/2/20 Data Compoletics: 19/2/20 Logged By: 31 Checked By: AN Data Startics: 19/2/20 Data Compoletics: 19/2/20 Logged By: 31 Checked By: AN Mained of paradition paradition transmission and transmission Startics: 19/2/20 Contractor: Mained of paradition transmission Contractor: Contractor: Mained of paradit | Position: | : | | | | | | | Angle from Horizontal: 90° | | Surfac | |
| Data Struct: 19/270 Data Complexit: 19/270 Material Description Material Description 1000 Samples & Toking Samples & Toking Material Description Material Description Signal | | | | | | | | | | | Driller | : Construction Sciences |
| Uniting Samplar & Teatry Material Description View Simplar of Big Big Simplar of Bi | | | | | | | | | | | | |
| Method Simulation Simulation< | | | 19/2/ | | | ted | : 19/2 | 2/20 | | | Checke | ed By: AN |
| M | Drilling | 3 | | Sampling & Testi | <u> </u> | _ | | | Material Description | | | |
| State State <td< td=""><td>Method Resistance</td><td>Casing</td><td>Water</td><td></td><td></td><td></td><td>Graphic Log</td><td>Classification</td><td>colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering,</td><td>Moisture Condition</td><td>Consistency Relative Density</td><td>STRUCTURE & Other Observations</td></td<> | Method Resistance | Casing | Water | | | | Graphic Log | Classification | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| TOD Days Bit All Standard Prediction Test Results of the standard Prediction Tes | • | | | | | | | | | | | TOPSOIL 0.00 m: No staining, odour or PACM |
| MEHOD PENETVATION FIELDTESTS Ex. Encoder bucket And Handback and H | HAND TOOLS | | Groundwater Not Observed | ES 0.00 - 0.10 III | | | | ML | 0.10m | D to M | | observed |
| MEHOO PENETRATIN FELDEST Financial Strategy FELDEST Strategy Strategy Ministry Feldestation Financial Strategy Feldestation Financial S | | | | | | | | | | | | |
| EX Excavator bucket B - Bulk disturbed sample VS - Very Sol R Ripper HA Hand auger No Resistance HP - Hand/Pocket Penetrometer D - Disturbed sample S - Soft S - Soft PT Push tube Refusal MC Mosture Content MC Moisture Content MOISTURE VS - Very Stif AH Air hammer PSP Percussion sampler AS Short spiral auger WATER PBT Plate Bearing Test D D D Dry RELATIVE DENS AD/V Solid flight auger Water Level on Date shown MOW Water Shown VS V vane Shear, P=Peak, V W Weithum combent MD MD Medium WB Washbore drilling Water outflow Reseadual (uncorrected kPa) Restaual (uncorrected kPa) D Denset D Denset | | | | | | | | | | | | |
| | EX Exi R Rip HA Ha PT Pu SON Soi AH Air PS Pe AS Sh AD/V Soi AD/V Soi HFA Ho WB Wa | ccavator pper and aug- ush tube onic drilli hamme rcussion ort spira olid fligh olid fligh ollow flig ashbore | er er al auge t auge t auge t auge dt auge dt auge | t WATER er i: TC-Bit er | ⊥ 5 No I Refi Water Leve shown water inflow | usal I on I | | S H D P N P | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th CF - Moisture Content MOISTURE BT - Plate Bearing Test D - Dis ID - Phito Ionization Detector M - Moisture S - Vane Shear; P=Peak, PL - Pla Beadual (unsarrated IDD) LL - Lid | sturbed sa vironmen in wall tul vist sist et astic limit juid limit | ample tal sampl be 'undist | le S - Soft turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense |
| Refer to explanatory notes for details of abbreviations and basis of descriptions CONSTRUCTION SCIENCES | Refer to exp | planatory | notes fo | or details of escriptions | | | CO | NS | TRUCTION SCIENCES | | | |

| Ę | Sc | cier | ces | tion | - | | | | | | B | | | E LOG SHEE |
|--|--|---|---|--|------------------------------|---|----------------|----------------------------|---|--|-------------------------------------|------------------------------------|----------------------------------|--|
| | ect: | - 1 | Detai | led Site | Iwaree Coun Investigation | n | | | | | | ŀ | lole | No: SS2 |
| | ation ition: | | Corn | er Dossi | e St and Slo | ane St | | | Job No: 5046200019 Angle from Horizonta | 1. 00° | | Surfaa | e Eleva | Sheet: 1 of |
| | Type | | nd T | ools | | | | | Angle Ironi Horizonita | 1. 90 | | | | ruction Sciences |
| | ehole | | | | | | | | | | | Contra | | |
| Data | a Sta | rted | 19/2 | /20 | Date C | omplete | d: 19/2 | 2/20 | Logged By: SI | | | Check | ed By: | AN |
| I | Drilling |) | | Sam | pling & Testing | | | | Materi | al Description | | | | |
| Method | Resistance | Casing | Water | | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle ch colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure | nponents e, colour, | Moisture Condition | Consistency Relative Density | ξ | STRUCTURE & Other Observations |
| HAND TOOLS | | | Groundwater Not Observed | B 0.00 - 0 ES 0.00 - | | | | ML | Sandy SILT: low plasticity, grey/brow coarse grained sand | m, fine to | D to M | | TOPSOIL 0.00 m: N observed | lo staining, odour or PACM |
| | | | | | | | | | 0.10m | | | | | |
| _ | | | | | | | <u></u> | | TERMINATED AT 0.10 m Target depth | | | | | |
| | | | | | | | | | | | | | | |
| ME EX R HA PT SO AH PS AD AD HF WE R | Rip Ha Pu Air Pe Sh V Sol V Sol V Sol V Sol V Sol V Sol V Sol V Sol V Sol V Sol | oper nd aug sh tub nic dri hamm rcussio ort spi lid flig lid flig llow fli | e lling her ral aug nt aug nt aug ght au e drillir | pler er er: V-Bit er: TC-Bit ger | WATER Wat sho wat | ── No Res <── Refusa ter Level on | I | S H D P N P | CP Dynamic Cone Penetrometer SP Perth Sand Penetrometer C Moisture Content BT Plate Bearing Test IP Borehole Impression Test ID Phito Ionization Detector | D - Dis ES - Enn U - Thi MOISTURE D - Dry M - Moi W - We PL - Pla LL - Liq | turbed sa vironmen n wall tul | tal sampl | е | SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dens D - Dense VD - Very Dense |
| Ref | er to exp | lanator | / notes f | or details of | | | <u> </u> | | | | | | | |
| abb | reviation | s and b | asis of c | escriptions | | | CU | 2NIV | TRUCTION SCIENC | E9 | | | | |

| Scien | ices | Madam 6 " | | | | | | B | | EHOLE LOG SHEE |
|--|--|--|---|----------------|------------------------|--|---|------------------------------------|------------------------------------|---|
| Project: D | Detailed | Mulwaree Council Site Investigation | | | | | | | ŀ | Hole No: SS2 |
| Location: 0 Position: | Corner D | ossie St and Sloan | e St | | | Job No: 5046200019 Angle from Horizontal: | ٥٥٥ | | Surfac | Sheet: 1 of e Elevation: |
| Rig Type: Ha | Ind Tools | 6 | | | | Angle Iron Honzontal. | 30 | | | : Construction Sciences |
| Borehole Dia | | | | | | | | | Contra | |
| Data Started: | 19/2/20 | Date Con | nplete | d: 19/2 | 2/20 | Logged By: SI | | | Checke | ed By: AN |
| Drilling | | Sampling & Testing | | | | Material | Description | | 1 | |
| Method Resistance Casing | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle char. colour, secondary and minor comp ROCK TYPE, grain size and type, fabric & texture, strength, weathe defects and structure | onents colour, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| HAND TOOLS | | 00 - 0.10 m 0.00 - 0.10 m | | | ML | Sandy SILT: low plasticity, grey/brown, coarse grained sand | fine to | D to M | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| ¥ | | | | | | 0.10m TERMINATED AT 0.10 m Target depth | | | | |
| | | | - | | | | | | | |
| | | | | | | | | | | |
| | | | - | | | | | | | |
| | | | _ | | | | | | | |
| | | | | | | | | | | |
| AS Short spin AD/V Solid fligh AD/T Solid fligh HFA Hollow flig WB Washbor | ger e her on sampler ral auger ht auger: V-I ht auger: TC ght auger e drilling | Bit WATER | - No Res - Refusa Level on nflow | I | Si H D P M | CP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer C - Moisture Content BT - Plate Bearing Test IP - Borehole Impression Test D - Phito Ionization Detector | D - Distr ES - Envir U - Thin MOISTURE D - Dry M - Mois W - Wet PL - Plas LL - Liqu | urbed sa ironment i wall tub | tal sampl | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dens D - Dense |
| RR Rock rolle Refer to explanatory abbreviations and ba | y notes for deta | ails of tions | | CO | NS | TRUCTION SCIENCE | | | | VD - Very Dense |

| Electric Builtourn Muvaree Council Project: Electric Such 200101 Surface Elevation: Pailtour Angle from Horizontal: 10° Surface Elevation: Differ: Contractor: Contractor: Rig Type: Hand Tools Date Completed: 19/20 Date Completed: 19/20 Contractor: Contractor: Contractor: Dotting Sampling & Terring Image: Simpling & Terring Image: | | ience: | | | | | | | | В | ORE | HOLE LOG SHEET | | | | |
|---|--|--|---|-------------------------|---|----------------|----------------------------|--|--|---|------------------------------------|--|-------|--|--|--|
| Location: Corner Dossie St and Sloane St Job No: 5046200019 Sheet: Position: Angle from Horizontal: 90° Surface Elevation: Rig Type: Hand Tools Driller: Construction Science Borehole Diameter: Contractor: Data Started: 19/2/20 Date Completed: 19/2/20 Locating: Sampling & Testing Material Description Poling: Sampling & Testing Material Description Poling: Sampling & Testing Solut: Type: Institute strength, weathering, defects and structure Poling: Sampling & Testing Solut: Type: Institute, strength, weathering, defects and structure Poling: B 0.00 - 0.10 m Sandy SIL T: we passibility, brown, fine to coarse grained sand, with (surface grass) organics TOPSOIL Struct Type: B 0.00 - 0.10 m Sandy SIL T: we passibility, brown, fine to coarse grained sand, with (surface grass) organics D to M Struct Type: B 0.00 - 0.10 m Solut: Tipe Alexander and the coarse grained sand, with (surface grass) organics D to M Struct Type: Solut: Tipe Alexander and the coarse grained sand, with (surface grass) organics D to M | Client: | Gou | ulburn Mul | | | | | | | | ŀ | Hole No: SS24 | | | | |
| Note of the second sec | Location | : Corr | ner Dossi | e St and Sloa | ne St | | | | | | | Sheet: 1 of | | | | |
| Contractor: Contractor: Data Structici 1922/20 Logged By: SI Data Completet: 1922/20 Logged By: SI Data Completet: 1922/20 Data Completet: 1922/20 Data Completet: 1922/20 Contractor: Material Description Optimize Transmittion Optimize Transmittin Transmit Transmittion <th colspan="4" opti<="" th=""><th></th><th></th><th>Tools</th><th></th><th></th><th></th><th></th><th>Angle from Horizontal</th><th>: 90°</th><th></th><th></th><th></th></th> | <th></th> <th></th> <th>Tools</th> <th></th> <th></th> <th></th> <th></th> <th>Angle from Horizontal</th> <th>: 90°</th> <th></th> <th></th> <th></th> | | | | | | Tools | | | | | Angle from Horizontal | : 90° | | | |
| Deline Semplar & Teaching Percentation Semplar & Teaching Percentation Semplar & Teaching | | | | | | | | | | | | | | | | |
| NUMBER Sumple or Field Text Field Text | | | | | mplete | d: 19/2 | 2/20 | | | (| Checke | ed By: AN | | | | |
| METHOD PERTINATION FILL TESTS Same List Same List <t< td=""><td>Drilling</td><td></td><td>Samp</td><td>ling & Testing</td><td>-</td><td></td><td>6</td><td>Materia</td><td>al Description</td><td></td><td>I</td><td></td></t<> | Drilling | | Samp | ling & Testing | - | | 6 | Materia | al Description | | I | | | | | |
| Signature 0.00 m. No. dating oddu or P. Signature 0.00 m. No. oddu or P. | Method Resistance | Casing Water | F | Sample or Field Test | Depth (m | Graphic Log | Classification | colour, secondary and minor com ROCK TYPE, grain size and type fabric & texture, strength, weath | ponents , colour, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | | | | |
| METHOD R PENETRATION Registrophic FELD TESTS Single depth SAMPLES Solutional sample D Solutional sample D <th< td=""><td>HAND TOOLS</td><td>Groundwater Not Observed</td><td></td><td></td><td></td><td></td><td></td><td>Sandy SILT: low plasticity, brown, fine grained sand, with (surface grass) or</td><td>e to coarse ganics</td><td>D to M</td><td></td><td>0.00 m: No staining, odour or PACM</td></th<> | HAND TOOLS | Groundwater Not Observed | | | | | | Sandy SILT: low plasticity, brown, fine grained sand, with (surface grass) or | e to coarse ganics | D to M | | 0.00 m: No staining, odour or PACM | | | | |
| EX Excavator bucket ^y u u x x ^y u u x x | <u> </u> | | | | | | • | TERMINATED AT 0.10 m | | | | | | | | |
| EX Excavator bucket ^y u u x x ^y u u x x | | | | | - | | | | | | | | | | | |
| EX Excavator bucket $\stackrel{\vee}{\rightarrow}$ u u x $\stackrel{\vee}{\rightarrow}$ No Resistance SPT - Standard Penetration Test B - Bulk disturbed sample D D | | | | | | | | | | | | | | | | |
| EX Excavator bucket ^y u u x x ^y u u x x | | | | | | | | | | | | | | | | |
| EX Excavator bucket $\stackrel{>}{\rightarrow} u \perp \pm \stackrel{>}{\rightarrow}$ No Resistance SPT - Standard Penetration Test B - Bulk disturbed sample VS - Very Sof R Ripper No Resistance HP - Hand/Pocket Penetrometer D - Disturbed sample S - Soft | | | | | - | | | | | | | | | | | |
| EX Excavator bucket $y = u = x^{\frac{1}{2}}$ No Resistance SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer B - Bulk disturbed sample D - Di | | | | | | | | | | | | | | | | |
| AS Short spiral auger Mater Level on Date shown IMP - Borehole Impression Test D - Dry MeLATIVE DENS AD// Solid flight auger: TC-Bit HFA Hollow flight auger Moist VL Very Loc WB Washbore drilling water outflow S Vs Vane Shear; P=Peak, Rescuel (uncorrected kPa) UL Liquid limit MD Ndedium | EX Exc R Rip HA Har PT Pus SON Sor AH Air PS Per AS Sho AD/V Sol AD/T Sol HFA Hol WB Wa | pper nd auger sh tube nic drilling hammer rcussion sal ort spiral au id flight au ild flight au ild flight au shbore drill | ampler uger iger: V-Bit igger: TC-Bit auger | WATER Water Water | — No Res — Refusa r Level on n : inflow | I | S H D P N P | PT - Standard Penetration Test - Hand/Pocket Penetrometer CP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer C - Moisture Content 3T - Plate Bearing Test IP - Borehole Impression Test D - Phito Ionization Detector S - Vane Shear; P=Peak, | B - Bulk D - Distri ES - Envi U - Thin MOISTURE D - Dry M - Mois W - Wet PL - Plas LL - Liqu | urbed sa ronment wall tub st st itic limit id limit | ample tal sampl be 'undist | e S - Soft turbed' St - Stiff VSt - Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense | | | | |

| Detai | ter: /2/20 E Sampling & 1 Sample Field Te B 0.00 - 0.10 m | ation d Sloane St Date Complete resting or | d: 19/2 Caphric Log | Classification | Job No: 5046200019 Angle from Horizonta Logged By: SI Materia SOIL TYPE, plasticity or particle ch colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure Sandy SILT: low plasticity, brown, fin grained sand, with (surface grass) or | al Description aracteristic, apponents colour, hering, a to coarse | Drill Con | ace Eleva er: Constr tractor: cked By: / | AN STRUCTURE & Other Observations |
|---|--|---|--|--|---|--|---|--|--|
| Cassing Cassing Watter Cassing | Tools ter: /2/20 E Sampling & 1 Sample Field Te | Pate Complete | | Classification | Angle from Horizontal Logged By: SI Materia SOIL TYPE, plasticity or particle cha colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure Sandy SILT: low plasticity, brown, fin | al Description aracteristic, apponents colour, hering, a to coarse | Drill Con Che | er: Constr tractor: cked By: A cked By: A ck | tion: ruction Sciences AN STRUCTURE & Other Observations |
| Casing Mater Water | ter: /2/20 E Sampling & 1 Sample Field Te B 0.00 - 0.10 m | esting | | Classification | Logged By: SI Materia SOIL TYPE, plasticity or particle ch. colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure Sandy SILT: low plasticity, brown, fin | al Description aracteristic, apponents colour, hering, a to coarse | Drill Con Che | er: Constr tractor: cked By: A cked By: A ck | AN STRUCTURE & Other Observations |
| Casing Water | 2/20 E Sampling & 1 Sample Field Te | esting | | Classification | Materia SOIL TYPE, plasticity or particle chi colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure Sandy SILT: low plasticity, brown, fin | aracteristic, nponents , colour, hering, e to coarse | Che | | STRUCTURE & Other Observations |
| Casing Water | Sampling & T Sample Field Te | esting | | Classification | Materia SOIL TYPE, plasticity or particle chi colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure Sandy SILT: low plasticity, brown, fin | aracteristic, nponents , colour, hering, e to coarse | | TOPSOIL 0.00 m: N | STRUCTURE & Other Observations |
| | Sample Field Te | | Graphic | | SOIL TYPE, plasticity or particle ch colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure Sandy SILT: low plasticity, brown, fin | aracteristic, nponents , colour, hering, e to coarse | Moisture Condition Consistency Relative | TOPSOIL 0.00 m: N | & Other Observations |
| | B 0.00 - 0.10 m | st | Graphic | | colour, secondary and minor con ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure Sandy SILT: low plasticity, brown, fin | aponents e, colour, hering, e to coarse | Moisture Condition Consistency Relative | TOPSOIL 0.00 m: N | & Other Observations |
| Groundwater Not Observed | E0 0 00 0 40 m | | | MI | | | | 0.00 m: N | lo staining, odour or PACM |
| | | | | | | 1 | D to M | | |
| | | | | | 0.10m TERMINATED AT 0.10 m Target depth | | | | |
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| ber d auger h tube ic drilling nammer cussion sam rt spiral aug d flight aug ow flight aug ow flight aug | impler WAT uger ger: V-Bit S ugger bugger bu | www.± ⁵ No Re Refus ER | al | SF HF DC PS MC PE IM | PT - Standard Penetration Test P - Hand/Pocket Penetrometer CP - Dynamic Cone Penetrometer CP - Perth Sand Penetrometer CP - Moisture Content T - Plate Bearing Test P - Borehole Impression Test D - Phito Ionization Detector | D - Distur ES - Envirc U - Thin v MOISTURE D - Dry M - Moist W - Wet PL - Plasti LL - Liquic | rbed sample onmental sa wall tube 'ur c limit t limit | mple | SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dens D - Dense VD - Very Dense |
| | er d auger n tube c drilling ammer ussion sa t spiral au f flight au f flight au bow flight a hbore dril c roller | vator bucket er d auger h tube c drilling ammer ussion sampler ussion sampler t spiral auger f light auger: V-Bit i flight auger bore drilling | er d auger n tube c drilling ammer ussion sampler t spiral auger: V-Bit f flight auger: V-Bit f flight auger: TC-Bit wow flight auger: TC-Bit wow flight auger c roller No Re WATER Water Level o shown water inflow water outflow water outflow | water bucket er a duger h tube c drilling ammer t spiral auger f light auger: TC-Bit w flight auger: TC-Bit w flight auger: TC-Bit w flight auger: to-Bit flight auger: TC-Bit w flight auger c roller matory notes for details of | water bucket er a dauger h tube c drilling ammer t spiral auger: V-Bit f light auger: TC-Bit w flight auger: TC-Bit w flight auger: TC-Bit if light auger: TC-Bit w flight auger: tC-Bit t flight auger: tC-Bit w flight auger: tC-Bit t flight auger: tC-Bit | water bucket | water bucket er d auger h tube c drilling ammer t spiral auger t spiral auger fight auger: TC-Bit wiftight auger: TC-Bit wiftight auger: TC-Bit wiftight auger c roller No Resistance More Refusal SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Phito Ionization Detector VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) B - Bulk O D - Disture B - Disture D - Disture MOISTURE D - Dry M - Moist W - Wet V - Plast LL - Liquic w - Moist | water bucket er d auger h tube c drilling ammer t spiral auger t spiral auger t flight auger: TC-Bit wiflight auger c roller No Resistance mater SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer DCP - Dynamic Cone Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Phito Ionization Detector VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) B - Bulk disturbed sample DS - Disturbed sample S - Environmental sa D - Disturbed sample MOISTURE WATER i flight auger t flight auger c roller Water Level on Date shown water inflow MOISTURE IMP - Borehole Impression Test PID - Phito Ionization Detector VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) D - Dry M - Moist W - Wet | water bucket er d auger hube c drilling ammer t spiral auger t flight auger: V-Bit flight auger: Cr-Bit w flight auger: Cr-Bit w flight auger c roller No Resistance Mo Resistance SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content B - Bulk disturbed sample D - Disturbed sample U - Thin wall tube 'undisturbed' WATER t spiral auger if light auger: TC-Bit willight auger c roller Water Level on Date shown water outflow No Resistance D - Dry Water Level on Date shown water outflow Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Phito Ionization Detector VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) D - Dry M - Moist W - Wet PL - Platsic limit LL - Liquid limit w - Moisture content |

| | Scien | | | | | | | | | ENOLE LOG SHEE |
|----------------------------------|--|---|---|-----------|----------------------|------------------|--|-------------------------------------|---|---|
| Client: Project Locatio | t: I | Detai | ourn Mulwaree Council led Site Investigation er Dossie St and Sloan | | | | Job No: 5046200019 | | ł | Hole No: SS26 Sheet: 1 of |
| Positio | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Rig Ty | pe: Ha | and T | ools | | | | | | Driller | : Construction Sciences |
| Boreho | | | | | | | | | Contra | |
| Data S | | : 19/2 | | plete | d: 19/2 | 2/20 | Logged By: SI | | Check | ed By: AN |
| Drilli | ing | - | Sampling & Testing | | | | Material Description | | | |
| Method Resistance | Casing | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | erved | B 0.00 - 0.10 m ES 0.00 - 0.10 m | | | • | Sandy SILT: low plasticity, brown, fine to coarse grained sand | | | TOPSOIL 0.00 m: No staining, odour or PACM observed |
| HAND TOOLS | | Groundwater Not Observed | | | | ML | 0.10m | D to M | | |
| • | | | | | <u>- + + + + + -</u> | | TERMINATED AT 0.10 m Target depth | | | |
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| METHO | | | | | | | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| R HA PT SON AH PS | Excavato Ripper Hand aug Push tub Sonic dri Air hamm Percussio | ger be Iling her on sam | pler WATER | Refusa | | F C P N | P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer ES - En | sturbed s vironmen in wall tu | ed sampl ample tal sampl be 'undis | Ie S - Soft F - Firm |
| AS AD/V AD/T HFA WB | Short spi Solid flig | iral aug ht auge ht auge ight aug e drillir | er er: V-Bit er: TC-Bit ger Water in | nflow | n Date | II P | IP - Borehole Impression Test M - Michael ID - Phito Ionization Detector W - We S - Vane Shear; P=Peak, PL - Plael Description LL - Lide | oist et | ntent | VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| | explanatory | | or details of escriptions | | CO | NS | TRUCTION SCIENCES | | | 1 |

| Client Projec | t: | Stage 2 | urn Mulwaree Council 2 - DSI | | | | | | Η | ole No: MW0 |
|---|--------|-----------------|---------------------------------|--------------------|----------------|---------------------------------|---|--------------------------------------|------------------------------------|---|
| ocati | ion: | | Dossie St and Sloan | e St, G | Goulbu | m | Job No: 5046200019 | | | Sheet: 1 of |
| Positi | | | | | | | Angle from Horizontal: 90° | | | e Elevation: |
| | | | hio Geo 215 : 125 mm | | | | | | Driller: | ctor: Stratacore Drilling |
| | | d: 17/2/2 | | plete | d: 17/2 | /20 | Logged By: SI | | | ed By: AN |
| | illing | | Sampling & Testing | | | | Material Description | | | , . |
| Method | Casing | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | Not Encountered | | - 0.5 | | GM | FILL: Gravelly SILT: low plasticity, dark brown, medium grained gravel 2.00m FILL: Silty GRAVEL: fine to medium, dark grey, low plasticity silt | D to M | | FILL |
| | | | | - 3.5 - 3.5 | | GM | 3.50m FILL: Silty GRAVEL: fine to medium, dark grey/cream/buff, low plasticity silt 4.00m TERMINATED AT 4.00 m Refusal | D | | 4.00 m: Refusal on Sandstone Well not constructed. |
| METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow fight auger: TC-Bit WB Washbore drilling RR Rock roller | | | | | | S H D M M I N | P Hand/Pocket Penetrometer D - Dis CP Dynamic Cone Penetrometer ES - En SP Perth Sand Penetrometer U - Thi C Moisture Content MOISTURE BT Plate Bearing Test D - Dry IP Borehole Impression Test D - Dry ID Phito Ionization Detector W - We S Vane Shear; P=Peaka, L - Liq | n wall tub ist t stic limit | imple tal sample be 'undist | e S - Soft F - Firm |

| Clie Proj | nt: ect: | | Goulbu Stage 2 | rn Mulwaree Council ? - DSI | | | | | | | Hol | e No: | MW01/ |
|--|---|--------|-------------------|--------------------------------|------------------|----------------|----------------|--------|---|-----------------------|------------------------------------|----------------------------|-----------------------------|
| | ation | | | Dossie St and Sloan | e St, G | oulbu | rn | | Job No: 5046200019 | | | | Sheet: 1 of |
| | ition | | | | | | | | Angle from Horizontal: 90° | | | e Elevation | : |
| | | | | nio Geo 215 125 mm | | | | | | | Driller: | - | |
| | | | 25/2/2 | | nleter | 1. 25/2 | 2/20 | | Logged By: AD | | | ed By: AN | acore Drilling |
| | Drilling | | | Sampling & Testing | 10101 | | | | Material Description | | | 54 DJ1 741 | |
| Method | Resistance | Casing | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | s | OIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | | TRUCTURE er Observations |
| | | | | | - | | ML | | FILL: Gravelly SILT: low plasticity, brown, medium grained gravel | | | FILL | |
| - ADM - | | | | | 2 | | GP | 2.00m | FILL: Silty GRAVEL: fine to medium, grey/brown, low plasticity silt | D to M | | | |
| ¥ | | | Ţ | | - - 4 | | | 3.00m | SANDSTONE: Remoulds as Gravelly Sand, fine to coarse grained, white/pale brown/yellow/grey, fine to coarse grained gravel | | _ | BEDROCK 3.00 m: Well no | ot constructed. |
| | | | Not Encountered | | - - - - | | | | | | | | |
| — AH — | | | | | - | | | | | D | | | |
| × | | | | | - | | | 10.00m | | | | | |
| | | | | | | | | | TERMINATED AT 10.00 m Target depth | | | | |
| ME EX R HA P SO A DA A | Ripper Hand auger No Resistance HP Hand/Pocket Penetrometer D D Disturbed sample S S S off Push tube Push tube Posh tube D D Disturbed sample S S S off Air hammer Air hammer Percussion sampler Short spiral auger Refusal MC Moisture Content MOISTURE D D Disturbed sample S S off VM Solid flight auger: V-Bit Water Level on Date MO Moisture Content MOISTURE D D D' D' Noist VL Very Losse VM Solid flight auger: TC-Bit Water inflow VS Vane Shear; P=Peak, PL Plastic limit MD Mely undistruct | | | | | | | | | | | | |



| Borehole I Data Start Drilling | Coma Diame ted: 17 | nacchio Geo neter: 125 n 17/2/20 Samp | | | | | 0.10m | Job No: 5046200019 Angle from Horizontal: 90° Logged By: SI Material Description DIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics FILL: Gravelly CLAY: bow to medium plasticity, brown/orange, fine to medium grained, sub-angular gravel | | Driller: Contra | Sheet: 1 of e Elevation: : CW cctor: Stratacore Drilling ed By: AN STRUCTURE & Other Observations TOPSOIL FILL |
|--|---------------------------|--|--|--|----------------|----------------------------|---|---|---|------------------------------------|--|
| Rig Type: Borehole I Data Start Drilling | Casing Casing Water | neter: 125 n 17/2/20 Samp | nm Date Com bling & Testing Sample or | Debth (m) | Graphic Log | T Classification | 0.10m | Logged By: SI Material Description DIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | | Driller: Contra Checke | : CW cctor: Stratacore Drilling ed By: AN STRUCTURE & Other Observations TOPSOIL |
| A Method I I I I I I I I I I I I I I I I I I I | Casing Casing Water | neter: 125 n 17/2/20 Samp | nm Date Com bling & Testing Sample or | Debth (m) | Graphic Log | T Classification | 0.10m | Material Description DIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | | Contra Checke | STRUCTURE & Other Observations |
| Data Start | Casing Water Water | 1 7/2/20 Sam | Date Con Dling & Testing Sample or | Debth (m) | Graphic Log | T Classification | 0.10m | Material Description DIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | | Checke | STRUCTURE & Other Observations |
| Vertication of the second seco | Casing | Sam | bling & Testing | Debth (m) | Graphic Log | T Classification | 0.10m | Material Description DIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | | | STRUCTURE & Other Observations |
| Method Resistance | | | Sample or | - - - - - - - - - - - - - | | ML CL- | 0.10m | DIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | Moisture Condition | Consistency Relative Density | & Other Observations |
| | | Water | Sample or Field Test | - - - - - - - - - - - - - | | ML CL- | 0.10m | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | Moisture Condition | Consistency Relative Density | & Other Observations |
| AD/V | | | | - - - | | CL- | 0.1011 | medium grained gravel, with organics FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | - | | |
| - AD/V | | | | - - - | | | | FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular | | | FILL |
| ADIV | | | | - 1.0 | \otimes | | | | м | | |
| - ADIV - | | | | - 1.0 | | | 1.00m | | | | |
| AD/ | countered | Not Encountered | | - - - 1.5 - - - | | ML | | Gravelly SILT: low plasticity, brown/dark brown, fine to medium grained, sub-angular gravel | D to M | | NATURAL |
| | NotE | Not E | | - 2.0 - - - 2.5 - - - - - - - | | GP | | Sandy GRAVEL: fine to medium, cream/buff, fine grained (sandstone) sand | | | |
| | | | | - 3.0 - - - 3.5 - - - - - - - - | | sw | | Gravelly SAND: fine to medium grained, cream/buff, fine to medium grained gravel | - D | | |
| | | | | 4.0 - - - - - 4.5 - - | | | | TERMINATED AT 4.00 m Refusal | | | 4.00 m: Refusal on Rock Well not constructed. |
| METHOD | | | DENIETDATION | - | | | | STS SAMPLES | | | SOIL CONSISTENCY |
| METHOD PENETRATION EX Excavator bucket Summary R Ripper No Resistance HA Hand auger No Resistance PT Push tube Solv Sonic drilling AH Air hammer Refusal PS Percussion sampler AS AD/T Solid flight auger: TC-Bit Shown HFA Hollow flight auger Water Level on Date WB Washbore drilling water inflow WB Rck roller water outflow | | | | | I | S H D P N P | SPT - IP - DCP - PSP - MC - PBT - MP - PID - YS - | Standard Penetration Test Hand/Pocket Penetrometer B Bull Dynamic Cone Penetrometer D Dis ES Perth Sand Penetrometer U Thi Moisture Content Plate Bearing Test D Dryn Plate Bearing Test D D Dis Phito Ionization Detector W We Vane Shear; P=Peak, L Plate | turbed sa vironmen n wall tul v ist | tal sampl | le VS - Very Soft S - Soft le F - Firm |

| | nt: ect: ation | 5 | Stage | urn Mulwaree Cound 2 - DSI r Dossie St and Sloa | | Goulbu | rn | Job No: 5046200019 | | Η | ole No: MW(Sheet: 1 c |
|---------------------|--|--|--|---|--|----------------|--|---|-----------------------|------------------------------------|--|
| | tion | | | | | | | Angle from Horizontal: 90° | ; | Surfac | e Elevation: |
| | | | | hio Geo 215 | | | | | | Driller | |
| | | | | : 125 mm | | J. 4=** | 2/00 | Langed Dec. Of | | | ctor: Stratacore Drilling |
| _ | | | 17/2/: | | mpiete | u: 17/2 | 2/20 | Logged By: SI | | CHECK | ed By: AN |
| | Drilling | I | | Sampling & Testing | \neg | | <u>г</u> т | Material Description | | | |
| Method | Resistance | Casing | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | Not Encountered | | - 0.5 | | | Gravelly SILT: low plasticity, brown, fine to medium grained (sandstone) gravel | M to D | | |
| • | | | | | - 1.0 | | GP | GRAVEL: fine to medium, cream/buff (weathered sandstone) 1.30m TERMINATED AT 1.30 m Refusal | D | | 1.30 m: Refusal on sandstone bedrock Well not constructed. |
| | | | | | - 1.5 - - - | | | | | | |
| EX R HA PT | Rip Ha Pu N So Air Pe Sh V So T So A Ho Wa | pper nd aug sh tub nic dril hamm rcussic ort spir lid fligh lid fligh llow flig | e ling er on samp ral auge nt auger nt auger ght auge e drilling | ller V-Bit T-C-Bit er | ── No Res ा── Refusa er Level on | I | SF HF DC PS MC PE IM | P Hand/Pocket Penetrometer D D Discrete P Dynamic Cone Penetrometer U Th P Perth Sand Penetrometer U Th C Moisture Content MOISTURE T Plate Bearing Test D D P Borehole Impression Test M Mc O Phito Ionization Detector W W Q Vane Shear; P=Peak, L PL | y bist | ample tal sampl be 'undis | le S - Soft F - Firm |

| = | | ons cien | | tion | | | | | E | BORE | EHOLE LOG SHEET |
|---|---|---|--|---|---|----------------|--------------------------------------|---|---|------------------------------------|--|
| Clie | | (| Goull | ourn Mulwaree Council 2 - DSI | l | | | | | Hol | e No: MW03A |
| | atior | | | er Dossie St and Sloan | e St, G | Goulbu | rn | Job No: 5046200019 | | _ | Sheet: 1 of 1 |
| Pos | ition | : | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| Rig | Туре | e: Co | omac | chio Geo 215 | | | | | | Driller: | : MG |
| Bor | ehol | e Dia | mete | r: 125 mm | | | | | | Contra | ctor: Stratacore Drilling |
| Data | a Sta | rted: | 25/2 | 20 Date Con | nplete | d: 25/2 | 2/20 | Logged By: AD | | Checke | ed By: AN |
| ĺ | Drillin | g | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Casing | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| AD/V | | | | | - | | ML | FILL: Gravelly SILT: low plasticity, brown, fine to medium grained (sandstone) gravel | | | FILL |
| | | | | | -1 | <u>a para</u> | | 1.00m | - | | NATURAL |
| | | | | | + | 00 | GP | GRAVEL: fine to medium, (sandstone) brown/pale 1.30m brown | | | BEDROCK |
| AM | | | Not Encountered | | - - - - - - - - - - - - - - - - - - - | | | SANDSTONE: Remoulds as Gravelly Sand, fine to coarse grained, pale brown/yellow, fine to medium grained gravel | D | | |
| . | | | - | | -9 | :::: | | 9.00m TERMINATED AT 9.00 m | | | 9.00 m: Well not constructed. |
| | | | | | [| | | Target depth | | | |
| | | | | | F | | | | | | |
| | | | | | F | | | | | | |
| EX RAPT SOA PS AD AD HF WE | Ri Ha Pu N So Ain Pe Sh V So V So V So A Ho S W | cavato pper and aug ush tub pnic dril r hamm ercussio nort spi blid fligi blid fligi blow fli ashbor | ger lling ner on sam ral aug ht aug ht aug ght au ght au | pler er er: V-Bit er: TC-Bit ger Water bown bown bown bown bown bown bown bown | nflow | I | S H D P M P I P | P Hand/Pocket Penetrometer D - Disi CP Dynamic Cone Penetrometer ES - Env SP Perth Sand Penetrometer U - Thir IC Moisture Content MOISTURE BT Plate Bearing Test D - Dry ID Phito Ionization Detector W - We S Vane Shear; P=Peak, PL - Pla | turbed sa vironmen n wall tul , ist | tal sampl be 'undist | e turbed' St - Soft VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense |
| RR Refe abb | er to ex | planatory ns and ba | / notes f | or details of escriptions | | СО | NS | STRUCTION SCIENCES | | | VD - Very Dense |

| Ē | | ons cien | | tion | | | | | | | | E | BORE | EHOLE LOG SHEET |
|--|---|--|---|--------------------------------------|-----------------------------|--------------------|---------------------------------------|-----------------------|--|---|---|---|------------------------------------|---|
| | | (| Goulk Stage | ourn Mulwa 2 - DSI | ree Council t and Sloan | | Southu | rn | | lob No: 5046200040 | | | Η | ole No: MW04 |
| | ition | | | 1 003316 0 | | e 51, C | Jourbu | | | Job No: 5046200019 Angle from Horizontal | • 00° | | Surfac | Sheet: 1 of 1 e Elevation: |
| | | | mac | chio Geo 21 | 15 | | | | | Angle Iron Honzontal | . 90 | | Driller | |
| | | | | r: 125 mm | 15 | | | | | | | | | ctor: Stratacore Drilling |
| | | arted: | | | Date Com | nloto | d. 17/2 | 2/20 | | Logged By: SI | | | | ed By: AN |
| | | | 1//2 | | & Testing | ipieter | | | | | al Description | | CHECK | |
| | Drillin | ig T | | Sampling | & resung | | | | | Materia | a Description | | 1 | |
| Method | Resistance | Casing | Water | | ple or I Test | Depth (m) | Graphic Log | Classification | S | SOLL TYPE, plasticity or particle cha colour, secondary and minor com ROCK TYPE, grain size and type fabric & texture, strength, weat defects and structure | ponents , colour, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | | | | | لد علد علد علد علد ع لد علد علد | ML | | Gravelly SILT: low plasticity, brown/da to medium grained gravel, with organi | ark brown, fine | | | TOPSOIL |
| - ADM | | | Not Encountered | | | - 0.5 - 0.5 | | SW | 1.00m | Gravelly SILT: low plasticity, brown/or medium grained gravel | | D | | NATURAL |
| V | | | | | | | | | 2.70m | TERMINATED AT 2.70 m Refusal | | | | 2.70 m: Refusal on sandstone bedrock. Well not constructed. |
| | | | | | | - | | | | | | | | |
| EX RAPTOARS ADDARS ADDARS ADDARS ADDARS ADDARS | Ri Pri DN Si I Ai S Pri S Si S Si D/V Si D/V Si SA Hi B W | xcavato ipper and aug ush tub onic dril ir hamm ercussio hort spi olid fligl | ger ling ler on sam ral aug nt auge nt auge ght aug ght aug | er V er v-Bit r: TC-Bit ger | WATER Water I water o | nflow | I | S F F M F | IP - DCP - PSP - MC - PBT - MP - PID - | Standard Penetration Test Hand/Pocket Penetrometer Dynamic Cone Penetrometer Perth Sand Penetrometer Moisture Content Plate Bearing Test | D - Dis ES - En U - Thi MOISTURE D - Dry M - Mo W - We PL - Pla LL - Liq | turbed si vironmen n wall tu ist | tal sampl be 'undist | le F - Firm |
| Ref abb | fer to ex previatio | planatory | notes fo | or details of escriptions | | | СО | NS | STR | UCTION SCIENCI | ES | | | I |

| | S | cier | ices | 6 | | | | | | | | HA | ND A | AUGER SHEE |
|-------------------|------------------------|---------------------------------------|----------------|--------------------------------|--|-----------|----------------|----------------|---|---|-----------|------------------------------------|----------|--|
| Pro | ent: ject: catio | : : | Goull Stage | burn Mulv e 2 - Detai | waree Council iled Site Inves St and Sloan | tigatio | n oulbu | rn | Job No: 5046200019 | | | ŀ | lole | No: BH0' Sheet: 1 of |
| | sitio | | | | | , - | | | Angle from Horizontal: 90° | | S | urface | e Eleva | |
| Rig | Тур | e: Ha | Ind A | uger | | | | | | | D | riller: | CS | |
| | | le Dia | | | | | | | | | | ontra | | |
| | | arted | 17/2 | | Date Com | pleted | I: 17/2 | 2/20 | Logged By: SI | | С | hecke | ed By: | AN |
| | Drillir | ng | - | Sampl | ling & Testing | | | | Material Descri | iption | | | | |
| Method | Resistance | Casing | Water | | ample or ield Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characterist colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | tic, Woistnee | Condition | Consistency Relative Density | ł | STRUCTURE & Other Observations |
| A | | | ered | 0.00 - 0.10 | m | | | CL, | | | | | FILL | lo staining, odour or PACM |
| - HA | | | Encountered | 0.40.0.50 | | [] | 1 S I | CI- CH | FILL: Gravelly Sandy CLAY: low plasticity, grey Gravelly CLAY: medium to high plasticity, | | м | | observed | |
| V | | | Not En | 0.40 - 0.50 | m | - | Þ Þ L | СП | 0.70m grey/orange | | | | FOSSIDIY | NATONAL |
| | | | Z | | | - | | | TERMINATED AT 0.70 m | | | | | |
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| | ETHO | | | | DENETRATION | | | | ELD TESTS SAM | IPLES | | | | |
| È EX | K E | Excavato | r buck | et | | No D | ata | s | PT - Standard Penetration Test B | - Bulk dis | sturbe | d sampl | e | SOIL CONSISTENCY |
| Ğ R HA ₽ PT | A Η | Ripper land au | ger | | | No Resi | stance | H D | CP Dynamic Cone Penetrometer ES | Disturbe Environ Thin was | menta | al sample | | S - Soft F - Firm St - Stiff |
| B PI SC | ON S | Push tub Sonic dri Nr hamn | lling | | | Refusal | | P | SP - Perth Sand Penetrometer | - Thin wa | ui lube | = undist | unea | St - Stiff VSt - Very Stiff H - Hard |
| | S P | Percussi | on sam | | Water | 0.451 | Data | P | BT - Plate Bearing Test D | - Dry | | | | H - Hard |
| | D/V S | Short spi Solid flig Solid flig | ht auge | jer er: V-Bit er: TC-Bit | Water I shown | | Date | IN P | IP - Borehole Impression Test M D - Phito Ionization Detector W | - Moist - Wet | | | | VL - Very Loose L - Loose |
| | FA H | lollow fl Vashbor | ght au | ger | water in water of | | | V | S - Vane Shear; P=Peak, PL LL | Plastic I Liquid Ii | imit | | | MD - Medium Dense D - Dense |
| RF | | Rock roll | er | | | | | | | - Moistur | e cont | ent | | VD - Very Dense |
| Z L Rei | fer to e | xplanator | / notes f | or details of lescriptions | | | CO | NS | TRUCTION SCIENCES | | | | | |
| ng abb | viail | unu D | | | | | | | | | | | | |

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| Clie Pro | ent: ject: catior | 0.9 | Goull Stage | burn Mulwa 2 - Detaile | aree Council ed Site Invest St and Sloane | tigati | on Goulbu | rn | Job No: 5046200019 | | ŀ | lole | No: BH02 |
| | sition | | 20110 | . 203316 (| | . or, t | Journa | | Angle from Horizontal: 90° | | Surfac | e Elevat | Sheet: 1 of |
| | | i. e: Ha | nd A | uger | | | | | | | Driller | | |
| | | e Dia | | - | | | | | | | Contra | - | |
| Dat | a Sta | arted: | 17/2 | /20 | Date Com | plete | d: 17/2 | 2/20 | Logged By: SI | | Check | ed By: A | AN |
| | Drillin | g | | Samplin | g & Testing | | | | Material Description | n | | | |
| Method | Resistance | Casing | Water | | nple or Id Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | 8 | STRUCTURE Other Observations |
| | | | Pe | 0.00 - 0.10 n | n | | XXXX | | | 7 | | | o staining, odour or PACM |
| HA – | | | Encountere | | | F | | CI- | FILL: Gravelly Sandy CLAY: low plasticity, grey |] | | observed FILL | |
| Ī | | | t Eno | 0.40 - 0.60 n | n | Į. | (A) | СН | Gravelly CLAY: medium to high plasticity, grey/orange | м | | Possibly N | IATURAL |
| | | | N N | | | - | 120 | | TERMINATED AT 0.70 m | | | | |
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| CS ENVIRONMENTAL 2014 LIB GLB LOG CARLINO NOVE-CORED SURACIOUTS GIN IP LOGS- SECLENG GPJ < CURRINGFIRE> ZSUGZGU 13:39 10,000 DB[GB AGS REA, Priod, Monitoring Logs B2 33 34 27 26 26 24 34 27 34 34 34 34 34 34 34 34 34 34 34 34 34 | ETHOD |) | | l | PENETRATION | | 1 | F | ELD TESTS SAMPLE | s | 1 | L | SOIL CONSISTENCY |
| | < E> | kcavato pper | r bucke | et | Шшш Н> | No Re | sistance | | PT - Standard Penetration Test B - | - Bulk disturb Disturbed s | | le | VS - Very Soft S - Soft |
| | A Ha | and aug ush tub | ger e | | | | | | CP - Dynamic Cone Penetrometer | Environmen Thin wall tu | ital sampl | le turbed' | F - Firm St - Stiff |
| SC SC | DN So H Ai | onic dril r hamm | ling | | | Refusa | al | | SP - Perth Sand Penetrometer C - Moisture Content MOISTU | | | | VSt - Very Stiff H - Hard |
| PS AS | S Pe S Sh | ercussio nort spi | on sam ral aug | er | WATER Water L | evel or | n Date | P | BT - Plate Bearing Test D - | Dry | | | RELATIVE DENSITY |
| | 0/V So 0/T So | olid flig olid flig | nt auge | er: V-Bit er: TC-Bit | shown | | . 2010 | P | D - Phito Ionization Detector W - | | | | VL - Very Loose L - Loose |
| HF WI | FA Ho B W | ollow fli 'ashbor | ght au e drillir | ger | water in water or water or | | | V | B-Baadual (uncompoted (/Da) LL - | Plastic limit ₋iquid limit Moisture co | ntent | | MD - Medium Dense D - Dense |
| RF | ≺ Ro | ock rolle | ər | | | | | | · · · · · · · · · · · · · · · · · · · | noisture CO | mont | | VD - Very Dense |
| z Re n abb | | | | or details of escriptions | | | CO | NS | TRUCTION SCIENCES | | | | |
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| | | cier | | tion | | | | | | ΤE | ST PIT LOG SHEET |
|---|--|--|---|--|---|------------------------------|------------------|---|--|------------------------------------|--|
| Clie Pro | | | | ourn Mulwaree Counci 2 - Detailed Site Inve | | on | | | | ŀ | Hole No: TP01 |
| Loc | atio | on: (| | er Dossie St and Sloar | | | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| | ition | | e: 5 1 | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | ; | Surfac | e Elevation: |
| | | | | isions: | | | | | | Contra | ctor: JPK Excavations |
| Dat | e Ex | cavat | ed: 1 | 8/2/20 | | | | Logged By: SI | | Checke | ed By: AN |
| E> | kcava | ation | | Sampling & Testing | _ | | | Material Descriptior | ۱ ۱ | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m DUP3/DUP3A | | لىر غلىر غلىر غلىر غلىر غ | ML | 0.10m FILL: Gravelly SILT: low plasticity, dark brown with | М | | FILL 0.00 m: PID = 3.1ppm - |
| | | | | DUFSIDUFSA | | | ML | FILL: Gravelly SILT: low plasticity, dark brown, with concrete and metal, fine to medium grained gravel | M to D | | No staining, odour or PACM observed |
| | | | 5 | 0.40 - 0.50 m | + 0.5 | | | 0.50m | | | 0.40 m: PID = 2.2ppm No staining, odour or PACM |
| -EX | | | Not Encountered | | 0.5 | | CL- CI | FILL: Gravelly CLAY: low to medium plasticity, brown/orange with bones | | | observed |
| | | | | 0.90 - 1.00 m | | | | 1.00m | D | | 0.90 m: PID = 4.1ppm No staining, odour or PACM – |
| | | | | | - | | ML | FILL: Gravelly SILT: low plasticity, brown with subangular gravel and sandstone | | | observed |
| | | | | 1.40 - 1.50 m | | | | 1.50m | | | 1.40 m: PID = 2.0ppm No staining, odour or PACM |
| p | | | | | - | | | TERMINATED AT 1.50 m Refusal | | | observed 7 1.50 m: REFUSAL ON ROCK (SANDSTONE) - |
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| | | | | | -2.0 | | | | | | - |
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| | | | | | - 2.5 | | | | | | |
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| | | | | | - 3.0 | | | | | | _ |
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| | | | | | - | | | | | | - |
| | | | | | - 3.5 | | | | | | - |
| | | | | | - | | | | | | - |
| | | | | | F. | | | | | | - |
| | | | | | -4.0 | | | | | | - |
| | | | | | F | | | | | | - |
| | | | | | F | | | | | | - |
| | | | | | -4.5 | | | | | | - |
| | | | | | F | | | | | | - |
| | | | | | + | | | | | | |
| ME EX PT AD FFW RR R R AD | R H PN SA I A S S V/T S A V/T H B | Excavato Ripper Hand aug Push tub Sonic dri Nir hamm Percussio Short spi Solid fligi | ger e lling her on san ral aug nt aug ght au ght au | pler ler er: V-Bit er: TC-Bit ger water | – No Res – Refusa • Level or n inflow | | S F F F | IP - Hand/Pocket Penetrometer D - D ICP Dynamic Cone Penetrometer U - T SP - Perth Sand Penetrometer U - T IC - Moisture Content MOISTUR BT - Plate Bearing Test D - D IP - Borehole Impression Test M - M ID - Phito Ionization Detector W - W S - Vane Shear; P=Peak, L - L | ulk disturb isturbed sa nvironmen nin wall tul E ry oist | ample tal sampl be 'undist | e S - Soft F - Firm |
| Ref abb | | | | or details of escriptions | | CO | NS | STRUCTION SCIENCES | | | |

Datgel AGS RTA, Photo, Monitoring Tools CS ENVIRONMENTAL 2:01.4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ << DrawingFile>> 25/03/2020 13:39 10.0.000

| Ē | | Cons | | ction | | | | | | | TE | ST PIT LO | G SHEET |
|--------------------------------|--|---|---|--|--|-------------------------------|-------------------------|------------------|---|---|------------------------------------|--|--|
| | ent: | | Gou | Iburn Mul | waree Council | | | | | | | Hole No | |
| | oject catio | | Cor | je 2 - Deta ner Dossie | iled Site Inves St and Sloan | e St, C | on Goulbu | rn | Job No: 5046200019 | | - | | Sheet: 1 of 1 |
| Po | sitio | n: | | | | | | | Angle from Horizontal: 90° | , | Surfac | e Elevation: | |
| Ма | chin | e Ty | be: 5 | tonne Exc | cavator | | | | Excavation Method: BUCK | ET | | | |
| | | | | ensions: | | | | | | | | ctor: JPK Exca | vations |
| | | | ted: | 18/2/20 | | | | | Logged By: SI | | Checke | ed By: AN | |
| E | xcava | ation | | Samp | ling & Testing | | | | Material Desc | cription | | | |
| Method | Resistance | Stability | Water | F | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteris colour, secondary and minor component ROCK TYPE, grain size and type, colour fabric & texture, strength, weathering, defects and structure | ts gittion | Consistency Relative Density | STRUC & Other Ob | |
| A | | | | 0.00 - 0.10 |) m | 1 | ند علد علد علد علد ع | ML | 0.10m Gravelly SILT: low plasticity, dark brown, with | roots M | | TOPSOIL 0.00 m: PID = 1.5ppn | n - |
| | | | | | | - | | | FILL: Gravelly SILT: low plasticity, brown, with | / | | No staining, odour o observed | r PACM |
| — EX — | | | Not Encountered | 0.30 - 0.40 |) m | -0.5 | | ML | concrete slab, plastic and fragment of siltsto | D to M | | FILL 0.30 m: PID = 1.9ppn No staining, odour c observed | n r PACM - |
| | | | | 0.70 - 0.80 |) m | + | | | 0.80m | | | 0.70 m: PID = 1.6ppn | 1 |
| | | | | | | Ţ | | | SANDSTONE | D | 1 | No staining, odour o | |
| L ♥ | | - | - | - | | -1.0- | | | 1.00m TERMINATED AT 1.00 m | | | NATURAL | |
| | | | | | | - 1.5 | | | TERMINATED AT 1.00 m Refusal | | | | |
| | | | | | | - 4.0 | | | | | | | - |
| | | | | | | - | | | | | | | |
| | | | | | | -4.5 | | | | | | | - |
| | | | | | | - 4.5 | | | | | | | - |
| | | | | | | F | | | | | | | |
| M URHPSAPAAAH SAPAAAH SR | F A F S ON S S S S O/V S S O/V S F A H B V B V S S S S S S S S S S S S S S S S | Excavat Ripper Hand au Push tu Sonic d Nir ham Percuss Short sp Solid fli | uger be rilling mer sion sa biral au ght au ght au flight a bre dril | impler Jger ger: V-Bit ger: TC-Bit luger | PENETRATION → w ± ± 5 WATER → Water → water of | - Refusa Level or nflow | | S F F F | PT - Standard Penetration Test B IP - Hand/Pocket Penetrometer D ICP Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U IC - Moisture Content MO BT - Plate Bearing Test D IP - Borehole Impression Test M ID - Phito Ionization Detector W S - Vane Shear; P=Peak, L | - Thin wall tu ISTURE - Dry - Moist - Wet - Plastic limit | ample ital sampl be 'undist | le VS - S - turbed' St - VSt - H - RELAT VL - L - MD - D - | Very Soft Soft Firm Stiff Very Stiff Hard VE DENSITY Very Loose Loose Medium Dense Dense Very Dense |
| Re | efer to e breviati | explanato ons and | ry note: basis of | s for details of f descriptions | 1 | | CO | NS | TRUCTION SCIENCES | | | 1 | |

CS ENVIRONMENTAL 2014 LIB GLB Log CARDNO NON-CORED 5046200019 GINT 7P LOGS- SECJ ENG GPJ <CDrawingFile>> 2503/2020 13:39 10.0.000 Daigel AGS RTA, Pholo, Monitoring Tools

| | nt: ect: | | | ourn Mulwaree Counci 2 - Detailed Site Inve | | on | | | | ŀ | Hole No: TP0 |
|---------------------------------------|-------------------------------|----------------------------------|---|--|-----------------|----------------|----------------|--|--|------------------------------------|---|
| | ation | : (| Corne | er Dossie St and Sloar | ne St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| osi | ition | : | | | | | | Angle from Horizontal: 90° | ; | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | 8/2/20 | | 1 | | Logged By: SI | | Checke | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | + | | ML | 0.10m Gravelly SILT: low plasticity, brown, with organics FILL: Gravelly SILT: low plasticity, brown-dark brown, with concrete, glass, ahphalt | М | - | TOPSOIL 0.00 m: PID = 3.3ppm No staining, odour or PACM observed |
| | | | | 0.40 - 0.50 m | + | | ML | 0.50m | D to M | | FILL 0.40 m: PID = 3.7ppm |
| | | | Not Encountered | | 0.5 | | × × | FILL: Silty SAND: fine to medium grained, brown-orange, with gravel | | - | No staining, odour or PACM observed |
| EX | | | Not Er | 0.90 - 1.00 m | + | | × SM | | м | | 0.90 m: PID = 4.5ppm |
| | | | | | 1.0 | | | 1.00m Gravelly SAND: fine to medium grained, orange-white-pale brown, with sandstone present | | | No staining, odour or PACM observed NATURAL |
| | | | | 1 40 1 50 | ļ | | SP | | М | | 1 40 m· PID = 2 9mm |
| ۲_ | | | | 1.40 - 1.50 m | | | - | 1.50m TERMINATED AT 1.50 m Target depth | | | 1.40 m: PID = 3.8ppm No staining, odour or PACM observed |
| | | | | | | | | | | | |
| | | | | | -2.0 | | | | | | |
| | | | | | | | | | | | |
| | | | | | -2.5 | | | | | | |
| | | | | | - - - 3.0 | | | | | | |
| | | | | | | | | | | | |
| | | | | | -3.5 | | | | | | |
| | | | | | | | | | | | |
| | | | | | - 4.0 - - | | | | | | |
| | | | | | - 4.5 | | | | | | |
| | | | | | | | | | | | |
| ΕX | | | r bucke | PENETRATION | | <u> </u> | | | ulk disturb | | |
| R HA PT SO AH PS AS | Ha Pu N So Air Pe | | e ling | pler WATER | – Refusa | | P N P | CP - Dynamic Cone Penetrometer ES - Et SP - Perth Sand Penetrometer U - Tr IC - Moisture Content MOISTURI BT - Plate Bearing Test D - Di | у | tal sampl | |
| AD/ AD/ HF/ WB RR | V So T So A Ho Wa | lid flig Iid flig Ilow fli | nt auge nt auge ght auge e drillir | er: V-Bit er: TC-Bit ger water | า inflow | . Daio | P | ID - Phito Ionization Detector W - W S - Vane Shear; P=Peak, PL - Pl LL - Liu | oist et astic limit quid limit oisture coi | ntent | VL - Very Loose L - Loose MD - Medium Den D - Dense VD - Very Dense |

| | nt: ect: | 5 | Stage | ourn Mulwaree Counci | stigati | on | | | | ł | Hole No: TP0 |
|---------------------|---|---|--|---|----------------------------------|----------------|------------------|--|--|------------------------------------|---|
| | atior | 1: Č | Corn | er Dossie St and Sloar | ie St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | Longood Dyr. Cl | | | ctor: JPK Excavations |
| | | | ea: 1 | 8/2/20 | | 1 | | Logged By: SI | | Спеске | ed By: AN |
| EX | cavati | on | | Sampling & Testing | | | | Material Description | 1 | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| Î | | | | 0.00 - 0.10 m | - | | ML | FILL: Gravelly Sandy SILT: low plasticity, brown, fube ti neduyn gravel, with organics | м | | FILL 0.00 m: PID = 1.8ppm No staining, odour or PACM observed |
| | | | | 0.30 - 0.40 m | -0.5 | | < | 0.30m FILL: Gravelly SILT: low plasticity, dark brown, with plastic and metal | | - | 0.30 m: PID = 4.8ppm No staining, odour or PACM observed |
| | | | Encountered | 0.70 - 0.80 m | | | | | | | 0.70 m: PID = 3.9ppm No staining, odour or PACM observed |
| | | | Not Enco | 1.30 - 1.40 m | - 1.0 - - | | ML | | м | | 1.30 m: PID = 6.0ppm |
| | | | | 1.30 - 1.40 m | | | | | | | No staining, odour or PACM observed |
| | | | | 1.80 - 1.90 m | -2.0 | | SP | 1.80m Gravelly SAND: fine to medium grained, orange-brown 2.10m | м | - | NATURAL 1.80 m: PID = 4.1ppm No staining, odour or PACM observed |
| | | | | | - | <u></u> | | TERMINATED AT 2.10 m Target depth | | | |
| | | | | | -2.5 - - | | | | | | |
| | | | | | - 3.0 - | | | | | | |
| | | | | | - - 3.5 - | | | | | | |
| | | | | | - - - 4.0 | | | | | | |
| | | | | | - - - | | | | | | |
| | | | | | - 4.5 - - | | | | | | |
| ME EX RAT OH SADAAD | Riµ Ha Pu N So Air Pe Sh V So YT So A Ho | cavator opper nd aug sh tub hamm rcussic ort spir lid fligh lid fligh lid fligh lid fligh | ger e ling ler on sam ral aug nt auge nt auge ght au | pler er er: V-Bit er: TC-Bit ger water | – No Res – Refusa Level or | | S F F F | IP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer VCP - Perth Sand Penetrometer MC - Moisture Content MET - Plate Bearing Test MP - Borehole Impression Test VID - Plate Sear, P=Peak, VID - Plate Sear, P=Peak, | turbed sa vironmen n wall tul ist st ustic limit uid limit | tal sampl be 'undisi | e S - Soft F - Firm |
| RR | | ck rolle | er | | Samow | | | | isture co | ntent | VD - Very Dense |

| | S | cien | ice | ction | | | | | | TE | ST PIT LOG SHEET |
|--------------|---|--|---|--|--|--|-----------------------|---|---|------------------------------------|---|
| Clie Proj | nt: | (| Goul | burn Mulwaree Counci e 2 - Detailed Site Inve | | 20 | | | | ŀ | Hole No: TP05 |
| | atior | n: (| Corr | er Dossie St and Sloar | ne St, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 2 |
| Pos | ition | : | | | | | | Angle from Horizontal: 90° | ; | Surfac | e Elevation: |
| | | | | tonne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | nsions: | | | | | | | ctor: JPK Excavations |
| | | | ted: | 18/2/20 | | 1 | | Logged By: SI | | Checke | ed By: AN |
| Ex | cavat | ion | - | Sampling & Testing | | | | Material Description | 1 | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | Encountered | 0.00 - 0.10 m | + | لد علد علد علد علد ع لد علد علد علد علد ع لد علد علد | ML | Gravelly SILT: low plasticity, dark brown, with organics and siltstone gravels | м | | TOPSOIL 0.00 m: with organics and siltstone gravels 0.00 m: PID = 6.5mm |
| —EX | | | Not End | | - | | | 0.30m FILL: SAND: fine to medium grained, brown-white, | | - | No staining, odour or PACM observed |
| Y | | - | | 0.40 - 0.50 m | 0.5 | | SP | with sandstone 0.50m TERMINATED AT 0.50 m Refusal | D to M | | FILL 0.30 m: with sandstone 0.40 m: PID = 8.6mm No staining, odour or PACM |
| ME | THOD | | pr buck | et PENETRATION | - 1.0 - 1.5 - 2.0 - 2.5 - 3.0 - 3.5 | | | IELD TESTS SAMPLES PT - Standard Penetration Test B - Bu | Ik disturb | ed sampl | e VS - Very Soft |
| | Ex Rij Ha PL N Sco St Sco T Sco T Sco N Sco St Sco Sco St Sco St Sco Sco St Sco Sco Sco Sco Sco Sco Sco Sco Sco Sco | cavato pper and aug ush tub onic dri r hamm ercussio nort spi olid fligi | ger lling ner on sar iral au ht aug ight au ight au ight au | npler ger er: V-Bit er: TC-Bit iger | – No Res – Refusa Level on n | | S F F M F | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer ES - En SP - Perth Sand Penetrometer U - Th GC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dis ID - Phito Ionization Detector M - Moisture S - Vane Shear; P=Peak, PL - Pla D - Distribution PL - Pla | sturbed sa vironmen in wall tul : y vist | ample tal sampl be 'undist | e VS - Very Soft S - Soft e F - Firm |
| Refe | er to exp | planator | y notes | for details of descriptions | | СО | NS NS | | | | |

CS ENVIRONMENTAL 2014 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <</ style="text-align: red;">CDrawingFile>> 25/03/2020 13:40 10.0.000 Datgel AGS RTA, Photo, Monitoring Tools

| Ē | | ons cier | | tion | | | | | | ΤЕ | ST PIT LOG SHEET |
|--|------------------------------|--|--|--|----------------------|----------------|----------------|--|-------------------------------------|------------------------------------|--|
| | ent: ject: | (| Goull Stage | burn Mulwaree Counci 2 - Detailed Site Invester Prossie St and Sloar | stigatio | on | | | | | Hole No: TP06 |
| | atio | | Corn | er Dossie St and Sloan | ie St, G | souidu | rn | Job No: 5046200019 | | f | Sheet: 1 of 1 |
| | ition | | 0. E 4 | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surrac | e Elevation: |
| | | | | isions: | | | | Excavation Method. BUCKET | | Contra | ctor: JPK Excavations |
| | | | | 9/2/20 | | | | Logged By: SI | | | ed By: AN |
| | cavat | | | Sampling & Testing | | | | Material Description | | | 54 BJ1 / 44 |
| | | | | | Depth (m) | . <u>ಲ</u> | ation | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components | e c | e e | |
| Method | Resistance | Stability | Water | Sample or Field Test | Dept | Graphic Log | Classification | ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | Encountered | 0.00 - 0.10 m | + | | ML | 0.10m FILL: Gravelly SAND: low plasticity, brown, with organics FILL: Gravelly SILT: low plasticity, brown | M | - | FILL 0.00 m: PID = 1.6ppm No staining, odour or PACM observed |
| Ĵ | | | ncour | 0.30 - 0.40 m | + | | | | | | 0.30 m: PID = 2.4ppm |
| EX | | | Not E | | -0.5 | | ML | | D to M | | No staining, odour or PACM observed |
| | | | | 0.70 - 0.80 m | + | | sw | 0.70m 0.80m FILL: Gravelly SAND: fine to coarse grained, | D to M | - | 0.70 m: PID = 2.3ppm |
| . | | | | | - 1.0 | | 300 | 0.80m FILL: Gravely SAND: tine to coarse grained, orange-brown TERMINATED AT 0.80 m Refusal | DIOM | | No staining, odour or PACM observed |
| | | | | | - | | | | | | |
| | | | | | - 1.5 | | | | | | |
| | | | | | | | | | | | |
| | | | | | -2.0 | | | | | | |
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| | | | | | | | | | | | |
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| | | | | | - 3.0 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 3.5 | | | | | | |
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| | | | | | - 4.0 | | | | | | |
| | | | | | ŀ | | | | | | |
| | | | | | - 4.5 - | | | | | | |
| | | | | | | | | | | | |
| EX R | Ri | kcavato pper | | et PENETRATION Suuu± Suuu± | | sistance | 5 | IP - Hand/Pocket Penetrometer D - Dis | k disturb | ample | S - Soft |
| HA PT SO AH PS AS AD | N So Pu Ai Pe Sh | and au ush tub onic dri r hamn ercussi nort spi | ie Iling ner on sam iral aug | er Water | – Refusa Level on | I | F F I | DCP - Dynamic Cone Penetrometer ES - En VSP - Perth Sand Penetrometer U - Th MC - Moisture Content MOISTURE PBT - Plate Bearing Test D - Dr MP - Borehole Impression Test M - Mc | vironmen in wall tul / ist | tal sampl | e F - Firm |
| AD AD HF WE RR | /TSo AHo BW | blid flig blid flig blow fl ashbor bck roll | ht aug ight au re drillir | er: TC-Bit ger water | inflow | | | PID - Phito lonization Detector W - We /S - Vane Shear; P=Peak, PL - Pla LL - Lic | | ntent | L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Ref abb | er to ex reviatio | planator ns and b | y notes f asis of c | or details of lescriptions | | CO | NS | STRUCTION SCIENCES | | | |

CS ENVIRONMENTAL 2.01,4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <<DrawingFile>> 25/03/2020 13:40 10.0.000 Datgel AGS RTA, Photo, Monitoring Tools

| Ē | | Cons | | ction | | | | | | TE | ST PIT LOG | SHEET |
|---|---|---|--|--|---|----------------|------------------------|---|---|------------------------------------|--|------------------|
| | ent: | | Goul | burn Mulwaree Counci | | | | | | | Hole No: | |
| | ject: atio | : on: | Corn | e 2 - Detailed Site Inves er Dossie St and Sloan | e St, G | on Soulbu | rn | Job No: 5046200019 | | - | | neet: 1 of 1 |
| | sitio | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: | |
| | | | | tonne Excavator | | | | Excavation Method: BUCKET | | | | |
| - | | | | nsions: 19/2/20 | | | | Logged By: SI | | | ctor: JPK Excaved By: AN | ations |
| | | | leu. | Sampling & Testing | | | | Material Description | | CHECK | eu by. An | |
| | | | - | | Ê | | Ē | | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCT & Other Obse | URE ervations |
| Â | | | p | 0.00 - 0.10 m | - | | | FILL: Gravelly SILT: low plasticity, brown, with organics and siltstone | | | FILL 0.00 m: PID = 6.1ppm No staining, odour or observed | PACM |
| EX | | | Not Encountered | 0.40 - 0.50 m | 0.5 | | ML | | м | | 0.40 m: PID = 4.7ppm No staining, odour or observed | PACM – |
| | | _ | | 0.90 - 1.00 m | | | ML | 0.80m FILL: Gravelly Sandy SILT: low plasticity, brown-white, with sandstone 1.00m TERMINATED AT 1.00 m Refusal | | | 0.90 m: PID = 5.9ppm No staining, odour or observed | PACM – |
| MI E2 R HA PT SAA AL HF WR R R abl | | | | | - 1.5 - 1.5 - 2.0 - 2.5 2.5 | | | | | | | |
| EX R HA PT SC AF PS AS AL HF WI RF | R P DN S H A S S D/V S S D/T S F A H B V | Excavate Ripper Hand au Push tu Sonic di Nir hami Percuss Short sp Solid flig | iger be illing mer ion sar iral aug ht aug ht aug light au ire drilli | npler ger er: V-Bit er: TC-Bit iger water i | − No Res − Refusa Level on | | S F F F II | IP - Hand/Pocket Penetrometer D - Display IP - Dynamic Cone Penetrometer U - Th IP - Perth Sand Penetrometer U - Th IP - Moisture Content MOISTURE D - Dr IP - Borehole Impression Test D - Dr IP - Phito Ionization Detector W - We IP - Participandiation (Linearconted Linear) - Participandiation (Linearconted Linear) | sturbed s vironmen in wall tu v vist et astic limit | tal sampl | e VS - S - turbed' St - H - RELATIV VL - L - MD - D - | |
| Re abl | fer to e previatio | explanato ons and | ry notes basis of | for details of descriptions | | CO | NS | STRUCTION SCIENCES | | | | |

| vatic Exca vatio | Type on D avat | e: 5 te | 2 - Detailed Site Invest onne Excavator sions: 8/2/20 Sampling & Testing Sample or Field Test | Debty (u) (u) Debty (u) Debty (u) - 0.5- - - - - - - - - - - - - - | Graphic | S Classification | Job No: 5046200019 Angle from Horizontal: 90° Excavation Method: BUCKET Logged By: SI Material Description SOLL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Silty GRAVEL: fine to coarse, dark grey-pale brown | | Surfac Contra | Hole No: TPC Sheet: 1 c e Elevation: actor: JPK Excavations ed By: AN STRUCTURE & Other Observations |
|---|---|--|--|--|---|--|--|---|--|---|
| ine ⁻ vatic Exca | on D avat | imen ed: 1 | sions: 8/2/20 Sampling & Testing Sample or Field Test | | Graphic Log | GW | Excavation Method: BUCKET Logged By: SI Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Silty GRAVEL: fine to coarse, dark grey-pale | Moisture Condition | Contra Checke | STRUCTURE & Other Observations |
| vatic Exca Ivatio | on D avat | imen ed: 1 | sions: 8/2/20 Sampling & Testing Sample or Field Test | | Graphic Log | GW | Logged By: SI Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Silty GRAVEL: fine to coarse, dark grey-pale | Moisture Condition | Check | STRUCTURE & Other Observations |
| Exca vatio | avat on | ed: 1 | 8/2/20 Sampling & Testing Sample or Field Test | | Graphic Log | GW | Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Silty GRAVEL: fine to coarse, dark grey-pale | Moisture Condition | Check | STRUCTURE & Other Observations |
| vatio | n | | Sampling & Testing Sample or Field Test | | Graphic Log | GW | Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Silty GRAVEL: fine to coarse, dark grey-pale | Moisture Condition | | STRUCTURE & Other Observations FILL 0.00 m: SEDIMENTARY SAMPLE |
| | | Water | Sample or Field Test | | Graphic Log | GW | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Silty GRAVEL: fine to coarse, dark grey-pale | Moisture Condition | Consistency Relative Density | & Other Observations |
| Kesistance | Stability | Water | Field Test | | Graphic Log | GW | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Silty GRAVEL: fine to coarse, dark grey-pale | | Consistency Relative Density | & Other Observations |
| | | | 0.10 - 0.30 m | - - - | | | | w | | 0.00 m: SEDIMENTARY SAMPLE |
| | | | | - - - | | | | | 1 | |
| | | | | | | | 0.50m TERMINATED AT 0.50 m Target depth | | | |
| | | | | L | | | | | | |
| | | | | - - 1.5 - | | | | | | |
| | | | | - - - 2.0 | | | | | | |
| | | | | - - 2.5 | | | | | | |
| | | | | - - - 3.0 | | | | | | |
| | | | | - - 3.5 | | | | | | |
| | | | | - - 4.0 - | | | | | | |
| | | | | - - - 4.5 - | | | | | | |
| IOD Exca | avato | r bucke | | - | | | | | ed sampl | SOIL CONSISTENCY |
| Ripp Han Pus Son Air h Pero Sho Solid Holl Was | per id aug ih tub ic dril namm cussic ort spir d fligh d fligh low flig shbor | ger e lling her on sam ral aug nt auge nt auge ght aug ght aug | pler er r: V-Bit r: TC-Bit ger | - Refusa Level or inflow | al | H P P PI IN PI | P Hand/Pocket Penetrometer D ES CP Dynamic Cone Penetrometer U T SP Perth Sand Penetrometer U T IC Moisture Content MOISTUR BT Plate Bearing Test D C ID Phito Ionization Detector W V VS Vane Shear; P=Peak, PL FL | Disturbed si Environmen Thin wall tu E Ory Noist Vet Plastic limit iquid limit | ample tal sampl be 'undist | Ie S - Soft F - Firm |
| 0 | Exc Rip Har Pus Son Air I Per Sho Soli Soli Holl Was Roc | Excavato Ripper Hand auç Push tub Sonic dril Air hamm Percussis Short spi Solid fligj Solid fligj Hollow fli Washbor Rock rolli explanatory | Excavator bucke Ripper Hand auger Push tube Sonic drilling Air hammer Percussion sam Short spiral aug Solid flight auge Solid flight auge Hollow flight aug Washbore drillin Rock roller explanatory notes fo | Excavator bucket Ripper Hand auger Push tube Sonic drilling Air hammer Percussion sampler Solid flight auger: TC-Bit Hollow flight auger Washbore drilling Washbore drilling | CO Excavator bucket Ripper Hand auger Push tube Sonic drilling Air hammer Percussion sampler Solid flight auger: TC-Bit Hollow flight auger: TC-Bit Ho | PECURSION SAMPLER Procussion sampler Solid flight auger: YC-Bit Bolid fligh | -2.5 -3.0 -3.5 -3.5 -4.0 -4.5 -4.5 -5.5 -6.0 -7.5 < | OP FED TEST Gas -3.0 -3.5 -4.0 -4.5 -4.5 -4.5 -4.5 -4.5 -5.5 -5.7 -7.5 -6.7 -7.5 -7.5 <td>PENETRATION -2.5 -3.5 -4.5 -4.5 -5.5 -4.6 -5.5 -4.5 -5.5 -5.5 -6.5 -5.5 -6.5 -7.5 <td>O -2.5 -3.0 -3.5 -4.0 -3.5 -4.5 -4.6 -4.6 -4.5 -50 -50 Excavator bucket Ripper Prash tube Solid fight auger: V-Bits Solid fight auger:</td></td> | PENETRATION -2.5 -3.5 -4.5 -4.5 -5.5 -4.6 -5.5 -4.5 -5.5 -5.5 -6.5 -5.5 -6.5 -7.5 <td>O -2.5 -3.0 -3.5 -4.0 -3.5 -4.5 -4.6 -4.6 -4.5 -50 -50 Excavator bucket Ripper Prash tube Solid fight auger: V-Bits Solid fight auger:</td> | O -2.5 -3.0 -3.5 -4.0 -3.5 -4.5 -4.6 -4.6 -4.5 -50 -50 Excavator bucket Ripper Prash tube Solid fight auger: V-Bits Solid fight auger: |

| | nt: ect: | (| Stage | ourn Mulwaree Counci | stigati | on | | | | ŀ | Hole No: TPC |
|------------------------------------|--|---|---|--|----------------------------------|----------------|----------------------------|--|--|------------------------------------|--|
| | ation | : 0 | Corne | er Dossie St and Sloar | ie St, (| Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | ition: | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | | | .ea: 1 | 8/2/20 | | | | Logged By: SI | | Unecke | ed By: AN |
| EX | cavati | on | - | Sampling & Testing | - | | - | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| EX - | | | | 0.10 - 0.30 m | | | GP | FILL: Silty Clayey GRAVEL: fine to medium, pale brown - white | w | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| ¥ | | | | | 0.5- - - | | | 0.50m TERMINATED AT 0.50 m Target depth | | | |
| | | | | | - - 1.0 - | | | | | | |
| | | | | | - - - - 1.5 | | | | | | |
| | | | | | - - - - 2.0 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 2.5 - - - | | | | | | |
| | | | | | - 3.0 - | | | | | | |
| | | | | | - 3.5 - | | | | | | |
| | | | | | - - 4.0 | | | | | | |
| | | | | | - - - 4.5 | | | | | | |
| | | | | | - | | | | | | |
| ME EX R A PT SO A PS A D/ A D/ H B | Rip Ha Pu: N Sol Air Pei Sh V Sol /T Sol A Ho | pper nd aug sh tub nic dri hamm rcussio ort spi lid flig lid flig llow fli | e lling ner on sam ral aug ht auge | pler er r: V-Bit ger water | – No Res – Refusa Level or | | S ⊢ P P I P | IP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer DCP - Perth Sand Penetrometer MC - Moisture Content MBT - Plate Bearing Test MP - Borehole Impression Test MD - Phito Ionization Detector VS - Vane Shear; P=Peak, | turbed sa vironmen n wall tul ist st ustic limit uid limit | tal sampl | e S - Soft F - Firm |
| RR | | shbor ck roll | er er | vy — ◀ water | outiiOW | | | R=Resdual (uncorrected kPa) W - Mo | isture cor | ntent | D - Dense VD - Very Dense |

| Clier | t: | (| | ourn Mulwaree Counci | | | | | | | ST PIT LOG SHEE Hole No: TP1 |
|---|--|--|--|---|---------------------------------|----------------|--------------------------------------|--|--|------------------------------------|--|
| Proje Loca | | : 0 | Stage Corne | 2 - Detailed Site Invest Tossie St and Sloar | stigati ie St, (| on Goulbu | rn | Job No: 5046200019 | | • | Sheet: 1 o |
| Posit | - | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator sions: | | | | Excavation Method: BUCKET | | Contro | ctor: JPK Excavations |
| | | | | 8/2/20 | | | | Logged By: SI | | | ed By: AN |
| Exc | avati | on | | Sampling & Testing | | | | Material Descriptio | | | - |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.10 - 0.30 m | - | | GM | FILL: Silty Clayey GRAVEL: fine to medium, cream/buss | w | | FILL 0.10 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| | | | | | + | | < | | | | |
| • | | | | | 0.5- - - | | | 0.50m TERMINATED AT 0.50 m Target depth | | | 0.50 m: (HARD ROCK) |
| | | | | | | | | | | | |
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| | | | | | - 1.5 | | | | | | |
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| | | | | | - 3.5 | | | | | | |
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| | | | | | - 4.5 - | | | | | | |
| | | | | | - | | | | | | |
| MET EX HA PT SON AH PS AD/V AD/T HFA | Exc Rip Hai Soi Air Pei Shi Sol | per nd aug sh tub nic dril hamm cussio ort spi id fligl id fligl | e ling ler on samp ral auge nt auge | oler WATER Fr: V-Bit :: TC-Bit Water | - No Re - Refusa Level or | | S H D P M P I P | P Hand/Pocket Penetrometer D - CP Dynamic Cone Penetrometer U - SP Perth Sand Penetrometer U - IC Moisture Content MOISTUR BT Plate Bearing Test D - IP Borehole Impression Test M - ID Phito Ionization Detector W - S Vane Shear "Pereak" PL - | Bulk disturb Disturbed sa Environmen Thin wall tu RE Dry Vioist Vet Plastic limit | ample ital sampl be 'undist | le S - Soft F - Firm |
| WB RR | Wa Ro | shbor ck roll | e drillin er | g water | outflow | | | B=Baadwal (uncorrected kDa) LL - L | ₋iquid limit Vloisture co | | D - Dense VD - Very Dense |

| | | | ices | tion | | | | | | TE | ST PIT LOG SHEE |
|---|---|--|---|--|----------------------------------|----------------|------------------|--|-----------------------|------------------------------------|---|
| Clier Proje Loca | nt: ect: | (| Goull Stage | burn Mulwaree Counci 2 - Detailed Site Invester Possie St and Sloar | stigatio | on | m | | | | Hole No: TP1 |
| | | | Corn | er Dossie St and Sloar | le St, C | | rn | Job No: 5046200019 | | 0 | Sheet: 1 of |
| Posi | | | 0. E t | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surrac | e Elevation: |
| | | | | isions: | | | | Excavation Method. BUCKET | | Contra | actor: JPK Excavations |
| | | | | 8/2/20 | | | | Logged By: SI | | | ed By: AN |
| | cavat | | | Sampling & Testing | | | | Material Description | | | |
| | | Stability | ter | Sample or | Depth (m) | g | ication | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components | | ttency tive sity | STRUCTURE |
| EX Method | Resistance | Stab | Water | Field Test | De | Graphic Log | Classification | ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | & Other Observations |
| ш | | | | 0.10 - 0.30 m | + | | GМ | FILL: Silty GRAVEL: fine to coarse, grey | w | | 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| | | _ | | | 0.5 | | | 0.50m TERMINATED AT 0.50 m Target depth | | | |
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| | | | | | - 1.0 | | | | | | |
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| | | | | | - 2.5 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 3.0 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 3.5 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 4.0 | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | THOD |) | | PENETRATION | - | | F | ELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R HA PT SON AH PS AD/ AD/ HFA WB | EX Rij Ha PL Air Sh Sh Sc T Sc W W | cavato pper and au ush tub onic dri r hamn ercussi nort spi olid flig olid flig ollow fl ashboi | ie Iling ner on sam iral aug ht auge ht auge ight au re drillir | et ⇒ u u ⊥ ⊥ → water | − No Res − Refusa Level on | I | S F F F | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Di CP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th CF - Noisture Content MOISTURE BT - Plate Bearing Test D - Di ID - Phito Ionization Detector M - Mu Vane Shear, P=Peak, PL - Pi Pereduct (Dependent Interpreting Test) W - W | y pist | ample tal sampl be 'undis | ble VS - Very Soft S - Soft sturbed' St - Stiff VSt - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense |
| RR Refer | r to exp | planator | y notes f | or details of escriptions | | CO | NS NS | TRUCTION SCIENCES | | | VD - Very Dense |

CS ENVIRONMENTAL 2.01,4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <<DrawingFile>> 25/03/2020 13:40 10.0.000 Datgel AGS RTA, Photo, Monitoring Tools

| | nt: ect: | 9 | Goul Stage | burn Mulwaree Counci | stigati | on | | | | | Hole No: TP1 |
|---|--|---|---|--|----------------------------------|----------------|---------------------------------------|---|-----------------------|------------------------------------|--|
| | atior | n: (| Corn | er Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | nsions: 8/2/20 | | | | Logged By: SI | | | ed By: AN |
| | cavat | | eu. | Sampling & Testing | | | | Material Description | | CHECK | eu by. An |
| | | | - | | - | | 6 | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | + | | CL- CI | 0.10m FILL: Gravelly Silty CLAY: low to medium plasticity, brown, with organics FILL: Gravelly Silty CLAY: low to medium plasticity, | м | - | FILL 0.00 m: PID = 3.9ppm No staining, odour or PACM |
| | | | | 0.40 - 0.50 m | | | CL- CI | 0.50m FILL: Gravelly SILT: low plasticity, brown, with sandstone and siltstone | м | - | observed 0.40 m: PID = 4.3ppm No staining, odour or PACM observed |
| ——— ЕХ ——— | | | Not Encountered | 0.90 - 1.00 m DUP5/DUP5A | | | × × × × × × × × × × × × × × × × × × × | | D to M | | 0.90 m: PID = 3.7ppm No staining, odour or PACM observed |
| | | | | 1.40 - 1.50 m | | | * * * * * * * | | | | 1.40 m: PID = 2.7ppm No staining, odour or PACM observed |
| / | | | | 1.70 - 1.80 m | + | | × × | 1.80m TERMINATED AT 1.80 m | | | 1.70 m: PID 3.2ppm No staining, odour or PACM observed |
| | | | | | -2.0 - - 2.5 | | | Refusal | | | |
| | | | | | | | | | | | |
| | | | | | - 3.5 | | | | | | |
| | | | | | - 4.0 - | | | | | | |
| | | | | | - 4.5 - - | | | | | | |
| EX R HA PT SOH PS AD AD HF WE | Ri Ha Pu N So Ain Pe Sh V So V So V So V So V So W | ccavato pper and aug ush tub pnic dri r hammercussion nort spi plid flig plid flig plid flig plow fli ashbor | ger lling her on sam ral aug ht aug ght aug ght au | ppler ler er: V-Bit er: TC-Bit ger water i | - No Res - Refusa Level or | | S ⊢ □ ₽ ₽ ₽ | P Hand/Pocket Penetrometer D - Dit CP Dynamic Cone Penetrometer ES - Th SP Perth Sand Penetrometer U - Th C Moisture Content MOISTURE BT Plate Bearing Test D - Dr ID Phito lonization Detector W - Wu S Vane Shear, P=Peak, PL - PL C Candid Line Line - Lic | y bist | ample tal sampl be 'undis' | le S - Soft F - Firm VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Den D - Dense |
| RR | Ro | ock roll | er | | | | | · · · · · · · · · · · · · · · · · · · | nature col | nent | VD - Very Dense |

| 77 | | cien | | tion | | | | | | TE | ST PIT LOG SHEET |
|---|---|---|---|---|---|--------------------------|-------------------|--|-----------------------|------------------------------------|--|
| Clier Proje | | | | ourn Mulwaree Counc 2 - Detailed Site Inve | | on | | | | ŀ | Hole No: TP13 |
| Loca | | n: (| | er Dossie St and Sloa | | | rn | Job No: 5046200019 Angle from Horizontal: 90° | | Surfaa | Sheet: 1 of 1 e Elevation: |
| | | | e:5 t | onne Excavator | | | | Excavation Method: BUCKET | ``` | Junac | |
| | | | | nsions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | 8/2/20 | | | | Logged By: SI | (| Checke | ed By: AN |
| Exc | avat | tion | | Sampling & Testing | | | _ | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | | 0.00 - 0.10 m | | للد علد علد علد علد ع | ML | 0.10m Gravelly Sandy SILT: low plasticity, dark brown-pale | м | | TOPSOIL 0.00 m: PID = 4.7ppm |
| | | | | | F | | | FILL: Gravelly SILT: low plasticity, dark grey-brown, with sandstone and siltstone | | | No staining, odour or PACM observed |
| | | | | 0.50 - 0.60 m DUP6/DUP6A | - - - - - - - - | | ML | | | | FILL 0.50 m: PID = 3.2ppm No staining, odour or PACM observed |
| —EX — | | | Not Encountered | 1.00 - 1.10 m | - | | CL- CI | 1.10m FILL: Gravelly Silty CLAY: low to medium plasticity, brown-orange | D to M | | 1.00 m: PID = 3.1ppm No staining, odour or PACM observed |
| | | | | 1.50 - 1.60 m | | | ML | 1.60m FILL: Gravelly SILT: low plasticity, grey, with siltstone gravels | _ | | 1.50 m: PID = 6.1ppm No staining, odour or PACM observed |
| | | | | 2.00 - 2.10 m | 2.0 | | SP | 2.10m FILL: Gravelly SAND: fine to medium grained, brown-pale brown | _ | | 2.00 m: PID = 4.9ppm No staining, odour or PACM observed |
| ¥ | | 4 | | 2.40 - 2.50 m | 2.5 | | | 2.50m TERMINATED AT 2.50 m | | | 2.40 m: PID = 3.6ppm No staining, odour or PACM - observed |
| | | | | | - 3.0 - 3.5 4.0 | | | Refusal | | | |
| EX R HA PT SON AH PS AS AD/N HFA WB RR | Ri Ha Pu Ain Pe Sh V So T So W Ro W | xcavato ipper and aug ush tub onic dril r hamm ercussic hort spi olid fligi olid fligi | ger e ling on sam ral auge nt auge nt auge ght au e drillir er | pler ler er: V-Bit er: TC-Bit ger water water | — No Res — Refusa r Level on n inflow | Date | S ⊢ C P ≥ P № P V | IP - Hand/Pocket Penetrometer ICP Dynamic Cone Penetrometer SP - Perth Sand Penetrometer U IC Moisture Content BT - Plate Bearing Test D ID - Pito Ionization Detector S - Vane Shear; P=Peak, Beadual (uncarrented IDD) | / ist | ample tal sampl be 'undist | e S - Soft F - Firm |

Datgel AGS RTA, Photo, Monitoring Tools CS ENVIRONMENTAL 2.01.4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <<DrawingFile>> 25/03/2020 13:40 10.0.000

| | nt: ect: | 9 | Stage | burn Mulwaree Counci 2 - Detailed Site Inves | stigati | on | | | | ŀ | Hole No: TP1 |
|---|--|---|---|---|---|----------------|-------------------|--|------------------------|------------------------------------|--|
| | atior | n: (| Corn | er Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | tion | | | | | | | Angle from Horizontal: 90° | 5 | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | nsions: | | | | Longood Dyr. Cl | | | ctor: JPK Excavations |
| | | | | 18/2/20 | - | | | Logged By: SI | | леске | ed By: AN |
| | cavati | on | | Sampling & Testing | - | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | | 0.00 - 0.10 m | - | | ML | 0.10m FILL: Gravelly Sandy SILT: low plasticity, brown-pale brown, fine to coarse gravel, with organics FILL: Gravelly SILT: low plasticity, dark brown-grey, | | | FILL 0.00 m: PID = 3.3ppm No staining, odour or PACM observed |
| | | | | 0.40 - 0.50 m | 0.5 | | ~ ~ ~ ~ ~ ~ ~ ~ ~ | with sandstone and siltstone | | | 0.40 m: PID = 6.1ppm No staining, odour or PACM observed |
| | | | Not Encountered | 0.90 - 1.00 m | | | ML | | | | 0.90 m: PID = 3.6ppm No staining, odour or PACM observed |
| EX | | | Not En. | 1.40 - 1.50 m | | | ~ ~ ~ ~ ~ ~ ~ ~ ~ | | D to M | | 1.40 m: PID = 2.4ppm No staining, odour or PACM observed |
| | | | | 1.90 - 2.00 m | 2.0 | | ~ ~ ~ ~ ~ ~ ~ ~ ~ | 2.20m | | | 1.90 m: PID = 5.8qppm No staining, odour or PACM observed |
| | | | | 2.40 - 2.50 m | 2.5- | | GМ | FILL: Silty GRAVEL: fine to coarse, pale brown-grey 2.50m TERMINATED AT 2.50 m Refusal | | | 2.40 m: PID = 5.4ppm No staining, odour or PACM \observed |
| | | | | | - | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - - - 4.5 - | | | | | | |
| ME EX R HA PT OI AH PS AD/ HF/ WB R | Riµ Ha Pu N So Air Pe Sh V So T So A Ho Wa | oper ind aug ish tub nic dri hamm rcussio ort spi lid flig lid flig llow fli | e lling ner on sam ral aug nt aug nt aug ght au e drillin | ppler ler er: V-Bit er: TC-Bit ger water i | - No Res - Refusa Level or nflow | | S F F F | IP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer VCP - Perth Sand Penetrometer MC - Moisture Content MET - Plate Bearing Test MP - Borehole Impression Test VID - Plate Sear, P=Peak, VID - Plate Sear, P=Peak, | n wall tub , ist | imple tal sampl be 'undist | le S - Soft F - Firm |

| | nt: ect: | (| | urn Mulwaree Council 2 - Detailed Site Inves | | on | | | | | Hole No: TP1 |
|----------------------------|--|--|--|--|-------------------------------|----------------|----------------|---|--|------------------------------------|---|
| | ation | i: 0 | Corne | r Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of |
| os | ition | : | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | sions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | B/2/20 | 1 | | | Logged By: SI | | Check | ed By: AN |
| EX | cavati | on | | Sampling & Testing | + | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | - | | ML SW | 0.10m FILL: Gravelly Sandy SILT: low plasticity, brown-pale brown, with organic matter, sandstone and siltstone FILL: Gravelly SAND: fine to coarse grained, brown-pale brown, with sandstone and siltstone | D to M | _ | FILL 0.00 m: PID = 2.7ppm No staining, odour or PACM observed 0.40 m: PID = 3.4ppm |
| | | | | | 0.5 - - | | | 0.50m FILL: Gravelly SILT: low plasticity, brown-grey, with siltstone and sandstone | | - | 0.40 m: PID = 3.4ppm No staining, odour or PACM observed |
| — EX — | | | Not Encountered | | - 1.0 - | | | | | | 0.90 m: PID = 3.2ppm No staining, odour or PACM observed |
| | | | | | - 1.5 - | | ML | | D to M | | 1.40 m: PID = 5.3ppm No staining, odour or PACM observed |
| | | | | | 2.0 | | | | | | 1.90 m: PID = 4.8ppm No staining, odour or PACM observed |
| V | | | | | | | | 2.30m TERMINATED AT 2.30 m | | | 2.20 m: PID = 3.8ppm No staining, odour or PACM observed |
| | | | | | - -2.5 - | | | Refusal | | | |
| | | | | | - 3.0 | | | | | | |
| | | | | | - 3.5 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - - 4.5 | | | | | | |
| ME | THOD | | | PENETRATION | - | | F | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| AH PS AD AD HF | Rip Ha Pu N So Air Pe Sh /V So /T So A Ho 8 Wa | oper nd aug sh tub nic dril hamm rcussic ort spi lid flig lid flig llow fli ashbor | e lling her on samp ral auge nt auge ght aug ght aug e drillin | bler fr V-Bit er WATER Water Water Shown water i | - Refusa Level or nflow | | | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test ID - Phito Ionization Detector ID - Pito Ionization Detector S - Vane Shear; P=Peak, | turbed sa rironmen n wall tul st st t | tal sampl be 'undis | le turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dens D - Dense |
| RR | Ko | ck roll | er | | | | | | | | VD - Very Dense |

| Client: Project Locatio | | | ces | 1 | | | | | | | ST PIT LOG SHEET |
|---|---|---|---|---|----------------------------------|----------------|------------------------|---|--|------------------------------------|--|
| | t: | S | stage | burn Mulwaree Counci 2 - Detailed Site Invester Possie St and Sloar | stigatio | on Goulbu | rn | Job No: 5046200019 | | ł | Hole No: TP16 |
| ositio | | | | | | Journa | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | Tvne | a:5 t | onne Excavator | | | | Excavation Method: BUCKET | | oundo | |
| | | | | isions: | | | | | | Contra | ctor: JPK Excavations |
| | | | - | 8/2/20 | | | | Logged By: SI | | | ed By: AN |
| Excava | atio | n | | Sampling & Testing | | | | Material Description | | | |
| | Т | | | 1 3 4 3 | Ê | | c | · · · | | | |
| Resistance | | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | - | | ML | 0.10m FILL: Gravelly SILT: low plasticity, dark brown, with siltstone and organic matter FILL: Gravelly Sandy SILT: low plasticity, brown-dark brown, with sandstone and siltstone | | | FILL 0.00 m: PID = 4.3ppm No staining, odour or PACM observed |
| | | | | 0.40 - 0.50 m | 0.5 | | ML | | М | | 0.40 m: PID = 24.4ppm No staining, odour or PACM observed |
| EX | | | Not Encountered | 0.90 - 2.00 m | - - | | | 1.00m FILL: Gravelly SILT: brown-pale brown, with sandstone and silstone | | _ | 0.90 m: PID = 4.4ppm No staining, odour or PACM observed |
| | | | | 1.40 - 1.50 m | - | | ML | | D | | 1.50 m: PID = 6.5ppm No staining, odour or PACM observed |
| | | | | 1.90 - 2.00 m | | | | 2.00m TERMINATED AT 2.00 m | | | 1.90 m: PID = 8.1ppm No staining, odour or PACM observed |
| | | | | | - 2.5 - 2.5 | | | | | | |
| R F HA F PT F SON S AH A PS F AS S AD/V S AD/T S HFA F WB V | Exca Ripp Hand Push Soni Air h Perc Shor Solic Solic Hollc Was | ber d aug h tube ic dril iamm cussic cussic rt spir d fligh d fligh ow flig | e ling er al aug it aug it aug ght au ght au | ppler ler er: V-Bit er: TC-Bit ger water | − No Res − Refusa Level on | Date | S F F II F | IP - Hand/Pocket Penetrometer ICP Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test ID - Phito Ionization Detector S - Vane Shear; P=Peak, Beadual (uncorrented IDD) | sturbed sa vironmen in wall tu vist | ital sampl be 'undis' | le F - Firm |

CS ENVIRONMENTAL 2014 LIB GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG GPJ <CDrawingFile>> 2503/2020 13-40 100.000 Datgel ACS RTA, Photo. Monitoring Tools

| | ect: | 5 | Stage | ourn Mulwaree Council 2 - Detailed Site Inve | stigati | on | | | | | Hole No: TP |
|---|--|--|--|---|---------------------------------------|----------------|----------------------------|--|--|------------------------------------|--|
| | ation | : (| Corne | er Dossie St and Sloar | ne Št, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| _ | | | ea: 1 | 9/2/20 | | | | Logged By: SI | | JUSCK | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | + | | <u> </u> | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | ountered | 0.00 - 0.10 m | _ | | SW- SM | 0.10m FILL: Sandy Sitty SAND: fine to coarse grained, brown-pale brown | ~ | | FILL 0.00 m: PID = 3.5ppm No staining, odour or PACM |
| Х Н | | | Not Encountered | | - | | sw | FILL: Gravelly SAND: fine to coarse grained, pale brown, with crushed sandstone | D to M | | observed |
| ¥ | | | | 0.40 - 0.50 m | 0.5 | | | 0.50m TERMINATED AT 0.50 m | | | 0.40 m: PID = 2.7ppm No staining, odour or PACM observed |
| | | | | | - - - 1.0 - | | | | | | |
| | | | | | - 1.5 - - - | | | | | | |
| | | | | | - 2.0 - - - | | | | | | |
| | | | | | - 2.5 - - - | | | | | | |
| | | | | | 3.0 | | | | | | |
| | | | | | - 3.5 - - - | | | | | | |
| | | | | | - 4.0 - - | | | | | | |
| | | | | | - 4.5 - - - | | | | | | |
| EX R HA PT SOI AH PS AD/ AD/ HF/ WB | Rip Ha Pu N So Air Pe Sh V So T So A Ho | oper nd aug sh tub nic dril hamm rcussic ort spil id fligh lid fligh llow fli ashbor | e ling ler on sam ral aug nt auge nt auge ght aug ght aug e drillir | pler er r: V-Bit ger water | – No Res – Refusa Level or n | | S ⊢ □ ₽ ₽ ₽ | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test IP - Borehole Impression Test IP - Phito Ionization Detector VB - Vane Shear; P=Peak, | y oist et astic limit quid limit | ample tal sampl be 'undis' | le S - Soft F - Firm turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Del D - Dense |
| RR | | ck rolle | er | · · · · · · · · · · · · · · · · · · · | | | | W - Mo | bisture cor | nent | VD - Very Dense |

| | cien | | | | | | | | TE | ST PIT LOG SHEET |
|---|---|---|--|---|--|---|---|---|---|--|
| ent: | (| Goult | ourn Mulwaree Counci | tigatio | on | | | | | Hole No: TP18 |
| | n: C | Corne | er Dossie St and Sloan | e St, C | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| | | | | | | | Angle from Horizontal: 90° | ; | Surfac | e Elevation: |
| | | | | | | | Excavation Method: BUCKET | | | |
| | | | | | | | | | | ctor: JPK Excavations |
| | | ed: 1 | | | <u> </u> | | | | Checke | ed By: AN |
| xcava | ition | | Sampling & Testing | | | | Material Description | 1 | 1 | |
| Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | ntered | 0.00 - 0.10 m PID = 3.7ppm | | и и и и и и и о о | SW- SM | brown, with organics Gravelly Silty SAND: fine to coarse grained, pale | D | | TOPSOIL 0.00 m: PID = 3.7ppm No staining, odour or PACM observed |
| | | Not Encour | 0.40 - 0.50 m PID = 4.1ppm | - - | | sw | | м | | NATURAL 0.40 m: PID = 4.1ppm No staining, odour or PACM - observed - |
| | | | | - 1.0 - | 1123676 | | 0.80m TERMINATED AT 0.80 m Refusal | | | |
| | | | | - - 1.5 - | | | | | | - |
| | | | | - - 2.0 - | | | | | | - |
| | | | | - - -2.5 - | | | | | | - |
| | | | | - | | | | | | - |
| | | | | - 3.5 | | | | | | |
| | | | | - 4.0 - | | | | | | |
| | | | | - 4.5 - | | | | | | - |
| X E R R H T ON A H S P S S S D/V S D/T S H W W | Excavato Ripper land aug Push tub conic dril ir hamm Percussic colid flig colid flig colid flig lollow fli Vashbor | ger e ling er on sam ral auge nt auge ght auge ght auge | pler er r:: V-Bit ger WATER Water shown water i | - Refusa Level on nflow | I | S F F F | SPT - Standard Penetration Test B - Bu IP - Hand/Pocket Penetrometer D - Dis IP - Dynamic Cone Penetrometer U - Th VCP - Dynamic Cone Penetrometer U - Th IV - Moisture Content MOISTURE IV - Borehole Impression Test D - Dis IV - Borehole Impression Test M - Moisture IV - Phito Ionization Detector W - We IV - Plate Bear; P=Peak, PL - Plate | sturbed sa vironmen in wall tul vist sist et astic limit juid limit | ample tal sampl be 'undist | le F - Firm |
| | S S Cara S S S S S S S S S S S S S S S S S S | ETHOD | Sciences ent: Goult ject: Stage cation: Corne sition: chine Type: 5 t cavation Dimen te Excavated: 1 xcavation out siss a b c b c | Sciences Goulburn Mulwaree Council ject: Stage 2 - Detailed Site Invest cation: Corner Dossie St and Sloan Sition: Excavator cavation Dimensions: te Excavated: 18/2/20 xcavation age Sampling & Testing age Jage Sample or Field Test age Out - 0.50 m PID = 3.7ppm 0.40 - 0.50 m PID = 4.1ppm 0.40 - 0.50 m PID = 4.1ppm age Out - 0.50 m PID = 4.1ppm age Age bar Age colspan="2">Site Excavator bucket Rippe Rippe Age bar Age colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"Co | Sciences ent: Goulburn Mulwaree Council Stage 2 - Detailed Site Investigation Corner Dossie St and Sloane St, Coner Dossie St and Sloane St and Sl | Sciences ent: Goulburn Mulwaree Council Jition: chine Type: 5 tome Excavator cavation Dimensions: ie te Excavated: 18/2/20 xcavation Sampling & Testing Image: Sample or Field Test Image: Sample or Field Test <t< td=""><td>Sciences Sciences Goulburn Mulwaree Council inor Corner Dossie St and Sloane St, Goulburn Sition: chine Type: 5 tonne Excavator cavation Dimensions: te Excavated: 18/2/20 xavation Output Sample or Field Test Output Output Sample or Field Test Output Output</td><td>■ Sciences yet: Stage 2 - Detailed Site Investigation sition: Angle from Horizontal: 90° enhine Type: 5 tonne Excewator Excewation Method: BUCKET zavation Dimensions: Image from Horizontal: 90° termine Construct Sample or grad Sample or <!--</td--><td>■ Sciences in::::::::::::::::::::::::::::::::::::</td><td>Sciences Ite Store Concell Stage 2 - Detailed Site Investigation Job No: 504620019 Sition: Concern Dessite St and Site Site Southant Job No: 504620019 Sition: Strate Concell Contra Site 2: Store Excavator Excavation Bit Concell Contra Excavator Strate Contra Contra Excavator Strate Concell Contra Excavator Strate Contra Contra Image Strate Contra Strate Contra Strate Contra Image Strate Contra Strate Contra</td></td></t<> | Sciences Sciences Goulburn Mulwaree Council inor Corner Dossie St and Sloane St, Goulburn Sition: chine Type: 5 tonne Excavator cavation Dimensions: te Excavated: 18/2/20 xavation Output Sample or Field Test Output Output Sample or Field Test Output Output | ■ Sciences yet: Stage 2 - Detailed Site Investigation sition: Angle from Horizontal: 90° enhine Type: 5 tonne Excewator Excewation Method: BUCKET zavation Dimensions: Image from Horizontal: 90° termine Construct Sample or grad Sample or </td <td>■ Sciences in::::::::::::::::::::::::::::::::::::</td> <td>Sciences Ite Store Concell Stage 2 - Detailed Site Investigation Job No: 504620019 Sition: Concern Dessite St and Site Site Southant Job No: 504620019 Sition: Strate Concell Contra Site 2: Store Excavator Excavation Bit Concell Contra Excavator Strate Contra Contra Excavator Strate Concell Contra Excavator Strate Contra Contra Image Strate Contra Strate Contra Strate Contra Image Strate Contra Strate Contra</td> | ■ Sciences in:::::::::::::::::::::::::::::::::::: | Sciences Ite Store Concell Stage 2 - Detailed Site Investigation Job No: 504620019 Sition: Concern Dessite St and Site Site Southant Job No: 504620019 Sition: Strate Concell Contra Site 2: Store Excavator Excavation Bit Concell Contra Excavator Strate Contra Contra Excavator Strate Concell Contra Excavator Strate Contra Contra Image Strate Contra Strate Contra Strate Contra Image Strate Contra Strate Contra |

| Clie Proj | | (| Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | stigati | on | | | | ł | Hole No: TP1 |
|---|---|---|--|---|---|----------------|----------------------------|--|-------------------------|------------------------------------|--|
| -00 | atior | n: (| Corne | er Dossie St and Sloa | ne St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Contra | ctor: JPK Excavations |
| | | | | 8/2/20 | | | | Logged By: SI | | | ed By: AN |
| _ | cavati | | | Sampling & Testing | | | | Material Description | | onecki | |
| | | | e | Sample or | Depth (m) | hic | cation | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components | lien | ency ive ity | STRUCTURE |
| Method | Resistance | Stability | Water | Field Test | Dep | Graphic Log | Classification | ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | & Other Observations |
| • | | | | 0.00 - 0.10 m | + | | SW | 0.10m Gravelly SAND: fine to coarse grained, pale brown, with organics | м | - | TOPSOIL 0.00 m: PID = 6.3ppm |
| | | | pa | | - | | | FILL: Gravelly SAND: fine to coarse grained, pale brown | | | No staining, odour or PACM observed |
| EX | | | Not Encountered | 0.30 - 0.40 m | -0.5 | | sw | | D to M | | FILL 0.30 m: PID = 5.1ppm No staining, odour or PACM observed |
| | | | Not | | - | | SW- | 0.60m Gravelly Silty SAND: fine to coarse grained, pale brown | | - | NATURAL |
| | | | | | _ | 00 | SW- SM | | D | | |
| ¥ | | | <u> </u> | 0.90 - 1.00 m | | 1127 | 1 | 1.00m | - | | 0.90 m: PID = 5.9ppm No staining, odour or PACM |
| | | | | | - | | | TERMINATED AT 1.00 m Target depth | | | \observed |
| | | | | | | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 2.0 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 2.5 | | | | | | |
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| | | | | | ţ | | | | | | |
| | | | | | - 3.5 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | -4.0 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 4.5 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | <u> </u> | | | | | | |
| EX R HA PT SO AH PS AD/ AD/ | Riµ Ha Pu N So Air Pe Sh V So /T So | oper ind aug ish tub nic dri hamm rcussio ort spi lid flig lid flig | e lling ner on sam ral aug ht auge ht auge | pler WATER er X-Bit r: TC-Bit | — No Res — Refusa r Level or n | | S ⊢ □ ₽ ₽ ₽ | IP - Hand/Pocket Penetrometer D - Dis ICP - Dynamic Cone Penetrometer U - Thi ISP - Perth Sand Penetrometer U - Thi IC - Moisture Content MOISTURE IBT - Plate Bearing Test D - Dry MP - Borehole Impression Test M - Moisture | / bist | ample tal sampl | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose |
| HF/ WB RR | 8 Wa | llow fli ashbor ick roll | ight au e drillir er | | | | | D=Deadual (uncorrected (Da) LL - Liq | uid limit isture cor | ntent | MD - Medium Den D - Dense VD - Very Dense |

| 📑 Scie | | tion | | | | | | TE | ST PIT LOG SHEET |
|---|---|--|---|---|---|--|---|------------------------------------|--|
| | Goull | burn Mulwaree Council 2 - Detailed Site Inves | | on | | | | ł | Hole No: TP20 |
| Location: | Corn | er Dossie St and Sloan | e St, G | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| Position: | 0. E t | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surfac | e Elevation: |
| Excavation | | | | | | Excavation Method. BUCKET | | Contra | ctor: JPK Excavations |
| Date Excava | ted: 1 | 9/2/20 | | 1 | | Logged By: SI | | Checke | ed By: AN |
| Excavation | _ | Sampling & Testing | | | | Material Descriptior | 1 | | Γ |
| Method Resistance Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | 0.00 - 0.10 m | 1 | للبر علير علير علير علير ع كرمان ان | ML | | | | TOPSOIL 0.00 m: PID = 1.8ppm - |
| | Encountered | | | 000°°° | | Gravelly Sitty SAND: fine to coarse grained, brown-orange-pale brown, with sandstone | | | No staining, odour or PACM observed NATURAL |
| EX | Not Enco | 0.40 - 0.50 m DUP9/DUP9A | 0.5 | | SW- SM | | D to M | | 0.40 m; PID = 2.4ppm No staining, odour or PACM – observed |
| | | 0.90 - 1.00 m | + | Po | | 1.00m | | | 0.90 m: PID = 4.1ppm |
| | | | +-1.0- - | مح مطالب المع | | TERMINATED AT 1.00 m | | | No staining, odour or PACM |
| METHOD EX Excavat R Ripper HA Hand at PT Push tu SON Sonic d AH Air ham S Percuss AS Short s AD/V Solid fli HFA Hollow WB Wabyb WB Wabyb RR Rock ro Refer to explanato abbreviations and | | | - 1.5 - 1.5 2.0 2.5 | | | Target depth | | | |
| | | | - - 4.0 - - - - 4.5 - - - | | | | | | |
| METHOD EX Excavat R Ripper HA Hand at PT Push tu SON Sonic d AH Air ham PS Percuss AS Short s AD/V Solid fit HFA Hollow i WB Washbo RR Rock ro Refer to explanato abbreviations and | iger be iilling mer ion sam piral aug ght aug ght aug light au re drillir ler ry notes f | Appler Her Ar: V-Bit Ar: TC-Bit ger Ng or details of | - Refusa Level on nflow | Date | S F C F N F I F V | IP - Hand/Pocket Penetrometer D - D ICP Dynamic Cone Penetrometer U - TI ISP - Perth Sand Penetrometer U - TI IC - Moisture Content D - D IBT - Plate Bearing Test D - D IP - Borehole Impression Test M - M ID - Phito Ionization Detector W - W IS - Vane Shear; P=Peak, L - L | ulk disturb sturbed sa nvironmen nin wall tul Y oist | ample tal sampl be 'undist | e S - Soft F - Firm |

| Clie | | | ces Foult | ourn Mulwaree Counc | il | | | | | | ST PIT LOG SHE |
|---|---|---|---|---|--|------------------------------|--------------------------------------|---|--|------------------------------------|---|
| Proj | | 5 | Stage | 2 - Detailed Site Inve er Dossie St and Sloa | estigatio | on Soulbu | rn | Job No: 5046200019 | | ſ | Hole No: TP2 Sheet: 1 o |
| | tion | | | | ne ot, c | Jourbu | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Mac | hine | Туре | e: 5 t | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | - | - | sions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | 9/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| EX | cavati | on | | Sampling & Testing | | | - | Material Descriptio |) | I | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | ered | 0.00 - 0.10 m | | لىر غاير غاير چاپر خاير غ | ML | 0.10m Gravelly SILT: low plasticity, dark brown, with organics | | | TOPSOIL 0.00 m: PID = 2.1ppm |
| - Ж | | | Encountered | 0.20 - 0.30 m | _ | 0 | sw- | Gravelly Silty SAND: fine to coarse grained, | _/ м | | No staining, odour or PACM observed |
| ↓ | | | Not Er | 0.20 - 0.30 m | - | Po | SM | brown-orange 0.40m | | | NATURAL 0.20 m: PID = 2.6ppm |
| | | | | | - 0.5 | | | TERMINATED AT 0.40 m Target depth | | | No staining, odour or PACM observed |
| | | | | | - | | | | | | |
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| | | | | | - 1.5 - | | | | | | |
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| EX R HA PT SOI AH PS AD/ AD/ HFA WB | Rip Ha Pu: Air Sol V Sol T Sol T Sol Wa | per nd aug sh tub nic dril hamm ccussic ort spil id fligh id fligh low flig shbor | e ling er on sam ral auge nt auge ght auge ght auge e drillin | pler er r: V-Bit r: TC-Bit er | — No Res — Refusa er Level on m r inflow | | S H D P M P I P | P Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer ES SP Perth Sand Penetrometer U IC Moisture Content MOISTUI BT Plate Bearing Test D ID Phito Ionization Detector W S Vane Shear; P=Peak, LL | Bulk disturb Disturbed sa Environmen Thin wall tul RE Dry Moist | ample tal sampl be 'undis | e turbed' S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Der D - Dense |
| RR | | ck rolle | | or details of | | | | TRUCTION SCIENCES | | | VD - Very Dense |

| Clie Proj | ect: | S | Stage | ourn Mulwaree Coun 2 - Detailed Site Inv | vestigatio | on | | | | ŀ | Hole No: TP |
|--|--|----------------------|---|---|--|----------------|----------------------------|---|--|--|---|
| | ation | | corne | er Dossie St and Slo | ane St, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | tion | | | | | | | Angle from Horizontal: 90° | | Surface | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | <u> </u> | |
| | | - | - | sions: | | | | Lawred Dec. 21 | | | ctor: JPK Excavations |
| | | | ed: 1 | 9/2/20 | | 1 | | Logged By: SI | | Unecke | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | Ļ | | Material Description | | | · · · · · · |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | pe | 0.00 - 0.10 m | _ | ند علد علد | ML | 0.10m Gravelly SILT: low plasticity, dark brown, | | | TOPSOIL |
| <u> </u> | | | Not Encountered | 0.00 0.10 11 | | | | sub-angular, sandstone gravel, with organics | - | | 0.00 m: PID = 1.6ppm No staining, odour or PACM |
| μ μ | | | Encol | | F | · · · · · · | sw- | Gravelly Silty SAND: fine to coarse grained, orange-grey-pale brown, with weathered sandstone | м | | observed |
| • | | | Not E | 0.30 - 0.40 m | | Po | SM | 0.40m | | | NATURAL 0.30 m: PID = 2.4ppm |
| | | | | | - 0.5 | | | TERMINATED AT 0.40 m Target depth | | | No staining, odour or PACM observed |
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| EX R HA PT SOI AH PS AD/ AD/ | Rip Ha Pu So Air Pe Sh V So T So | lid fligh | er er n sam al aug t auge t auge | pler WATER er V-Bit T-C-Bit North | ───No Res < ──Refusal ter Level on wn | I | S H D P M P | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test IP - Borehole Impression Test ID - Phito Ionization Detector | sturbed sa vironmen in wall tu / ist et | ed sample ample tal sample be 'undist | e S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose |
| HFA WB | A Ho | llow flig ashbore | ght aug | ger wat | er inflow er outflow | | V | B=Booduol (uncorrected kBo) LL - Liq | stic limit uid limit | | MD - Medium De |
| WB RR | vVa Ro | ashbore ck rolle | e arillin er | y — wat | ei outtiow | | | | isture co | ntent | D - Dense VD - Very Dense |
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| Clie Proj | | S | Stage | ourn Mulwaree Counci | stigati | on | | | | | Hole No: TP |
|--------------|------------|------------------------|-----------------|-------------------------|------------|----------------|----------------|--|-----------------------|------------------------------------|--|
| | tion | : C | corne | er Dossie St and Sloar | e Št, C | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | tion | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| Date | Exc | avat | ed: 1 | 9/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| Exe | avati | on | | Sampling & Testing | | | | Material Description | _ | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | _ | | p | 0.00 - 0.10 m | | بر عليہ عليہ | | | | | TOPSOIL |
| Î | | | Not Encountered | 0.00 - 0.10 11 | + | | ML | 0.10m Gravelly SILT: low plasticity, dark brown, sub-angular, sandstone gravel, with organics | - | | 0.00 m: PID = 3.2ppm No staining, odour or PACM |
| Ж | | | Encot | | F | - of | sw- | Gravelly Silty SAND: fine to coarse grained, orange-pale brown-grey, with weathered sandstone | М | | observed |
| ↓ | | | Not E | 0.30 - 0.40 m | † | 20 | SM | 0.40m | | | NATURAL 0.30 m: PID = 2.1ppm |
| • | | | | | L 0 5 | | | TERMINATED AT 0.40 m | | | No staining, odour or PACM observed |
| | | | | | -0.5 | | | Target depth | | | |
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| M | <u>пор</u> | | | DENETDATION | | | - | | | | |
| ME EX | HOD Ex | cavator | bucke | et PENETRATION | | | | IELD TESTS SAMPLES FPT - Standard Penetration Test B - Bul | k disturh | ed samp | Ie VS - Very Soft |
| R | Rip | per | | | -No Res | sistance | ⊢ | IP - Hand/Pocket Penetrometer D - Dist | turbed s | ample | S - Soft |
| HA PT | Pu | nd aug sh tube | Э | | . . | | | CF - Dynamic Cone renerionneter II - Thi | n wall tu | tal sampl be 'undis | turbed' St - Stiff |
| SOI AH | N So | nic drill hamm | ing | | - Refusa | l | | 'SP - Perth Sand Penetrometer IC - Moisture Content MOISTURE | | | VSt - Very Stiff H - Hard |
| PS | Pe | rcussio | n sam | | | D : | P | BT - Plate Bearing Test D - Dry | , | | RELATIVE DENSITY |
| AS AD/ | ∕ So | ort spir lid fligh | t auge | er: V-Bit shown | | Date | 1 | MP - Borehole Impression Test M - Moi | st | | VL - Very Loose |
| AD/ HEA | T So | lid fligh llow flig | t auge | er: TC-Bit | | | | | stic limit | | L - Loose MD - Medium De |
| WB | Wa | shbore ck rolle | e drillir | ng water | outflow | | . | D-Deadual (uncomposited I/Da) LL - Liqu | uid limit sture co | ntent | D - Dense VD - Very Dense |
| RR | | | | | | | | | | | |

| Clie Proj | nt: ect: | ŝ | Stage | ourn Mulwaree Counci | stigati | on | | | | | Hole No: TP2 |
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| | ation | : č | Corne | er Dossie St and Sloar | ne St, C | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | tion: | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | Langed Dry. Cl | | | ctor: JPK Excavations |
| | cavati | | ea: 1 | 9/2/20 | | | | Logged By: SI | | Спеск | ed By: AN |
| | Javan | | | Sampling & Testing | - | | - | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | Not Encountered | 0.00 - 0.10 m | + | ан ан а ан ан ан ан ан ар | ML SW- | 0.10m Gravelly SILT: low plasticity, dark brown, with sandstone and organic Gravelly Silty SAND: fine to coarse grained, | м | | TOPSOIL 0.00 m: PID = 1.6ppm No staining, odour or PACM observed |
| Ī | | | lot En | 0.30 - 0.40 m | + | Po | SM | orange-pale brown, with sandstone | | | NATURAL 0.30 m: PID = 3.3ppm |
| • | | | 2 | | - 0.5 | <u>nine</u> | | 0.40m TERMINATED AT 0.40 m | | | No staining, odour or PACM observed |
| | | | | | -0.5 | | | Target depth | | | |
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| MET | THOD | | | PENETRATION | | | F | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R | Exc Rip | per | bucke | | | sistance | s | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Dis | lk disturb turbed sa | ample | le VS - Very Soft S - Soft |
| HA PT | Pu | nd aug sh tub | е | | Def | | | ICB Dynamic Cone Penetrometer ES - En | vironmen in wall tul | tal sampl be 'undis | turbed' St - Stiff |
| SOI AH | Air | nic dril hamm | er | | – Refusa | 1 | N | IC - Moisture Content MOISTURE | | | VSt - Very Stiff H - Hard |
| PS AS AD/ | Sh | ort spir | n sam al aug | er Water | Level or | Date | IN | BT - Plate Bearing Test D - Dry MP - Borehole Impression Test M - Mo | ist | | RELATIVE DENSITY VL - Very Loose |
| AD/ AD/ HF/ | T Sol | id fligh | nt auge nt auge ght aug | er: TC-Bit snowr | 1 | | | ID - Phito Ionization Detector W - We S - Vane Shear: P=Peak PL - Pla | et astic limit | | L - Loose MD - Medium Der |
| WB RR | Wa | shbor ck rolle | e drillir | ig — water | outflow | | | D-Deeduel (uncomposited I/De) LL - Liq | uid limit isture coi | ntent | D - Dense VD - Very Dense |
| | | | | | | | | | | | , _ 5100 |

| Exca Date Exc | tion hine | n: C | Corn | e 2 - Detailed Site Inves er Dossie St and Sloan | ~ Č+ (| S | | | | | |
|-----------------------------|--------------|---------------------|-----------------|---|-----------|----------------|----------------|--|------------------------|------------------------------------|--|
| Mach Exca Date Exc | hine | : | | | le Si, C | JOUIDU | rn | Job No: 5046200019 | | | Sheet: 1 |
| Exca Date Exc | | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Date Exc | wati | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| Exc | | | | nsions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | 9/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| p | cavati | on | | Sampling & Testing | | L | | Material Description | | | 1 |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | red | 0.00 - 0.10 m | | لدر علد إعلد | ML | 0.10m SILT: low plasticity, dark brown with sub angular | | | TOPSOIL |
| × | | | ounte | | + | | | gravel of sandstone, organic matter | 1 | | 0.00 m: PID = 1.7ppm No staining, odour or PACM |
| <u></u> Ц | | | Not Encountered | | 1 |) o (| SP- SM | SAND: fine to coarse grained, orange/cream/buff with weathered sandstone | м | | observed NATURAL |
| * | | | Not | 0.30 - 0.40 m | | 100 | | 0.40m | | | 0.30 m: PID = 2.2ppm No staining, odour or PACM |
| | | | | | -0.5 | | | TERMINATED AT 0.40 m Target depth | 1 | | observed |
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| | THOD | | | | | | | IELD TESTS SAMPLES | | 1 | SOIL CONSISTENCY |
| EX R | Rip | cavato oper | | et 🖉 🖉 🖉 | -No Res | sistance | | P - Hand/Pocket Penetrometer D - Dis | sturbed s | | S - Soft |
| HA PT | Ha | nd aug sh tub | ger e | | | | C | ICP - Dynamic Cone Penetrometer | vironmen | ital sampl be 'undis | |
| SON | N So | nic dril | ling | | - Refusa | ıl | | SP - Perth Sand Penetrometer | | | VSt - Very Stiff |
| AH PS | Pe | hamm | on sam | npler WATER | | | | IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dry | | | H - Hard |
| AS AD/\ | Sh | ort spi | ral aug | er: V-Bit Shown | | n Date | 11 | MP - Borehole Impression Test M - Mo | ist | | RELATIVE DENSITY VL - Very Loose |
| AD/1 HFA | T So | lid fligh | nt auge | er: TC-Bit water i | | | | | astic limit | | L - Loose MD - Medium Der |
| WB | Wa | llow flig ashbor | e drillir | gei i - | | | | D=Deadual (uncorrected kDa) LL - Liq | uid limit isture co | | D - Dense |
| RR | Ro | ck rolle | er | | | | | | | | VD - Very Dense |

| Proj | nt: ect: | 9 | Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | stigati | on | | | | | | ŀ | Hole No: TP2 |
|-------------------------------|--|--|---|--|--|----------------|----------------------------|---|--|--|---------------------------------|------------------------------------|--|
| | atior | n: (| Corne | er Dossie St and Sloa | ne Št, C | Goulbu | rn | | Job No: 5046200019 | | | | Sheet: 1 c |
| | ition | | | | | | | | Angle from Horizontal: 9 | | 5 | Surfac | e Elevation: |
| | | | | onne Excavator | | | | | Excavation Method: BU | UKEI | | `ont | ctor: JPK Excavations |
| - | | - | - | sions: 9/2/20 | | | | | Logged By: SI | | | | ed By: AN |
| | | | eu. 1 | 9/2/20 | | | | | Logged By: SI | Depert-4 | | JURCK | 5u by. All |
| EX | cavati | on | | Sampling & Testing | Ê | | L. | | | Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | 5 | DIL TYPE, plasticity or particle charac colour, secondary and minor compoi ROCK TYPE, grain size and type, cc fabric & texture, strength, weatheri defects and structure | olour, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | Encountered | 0.00 - 0.10 m | _ | | | | FILL: Gravelly SILT: low plasticity, brown- brown, with sandstone | ı-pale | | | FILL 0.00 m: PID = 1.9ppm No staining, odour or PACM observed |
| | | | Not Encou | 0.30 - 0.40 m | _ | | ML | | | | М | | 0.30 m: PID = 7.4ppm No staining, odour or PACM |
| | | | z | 0.50 - 0.60 m | 0.5 | | sw | 0.50m | Gravelly SAND: fine to coarse grained, p brown-orange, with sandstone | pale | D to M | | observed NATURAL 0.50 m: PID = 2.1ppm |
| ¥ | | | | | | 5.0.8 | | 0.70m | TERMINATED AT 0.70 m | | | | No staining, odour or PACM observed |
| | | | | | - | | | | Refusal | | | | |
| | | | | | - 1.5 - - - | | | | | | | | |
| | | | | | - 2.0 - - - - - - 2.5 | | | | | | | | |
| | | | | | - - - -3.0 | | | | | | | | |
| | | | | | - - - - 3.5 | | | | | | | | |
| | | | | | - - - 4.0 | | | | | | | | |
| | | | | | - - - - 4.5 | | | | | | | | |
| ME | THOD | | | PENETRATIO | - - - N | | F | IELD TI | ISTS | SAMPLES | | | SOIL CONSISTENCY |
| EX R HA P SO H PS S AD H WE R | Ex Riµ Ha Pu N Sco Air Pe Sh V Sco /T Sco A Ho 3 Wa | cavato oper ind aug ish tub nic dri hamm rcussio iort spi lid flig lid flig lid flig | e lling per on sam ral auge nt auge ght auge ght auge e drillir | tt ⇒ <u>w w w w w</u> w w w w w w w w w w w w w w | — No Res — Refusa er Level or n r inflow | | S H D P N I | PT - P - CP - SP - IC - BT - MP - ID - | Standard Penetration Test Hand/Pocket Penetrometer Dynamic Cone Penetrometer Perth Sand Penetrometer Moisture Content Plate Bearing Test Borehole Impression Test Phito Ionization Detector Vane Shear: P=Peak | B - Bulk D - Distu ES - Envi U - Thin MOISTURE D - Dry M - Mois W - Wet PL - Plas LL - Liqu | urbed sa ronment wall tub | imple al sampl be 'undist | e VS - Very Soft S - Soft e F - Firm |
| | | 5101 | | | | | | | | | | | ve very belise |

| | onst iend | | tion | | | | | | ΤE | ST PIT LOG SHEET |
|--|--|---|--|---------------------|----------------|--|--|--|------------------------------------|---|
| Client: | G | oult | ourn Mulwaree Council | | | | | | | Hole No: TP27 |
| Project: Location: | | | 2 - DSI er Dossie St and Sloan | e St, G | Goulbu | rn | Job No: 5046200019 | | • | Sheet: 1 of 1 |
| Position: | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| Machine 1 | Туре | : 5 to | onne Excavator | | | | Excavation Method: Bucket | | | |
| Excavatio | | | | | | | | | | ctor: JPK Excavations |
| Date Exca | | ed: 1 | | - | 1 | | Logged By: SI | | Check | ed By: AN |
| Excavatio | on | | Sampling & Testing | | | | Material Description | | | 1 |
| Method Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | T | ES 0.00 - 0.10 m | - | | ML | FILL: Gravelly SILT: low plasticity, brown/grey/cream, fine to medium grained (weathered sandstone) gravel | _ | | FILL 0.00 m: PID=2.0ppm No staining, odour or PACM observed. |
| EX | | Not Encountered | ES 0.50 - 0.60 m | 0.5 | | sw | FILL: Gravelly Silty SAND: fine to coarse grained, brown/orange/grey/cream, low plasticity silt, fine to medium grained (weathered sandstone) gravel | м | | - - 0.50 m: PID=4.1ppm |
| | | _ | ES 0.70 - 0.80 m | + + | | | 0.70m Gravelly Silty SAND: fine to coarse grained, | | - | No staining, odour or PACM |
| | | | | + - 1.0 |) () (| sw | orange/grey/cream, low plasticity silt, fine to medium grained (weathered sandstone) gravel | M to D | | 0.70 m: PID=3.6PPM No staining, odour or PACM observed. |
| | | | | - | | | TERMINATED AT 1.00 m Target depth | | | |
| | | | | - 1.5 - - | | | | | | - |
| | | | | - - 2.0 | | | | | | - |
| | | | | - - - -2.5 | | | | | | - |
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| | | | | - 3.0 - - | | | | | | - |
| | | | | - 3.5 - | | | | | | - |
| | | | | - - 4.0 | | | | | | - |
| | | | | - - - -4.5 | | | | | | - |
| | | | | - - - | | | | | | |
| R Ripp HA Han, PT Pusl SON Soni AH Airh PS Pero AS Shoi AD/V Solia AD/V Solia AD/V Solia HFA Holl WB Was RR Roct | nd auge sh tube nic drilli hamme cussior ort spira id flight id flight low flig shbore ck roller | er ng n sam al auge auge ht aug drillin | pler er r: V-Bit r: TC-Bit ger g or details of | nflow | Date | SI H D P M P I N P | P Hand/Pocket Penetrometer D - DI CP Dynamic Cone Penetrometer ES - EI SP Perth Sand Penetrometer U - TI C Moisture Content MOISTURI BT Plate Bearing Test D - DI IP Borehole Impression Test M M D - Phito Ionization Detector W W S Vane Shear; P=Peak, R=Resdual (uncorrected kPa) LL - Li | ulk disturb sturbed sa nvironmen nin wall tu y oist | ample tal sampl be 'undis | le F - Firm |
| AS Shot AD/V Solid AD/T Solid HFA Holle WB Was RR Rocl | ort spira id flight id flight llow flig ishbore ck roller lanatory r | al auge auge ht auge drillin | er r: V-Bit r: TC-Bit g or details of | nflow | | IN Pi V | IP - Borehole Impression Test D - Difference ID - Phito Ionization Detector W - W S - Vane Shear, P=Peak, PL - Pi D - Detail L - Li | oist et astic limit quid limit | ntent | VL L MD D |

CS ENVIRONMENTAL 2.01.4 LIB.GLB Log CARDNO NON-CORED GOULBURN MULWAREE COUNCIL.GPJ << DrawingFile>> 25/03/2020 14:11 10.0.000 Datgel AGS RTA, Photo, Monitoring Tools

| Clie Proi | nt: ect: | | | ourn Mulwaree Council 2 - DSI | | | | | | | Hole No: TP |
|--|--|---|--|--------------------------------------|-----------|----------------|--------------------------------------|--|--------------------------|------------------------------------|--|
| | ation | : Č | Corne | er Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | ition | | | | | | | Angle from Horizontal: 90° | 5 | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: Bucket | | | |
| | | | | sions: 9/2/20 | | | | Logged By: SI | | | ector: JPK Excavations |
| | cavati | | eu. i | Sampling & Testing | | | | Material Description | | SHECK | eu by. An |
| | | | | | Ê | | E | | 1 | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | p | ES 0.00 - 0.10 m | + | | | FILL: Gravelly Silty SAND: fine to coarse grained, orange/cream/buff, low plasticity silt, fine to medium | | | FILL 0.00 m: PID=1.6ppm No staining, odour or PACM |
| | | | Not Encountered | | F | | sw | grained, sub-angular gravel (weathered sandstone) gravel | M to D | | observed. |
| L L L | | | t Enco | ES 0.40 - 0.50 m | Į. | | | | | | 0.40 m: PID=2.0ppm |
| Ī | | | Not | ES 0.40 - 0.50 m | - 0.5 | | | 0.50m Gravelly Silty SAND: fine to coarse grained, | | - | No staining, odour or PACM observed. |
| | | | | | F | 6 | sw | orange/cream/buff, low plasticity silt, fine to medium grained (weathered sandstone) gravel | м | | NATURAL |
| ᡟ | | | | ES 0.70 - 0.80 m | [| 0 | | 0.80m | ļ | | 0.70 m: PID=2.1ppm No staining, odour or PACM |
| | | | | | ŀ | 1 | | TERMINATED AT 0.80 m Target depth | | | observed. |
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| EX R HA PT SOI AH PS AD/ AD/ | Rip Ha Pu N So Air Pe Sh V So T So | oper nd aug sh tub nic dril hamm rcussic ort spii lid fligh lid fligh | e ling er on sam ral aug nt auge nt auge | pler er er: V-Bit x: TC-Bit | Refusa | | S H D P M P I P | P - Hand/Pocket Penetrometer D - Dis CP Dynamic Cone Penetrometer U - Thi SP - Perth Sand Penetrometer U - Thi C - Moisture Content MOISTURE BT - Plate Bearing Test D - Dry IP - Borehole Impression Test M - Moisture Weight | / vist et | ample tal sampl | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose |
| HF# WB | A Ho Wa | llow fli ashbor | ght au e drillir | ger water n | | | V | B=Beedwel (uncorrected (/De) LL - Liq | astic limit uid limit | atort | MD - Medium De D - Dense |
| RR | | ck rolle | er | | | | 1 | R=Resolual (uncorrected kPa) w - Mo | isture cor | itent | VD - Very Dense |

| | | | | | | | | | | | ST PIT LOG SHEET |
|--|--|---|---|---|--|---|--|--|---|--|---|
| ent: | | G | | ourn Mulwaree Counci | | | | | | | Hole No: TP29 |
| | | | | | e St, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| | | | | | | | | Angle from Horizontal: 90° | | Surface | e Elevation: |
| | | | | | | | | Excavation Method: Bucket | | | |
| | | | | | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | | | | | | | Checke | ed By: AN |
| Excava | ation | 1 | | Sampling & Testing | | | | Material Description | 1 | | |
| Resistance | | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | ered | ES 0.00 - 0.10 m | 1 | لىر غاير غاير غاير غاير غ | ML | 0.10m Gravelly SILT: low plasticity, dark brown, fine to | м | | TOPSOIL 0.00 m: PID=2.7ppm |
| | | | count | | ļ | 0. | | Gravelly Silty SAND: fine to coarse grained, | | | No staining, odour or PACM observed. |
| | | | lot En | ES 0.30 - 0.40 m | + | | sw | grained (weathered sandstone) gravel | D to M | | NATURAL 0.30 m: PID=3.2ppm |
| | - | ł | z | | | en e | - | TERMINATED AT 0.40 m | | | No staining, odour or PACM |
| | | | | | - - - - - - - - - - - - | | | rarget uepri | | | |
| | | | | | - - 1.5 - - - - | | | | | | |
| | | | | | - 2.0 - - - - - - 2.5 - | | | | | | - |
| | | | | | - - 3.0 - - | | | | | | |
| | | | | | - 3.5 - - - | | | | | | - |
| | | | | | - 4.0 - - - | | | | | | |
| | | | | | 4.5 - - - | | | | | | - |
| X E F A F T F ON S H A S F S D/V S D/V S D/V S D/V S D/V S D/T S F A F B V R F efer to e | Excav Rippe Hand Push Sonic Air ha Percu Short Solid Solid Hollo Wash Rock | er aug tube drill amme issio spir fligh fligh w flig bore rolle | er ing er n sam al aug t auge t auge ht aug drillin r | pler er r: V-Bit r: TC-Bit ge g or details of | - Refusa Level on nflow | I Date | SH DP≥P P V | PT - Standard Penetration Test B - Bu P - Hand//Pocket Penetrometer D - Di CP - Dynamic Cone Penetrometer ES - Er SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dir ID - Phito Ionization Detector W - W S - Vane Shear, P=Peak, R=Resdual (uncorrected kPa) LL | sturbed sa vironmen in wall tul s v v sist et astic limit juid limit | ample tal sample be 'undist | e S - Soft F - Firm |
| | ETHC | ETHOD TETHOD | Cation: C sition: Image: Construction Distruction Construction Distruction Construction Distruction Construction Distruction Construction Constructino Construction Constructino Construction Constr | Cation: Correction sition: Image: State Sta | Corner Dossie St and Sloan sition: chine Type: 5 tonne Excavator cavation Dimensions: te Excavated: 19/2/20 Sample or Field Test Image: Signed of the second | Corner Dossie St and Sloane St, G sition: cavation Dimensions: te Excavated: 19/2/20 Sample or Field Test Open provide the second of | Cation: Corner Dossie St and Sloane St, Goulbu sition: Chine Type: 5 tonne Excavator cavation Dimensions: Excavated: 19/2/20 te Excavated: 19/2/20 xxavation Sample or Field Test and base of the state | Endom Corner Dossie St and Stoane St, Goulburn sition: | Cattor: Correct Dossis Stand Stoare St, Goulburn Job No: 50.4020019 Sittor: Angle from Horizontal: 90° Chino Type: 5 tome Excavator Excavation Method: Euckot Cavation Dimensions: Excavation Method: Euckot Excavation Method: 19/20 Logged By: SI Xenomian Sample or Field Test Image: Sitter S | Catolini Confer Dossie St and Sloane St, Goulburn Job Mo: 504620019 Angle from Horizonta: 90° Secondaria Chine Type: 5 tonne Excavator Excavation Method: Bucket Cavation Dimensions: Logged By: 51 Cavation Dimensions: Coged By: 51 Cavation Method: Bucket Sampling & Testing Sampling & Testing Sampling & Testing Sampling & Testing Sampling & Testing Sampling & Testing Sampling & Testing Sampling & Sampling or Pred Test Sampling & Testing Sampling & Testing Sampling & Testing Sampling & Sampling or Pred Test Sampling & Testing Sampling & Testing Sampling & Testing < | Cattorn: Compet Possie St and Stoane St, Goulburn Job No: 504200019 sittor: Angle from Horizontal: 90° Surface chine Type: 5 tonne Excavator Excavation Method: Bucket Contra cavation Dimensions: Contra Contra cavation Method: Sampling & Tosting Image: Sampling & Tosting Method: Description ging ging Sampling & Tosting Image: Sampling & Tosting Image: Sampling & Tosting ging ging ging ging ging ging ging ging ging gi |

CS ENVIRONMENTAL 2.01.4 LIB.CLB Log CARDNO NON-CORED GOULBURN MULWAREE COUNCIL.GPJ <<DrawingFile>> 25/03/2020 14:11 10.0.000 Datgel AGS RTA, Photo, Monitoring Tools

| | | | | | | | | | | | ST PIT LOG SHE |
|---|--|---|---|---------------------------------------|--|--|------------------|---|---|------------------------------------|--|
| | ect: | 5 | Stage | ourn Mulwaree Counc 2 - DSI | | | | | | | Hole No: TP3 |
| | ation tion | | Jorne | er Dossie St and Sloa | ine St, G | joulpu | rn | Job No: 5046200019 Angle from Horizontal: 90° | | Surfac | Sheet: 1 o e Elevation: |
| | | | e:5t | onne Excavator | | | | Excavation Method: Bucket | | ounido | |
| Exca | avati | on D | imer | isions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | 9/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | Material Descrip | tion | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | Not Encountered | ES 0.00 - 0.10 m | _ | الد عليه عليه عليه عليه ع () () () | ML | 0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics Gravelly Silty SAND: fine to coarse grained, | M | - | TOPSOIL 0.00 m: PID=1.6ppm No staining, odour or PACM observed. |
| Ī | | | Not En | ES 0.30 - 0.40 m | _ |) () () (| SW | cream/orange/buff, low plasticity silt, fine to medi grained (weathered sandstone) gravel 0.40m TERMINATED AT 0.40 m | um M to D | | NATURAL 0.30 m: PID=2.2ppm No staining, odour or PACM |
| | | | | | - 0.5 - - | | | Target depth | | | \observed. |
| | | | | | - - 1.0 - | | | | | | |
| | | | | | - - - 1.5 - | | | | | | |
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| | | | | | - 4.0 - | | | | | | |
| | | | | | - - 4.5 - - | | | | | | |
| ME EX R HA PS AD/ AD/ HFA WB R | Rip Ha Pu N So Air Pe Sh V So T So A Ho Wa | cavator oper nd aug sh tub nic dril hamm rcussic ort spir lid fligh lid fligh llow flig ashbor ck rolle | ger e ling er on sam ral auge nt auge ght auge ght auge | pler er r: V-Bit ger wate | ── No Res └── Refusa er Level on vn r inflow | I | S F F F | ES - | Bulk disturb Disturbed s Environmen Thin wall tu URE Dry Moist Wet Plastic limit Liquid limit | ample tal sampl be 'undis | le S - Soft F - Firm |
| HFA WB RR Refe | A Ho Wa Ro er to exp | llow flig ashbor ck rolle lanatory | ght aug e drillin er notes f | ger wate | | СО | | B=Boadual (uncorrected kBa) | Liquid limit | ntent | MD - Medium De D - Dense |

____ Construction

TEST PIT LOG SHEET

| Chierti, Boulburn Burginger & Connell Chierti Chierti Chierti Chierti Chierti Chierti Description: Angle from horizontal: 90° Surface Elevation: Surface Elevation: Surface Elevation: Machine Type: 5 torne Executor Economic Heinor: Contractor: 30° Escovator Economic Heinor: Dete Economic 19202 Logard By: 81 Checked By: A0 Checked By: A0 Dete Economic 19202 Logard By: 81 Checked By: A0 Dete Economic 19202 Logard By: 81 Checked By: A0 Dete Economic 19202 Sorrate Group By: 81 Checked By: A0 Develop By: 81 Checked By: A0 Checked By: A0 Develop By: 81 Checked By: A0 Checked By: A0 Develop By: 81 Checked By: A0 Checked By: A0 Develop By: 81 Checked By: A0 Checked By: A0 Develop By: 81 Checked By: A0 Checked By: A0 Develop By: 81 Checked By: A0 Checked By: A0 Develop By: 82 Sorrate Group By: 82 Checked By: A0 Develop By: 82 Sorrate Group By: 82 Checked By: A0 Develop By: 82 Sorrate Group By: 82 Checked By: 84 Develop By: 82 Sorrate Group By: 82 Checked By: 84 Develop By: 82 Sorrate By: 82 Checked By: 84 | Ę | S | cien | ces | | | | | | | TE | ST PIT LOG SHEET |
|---|---|---|--|---|---|---------------------------------------|-------------------------|------------------|--|--|------------------------------------|---|
| Location: Coriner Dossie St and Sloane St, Goulburn Job No: 5646200019 Sheet: Position: Angle from Horizontal: 90° Surface Elevation: Matchine Type: 5 tonne Excavator Excavation Method: Bucket Excavation Dimensions: Contractor: JPK Excavation Date Excavatod: 19/2/20 Logged By: Sl Checked By: AN Excavation Dimensions: Sampling & Testing Material Description Date Excavatod: 19/2/20 Sampling & Testing Soli: TYPE: plasticity or particle characteristic, course grained and finite components gray gray gray gray gray gray gray gray | Clie | nt: | | Goull | ourn Mulwaree Counci | I | | | | | ŀ | Hole No: TP31 |
| Machine Type: 5 tonne Excavator Excavation Method: Bucket Excavation Dimensions: Contractor: JPK Excavation Date Excavatod: 19/2/20 Logged By: SI Checked By: AN Excavator Sampling & Testing G Solt TYPE: plasticity or particle characteristic. calcur, secondary and minor components ROCK TYPE: grain size and type. color: table & defects and shucture g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g g | | | n: C | | | ne St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| Contractor: JPK Excavation Date Excavated: 19/2/20 Logged By: SI Chocked By: AN Excavation Excavation Sampling & Testing Sample or Field Test Soll: TYPE: plasticity orpatice characteristic colour, secondary and micro components Colour of the component Colour, secondary and micro components Colour of the colour, secondary and micro components Colour of the colour, secondary and Colour of the colour, Colour of the col | Posi | ition | : | | | | | | Angle from Horizontal: 90° | ; | Surface | e Elevation: |
| Date Excavated: 19/2/20 Logged By: SI Checked By: AN Excavation Sampling & Testing Material Description value Sample or Field Test Green and the state of | | | | | | | | | Excavation Method: Bucket | | 0 - <i>1</i> | |
| Excavation Sampling & Testing Material Description point of grad back of the second s | | | | | | | | | Logged By: SI | | | |
| population sample or Field Test image: sample or Field Test ima | | | | eu. i | | | | | | | SHECK | |
| Z Q D I D Q | | ouvat | | | | | | - | | | | |
| Image: Second | Method | Resistance | Stability | Water | | Depth (r | Graphic Log | Classificatio | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| Image: Test of the second se | A | | | ered | ES 0.00 - 0.10 m | | ند عاد عاد عاد عاد ع | ^L ML | 0.10m Gravelly SILT: low plasticity, brown/orange, fine to | М | | |
| 2 -0.5 -0.5 TERMINATED AT 0.30 m -0.5 -1.5 -1.5 -1.5 -1.5 -2.5 -2.5 -2.5 | - EX | | | count | ES 0.20 0.20 m | 1 | | sw | Gravelly Silty SAND: fine to coarse grained, | M to D | | No staining, odour or PACM |
| TERMINATED AT 0.30 m Refusal -0.5 | * | | - | | ES 0.20 - 0.30 m | + | 1.6.5.5 | - | 0.30m orange/cream/grey, low plasticity silt, fine to medium grained (weathered sandstone) gravel | | | NATURAL |
| | | | | 2 | | - | | | | | | No staining, odour or PACM |
| | | | | | | - 0.5 | | | | | | |
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| METHOD PENETRATION SOIL CONSISTE EX Excavator bucket R Ripper HA Had auger No Resistance SPT - Standard Penetration Test B - Bulk disturbed sample SS - Soft PT Push tube No Resistance PCP - Dynamic Cone Penetrometer D - Disturbed sample S S - Soft SON Sonic drilling AH Air hammer Refusal WATER Water Level on Date shown Mile PS - Preth Sand Penetrometer D D Dry Noist VS - Very St AD/T Solid flight auger: TC-Bit Water Level on Date shown water inflow Water Icevel on Date shown PID - Phito Ionization Detector Noist V Very Lo WB Washbore drilling RR Rock roller water outflow Refusal MD - Moist V Very Lo Refer to explanatory notes for details of CONISTION Refusal V Very Lo V Very Detection | | | | | | ŀ | | | | | | - |
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| Refer to explanatory notes for details of | ME X RA POIL SOL AND AD | Ex Rij Ha Pu N Scc Air St St Sc T Sc A Ho Wi | cavato pper and aug ish tub onic dril r hammercussion ort spi olid fligi olid fligi olid fligi ollow fli ashbor | ger e ling er on sam ral auge nt auge ght auge ght auge | et ⇒ u u u u u u u u u u u u u u u u u u u | – No Res – Refusa Level or n | I | F F F F | PT - Standard Penetration Test B - Bui P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer U - Thi SP - Perth Sand Penetrometer U - Thi CC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dry MP - Borehole Impression Test D - Dry ID - Phito Ionization Detector W - We S - Vane Shear; P=Peak, PL - Pla D - Dry LL - Lig | turbed sa vironmen n wall tul ist st ustic limit uid limit | ample tal sampl be 'undist | e S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense |
| abbreviations and basis of descriptions COINSTRUCTION SCIENCES | Refe abbr | er to exp | planatory | notes f | | | CO | NS NS | STRUCTION SCIENCES | | | VD - Very Dense |

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TEST PIT LOG SHEET

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| Position: Angle from Horizontal: 90" Surface Elevation: Machine Type: 5 tome Excavator Excavation Method: Bucket Contractor: JPK Excavator Date Excavator Barapiero (19220) Logged By: SI Contractor: JPK Excavator Date Excavator Barapiero (19220) Logged By: SI Contractor: JPK Excavator Securition Barapiero (19220) Excavator Method Doscription Securition Sample or (19220) Simple or (19220) Simple or (19220) Securition Securition Simple or (19220) Simple or (19220) Securition Securition Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220) Simple or (19220) Securition Simple or (19220) Simple or (19220 | | nt: | (| Goul | burn Mulwaree Counci | | | | | | | Hole No: TP3 |
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| Method Permittation | Method | Resistance | Stability | Water | | Depth (| Graphic Log | Classificatic | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| MEHOD Penetranton Penetranton Penetranton Penetranton -1.5 -1.5 -1.5 -1.5 -1.6 -1.5 -1.5 -1.5 -2.0 -2.5 -2.5 -2.5 -2.5 -3.0 -3.0 -3.0 -3.0 -3.5 -1.5 -1.5 -2.5 -2.5 -2.5 -2.5 -2.6 -2.5 -2.5 -2.5 -3.0 -3.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.6 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.6 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.6 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.6 -4.5 -4.5 -4.5 -2.7 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 -2.7 -2.5 -2.5 -2.5 </td <td></td> <td></td> <td></td> <td>tered</td> <td></td> <td></td> <td>علد علد ع</td> <td></td> <td></td> <td>м</td> <td></td> <td></td> | | | | tered | | | علد علد ع | | | м | | |
| METHOD PENTERNATION PENTERN | Ŭ | | 4 | - uno | ES 0.10 - 0.20 m | - | | sw | 0.20m Gravelly Silty SAND: fine to coarse grained, | D to M | | No staining, odour or PACM |
| R Ripper No Resistance HP - Hand/Pocket Penetrometer D - Disturbed sample S - Soft HA Hand auger HP - Hand/Pocket Penetrometer D Disturbed sample S - Soft PT Push tube PS - Refusal PSP Perth Sand Penetrometer D - Disturbed sample S - Soft SON Sonic drilling - Refusal PSP Perth Sand Penetrometer U - Thin wall tube 'undisturbed' VSt - Very Stiff PS Percussion sampler WATER PBT Plate Bearing Test D - Dry ReLATIVE DENSITIAN | | | | | | - 1.0 - 1.0 - 1.5 | | | Gravelly Sitty SAND: tine to coarse grained, orange/red/cream/grey, low plasticity sit, fine to medium grained (weathered sandstone) gravel, with sandstone boulders TERMINATED AT 0.20 m | | | observed. NATURAL 0.10 m: PID=2.1ppm No staining, odour or PACM |
| R Ripper No Resistance HP - Hand/Pocket Penetrometer D - Disturbed sample S - Soft HA Hand auger HA Hand/Pocket Penetrometer DCP Dynamic Cone Penetrometer D Disturbed sample S - Soft PT Push tube Provision sampler PSP Peth Sand Penetrometer D - Thin wall tube 'undisturbed' S - Soft AH Air hammer MC Moisture Content MOISTURE H - Hard PS Percussion sampler WATER PBT Plate Bearing Test D - Dry ReLATIVE DENSIT | | | | | | - - 4.5 - - | | | | | | |
| AD/V Solid flight auger: V-Bit ✓ ✓ Shown PID P hito lonization Detector W = t L L = Loose HFA Hollow flight auger ✓ ✓ VL V VL V VL V VL V VL V VL V L | R HA PT SOI AH PS AD/ HF/ WB RR | ERHPS NAU PSS/VSS/TAHS Rer to ex | xcavato ipper and au ush tub onic dri ir hamn ercussi hort spi olid flig olid flig olid flig ollow fli /ashbor ock roll | ger lling ner on sam iral aug ht aug ht aug ight au e drillin er | et wu t t wu t t water water of water of water of water of water of water of | - Refusa Level on nflow | I Date | S F F II F | BPT - Standard Penetration Test B - Bu IP - Hand/Pocket Penetrometer D - Di ICP - Dynamic Cone Penetrometer ES - Er ISP - Perth Sand Penetrometer Th MC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr ID - Phito Ionization Detector M - Ma ID - Phito Ionization Detector W - W R=Resdual (uncorrected kPa) W - W | sturbed si vironmen in wall tu sist sist et astic limit juid limit | ample tal sampl be 'undist | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dens D - Dense |

| | | | | tion | | | | | | | ST PIT LOG SHE |
|---|--|-----------|-------------|--------------------------------|-------------------------|----------------|----------------|--|-----------------------|------------------------------------|--|
| Clie Proj | nt: ect: | | | ourn Mulwaree Counc 2 - DSI | il | | | | | ŀ | Hole No: TP3 |
| | ation | | orne | r Dossie St and Sloa | ne St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | tion | | • 5 te | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: Bucket | | Surfac | e Elevation: |
| | | | | sions: | | | | | (| Contra | ctor: JPK Excavations |
| Date | e Exc | avat | ed: 1 | 9/2/20 | | | | Logged By: SI | | Checke | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ▲ ×⊔ | | | Encountered | ES 0.00 - 0.10 m | _ | | ML SW | 0.10m Gravelly Sandy SILT: low plasticity, dark brown/orange/cream, fine to coarse grained sand, fine to medium grained (weathered sandstone) | Гм | | TOPSOIL 0.00 m: PID=4.5ppm No staining, odour or PACM |
| ¥ | | | otEnci | ES 0.20 - 0.30 m | | | 300 | 0.30m gravel, with organics | / | | observed. NATURAL |
| | | | Not | | - 0.5 - - | | | orange/grey/cream, fine to medium grained (weathered sandstone) gravel, low plasticity silt, with crushed sandstone TERMINATED AT 0.30 m Refusal | | | 0.20 m: PID=6.2ppm No staining, odour or PACM [observed. |
| | | | | | - | | | | | | |
| | | | | | - 1.5 - - | | | | | | |
| | | | | | - 2.0 - | | | | | | |
| | | | | | - - 2.5 - | | | | | | |
| | | | | | - - - 3.0 - | | | | | | |
| | | | | | - 3.5 - - | | | | | | |
| | | | | | - 4.0 - | | | | | | |
| | | | | | - 4.5 - - - | | | | | | |
| EX R HA PT SOI AH PS AD/ AD/ HF/ | R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling Water nufflow | | | | | | | P Hand/Pocket Penetrometer D Di CP Dynamic Cone Penetrometer ES Er SP Perth Sand Penetrometer U Th IC Moisture Content MOISTURE BT Plate Bearing Test D D ID Borehole Impression Test M M ID Phito Ionization Detector W W S Vane Shear, P=Peak, PL PL | y bist | ample tal sampl be 'undist | e S - Soft F - Firm |
| | | | | | | | | | | | |

____ Construction

TEST PIT LOG SHEET

| Proj | nt: ect: ation | 5 | Stage | ourn Mulwaree Counci 2 - DSI er Dossie St and Sloar | | Souther | rn | | | ŀ | lole No: TP3 |
|--|--|--|--|---|---|----------------|----------------|--|-----------------------|------------------------------------|---|
| | ition | | Jorne | er Dossie St and Sloar | ie St, G | Jourbu | m | Job No: 5046200019 Angle from Horizontal: 90° | | Surface | Sheet: 1 o Elevation: |
| lac | hine | Тур | e: 5 to | onne Excavator | | | | Excavation Method: Bucket | | | |
| | | - | - | sions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 1 | 9/2/20 | | | | Logged By: SI | (| Checke | d By: AN |
| Ex | cavati | on | - | Sampling & Testing | _ | | | Material Description | 1 | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | Not Encountered | ES 0.00 - 0.10 m ES 0.40 - 0.50 m | | | ML | | м | | TOPSOIL 0.00 m: PID=1.9ppm No staining, odour or PACM observed. NATURAL 0.40 m: PID=6.1ppm |
| ¥ | | | | 23 0.40 - 0.30 m | 0.5 | | | 0.50m TERMINATED AT 0.50 m Refusal | | | No staining, odour or PACM observed. |
| | | | | | - - - 1.0 - - | | | | | | |
| | | | | | - 1.5 - - - - - 2.0 | | | | | | |
| | | | | | - - - 2.5 - | | | | | | |
| | | | | | - - - 3.0 - - | | | | | | |
| | | | | | - - 3.5 - - - - - - - | | | | | | |
| | | | | | - - - - 4.5 - | | | | | | |
| | THOD | | herei | | - - | | | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX RHA PT SOI AD AD AD HF WB RR | Rip Ha Pu N So Air Pe Sh V So (V So (T So A Ho S Wa | oper nd aug sh tub nic dril hamm rcussic ort spi lid fligh lid fligh llow fli | e ling er on samp ral auge nt auge ght auge ght auge e drillin | pler ar r: V-Bit er | n inflow | l | F P P | IP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test MP - Borehole Impression Test ID - Pito Ionization Detector VS - Vane Shear; P=Peak, | y bist | imple al sample be 'undisti | S - Soft F - Firm |
| | | | | or details of | | | | | | | , |

<u>___</u> Construction

TEST PIT LOG SHEET

| -ll- | = | Co | ons | truc ces | tion | | | | | | ΤЕ | ST PIT LOG SHEET |
|--------------------|--|--|--|---|--|--|----------------|-----------------------|--|---|------------------------------------|---|
| | ient ojec | : | (| Goull | ourn Mulwaree Counci | I | | | | | | Hole No: TP35 |
| | ojec | | : 0 | Corn | er Dossie St and Sloar | ne St, C | Goulbu | rn | Job No: 5046200019 | | _ | Sheet: 1 of 1 |
| Po | ositi | on: | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| | | | | | onne Excavator | | | | Excavation Method: Bucket | | | |
| _ | | | | | isions: | | | | | | | ctor: JPK Excavations |
| | | _ | | ed: 1 | 9/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| _ | Exca | vatio | on | | Sampling & Testing | - | | - | Material Description | - | | · · · · · · |
| Method | | Kesistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | L L | | | Not Encountered | ES 0.00 - 0.10 m | - | | sw | FILL: Gravelly Silty SAND: fine to coarse grained, brown/cream, low plasticity silt, fine to medium grained (weathered sandstone) gravel | | | FILL 0.00 m: PID=2.5ppm No staining, odour or PACM observed. |
| EX | Í | | | Not En | ES 0.40 - 0.50 m | 0.5 | | × | 0.50m Gravelly Silty SAND: fine to coarse grained, cream/buff/pink, low plasticity silt, fine to medium | D | | 0.40 m: PID=3.0ppm No staining, odour or PACM observed. |
| | , | | | | ES 0.70 - 0.80 m | + | | SW | grained (weathered sandstone) gravel 0.80m | | | NATURAL 0.70 m: PID=2.7ppm No staining, odour or PACM |
| | | | | | | - 1.0 - | | | TERMINATED AT 0.80 m Target depth | | | \observed |
| sinn i f | | | | | | - 1.5 - - | | | | | | |
| | | | | | | - 2.0 - | | | | | | |
| | | | | | | - 2.5 - - | | | | | | - |
| 21.41 1202/09/2020 | | | | | | - 3.0 - | | | | | | - |
| | | | | | | - 3.5 - - | | | | | | - |
| | | | | | | - 4.0 - - | | | | | | - |
| | | | | | | - 4.5 - - | | | | | | |
| | METH | | | | PENETRATION | | | | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| | EX R HA SON AH PS AD/V AD/T HFA NB R | Exc Rip Hai Soi Air Pei Soi Soi Soi Hoi Wa | pper nd aug sh tub nic dril hamm rcussic ort spi lid fligl lid fligl llow fli | e ling er on sam ral aug nt auge nt auge ght au e drillir | et ⇒ u u ⊥ ± → water | – No Res – Refusa Level or inflow | | S F F M F | $\begin{array}{rcl} PT & - & Standard Penetration Test \\ P & - & Hand/Pocket Penetrometer \\ CP & - & Dynamic Cone Penetrometer \\ SP & - & Perth Sand Penetrometer \\ CT & - & Moisture Content \\ BT & - & Plate Bearing Test \\ MP & - & Borehole Impression Test \\ ID & - & Phito Ionization Detector \\ S & - & Vane Shear; P=Peak, \\ PE-Pendual (Unerstand UPD) \\ PE-Pendual (Unerstand UPD) \\ \end{array}$ | ulk disturb sturbed sa wironmen in wall tul y oist | ample tal sampl be 'undis' | le VS - Very Soft S - Soft le F - Firm |
| F | Refer to abbrevi | o exp ations | lanatory s and ba | notes f asis of d | or details of escriptions | | CC | NS | STRUCTION SCIENCES | | | |

| | nces | | | | | | | TE | ST PIT LOG SHEET |
|--|--|---|----------------------|----------------|--------------------|--|--|------------------------------------|--|
| Client: | Goull | ourn Mulwaree Council | | | | | | | Hole No: TP36 |
| Location: | | er Dossie St and Sloan | e St, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| Position: | 00 · 5 t | oppo Excavator | | | | Angle from Horizontal: 90° Excavation Method: Bucket | | Surfac | e Elevation: |
| Excavation | | onne Excavator Isions: | | | | | | Contra | ctor: JPK Excavations |
| Date Excava | ated: 1 | 9/2/20 | | 1 | | Logged By: SI | | Check | ed By: AN |
| Excavation | | Sampling & Testing | 1_ | | | Material Description | | 1 | 1 |
| Method Resistance Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | Encountered | ES 0.00 - 0.10 m | - | | ML | FILL: Gravelly Silty SILT: low plasticity, brown/grey/orange/cream, low plasticity silt, fine to medium grained (weathered sandstone) gravel, with organics | D to M | | FILL 0.00 m: No staining, odour or PACM observed. |
| EX- | Not End | ES 0.60 - 0.70 m | -0.5 - - | | | 0.70m Gravelly Silty SAND: fine to coarse grained, orange/cream/gray, low plasticity silt, fine to medium created (unanticed coardinators) and (unanticed coardinators) | | - | 0.60 m: No staining, odour or PACM observed. NATURAL |
| | | ES 1.00 - 1.10 m | - 1.0 | 000 | sw | grained (weathered sandstone) gravel 1.10m TERMINATED AT 1.10 m Target depth | M | | 1.00 m: No staining, odour or PACM |
| | | | - - 1.5 - | | | | | | - |
| | | | - - 2.0 - | | | | | | |
| | | | - - 2.5 - | | | | | | - |
| | | | - - - 3.0 - | | | | | | - |
| | | | - - 3.5 - - | | | | | | |
| | | | - 4.0 - | | | | | | |
| | | | - - 4.5 - | | | | | | - |
| R Ripper HA Hand at PT Push tu SON Sonic di AH Air ham PS Percuss AS Short sp AD/V Solid flig AD/T Solid flig HFA Hollowi | ibe rilling mer sion sam piral aug ght aug ght aug flight au ore drillir | pler er er: V-Bit er: TC-Bit ger Water bown bown bown bown bown bown bown bown | | I | SH DP P P | P - Hand/Pocket Penetrometer D - Di CP Dynamic Cone Penetrometer ES - Ei CP Perth Sand Penetrometer U - Tr CP Moisture Content MOISTURI 3T Plate Bearing Test D - Di IP Borehole Impression Test M - M Q Phito Ionization Detector W - W Q Vane Shear, P=Peak, PL - Pi | ulk disturb sturbed sa nvironmen nin wall tul S y oist | ample tal sampl be 'undis | le F - Firm |
| Refer to explanato abbreviations and | ory notes f basis of d | or details of escriptions | | CO | NS | TRUCTION SCIENCES | | | I |

CS ENVIRONMENTAL 2.01.4 LIB.GLB Log CARDNO NON-CORED GOULBURN MULWAREE COUNCIL. GPJ << DrawingFile>> 25/03/2020 14:12 10.000 Dated AGS RTA. Photo. Monitorina Tools

<u>___</u> Construction

| Science | es | | | <u> </u> | T PIT LOG SHEET |
|--|---|-----------------------------|---|---|---|
| Client: Go | oulburn Mulwaree Council age 2 - DSI | | | H | ole No: TP37 |
| Location: Co | orner Dossie St and Sloane | St, Goulburn | | | Sheet: 1 of 1 |
| Position: | E tonno Evoquator | | Angle from Horizontal: 90° | Surface E | Elevation: |
| Excavation Dim | 5 tonne Excavator nensions: | | Excavation Method: Bucket | Contracto | or: JPK Excavations |
| Date Excavated | | | Logged By: SI | Checked | |
| Excavation | Sampling & Testing | | Material Descript | ion | |
| Method Resistance Stability | ରୁ Sample or Field Test | Depth (m) Graphic Log | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition Consistency Relative Density | STRUCTURE & Other Observations |
| A I I I | ES 0.00 - 0.10 m | si | FILL: Gravelly Silty SAND: fine to coarse grained orange/cream/buff/grey, low plasticity silt, fine to medium grained (weathered sandstone) gravel N | , 0. N | ILL 00 m: PID=2.6ppm - o staining, odour or PACM - oserved |
| EX | ES 0.40 - 0.50 m | -0.5 | 0.50m Gravelly Silty SAND: fine to coarse grained, orange/cream/grey/buff, low plasticity silt, fine to medium grained (weathered sandstone) gravel | N | 40 m: PID=2.4ppm - o staining, odour or PACM - oserved. / ATURAL |
| | ES 0.90 - 1.00 m | -1.0 | N 1.00m TERMINATED AT 1.00 m | N | 90 m: PID=4.1ppm - o staining, odour or PACM / Seerved. / |
| METHOD EX Excavator bu R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion s AD/T Solid flight a AD/T Solid flight a AD/T Solid flight a HFA Hollow flight WB Washbore d RR Rock roller Refer to explanatory not abbreviations and basis | | -1.5 | Target depth | | |
| EX Excavator bu R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion s AS Short spiral AD/V Solid flight a HFA Hollow flight WB Washbore d RR Rock roller | g WATER auger auger: V-Bit auger: TC-Bit tauger | | DCP Dynamic Cone Penetrometer U PSP Perth Sand Penetrometer U MC Moisture Content MOISTI PBT Plate Bearing Test D IMP Borehole Impression Test M PID Phito Ionization Detector W VS Vane Shear; P=Peak, | Bulk disturbed sample Disturbed sample Environmental sample Thin wall tube 'undisturb JRE Dry Moist Wet Plastic limit Liquid limit Moisture content | SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Refer to explanatory not abbreviations and basis | | CON | STRUCTION SCIENCES | | |



<u>___</u> Construction

TEST PIT LOG SHEET

| | nt: ect: | | | ourn Mulwaree Counci | I | | | | | | Hole No: TP3 |
|-------------------------|--|-----------|--|--|----------------------------------|----------------|----------------------------|--|--|------------------------------------|---|
| | atior | | | er Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| os | ition | : | | | | | | Angle from Horizontal: 90° | 5 | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: Bucket | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | - | | ed: 1 | 9/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | | ES 0.00 - 0.10 m | - | | XXXX | FILL: Gravelly SILT: low plasticity, brown, fine to medium grained gravel, with organics | | | FILL 0.00 m: PID=2.1ppm No staining, odour or PACM observed. |
| | | | ntered | ES 0.40 - 0.50 m | 0.5 | | × × × ML | | D to M | | 0.40 m: PID=1.6ppm No staining, odour or PACM observed. |
| —— EX — | | | Not Encountered | ES 0.90 - 1.00 m | | | * * * * * * * | | | | 0.90 m: PID=1.3ppm No staining, odour or PACM observed. |
| | | | | ES 1.40 - 1.50 m | | | sw | 1.30m Gravelly Silty SAND: fine to medium grained, brown/orrange, low plasticity silt, fine to medium grained (weathered sandstone) gravel | м | | NATURAL 1.40 m: PID=1.0ppm No staining, odour or PACM |
| v | | | | | - | 0 | | 1.70m TERMINATED AT 1.70 m | | | observed. |
| | | | | | - 2.0 | | | Target depth | | | |
| | | | | | - | | | | | | |
| | | | | | - 2.5 - - | | | | | | |
| | | | | | - 3.0 | | | | | | |
| | | | | | - - - 3.5 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 4.0 - | | | | | | |
| | | | | | - - 4.5 - | | | | | | |
| | | | | | - | | | | | | |
| ME ER HAT SOAH SADA ADA | Riµ Ha Pu N So Air Pe Sh /V So /T So A Ho | | ger e ling ler on sam ral aug nt auge nt auge ght au | pler er er: V-Bit ger WATER Water shown water i water i | − No Res − Refusa Level or | | S H D P M P | P Hand/Pocket Penetrometer D - Dir CP Dynamic Cone Penetrometer ES - Tr SP Perth Sand Penetrometer U - Tr IC Moisture Content MOISTURE BT Plate Bearing Test D D ID Phito Ionization Detector M M Vane Shear, P=Peak, PL - Pit Construction PL - Lic | y pist et astic limit quid limit | ample tal sampl be 'undis' | le F - Firm |
| RR | | ck rolle | er | | | | | R=Resdual (uncorrected kPa) | oisture cor | ntent | VD - Very Dense |

| Clier Proje | | | | burn Mulwaree Council e 2 - DSI | | | | | | ŀ | Hole No: TP3 |
|---|---|---|--|--|--|------------------------|--------------------------------------|--|---|------------------------------------|--|
| .oca | | | | er Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| Posit | ion | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| lach | nine | Тур | e: 5 t | onne Excavator | | | | Excavation Method: Bucket | | | |
| | | | | nsions: | | | | | | | ctor: JPK Excavations |
| | - | | ed: 1 | 9/2/20 | | | | Logged By: SI | | Checke | ed By: AN |
| Exc | avati | on | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | ES 0.00 - 0.10 m | _ | лы. лы. л лы. лы. л | ML | 0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics | М | - | TOPSOIL 0.00 m: PID=1.8ppm |
| | | | Not Encountered | ES 0.50 - 0.60 m ES 1.00 - 1.10 m | - - - - - - - - - - - - - - - - - - - | | ML | FILL: Gravelly Sandy SILT: low plasticity, brown with mottled orange/red, fine to coarse grained sand, fine to medium grained (weathered sandstone) gravel | D to M | | No staining, odour or PACM observed. FILL 0.50 m: PID=1.6ppm No staining, odour or PACM observed. 1.00 m: PID=1.8ppm No staining, odour or PACM |
| V | | | | ES 1.50 - 1.60 m ES 1.70 - 1.80 m | - - - - - - - - - - - - - - - - - - - | | SW | 1.70m Gravelly Silty SAND: fine to coarse grained, orange/red/brown, low plasticity silt, fine to medium grained (weathered sandstone) gravel 2.00m TERMINATED AT 2.00 m | м | _ | observed. 1.50 m: PID=1.7ppm No staining, odour or PACM observed. Possibly NATURAL 1.70 m: PID=1.9ppm No staining, odour or PACM observed. |
| | | | | | - - - - - - - - - - - - - - - - - - - | | | | | | |
| | | | | | - 3.5 - - - - - - - - - - - - - - - - - - - | | | | | | |
| MET EX R HA SON AD/A HFA AD/T HFA WB R | Exe Rip Ha Sol Air Pel Sol Sol Ho Wa | cavato per nd aug sh tub nic dril hamm rcussic ort spi id fligh id fligh id fligh id fligh ch rollo | ger e ling er on sam ral aug nt aug nt aug ght au e drillin | ppler ler er: V-Bit er: TC-Bit ger water i | - - No Res - Refusa Level or | | S H D P M P I P | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test IP - Borehole Impression Test ID - Phito Ionization Detector S - Vane Shear; P=Peak, Beadual (uncorrented IPD) LL | turbed sa vironmen n wall tul v ist | tal sampl be 'undist | e S - Soft F - Firm |

| | nt: ect: | | | ourn Mulwaree Counci | I | | | | | ŀ | Hole No: TP4 |
|---------------|--------------|----------------------------|---------------------|------------------------------|-----------|--|----------------|--|--|------------------------------------|---|
| | ation | : C | Corn | er Dossie St and Sloar | ne St, C | Goulbu | rn | Job No: 5046200019 | | - | Sheet: 1 of |
| os | ition | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: Bucket | | | |
| | | | | isions: | | | | Lowed Dr. Ol | | | ctor: JPK Excavations |
| | cavati | | ea: 1 | 9/2/20 Sampling & Testing | | | | Logged By: SI Material Description | | Checke | ed By: AN |
| ^ | | | | | | | 6 | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | | ES 0.00 - 0.10 m | _ | لد علد علد علد علد ــــــــــــــــــــــــــــــــ | ML | 0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained (weathered sandstone) gravel | м | | TOPSOIL 0.00 m: PID=1.2ppm |
| | | | | | F | | × × | FILL: Gravelly SILT: low plasticity, brown/grey, fine to medium grained (weathered sandstone) gravel | | | No staining, odour or PACM observed FILL |
| | | | | | 1 | | × · | | | | |
| | | | | ES 0.40 - 0.50 m | -0.5 | | ML | | D | | 0.40 m: PID=1.6ppm No staining, odour or PACM observed. |
| | | | tered | | F | | | | | | observed. |
| Ĵ | | | Encountered | | [| \bigotimes | | | | | |
| Ж | | | N ot Er | | F | | × · | 4.00- | | | |
| | | | | ES 1.00 - 1.10 m | - 1.0 | | - | 1.00m FILL: Gravelly Clayey SILT: low plasticity, | | 1 | 1.00 m: PID=1.4ppm |
| | | | | | 1 | | | brown/orange, fine to medium grained gravel | | | No staining, odour or PACM observed. |
| | | | | | F | | ML | | м | | |
| | | | | | - | | | 1.50m | | | |
| | | | | ES 1.50 - 1.60 m | 1.5 | | ML | Gravelly Clayey SILT: low plasticity, orange/red/brown, fine to medium grained | | | NATURAL 1.50 m: PID=1.4ppm |
| ۲ | | | | | - | NRF | - | 1.70m (weathered sandstone) gravel TERMINATED AT 1.70 m | | | No staining, odour or PACM observed. |
| | | | | | Ĺ | | | Target depth | | | |
| | | | | | -2.0 | | | | | | |
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| ΕX | | cavato | r bucke | | | | | | | ed sampl | |
| R HA PT | Ha | oper nd aug | | | - No Res | sistance | | CP Dynamic Cone Penetrometer ES - En | | ample tal sampl be 'undist | |
| SO AH | N So | sh tub nic dril hamm | ling | | – Refusa | ıl | P | SP - Perth Sand Penetrometer IC - Moisture Content MOISTURE | | pe undisi | turbed' St - Stiff VSt - Very Stiff H - Hard |
| PS AS | Pe | rcussio ort spi | on sam | | | n Date | P | BT - Plate Bearing Test D - Dry | / | | RELATIVE DENSITY |
| AD/ AD/ | /V So | lid fligh | nt auge | er: V-Bit shown | 1 | Date | P | MP Borehole Impression Test M Mo ID Phito Ionization Detector W We We | et | | VL - Very Loose L - Loose |
| HF/ WB | A Ho 3 Wa | llow fli ashbor | ght au e drillir | ger water | | | V | B=Booduol (upporrected kBo) LL - Liq | astic limit uid limit isture cor | ntent | MD - Medium Den D - Dense |
| RR | | ck rolle | ər | | | | 1 | · · / w - Mo | າວເພາະ COI | | VD - Very Dense |

| Clie Proi | nt: ect: | 0 | Soulk Stage | ourn Mulwaree Counce 2 - Detailed Site Invo | cil esticatio | on | | | | H | Hole No: TP4 |
|--|--|--------------------|--|---|---|----------------|-----------------------|---|---|--|--|
| | ation | : Č | Corne | 2 - Detailed Site Inve er Dossie St and Sloa | ine St, C | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | ition | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 2 | 0/2/20 | | | | Logged By: SI | | CHECK | ed By: AN |
| EX | cavati | on | | Sampling & Testing | | | | Material Description | | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ► EX | | | | 0.10 - 0.30 m | | | ML | FILL: SILT: dark grey 0.30m | w | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| ¥ | | | | | | | | TERMINATED AT 0.30 m | | | |
| | | | | | -0.5 | | | | | | |
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| EX R HA PT SO AH PS AD/ AD/ HF/ | Rip Ha Pu N So Air Pe Sh V So T So A Ho | lid fligh | ler e er on sam al aug nt auge nt auge ght auge | pler er r: V-Bit r: TC-Bit ger | ──NoRes └──Refusa er Level or vn r inflow | | S H P N P | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Penth Sand Penetrometer IC Moisture Content MOISTURE BT - Plate Bearing Test ID - Phito Ionization Detector S - Vane Shear "=Perek | turbed sa vironmen n wall tul ist et ustic limit | ed sampl ample tal sampl be 'undis' | le S - Soft F - Firm St - Stiff VSt - Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Der |
| WB RR | Wa | ashbor ck rolle | e drillin | ig — wate | r outflow | | | B-Basedual (unservice to d kBa) LL - Liqi | uid limit isture coi | ntent | D - Dense VD - Very Dense |
| | | | | | | | NS | | | | , 25000 |

| Clie Proj | ect: | C S | oult tage | ourn Mulwaree Counc 2 - Detailed Site Inve er Dossie St and Sloa | cil estigatio | on | | | | | Hole No: TP4 |
|--|---|--|---|--|--|----------------|-----------------------|---|---|------------------------------------|---|
| -002 | ation | | orne | er Dossie St and Sloa | ane Št, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | tion | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | 0 | |
| | | | | sions: | | | | | | | ctor: JPK Excavations |
| | avati | | eu: 2 | 0/2/20 Sampling & Testing | | | | Logged By: SI | | CHECK | ed By: AN |
| EX | | n | | Sampling & resting | | | Ē | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ► EX EX | | | | 0.10 - 0.30 m | - | | ML | FILL: Gravelly SILT: grey/brown/orange with siltstone | w | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| | | | | | - | | | TERMINATED AT 0.30 m | | | |
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| MET EX R HA PT SOT AH PS AD/ AD/ HFA WB | Rip Ha Pu: Air Pei Sh V Sol T Sol T Sol Wa | per nd aug sh tube nic dril hamm cussic ort spir id fligh id fligh low flig shbore | e ing er n sam al auge t auge t auge ght auge drillin | oler ar r: V-Bit r: TC-Bit ler wate | ── No Res I── Refusa er Level on | | S F F M F | IP Hand/Pocket Penetrometer D - Disi ICP Dynamic Cone Penetrometer U - Thir ISP Perth Sand Penetrometer U - Thir IC Moisture Content MOISTURE IBT Plate Bearing Test D - Dry IP Borehole Impression Test M - Moisture ID Phito Ionization Detector W - We ISS Vane Shear; P=Peak, L - Ila | turbed sa vironmen n wall tul st t stic limit uid limit | | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Der |
| RR | Ro | ck rolle | r | - | | | 1 | W - Moi | sture cor | ment | D - Dense VD - Very Dense |

| 1 | | <u>cien</u> | | tion | | | | | | TE | ST PIT LOG SHEET |
|---|---|--|---|--|-------------------------------|----------------|-----------------------------|---|---|------------------------------------|--------------------------------------|
| Clie Pro | ent: ject: | (| Goull Stage | ourn Mulwaree Counci | tigati | on | | | | | Hole No: TP43 |
| Loc | ation | n: (| Corne | er Dossie St and Sloan | e Št, (| Goulbu | rn | Job No: 5046200019 | | Cfa a | Sheet: 1 of 1 e Elevation: |
| | | | e:5 t | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKE | | Suriac | |
| | | | | isions: | | | | | | Contra | ctor: JPK Excavations |
| | | | ed: 2 | 0/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| E> | kcavat | ion | | Sampling & Testing | | | | Material Descri | ption | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristi colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | , vi Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | | | - | | | FILL: SILT: dark grey | | | FILL 0.00 m: SEDIMENTARY SAMPLE - |
| μEX | | | | 0.10 - 0.30 m | F | | ML | | w | | FROM DAM FLOOR |
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| ME EX R HAA PS SA AD HF ME RR HAY SA AD HF ME RR REFERENCE AND AD HF ME RR REFERENCE AND AD HF ME RR REFERENCE AND AD HE RR REFERENCE AND AD HE RR REFERENCE AND AD REFERENCE AND | Ri Ha Pu N So Ain Sh VV So VV So VT So A Ho 3 W | cavato pper and aug ush tub pnic dril pnic dril r hamm ercussio nort spi plid fligl | ger e ling er on sam ral auge nt auge ght auge ght auge | pler er er: V-Bit ger WATER Water shown water i water i | - Refusa Level or nflow | | S H D P N IN | P - Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U C - Moisture Content MOIS BT - Plate Bearing Test D IP - Borehole Impression Test M ID - Phito Ionization Detector W S - Vane Shear; P=Peak, L | PLES - Bulk disturt - Disturbed s - Environed - Thin wall tu TURE - Dry - Moist - Wet - Plastic limit - Liquid limit - Moisture co | ample ital sampl be 'undis | le F - Firm |
| Ref abb | er to ex reviation | planatory ns and ba | notes f asis of d | or details of escriptions | | CO | NS | TRUCTION SCIENCES | | | |

| n: C n: e Type tion D | e: 5 t | 2 - Detailed Site Invester Dossie St and Sloan onne Excavator isions: 00/2/20 Sampling & Testing Sample or Field Test 0.10 - 0.30 m | e Št, ((), (), (), (), (), (), (), (), (), (), | Graphic | Lassification | Job No: 5046200019 Angle from Horizontal: 90° Excavation Method: BUCKET Logged By: SI Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: SILT: dark grey/orange 0.30m TERMINATED AT 0.30 m | | Contra | Sheet: 1 te Elevation: actor: JPK Excavations ed By: AN STRUCTURE & Other Observations FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
|---|--|--|---|--|--|---|---|--|---|
| e Type tion D cavate tion | imen ed: 2 | ISIONS: 20/2/20 Sampling & Testing Sample or Field Test | - - - 0.5 - - - | Graphic Log | | Excavation Method: BUCKET Logged By: SI Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: SILT: dark grey/orange 0.30m | Moisture Condition | Contra Check | STRUCTURE & Other Observations |
| tion D cavat | imen ed: 2 | ISIONS: 20/2/20 Sampling & Testing Sample or Field Test | - - - 0.5 - - - | Graphic Log | | Logged By: SI Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: SILT: dark grey/orange | Moisture Condition | Check | Ed By: AN STRUCTURE & Other Observations |
| cavat tion | ed: 2 | 0/2/20 Sampling & Testing Sample or Field Test | - - - 0.5 - - - | Graphic | | Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: SILT: dark grey/orange 0.30m | Moisture Condition | Check | Ed By: AN STRUCTURE & Other Observations |
| tion | | Sampling & Testing Sample or Field Test | - - - 0.5 - - - | Graphic Log | | Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: SILT: dark grey/orange 0.30m | Moisture Condition | | STRUCTURE & Other Observations FILL 0.00 m: SEDIMENTARY SAMPLE |
| | Water | Sample or Field Test | - - - 0.5 - - - | Graphic | | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: SILT: dark grey/orange | Moisture Condition | Consistency Relative Density | FILL 0.00 m: SEDIMENTARY SAMPLE |
| Stability | Water | Field Test | - - - 0.5 - - - | Graphic | | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: SILT: dark grey/orange | | Consistency Relative Density | FILL 0.00 m: SEDIMENTARY SAMPLE |
| | | 0.10 - 0.30 m | - - - | | ML | 0.30m | w | | 0.00 m: SEDIMENTARY SAMPLE |
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| | | DENETDATION | - | | | | | | |
| xcavator ipper and aug ush tube onic dril ir hamm ercussic hort spir olid fligh olid fligh ollow flig /ashbore | ger e ling ler on sam ral aug nt auge nt auge ght aug e drillir | et ⇒ <u>w w x x →</u> water er er: rC-Bit ger water i water i | -Refusa Level or nflow | I | S H D P M P | PT - Standard Penetration Test B - BL IP - Hand/Pocket Penetrometer D - Di IP - Dynamic Cone Penetrometer ES - Er VCP - Dynamic Cone Penetrometer U - Th ISP - Perth Sand Penetrometer W - Th IC - Moisture Content MOISTURE IBT - Plate Bearing Test D - Dr VID - Phito Ionization Detector W - W VS - Vane Shear; P=Peak, PL - PL | Ik disturb sturbed s nvironmen in wall tu y pist et astic limit quid limit | ample ital samp be 'undis | le VS - Verv Soft |
| i la u o ir e h o o o /a o e | cavator oper ind aug ish tub nic dril hamm crcussic ort spin id fligh id fligh id fligh id fligh id fligh ock rolle | cavator bucke oper ind auger ish tube nic drilling hammer rorussion sam ort spiral aug lid flight auge lidw flight aug ashbore drillir ick roller | cavator bucket pper ind auger ish tube inic drilling hammer rcussion sampler iof light auger: V-Bit lid flight auger: TC-Bit lidwight auger shobre drilling water i water i | cavator bucket per ind auger sh tube nic drilling hammer rcussion sampler tid flight auger: V-Bit ild flight auger: V-Bit ild flight auger: V-Bit ild flight auger: C-Bit abhore drilling ck roller Mater Level or shown water inflow water outflow water outflow | cavator bucket pper ind auger sh tube nic drilling hammer roussion sampler oti spiral auger: V-Bit ild flight auger: TC-Bit ild flight auger: TC- | cavator bucket popr not auger sh tube nic drilling harmer roussion sampler out spiral auger wid flight auger: TC-Bit illow flight auger: | cavator bucket oper ind auger shtube in the filling ind fight auger: V-Bit id | cavator bucket oper ind auger sh tube full fight auger: 1C-Bit lid fid | cavator bucket -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -5 -5 -6 -7 -7 -7 |

| Proj | nt: ect: | 5 | Stage | ourn Mulwaree Counci | stigatio | on | | | | ł | Hole No: TP |
|---|--|--|--|---|--|----------------|----------------------------|--|--|------------------------------------|---|
| | ation | : (| Corne | er Dossie St and Sloar | ne Št, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | ition | | | F | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Contro | ctor: JPK Excavations |
| | | | | 0/2/20 | | | | Logged By: SI | | | ed By: AN |
| | | | eu. z | | | | | Material Description | | CHECK | eu by. An |
| | cavati | | | Sampling & Testing | (E) | 0 | tion | SOIL TYPE, plasticity or particle characteristic. | | C A | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ▲ × | | | Not Encountered | 0.00 - 0.10 m | + | | ML SP- | 0.10m SILT: low plasticity, dark brown with sandstone Gravelly Silty SAND: fine to coarse grained, orange/red/cream/grey with sandstone | м | | TOPSOIL 0.00 m: PID = 1.2ppm No staining, odour or PACM observed. NATURAL |
| | | | Not | 0.40 0.50 | 1 | i c | SM | | | | |
| * | | | | 0.40 - 0.50 m | 0.5 | 1107 | - | 0.50m TERMINATED AT 0.50 m | | | 0.40 m: PID = 1.9ppm No staining, odour or PACM observed. |
| | | | | | - - - 1.0 - | | | Target depth | | | |
| | | | | | - 1.5 - - | | | | | | |
| | | | | | - 2.0 - - - | | | | | | |
| | | | | | 2.5 - - - | | | | | | |
| | | | | | - 3.0 - - | | | | | | |
| | | | | | - 3.5 - - - | | | | | | |
| | | | | | - 4.0 - - | | | | | | |
| | | | | | - 4.5 - - - | | | | | | |
| EX R HA PT SOI AH PS AD/ AD/ HF/ WB | Rip Ha Pu N So Air Pe Sh V So T So A Ho | per nd aug sh tub nic dril hamm ccussic ort spi id fligh id fligh low fli ishbor | e ling ber on sam ral auge nt auge ght auge ght auge e drillir | pler er r:: V-Bit ger water | – No Res – Refusa Level on inflow | | S ⊢ □ ₽ ₽ ₽ | IP - Hand/Pocket Penetrometer D - Dis ICP - Dynamic Cone Penetrometer U - Thi ISP - Perth Sand Penetrometer U - Thi IC - Moisture Content MOISTURE D - Dis IRT - Plate Bearing Test D - Dry IP - Phito Ionization Detector W - We IP - Pointe Information Detector W - Plate IP - Desterd (Penetrometer det Dis) - L - L | sturbed sa vironmen in wall tul / ist et astic limit | tal sampl be 'undisi | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium De D - Dense |
| RR | Ro | ck rolle | er | | | | 1 | · · · · · · · · · · · · · · · · · · · | | | VD - Very Dense |

| | | ons cier | | tion | | | | | | ΤE | ST PIT LOG SHEET |
|---|---------------------------------|---|--|--|----------------------------------|-----------------------|----------------|--|---|------------------------------------|--|
| | ent: ject: | : : | Goull Stage | burn Mulwaree Council 2 - Detailed Site Invester Possie St and Sloan | tigati | on | | | | | Hole No: TP46 |
| | atio | | Corne | er Dossie St and Sloan | e 51, C | Jourpu | m | Job No: 5046200019 | | 0 | Sheet: 1 of 1 |
| | itior | | | F | | | | Angle from Horizontal: 90° | | Surrac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | 0 | |
| | | | | nsions: | | | | Logged By SI | | | ctor: JPK Excavations |
| | | | leu. z | 20/2/20 | 1 | | | Logged By: SI | | CHECK | ed By: AN |
| E) | cavat | tion | - | Sampling & Testing | | | | Material Descriptio | 'n | | 1 |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | | 0.00 - 0.10 m | + | | | 0.10m TOPSOIL FILL: Gravelly SILT: low plasticity, dark brown/grey with organic matter, and gravel of sandstone | | | TOPSOIL 0.00 m: PID = 2.1ppm No staining, odour or PACM observed. FILL |
| - EX | | | Seeping | 0.40 - 0.50 m | 0.5 | | ML | 0.60m | M to W | | FILL . |
| | | | Ň | 0.70 - 0.80 m | | 0 () 0 () 0 (| SP- SM | Gravelly Sity SAND: fine to coarse grained, red/orange/grey | м | | NATURAL 0.70 m: PID = 1.6ppm No staining, odour or PACM observed. |
| | | | | | -1.0- | | | 1.00m TERMINATED AT 1.00 m Target depth | | | |
| | | | | | - | | | | | | |
| | | | | | - 1.5 - - | | | | | | |
| | | | | | - 2.0 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - 2.5 | | | | | | |
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| | | | | | - 3.0 | | | | | | |
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| | | | | | - 4.0 | | | | | | |
| | | | | | - 4.5 | | | | | | |
| | | | | | | | | | | | |
| | THOE | | | PENETRATION | - | | | IELD TESTS SAMPLE | | | SOIL CONSISTENCY |
| EX R HA PT SC AH PS AD | R H P N S A S | xcavato lipper land au ush tub onic dri ir hamn ercussi hort sp olid flig | ger be illing ner on sam iral aug | pler WATER | - No Res - Refusa Level or | | F F | IP - Hand/Pocket Penetrometer D - I ICP - Dynamic Cone Penetrometer U - SP - Perth Sand Penetrometer U - IC - Moisture Content MOISTUI BT - Plate Bearing Test D - IP - Borehole Impression Test M - | Dry Moist | ample tal sampl | le F - Firm |
| AD AD HF WE RR | /T S A H B W | olid flig olid flig lollow fl /ashboi lock roll | ht auge ight au re drillir | er: TC-Bit ger water i | | | | ID - Phito Ionization Detector W - W 'S - Vane Shear; P=Peak, PL - I B=Readual (uncertanted kDa) LL - I | Net Plastic limit ∟iquid limit Moisture co | ntent | L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Ref | er to ex reviatio | xplanator ons and b | y notes f asis of d | or details of escriptions | | CO | NS | STRUCTION SCIENCES | | | |

| | nt: ect: | 9 | Stage | ourn Mulwaree Counci | stigati | on | | | | ŀ | Hole No: TP4 |
|------------|-------------|------------------|---------------------|-------------------------|------------------|----------------|----------------|--|-------------------------|------------------------------------|--|
| | ation | : 0 | Corne | er Dossie St and Sloar | ie St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | _ | |
| - | | - | - | isions: | | | | | | | ctor: JPK Excavations |
| | | | ea: 2 | 20/2/20 | | | | Logged By: SI | | Спеске | ed By: AN |
| EX | cavati | on | | Sampling & Testing | - | | 1 | Material Description | 1 | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | | 0.00 - 0.10 m | _ | | SP- | 0.10m FILL: Gravelly Clayey SAND: fine to medium grained, orange/brown with organic matter and | - | | FILL 0.00 m: PID = 2.8ppm |
| | | | | | F | | Š | Sandstone // FILL: Gravelly Clayey SILT: low plasticity, | | | No staining, odour or PACM observed. |
| | | | | 0.30 - 0.40 m | + | | × | orange/grey/dark brown with sandstone | | | 0.30 m: PID = 2.6ppm No staining, odour or PACM |
| | | | | | -0.5 | | × | | м | | observed. |
| | | | 7 | | - | | ML | | | | |
| | | | Not Encountered | | F | | × | | | | |
| | | | incou | 0.80 - 0.90 m | + | \otimes | × | | | | 0.80 m: PID = 3.0ppm |
| — ЕХ | | | NotE | DUP14, DUP14A | | | × | 1.00m | <u> </u> | 1 | No staining, odour or PACM observed. |
| | | | | 1.00 - 1.10 m | + | | × | FILL: Gravelly SILT: low plasticity, dakr brown/grey with weathered sandstone | | | 1.00 m: PID = 2.5ppm No staining, odour or PACM |
| | | | | | F | | ML | | | | observed. |
| | | | | | F | \otimes | × | | | | |
| | | | | | - | | × | 1.50m | D/M | | |
| | | | | 1.50 - 1.60 m | | | × | FILL: Gravelly Silty CLAY: low plasticity, orange/grey with siltstone | | | 1.50 m: PID = 2.4ppm No staining, odour or PACM |
| | | | | | F | | CL | | | | observed. |
| | | | | | _ | | - | 1.80m TERMINATED AT 1.80 m | | | |
| | | | | | - 2.0 | | | Refusal | | | |
| | | | | | [^{2.0} | | | | | | |
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| | THOD | | | | | 1 | | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R | Rip | per | r bucke | et Suurs | -No Res | sistance | | P - Hand/Pocket Penetrometer D - Dis | turbed sa | | S - Soft |
| HA PT | Ha Pu | nd aug sh tub | e | | Б <i>(</i> | | D | CP Dynamic Cone Penetrometer ES - En | | tal sampl be 'undist | turbed' St - Stiff |
| SO AH | Air | nic dril hamm | ner | | - Refusa | I | N | IC - Moisture Content MOISTURE | | | VSt - Very Stiff H - Hard |
| PS AS | Sh | ort spi | on sam ral aug | er Water | Level or | Date | | BT - Plate Bearing Test D - Dry MP - Borehole Impression Test M - Mo | | | RELATIVE DENSITY |
| AD/ AD/ | T So | lid flig | nt auge | er: TC-Bit shown | l . | | P | ID - Phito Ionization Detector W - We | | | VL - Very Loose L - Loose |
| HF/ WB | Wa | ishbor | ght au e drillir | yei j - | | | | B=Baadual (uncompated I/Da) LL - Liq | uid limit isture coi | ntent | MD - Medium Den D - Dense |
| RR | Ro | ck rolle | el. | 1 | | | 1 | | | | VD - Very Dense |

| | | ons | | tion | | | | | | TE | ST PIT LOG SHEET |
|--|---|--|--|--|---|------------------------------|-------------------|--|---|------------------------------------|---|
| | ent: ject: | (| Goul | burn Mulwaree Counci | | on | | | | ŀ | Hole No: TP48 |
| Loc | atio | n: (| Corn | er Dossie St and Sloan | e Št, C | Soulbu | rn | Job No: 5046200019 | | . | Sheet: 1 of 1 |
| | sitior chine | | e:5 t | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKE | | Surface | e Elevation: |
| | | | | nsions: | | | | | | Contra | ctor: JPK Excavations |
| Dat | e Ex | cavat | ed: 2 | 20/2/20 | | 1 | | Logged By: SI | | Checke | ed By: AN |
| E | xcavat | tion | | Sampling & Testing | | | | Material Descr | ription | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteris colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | s e io | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | | لىت غلىت غلىت غليت غليت غ | ML | 0.10m Gravelly SILT: low plasticity, dark brown/grey v | with D to M | | TOPSOIL 0.00 m: PID = 2.1ppm - |
| | | | R | | - | | | FILL: Gravelly Sitty SAND: fine to coarse grain grey/orange/brown with weathered sandstone | ned, | | No staining, odour or PACM observed. Possibly FILL |
| EX - | | | Not Encountered | 0.40 - 0.50 m | - 0.5 | | SP- SM | | D/M | | 0.40 m: PID = 2.0ppm No staining, odour or PACM observed |
| | | | | 0.90 - 1.00 m | | | SP- | 1.00m Gravelly Silty SAND: orange with weathered sandstone | D | - | 0.90 m: PID = 1.5ppm No staining, odour or PACM observed. |
| ↓ | - | 4 | | 1.20 - 1.30 m | † | | SM | 1.30m | | | 1.20 m: PID = 1.9ppm No staining, odour or PACM |
| | | | | | | | | TERMINATED AT 1.30 m Refusal | | | observed. |
| MI E2 R H4 PS A4 HF WRF | | | | | - - - - - - - - - - - - - - - - - - - | | | | | | - - - - - - - - - - - - - - - - - - - |
| | | | | | - - 4.0 - - | | | | | | |
| | | | | | 4.5 - - - | | | | | | |
| | Ri A Hi DN Si DN Si A Ai S Si D/V Si D/V Si D/V Si D/T Si FA Hi B W R Ri fer to ex | xcavato ipper and aug ush tub onic dril ir hamm ercussic hort spi olid flig olid flig olid flig olid flig olid spi /ashbor ock rollo | ger e ling er on sam ral augo nt augo ght au e drillin er | Appler ler sr: V-Bit sr: TC-Bit ger ng or details of | - Refusa Level or nflow | Date | S ⊢ C P № P № P V | PT - Standard Penetration Test B P - Hand/Pocket Penetrometer D CP - Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U IC - Moisture Content MOI BT - Plate Bearing Test D MP - Borehole Impression Test M ID - Phito Ionization Detector W S - Vane Shear; P=Peak, L | IPLES - Bulk disturb - Disturbed s: - Environmen - Thin wall tu STURE - Dry - Moist - Wet - Vet - Plastic limit - Liquid limit - Moisture col | ample tal sampl be 'undist | e S - Soft F - Firm |
| abl | previatio | ms and ba | usis of c | escriptions | | | | | | | |

| | | cien | | tion | | | | | | TE | ST PIT LOC | SHEET |
|--|--|--|--|---|---------------|---------------------|------------------|---|--|------------------------------------|---|--|
| Clien | nt: | (| Goull | burn Mulwaree Council | | | | | | | Hole No: | |
| Proje Loca | | n: (| Corn | e 2 - Detailed Site Inves er Dossie St and Sloan | e St, G | on Goulbu | rn | Job No: 5046200019 | | - | | neet: 1 of 1 |
| Posit | tion | : | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: | |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | | |
| | | | | nsions: 20/2/20 | | | | Logged By: SI | | | ctor: JPK Excaved By: AN | ations |
| | avati | | <u>6u. z</u> | Sampling & Testing | | | | Material Description | | Oneck | | |
| | | Stability | ter | Sample or | Depth (m) | Graphic Log | ication | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components | | Consistency Relative Density | STRUCT | ŪRE |
| Metl | Resistance | Stab | Water | Field Test | De | | Classification | ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consis Rela Den | & Other Obs | |
| | | | ered | DUP15, DUP15A | | | ML | 0.10m SILT: low plasticity, dark brown/grey with organic matter FILL: Gravelly Silty SAND: fine to coarse grained, with SANDSTONE, orange/grey | | | 0.00 m: PID = 2.1ppm No staining, odour or F observed. FILL | PACM |
| — EX — | | | Not Encountered | 0.50 - 0.60 m | 0.5 | | SP | 0.70m | D/M | | 0.50 m: PID = 3.2ppm No staining, odour or F observed. | - PACM |
| | | | | 0.80 - 0.90 m | - | | SP | Gravelly Silty SAND: fine to coarse grained, orange/cream with weathered sandstone | | | NATURAL 0.80 m: PID = 1.8ppm No staining, odour or F observed. | PACM |
| | | | | | | <u> - " -1 -(*"</u> | | TERMINATED AT 1.00 m Target depth | | | | |
| | | | | | | | | | | | | - |
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| | | | | | - 4.0 | | | | | | | - |
| | | | | | - - - | | | | | | | |
| | | | | | - 4.5 | | | | | | | - |
| | | | | | - | | | | | | | |
| MET EX R HA PT SON AH PS AD/V AD/T HFA WB | Ex Rip Ha Pu So Air So So Ho | cavato pper and aug ish tub onic dri hamm ercussio ort spi blid flig | ger e ling ler on sam ral aug nt auge nt auge ght au | pler ler er: V-Bit er: TC-Bit ger Water in water in water in | nflow | I | S F F F | $\begin{array}{rcl} P & - & Hand/Pocket Penetrometer \\ CP & - & Dynamic Cone Penetrometer \\ SP & - & Perth Sand Penetrometer \\ IC & - & Moisture Content \\ BT & - & Plate Bearing Test \\ ID & - & Borehole Impression Test \\ ID & - & Phito Ionization Detector \\ S & - & Vane Shear; P=Peak, \\ \hline \end{array} \qquad \begin{array}{c} D & - & Di \\ D & - & Di \\ D & - & Di \\ M & - & M \\ W & - & W \\ PL & - & Pi \\ D & - & Di \\ P & - & Pi \\ D & - & Di \\ D & - & D \\ D & - & Di \\ D & -$ | Ik disturb sturbed s nvironmen in wall tu y pist et astic limit quid limit | ample tal sampl be 'undis | le VS - S - turbed" St - VSt - H - RELATIV VL - L - MD - | NSISTENCY Very Soft Soft Firm Stiff Very Stiff Hard E DENSITY Very Loose Loose Medium Dense Dense |
| RR Refer | Ro to exp | ock roll | er v notes f | or details of | | СО | NS | R=Resdual (uncorrected kPa) | oisture co | ntent | VD - | Very Dense |

CS ENVIRONMENTAL 2014 LIB GLB Log CARDNO NON-CORED 5046200019 GINT 7P LOGS- SEQ ENG GPJ <CDrawingFile>> 2503/2020 13:51 10.0.000 Daigel GCS RTA, Pholo, Monitoring Tools

| Clie Proi | nt: ect: | 5 | Stage | ourn Mulwaree Counci | stigati | on | | | | ł | Hole No: TP |
|----------------------------|-------------------------|-------------------------------------|---------------------------------|-------------------------|-----------------|--|------------------|--|--|------------------------------------|--|
| | ation | : 0 | Corne | er Dossie St and Sloar | ne St, (| Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| Posi | tion | | | | | | | Angle from Horizontal: 90° | ; | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 2 | 20/2/20 | | 1 | | Logged By: SI | | Check | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | Material Description | | | 1 |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | _ | لير علير علير علير علير ع لير علير علير علير علير ع | ML | Gravelly SILT: low plasticity, dark brown/grey with organic matter 0.20m | | | TOPSOIL 0.00 m: PID = 1.8ppm No staining, odour or PACM |
| | | | ą | 0.20 - 0.30 m | 1 | | | FILL: Gravelly Silty SAND: fine to medium grained, | 1 | | observed. |
| - EX | | | Not Encountered | | - 0.5 | | SP | dark brown/grey/orange/cream with sandstone | D/M | | 0.20 m: PID = 1.8ppm No staining, odour or PACM observed. |
| | | | | 0.70 - 0.80 m | + | | | Gravelly Silty SAND: fine to coarse grained, | 1 | | NATURAL |
| v | | | | | - 1.0 | 0 | SP | 1.10m TERMINATED AT 1.10 m | | | 0.70 m: PID = 1.4 ppm No staining, odour or PACM observed. |
| | | | | | - | | | Target depth | | | |
| | | | | | - 1.5 - - | | | | | | |
| | | | | | - 2.0 | | | | | | |
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| EX R HA PT SOI | Riµ Ha Pu N So | per nd aug sh tub nic dril | e ling | | | sistance | S H D P | P - Hand/Pocket Penetrometer CP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer | in wall tul | ample tal sampl | le S - Soft turbed' St - Stiff VSt - Very Stiff |
| AH PS | Air Pe | hamm rcussio | er n sam | pler WATER | | | | C - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr | | | H - Hard |
| AS AD/ | Sh V So | ort spi lid fligh | ral aug nt auge | er er: V-Bit Water | | n Date | IN | IP - Borehole Impression Test M - Mo | oist | | RELATIVE DENSITY VL - Very Loose |
| AD/ HF/ WB RR | T So A Ho Wa | lid fligh llow fli | nt auge ght aug e drillir | er: TC-Bit water | inflow | | V | S - Vane Shear; P=Peak, P=Peak, LL - Lic | et astic limit juid limit pisture coi | ntent | L - Loose MD - Medium Der D - Dense VD - Very Dense |

| | | ons | | tion | | | | | | ΤE | ST PIT LOG SHEET |
|-----------------|---|--|--|--|--------------------------------|---|----------------|---|---|------------------------------------|--|
| Clie | ent: ject: | | | ourn Mulwaree Counci | | on | | | | ł | Hole No: TP51 |
| Loc | atio | n: (| Corn | er Dossie St and Sloar | ie St, C | Soulbu | rn | Job No: 5046200019 | | 0 | Sheet: 1 of 1 |
| | itior chine | | e:5 t | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surrac | e Elevation: |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | - | | ed: 2 | 20/2/20 | | 1 | | Logged By: SI | | Checke | ed By: AN |
| E | kcavat | tion | | Sampling & Testing | - | | 6 | Material Descrip | tion | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | 1 | لىر غاير غاير غاير غاير م | ML | 0.10m SILT: low plasticity, dark brown/grey with organic matter | | | TOPSOIL 0.00 m: PID = 2.4ppm - |
| | | | | | - | | | FILL: Gravelly Silty SAND: fine to coarse grained dark grey/orange/brown with sandstone | <u>,</u> , | | No staining, odour or PACM observed. |
| | | | σ | | | | | uark grey/orange/brown with sandstone | | | FILL - |
| -EX | | | Not Encountered | 0.40 - 0.50 m (DUP16, DUP16A | 0.5 | | SP | | D/M | | 0.40 m: PID = 4.4ppm No staining, odour or PACM observed |
| | | | | | _ | | | 0.90m | | | - |
| | | | | 0.90 - 1.00 m | 1.0 | 0 0 0 0 0 0 0 0 0 0 0 | SP | Gravelly Sitty SAND: fine to coarse grained, orange/grey with weathered sandstone 1.30m | | | NATURAL 0.90 m: PID = 3.7ppm - No staining, odour or PACM observed. |
| | | | | | - | 1.1.4.2.73 | | TERMINATED AT 1.30 m Target depth | | | |
| e001 fil | | | | | - 1.5 - - | | | | | | |
| | | | | | - 2.0 | | | | | | - |
| | | | | | - - 2.5 | | | | | | - |
| | | | | | - - - 3.0 - | | | | | | |
| | | | | | - 3.5 - - | | | | | | - |
| | | | | | - 4.0 - | | | | | | - |
| 2007010 0040000 | | | | | - 4.5 - | | | | | | |
| | | | | PENETRATION | - | | F | IELD TESTS SAMP | LES | | |
| | R H N Si N Si Si Si Si Si Si Si Si Si Si Si Si Si S | olid flig Iollow fl /ashbor lock roll | ger e lling ner on sam ral augo nt augo ght au ght au e drillin er | ppler ler er: V-Bit er: TC-Bit ger ger water water water | - Refusa Level or inflow | ı Date | | ID - Phito Ionization Detector W - S - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) W - UL - W - PL - UL - W - | Disturbed s Environmer Thin wall tu URE Dry Moist Wet Plastic limit Liquid limit | ample Ital sampl be 'undist | e S - Soft F - Firm |
| Rei abt | | | | or details of lescriptions | | CO | NS | STRUCTION SCIENCES | | | |

Datgel AGS RTA, Photo, Monitoring Tools CS ENVIRONMENTAL 2.01.4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <<DrawingFile>> 25/03/2020 13:51 10.0.000

| | S | Cons Scie | | ction S | | | | | | ΤE | ST PIT LOG SHEET |
|--|------------|--|---|---|------------------------------|----------------|------------------|---|--|------------------------------------|--|
| Clie Proj Loc | ject | : on: | Stag | burn Mulwaree Counci e 2 - Detailed Site Inves er Dossie St and Sloan | stigatio | on Soulbu | rn | Job No: 5046200019 | | | Hole No: TP52 |
| Pos | | | - | | , - | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | be: 5 | tonne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | nsions: | | | | | | Contra | ctor: JPK Excavations |
| Date | e Ex | cava | ted: 2 | 20/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| Ex | cava | ation | | Sampling & Testing | | | | Material Descriptio | n | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| - | Å | | | 0.00 - 0.10 m DUP18/DUP18A | | | Cla | defects and structure FILL: Gravelly SAND: fine to medium grained, brown/dark brown with siltstone | | U U | FILL 0.00 m: PID = 9.2ppm |
| | | | | | | | SP | 0.40m | м | | No staining, odour or PACM observed. |
| × | | | Encountered | 0.40 - 0.50 m | 0.5 | | ML | FILL: Gravelly Silty SILT: low to medium plasticity, grey/brown | M/W | | 0.40 m: PID = 7.4ppm No staining, odour or PACM observed. |
| EX | | | Not E | 0.90 - 1.00 m | - | | CI- CH | 0.80m Gravelly CLAY: medium to high plasticity, orange/red with sandstone gravels | М | _ | NATURAL 0.90 m: PID = 7.2ppm No staining, odour or PACM observed. |
| _ V _ | | | | | | | | 1.50m TERMINATED AT 1.50 m Target depth | | | |
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| | | | | | -4.5 - - | | | | | | |
| ME | тно | D | | PENETRATION | - | | F | IELD TESTS SAMPLE | s | | SOIL CONSISTENCY |
| EX R HA PT SO AD AD AD HF R | FFSN FFS | Excavat Ripper Hand au Push tu Sonic d Air ham Percuss Short sp Solid flig | uger be rilling mer biral aug ght aug ght aug light aug right aug | et ⇒ u u ⊥ ± → water i water i water i water i | -Refusa Level on nflow | | S F F F | PT - Standard Penetration Test B - I IP - Hand/Pocket Penetrometer D - I IP - Dynamic Cone Penetrometer U - SP - Perth Sand Penetrometer U - IC - Moisture Content MOISTUI IBT - Plate Bearing Test D - I ID - Phito Ionization Detector W - V S - Vane Shear; P=Peak, LL - I | Bulk disturb Disturbed s Environmen Fhin wall tu RE Dry Moist | ample ital samp be 'undis | le VS - Very Soft S - Soft le F - Firm |
| | er to e | explanato | ry notes | for details of descriptions | | CO | NS | STRUCTION SCIENCES | | | |

| | nt: ject: | 9 | Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | stigati | on | | | | ŀ | Hole No: TP |
|---------------------------------------|--------------------------------------|---|------------------------------|---|---------------------|----------------|-----------------------|--|--|------------------------------------|---|
| | atior | n: (| Corn | er Dossie St and Sloa | ne St, (| Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | - | | ted: 2 | 20/2/20 | | | | Logged By: SI | | Checke | ed By: AN |
| Ex | cavati | ion | | Sampling & Testing | | | | Material Description | 1 | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | | 0.00 - 0.10 m | | | ML | 0.10m FILL: Gravelly Sandy SILT: low plasticity, grey with siltstone | M/W | | FILL 0.00 m: PID = 8.9ppm |
| | | | _ | 0.00.0.00.00 | \downarrow | on | ML | FILL: Gravelly SILT: low to medium plasticity, grey | | | No staining, odour or PACM observed. |
| | | | itered | 0.20 - 0.30 m | + | | | 0.30m with weathered sandstone | _ | | 0.20 m: PID = 10.3ppm No staining, odour or PACM |
| J | | | Not Encountered | | F | XX | 1 | Gravelly CLAY: medium to high plasticity, grey/orange/red with weathered sandstone | | | observed. |
| Ж | | | Vot Er | 0.50 - 0.60 m | 0.5 | Ve B | | | | | 0.50 m: PID = 1.0ppm No staining, odour or PACM |
| | | | _ | | 1 | 1 | CI- CH | | | | observed. |
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| | | | | | F | SA. | | | | | |
| • | | { | <u> </u> | | | YAXT. | 1 | 1.00m TERMINATED AT 1.00 m | + | <u> </u> | |
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| EX R HA PT SO AH PS | Rip Ha Pu N So Air Pe | cavato pper and aug ish tub nic dri hamm ercussio | ie Iling ner on sam | pler WATER | — No Re — Refusa | | S H D P N | P - Hand/Pocket Penetrometer D - Di CR Dynamic Cone Penetrometer ES - El | ulk disturb isturbed sa nvironmen nin wall tul E | ample tal sampl | e S - Soft F - Firm |
| AS AD | Sh /V So | ort spi olid flig | iral aug ht auge | er er: V-Bit Wate | | n Date | IN | IP - Borehole Impression Test M - M | oist | | VL - Very Loose |
| AD/ HF/ | /T So | lid flig | ht auge ight au | er: TC-Bit water | inflow | | | | astic limit | | L - Loose MD - Medium Der |
| WE RR | 3 Wa | ashbor ock roll | e drillir | ng — water | outflow | | | D-Deadual (uncompated I/Da) LL - LI | quid limit oisture cor | ntent | D - Dense VD - Very Dense |
| - | - | | | | | | 1 | | | | , |

| | | ons cier | | tion | | | | | | ΤЕ | ST PIT LOG SHEET |
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| | ent: ject: | : : | Goul Stage | burn Mulwaree Counci | stigati | on | | | | | Hole No: TP54 |
| | atio | | Corn | er Dossie St and Sloar | ie St, C | | rn | Job No: 5046200019 | | 0 | Sheet: 1 of 1 |
| | itior | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Contro | ctor: JPK Excavations |
| | | | | 20/2/20 | | | | Logged By: SI | | | ed By: AN |
| | cava | | | Sampling & Testing | | | | Material Description | | Oneck | |
| | | | | | (L) (L) | .0 | tion | SOIL TYPE, plasticity or particle characteristic, | | e v | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | + | | ML | FILL: Gravelly SILT: low plasticity, grey/brown 0.20m FILL: Gravelly SILT: low plasticity, grey | _ | | FILL 0.00 m: PID = 9.2ppm No staining, odour or PACM observed. |
| — EX — | | | Not Encountered | 0.40 - 0.50 m | 0.5 | | ML | 0.70m | D | | 0.40 m: PID = 6.1ppm No staining, odour or PACM - observed. |
| V | | | | 0.90 - 1.00 m | - 1.0 | | ML | Gravelly SiLT: low plasticity, grey with weathered sandstone | | | NATURAL 0.90 m: PID = 0.4ppm No staining, odour or PACM observed. |
| | | | | | - | | | TERMINATED AT 1.10 m Target depth | | | |
| | | | | | - 1.5 - 1.5 | | | | | | |
| ME EX R AAT SCH SSAAD ADD HF WER | RH PN SA VV SS V/T H W | Excavato Ripper land au Push tub conic dri conic dri con | ger lling ner on sam iral aug ht aug ight au ight au | ppler ler er: V-Bit er: TC-Bit ger water | – No Res – Refusa Level or | | S F F F | IP - Hand/Pocket Penetrometer DCP Dynamic Cone Penetrometer VSP - Perth Sand Penetrometer VBT - Plate Bearing Test VID VID Phito Ionization Detector VS Vane Shear, P=Peak, D D D D D D D Penedual (unagranted kDa) | ulk disturb isturbed s nvironmen nin wall tu E ry oist | ample tal sampl be 'undis' | e S - Soft F - Firm |
| WE RR Ref | 3 W R Fertoes | Vashbo Rock roll | er v notes | gei f | | CO | | B=Booduct (uncorrected (Bo) LL - Li | quid limit | ntent | D - Dense |

CS ENVIRONMENTAL 2.01.4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <</td>
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 25003/2020 13:51 10.0.000 Datget AGS RTA, Photo, Monitoring Tools

| Clie | ent: | 0 | | ourn Mulwaree Counci | | | | | | | ST PIT LOG SHEE Hole No: TP5 |
|---|---|---|---|---|---|----------------|------------------|--|---|------------------------------------|--|
| Proj | ject: atior | 5 | Stage | 2 - Detailed Site Inve er Dossie St and Sloar | stigati | on Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| lac | hine | Тур | e: 5 t | onne Excavator | | | | Excavation Method: BUCKET | • | | |
| хc | avati | on D | imer | isions: | | | | | | Contra | ctor: JPK Excavations |
| Dat | e Exc | avat | ed: 2 | 20/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| E> | cavati | on | | Sampling & Testing | | | | Material Descrip | tion | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | | 0.00 - 0.10 m | - | | SP | 0.10m FILL: Gravelly Silty SAND: fine to medium graine grey/brown with siltstone FILL: Gravelly SILT: low plasticity, grey | id, | | FILL 0.00 m: PID = 24.5ppm No staining, odour or PACM observed. |
| | | | | 0.40 - 0.50 m | 0.5 | | ML | | D | | 0.40 m: PID = 13.1ppm No staining, odour or PACM observed. |
| EX | | | Not Encountered | 0.90 - 1.00 m | | | | 1.00m | | | 0.90 m: PID = 7.4ppm No staining, odour or PACM |
| Ī | | | Not | | - | | SP | FILL: Gravelly Silly SAND: fine to coarse graine grey/brown with glass, plastic and PACM | d, | | observed. |
| | | | | 1.40 - 1.50 m | | | SP | 1.50m Gravely Clayey SAND: fine to coarse grained, orange/grey with weathered sandstone | М | | 1.40 m: PID = 6.8ppm No staining, no odour observed. NATURAL |
| | | | | 1.90 - 2.00 m | 2.0- | | | 2.00m TERMINATED AT 2.00 m Target depth | | | 1.90 m: PID = 1.2ppm No staining, odour or PACM observed. |
| | | | | | - - 2.5 | | | | | | |
| | | | | | - - - 3.0 - | | | | | | |
| | | | | | - - 3.5 - | | | | | | |
| | | | | | - - 4.0 - | | | | | | |
| | | | | | - - - 4.5 | | | | | | |
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| EX R HA PT SO AH PS AD AD | N So Pu N So Air Pe Sh /V So /T So A Ho | cavator oper nd aug sh tub nic dril hamm rcussic ort spi lid fligh lid fligh llow fli ashbor | ger e ling ler on sam ral aug nt auge nt auge ght aug | pler er er: V-Bit er: TC-Bit ger water | — No Res — Refusa r Level or n inflow | | S F F F | P Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer ES SP Perth Sand Penetrometer U IC Moisture Content MOISI BT Plate Bearing Test D IP Borehole Impression Test M ID Phito Ionization Detector W S Vane Shear; P=Peak, L | Bulk disturb Disturbed s Environmen Thin wall tu URE Dry Moist Wet Plastic limit | ample ntal sampl be 'undis | le S - Soft F - Firm |
| HF WE RR | | ck rolle | ər | ig water | outilow | | | R=Resdual (uncorrected kPa) | | ntent | VD - Very Dense |

| | nt: ect: | (| | ourn Mulwaree Counci | | on | | | | ŀ | Hole No: TP |
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| | ation | : Č | Corne | er Dossie St and Sloar | ne St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| osi | ition | | | | | | | Angle from Horizontal: 90° | | Surface | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | sions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 2 | 0/2/20 | - | 1 | | Logged By: SI | | Checke | ed By: AN |
| Ex | cavati | on | - | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | Itered | 0.00 - 0.10 m DUP17, DUP17A | - | | SP | 0.10m FILL: Gravelly Silty SAND: fine to medium grained, grey/brown | D | - | FILL 0.00 m: PID = 4.3ppm |
| EX | | | Not Encountered | 0.20 - 0.30 m | - | 10 | | Gravelly Clayey SAND: fine to coarse grained, orange/brown with weathered sandstone | | | No staining, odour or PACM observed. |
| ш | | | Not E | | + | 10 | SP | orange/brown with weathered sandstone | м | | NATURAL 0.20 m: PID = 2.2ppm |
| V | | | | | 0.5- | 0 | | 0.50m | | | No staining, odour or PACM observed. |
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| EX R | Rip | per | r bucke | et PENETRATION | | sistance | | P - Hand/Pocket Penetrometer D - Dis | lk disturb sturbed sa | ample | S - Soft |
| HA PT | Ha Pu | nd aug sh tub | e | | | | D | CP - Dynamic Cone Penetrometer | vironmen in wall tul | tal sample | e F - Firm turbed' St - Stiff |
| AH | | hamm | ner | | – Refusa | al | N | SP - Perth Sand Penetrometer MOISTURE | | | VSt - Very Stiff H - Hard |
| PS AS | Sh | ort spi | on sam ral aug | er Vater | Level or | n Date | | BT - Plate Bearing Test D - Dry /IP - Borehole Impression Test M - Mo | | | |
| AD/ AD/ | T So | lid fligl | ht auge | IC-BIL water | | | | ID - Phito Ionization Detector W - We | | | VL - Very Loose L - Loose MD - Medium Der |
| HF/ WB RR | Wa | llow fli ashbor ck rolle | ight aug e drillin er | Jei | | | | B - Deadual (uncorrected (Da) LL - Liq | uid limit isture cor | ntent | MD - Medium Der D - Dense VD - Very Dense |
| 1 11 X | 170 | JICTUI | | | | | | | | | vo - very Derise |

| | ect: | S | Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | estigati | on | | | | | Hole No: TP |
|----------------------------------|---------------------------------|-------------------------------------|--|---|-----------------|----------------|-------------------|---|--------------------------------|---|---|
| -00 | ation | i: C | Corne | er Dossie St and Sloa | ne Št, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Canta | |
| | | | | usions: 0/2/20 | | | | Logged By: SI | | | ector: JPK Excavations |
| | cavati | | cu. 2 | Sampling & Testing | | | | Material Description | | CHECK | eu by. An |
| | | | L | | Depth (m) | .0 | ation | SOIL TYPE, plasticity or particle characteristic, | 0 5 | e e | |
| Method | Resistance | Stability | Water | Sample or Field Test | Dept | Graphic Log | Classification | colour, secondary and minor components ROCK TVPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | _ | | ML | 0.10m FILL: Gravelly Sandy SILT: low plasticity, grey/brown with siltstone FILL: Gravelly Sandy SILT: low to medium plasticity, | | - | FILL 0.00 m: PID = 10.4ppm No staining, odour or PACM |
| | | | ountered | 0.30 - 0.40 m | | i . Po | ML | grey/orange 0.40m | | | observed. 0.30 m: PID = 8.9ppm No staining, odour or PACM |
| – ЕХ – | | | Not Encountered | | -0.5 | | | Gravelly Sandy CLAY: low to medium plasticity, orange/grey | м | | observed. NATURAL |
| | | | £ | 0.60 - 0.70 m | - | | CL | | | | 0.60 m: PID = 7.2ppm No staining, odour or PACM observed. |
| Y | | | | | | (1SE | | 1.00m TERMINATED AT 1.00 m | | | |
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| EX R HA PT | Rip Ha Pu | cavator oper nd aug sh tub | ler Ə | | — No Res | sistance | S F C | IP - Hand/Pocket Penetrometer D - Dis ICP - Dynamic Cone Penetrometer U - Thi | sturbed s | ed samp ample tal samp be 'undis | le F - Soft turbed' St - Stiff |
| SO AH PS AS AD AD | Air Pe Sh V So T So | lid fligh | er on sam al aug nt auge nt auge | pler er er: V-Bit er: TC-Bit | | | N P IN P | | y bist et astic limit | | VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dei |
| HF/ WE RR | Wa | llow flig ashbor ck rolle | e drillir | Jei i i | | | | D=Deadual (uncorrected (Da) LL - Liq | juid limit bisture co | | MD - Medium De D - Dense VD - Very Dense |

| | | ons cien | | tion | | | | | | ΤE | ST PIT LOG SHEET |
|-----------------------------|---|---|--|--|---------------------------------------|----------------|------------------|--|--|------------------------------------|---|
| Clie | | (| Goul | burn Mulwaree Counci | l stigatio | on | | | | ł | Hole No: TP58 |
| Loc | atior | n: (| Corn | er Dossie St and Sloar | ne St, C | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| | ition | - | ə:5 f | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surfac | e Elevation: |
| | | | | nsions: | | | | | | Contra | ctor: JPK Excavations |
| | | | ed: 2 | 20/2/20 | | | | Logged By: SI | | Checke | ed By: AN |
| E> | kcavat | ion | | Sampling & Testing | | | | Material Description | - | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | g | 0.00 - 0.10 m DUP19, DUP19A | | | SP | 0.10m FILL: Gravelly Silty SILT: fine to medium, cream/brown | D | | FILL 0.00 m: PID = 5.7ppm No staining, odour or PACM |
| | | | Encountered | | - | | | Gravelly Silty CLAY: medium to high plasticity, grey/orange/red with weathered sandstone | | | observed. |
| EX | | | Not E | 0.40 - 0.50 m | 0.5 | | CI- CH | | м | | 0.40 m: PID = 4.1ppm No staining, odour or PACM – observed. |
| * | | - | | | _ | - WA | | 0.80m TERMINATED AT 0.80 m | | | |
| | | | | | - 1.0 - - | | | Target depth | | | - |
| | | | | | - - 1.5 - | | | | | | - |
| | | | | | | | | | | | |
| | | | | | - | | | | | | |
| | | | | | -2.5 - - | | | | | | - |
| | | | | | - 3.0 - | | | | | | - |
| | | | | | - | | | | | | |
| | | | | | - 3.5 - - - | | | | | | |
| | | | | | - 4.0 - | | | | | | - |
| | | | | | - - 4.5 | | | | | | - |
| | | | | | - | | | | | | |
| ME EX RAT PSOLASSA AD HEVER | Ri Pu DN Sc Ain Pe Sh VV Sc VV Sc A Ho 3 W | cavato pper and aug ush tub pnic dril r hamm ercussio nort spi plid fligl | ger e ling ler on sam ral aug nt aug nt aug ght au ght au | pler ler er: V-Bit er: TC-Bit ger water | – No Res – Refusa Level or i | | S F F F | HP - Hand/Pocket Penetrometer D - Di CP - Dynamic Cone Penetrometer U - Th PSP - Perth Sand Penetrometer U - Th MC - Moisture Content MOISTURE PBT - Plate Bearing Test D - Dr MP - Borehole Impression Test M - M VID - Phito Ionization Detector W - W VS - Vane Shear, P=Peak, L - Lit - <td>sturbed s ivironmen in wall tu : y pist</td> <td>ital sampl be 'undist</td> <td>e S - Soft F - Firm</td> | sturbed s ivironmen in wall tu : y pist | ital sampl be 'undist | e S - Soft F - Firm |
| Ref abb | er to ex reviation | planatory | notes f | or details of lescriptions | | CO | NS | STRUCTION SCIENCES | | | |

| | nt: ect: | | | burn Mulwaree Counci e 2 - Detailed Site Inves | | on | | | | | Hole No: TP |
|--|--|-----------|-----------------|---|---|----------------|--------------------------------------|--|--|------------------------------------|--|
| | atior | n: (| Corn | er Dossie St and Sloar | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | ition | | | | | | | Angle from Horizontal: 90° | 1 | Surfac | e Elevation: |
| | | | | tonne Excavator | | | | Excavation Method: BUCKET | | 0 - 1 | |
| | | | | nsions: 20/2/20 | | | | Loggod Pyr, SI | | | ctor: JPK Excavations |
| | cavat | | eu: 4 | Sampling & Testing | | | | Logged By: SI Material Description | | Check | ed By: AN |
| | Caval | | - | | | | _ | | 1 | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | | 0.00 - 0.10 m | _ | | SP | 0.10m FILL: Gravelly Silty SAND: fine to medium grained, brown/grey | D | _ | FILL 0.00 m: PID = 11.9ppm |
| × | | | Not Encountered | 0.40 - 0.50 m DUP20, DUP20A | | | ML | FILL: Gravelly Sandy SILT: low plasticity, brown/grey with brick and plastic and asphalt slab | | | No staining, odour or PACM observed. 0.40 m: PID = 10.5ppm No staining, odour or PACM observed. NATURAL |
| | | | Not | | - - - 1.0 | | Cŀ- CH | Gravelly CLAY: medium to high plasticity, grey/orange | м | | NATORAL . |
| | | | | 1.20 - 1.30 m | + | | | 1.30m | | | 1.20 m: PID = 2.0ppm |
| | | 1 | | | - | | | TERMINATED AT 1.30 m Target depth | | | No staining, odour or PACM observed. |
| | | | | | - 2.0 - - - 2.5 - - - - - - - - - - - - - - - - - - - | | | | | | |
| | | | | | - - - 4.5 - - | | | | | | |
| EX R HA PT SOH PS AD/ AD/ HF/ WB | R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler WATER | | | | | | S H D P M P I P | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test ID - Phito Ionization Detector ID - Phito Ionization Detector S - Vane Shear; P=Peak, | turbed sa vironmen in wall tul / ist | tal sampl | le S - Soft F - Firm |

| 7 | Sc | ien | ces | | | | | | | | ST PIT LOG SHEE |
|---|---|--|---|--|---|----------------|------------------|---|--|------------------------------------|---|
| Client: Projec Locati | :t: | Ś | Stage | ourn Mulwaree Counci 2 - Detailed Site Invester Pr Dossie St and Sloar | stigatio | on Goulbu | rn | Job No: 5046200019 | | ł | Hole No: TP6 Sheet: 1 of |
| ositio | | | - | | , - | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| lachi | ne | Тур | e:5t | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | Contra | ctor: JPK Excavations |
| ate E | Exc | avat | ed: 2 | 0/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| Exca | vatic | on | | Sampling & Testing | | | | Material Description | | | |
| Method | Kesistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | - | | SP | 0.10m FILL: Gravelly Sitty SAND: fine to medium grained, grey/brown with sittstone FILL: Gravelly SILT: low plasticity, grey with sandstone | - | | FILL 0.00 m: PID = 14.5ppm No staining, odour or PACM observed. |
| | | | | 0.40 - 0.50 m | 0.5 | | < | 0.50m FILL: Gravelly Silty SAND: fine to coarse grained, brown/grey with sandstone | _ | | 0.40 m: PID = 13.3ppm No staining, odour or PACM observed. |
| EX | | | Not Encountered | 0.90 - 1.00 m | - - | | SP | | D | | 0.90 m: PID = 12.9ppm No staining, odour or PACM observed. |
| | | | | 1.40 - 1.50 m | 1.5 | | | 1.50m Gravelly SILT: low plasticity, grey with sandstone | | | 1.40 m: PID = 11.1ppm No staining, odour or PACM observed. NATURAL |
| ¥ | | | | 1.90 - 2.00 m | 2.0- | | ML | 2.00m TERMINATED AT 2.00 m Target depth | | | 1.90 m: PID = 4.3ppm No staining, odour or PACM observed. |
| | | | | | - 2.5 - 2.5 - 3.0 - 3.5 - 3.5 | | | | | | |
| R HA PT SON AH PS AS AD/V AD/T HFA WB | Exc Rip Har Pus Son Air I Soli Soli Holl Was | per nd aug sh tub nic dril hamm cussic ort spin id fligh id fligh low fli | e ling er on sam ral aug nt auge nt auge ght au e drillir | pler er er: V-Bit er: TC-Bit ger water | nflow | I | S F F F | IP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer VC - Moisture Content BT - Plate Bearing Test MP - Borehole Impression Test VID - Plate Bear, P=Peak, PB - Pare Pertex, | iturbed sa vironmen in wall tu / / | tal sampl be 'undis | le F - Firm |

Datgel AGS RTA, Photo, Monitoring Tools CS ENVIRONMENTAL 2.01.4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ << DrawingFile> 25/03/2020 13:51 10.0.000

| n: e Type tion D | e: 5 to)imen: | r Dossie St and Sloar ponne Excavator sions: 1/2/20 Sampling & Testing Sample or Field Test 0.00 - 0.10 m 0.40 - 0.50 m 0.60 - 0.70 m | | Graphic | H-J-S H-J-S Classification | FILL: Gravelly SILT: low plasticity, grey/brown 0.30m FILL: Gravelly Silty CLAY: low plasticity, grey/brown with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | | Contra | Sheet: 1 o ce Elevation: actor: JPK Excavations ed By: AN STRUCTURE & Other Observations FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed. 0.40 m: PID = 1.8ppm No staining, odour or PACM observed. |
|--|---|---|--|---|---|---|---|--|--|
| e Type tion D ccavat | Mater Mater | sions: 1/2/20 Sampling & Testing Sample or Field Test 0.00 - 0.10 m 0.40 - 0.50 m | | Graphic | ML CL CI- | Excavation Method: BUCKET Logged By: SI SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Gravelly SILT: low plasticity, grey/brown .30m FILL: Gravelly SILT: low plasticity, grey/brown with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | Moisture Condition | Contra Check | Actor: JPK Excavations actor: JPK Excavations STRUCTURE & Other Observations FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed. 0.40 m: PID = 1.8ppm No staining, odour or PACM observed. |
| tion | Water Mater | 1/2/20 Sampling & Testing Sample or Field Test 0.00 - 0.10 m 0.40 - 0.50 m | | Graphic Log | ML CL CI- | Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Gravelly SILT: low plasticity, grey/brown 0.30m FILL: Gravelly Silty CLAY: low plasticity, grey/brown with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | Moisture Condition | Check | FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed. |
| ition | Water | Sampling & Testing Sample or Field Test 0.00 - 0.10 m 0.40 - 0.50 m | | Graphic | ML CL CI- | Material Description SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Gravelly SILT: low plasticity, grey/brown 0.30m FILL: Gravelly Silty CLAY: low plasticity, grey/brown with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | Moisture Condition | | STRUCTURE & Other Observations FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed. 0.40 m: PID = 1.8ppm No staining, odour or PACM observed. |
| | | Sample or Field Test 0.00 - 0.10 m 0.40 - 0.50 m | | Graphic Log | ML CL CI- | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure FILL: Gravelly SILT: low plasticity, grey/brown of FILL: Gravelly SILT: low plasticity, grey/brown with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | Moisture Condition | Consistency Relative Density | FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed. 0.40 m: PID = 1.8ppm No staining, odour or PACM observed. |
| Stability | | Field Test 0.00 - 0.10 m 0.40 - 0.50 m | | Graphic | ML CL CI- | FILL: Gravelly SILT: low plasticity, grey/brown 0.30m FILL: Gravelly Silty CLAY: low plasticity, grey/brown with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | | Consistency Relative Density | FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed. 0.40 m: PID = 1.8ppm No staining, odour or PACM observed. |
| | Not Encountered | 0.40 - 0.50 m | | | CL CI- | 0.30m FILL: Gravelly Silty CLAY: low plasticity, grey/brown with plastic and cloth Gravelly CLAY: medium to high plasticity, grey/orange | M | | 0.00 m: PID = 1.4ppm No staining, odour or PACM observed. 0.40 m: PID = 1.8ppm No staining, odour or PACM observed. |
| | Not Encountered | | | | CL CI- | 0.30m FILL: Gravelly Silty CLAY: low plasticity, grey/brown with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | M | | No staining, odour or PACM observed. 0.40 m: PID = 1.8ppm No staining, odour or PACM observed. |
| | Not En | | | | CI- | with plastic and cloth 0.50m Gravelly CLAY: medium to high plasticity, grey/orange | м | | observed. |
| | | 0.60 - 0.70 m | | | | Gravelly CLAY: medium to high plasticity, grey/orange | | | observed. |
| | | 0.60 - 0.70 m | | | | | | | |
| | | | | | 2 | | | | 0.60 m: PID = 1.2ppm No staining, odour or PACM |
| | | | | | 1 | 0.80m TERMINATED AT 0.80 m Target depth | | | observed. |
| | | | 1.5 | | | | | | |
| | 1 1 | | - - - | | | | | | |
| | | | -2.0 - - | | | | | | |
| | | | - 2.5 - | | | | | | |
| | | | - - - 3.0 - | | | | | | |
| | | | - - 3.5 - | | | | | | |
| | | | - 4.0 - | | | | | | |
| | | | - 4.5 - - | | | | | | |
| | | | F | | | | | | |
| Ripper land aug Push tub Sonic dril sir hamm Percussio Solid flig Solid flig Solid flig Iollow fli Vashbor | ger lling ner on samp iral auge ht auge ht auge ight auge | bler r v-Bit tr C-Bit er water water water | – No Res – Refusa Level or inflow | I | S ⊢ □ ₽ ₽ ₽ | SPT - Standard Penetration Test B - B HP - Hand/Pocket Penetrometer D - D DCP - Dynamic Cone Penetrometer U - T PSP - Perth Sand Penetrometer W - T PBT - Plate Bearing Test D - D MP - Borehole Impression Test M M M PID - Phito Ionization Detector V V V VS - Vane Shear; P=Peak, PL - PL | ulk disturb isturbed sa invironmen hin wall tul E Vor loist Vet lastic limit iquid limit | ample tal samp be 'undis | ble S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Der D - Dense |
| KOCK TOIL | er | | | | | | | | VD - Very Dense |
| | xcavato ipper and au- ush tub onic dri ir hamn ercussi hort spi olid flig olid flig olid flig ollow fli /ashbor ock roll | xcavator buckel ipper and auger ush tube onic drilling ir hammer ercussion samp hort spiral auge olid flight auge olid flight auge olid wight auge ollow flight auge ashbore drilling ock roller | xcavator bucket ipper and auger ush tube onic drilling ir hammer ercussion sampler hort spiral auger olid flight auger: TC-Bit olid flight auger Zashbore drilling water water water water water water | PENETRATION 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5 | PENETRATION -3.5 -4.0 -4.0 -4.5 | A.0 -3.5 -4.0 -4.5 -5 -5 -6 | P | P FIELD TESTS xxxxetor bucket ipper us full ipper us full in drugger that more transmer recussion sampler hort sprial auger: V-Bit old flight auger: V-Bit old flight auger: CF-Bit old flight | PRETRATION -4.0 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -5 -4.5 -6.5 -5 -6.6 -6.5 -6.7 -6.5 -6.7 -6.5 -6.7 -6.5 -6.7 -6.5 -6.7 -6.5 -6.7 -6.5 -6.7 -6.5 -6.7 -6.5 -7.5 Standard Penetration Test HP -Hand/Pocket Penetrometer DCP -Penth Sand Penetrometer DCP -Penth Sand Penetrometer DCP -Penthole Impression Test Did flight auger: C-Bit Water Level on Date Did flight auger: C-Bit Water Inflow water outflow Water Penetosing Test IMP Borbole Impression Test PD Phito Ionization Detector VS -Vane Shaery P=Peak, R=Resdual (uncorrected kPa) - Plastic Imit w - Molsture content - Plastic Imit w - Mob |

| Proj | nt: ect: | 0 | Goulk Stage | ourn Mulwaree Counc 2 - Detailed Site Inver- er Dossie St and Sloa | cil estigatio | on | | | | | Hole No: TP |
|---|--|-----------|----------------|--|--------------------------------------|--|--|--|---|------------------------------------|--|
| .00 | ation | | Corne | er Dossie St and Sloa | ane Št, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | tion | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Canto | oton IDK Freesetter |
| | | | | sions: | | | | | | | ctor: JPK Excavations |
| _ | cavati | | eu: 2 | 1/2/20 | | | | Logged By: SI | | CHECK | ed By: AN |
| | cavati | | | Sampling & Testing | \neg | | | Material Description | 1 | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ▲ × | | | | 0.10 - 0.30 m | | | ML | FILL: Gravelly Clayey SILT: low plasticity, grey with organic matter | w | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| | | | | | | | | TERMINATED AT 0.30 m | | | |
| | | | | | - - - 1.0 | | | | | | |
| | | | | | - - - | | | | | | |
| | | | | | 1.5 - - - | | | | | | |
| | | | | | - 2.0 | | | | | | |
| | | | | | - 2.5 - | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - - 3.5 - | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - - 4.5 - | | | | | | |
| | TU | | | | - | | | | | | |
| EX R HA PT SOI AH PS AD/ AD/ HF4 WB | Ripper A Hand auger YT Push tube SON Sonic drilling WA Air hammer PS Percussion sampler SS Short spiral auger D/V Solid flight auger: V-Bit D/T Solid flight auger: TC-Bit IFA Hollow flight auger WATER Water Level on Date shown Water inflow water outflow water outflow | | | | S H D P M P I P | IP - Hand/Pocket Penetrometer D - Dis ICP - Dynamic Cone Penetrometer U - Thi ISP - Perth Sand Penetrometer U - Thi IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dig IP - Borehole Impression Test M - Mic ID - Phito Ionization Detector W - We S - Vane Shear; P=Peak, - L - Pia | sturbed si vironmen in wall tu : / vist | ital sampl be 'undis' | le S - Soft turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium De D - Dense | | |
| RR | Ro | ck rolle | er. | | | | | | | | VD - Very Dense |

| Clie Proj | ect: | C S | Goult Stage | ourn Mulwaree Counc 2 - Detailed Site Inve er Dossie St and Sloa | il estigatio | on | | | | | Hole No: TP |
|---|--|--|--|--|---------------------------|----------------|----------------|---|-----------------------|------------------------------------|--|
| -002 | ation | : 0 | orne | er Dossie St and Sloa | ne Št, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | tion | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | 0 - 1 | |
| | | | | sions: | | | | | | | ctor: JPK Excavations |
| | cavati | | eu: 2 | 1/2/20 | | <u> </u> | | Logged By: SI | | CHECK | ed By: AN |
| EX(| Javati | JII | | Sampling & Testing | | | - | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ▲ × u | | | | 0.10 - 0.30 m | - | | ML | FILL: Gravelly Clayey SILT: low plasticity, grey with organic matter | w | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| • | | | | | | | | TERMINATED AT 0.30 m | | | |
| | | | | | - - - 1.0 | | | | | | |
| | | | | | - - - 1.5 - | | | | | | |
| | | | | | - - 2.0 | | | | | | |
| | | | | | - - 2.5 - | | | | | | |
| | | | | | - - 3.0 - | | | | | | |
| | | | | | - - - 3.5 - - | | | | | | |
| | | | | | - - 4.0 - | | | | | | |
| | | | | | - - 4.5 - - | | | | | | |
| | THOD | | | PENETRATIO | Г N | | | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R HA PT SOI AH PS AD/ AD/ HFA WB | Rip Ha Pu N So Air Pe Sh V So T So A Ho Wa | per nd aug sh tube nic dril hamm ccussic ort spir id fligh id fligh llow flig shbore | e ling er n sam al auge it auge it auge ght auge ght auge drillin | pler er r: V-Bit r: TC-Bit er | n r inflow | I | | IP - Hand/Pocket Penetrometer D - Dit ICP Dynamic Cone Penetrometer U - Th SP Perth Sand Penetrometer U - Th IC Moisture Content MOISTURE BT Plate Bearing Test D - Dit IP Borehole Impression Test M - Mu ID Phito Ionization Detector W - With S Vane Shear; P=Peak, LL - Lit | y bist | ample tal sampl be 'undis | le S - Soft turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Der D - Dense |
| RR | Ro | ck rolle | er | or details of | | | | | nsture co | nterit | VD - Very Dense |

| Clie Proi | ect: | 5 | Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | estigati | on | | | | | Hole No: TP6 |
|---|---|--|--|---|---|----------------|------------------|---|--|---|--|
| | atior | : 0 | Corne | er Dossie St and Sloa | ne St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKE | T | | |
| | | | | isions: | | | | | | | actor: JPK Excavations |
| Date | e Exc | avat | ed: 2 | 1/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | Material Descr | iption | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteris colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | i len io | Consistency Relative Density | STRUCTURE & Other Observations |
| FX→ | | | | 0.10 - 0.30 m | - | | CI- CH | FILL: CLAY: medium to high plasticity, grey/ora | ange W | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| | | | | | - 0.5 - | | | TERMINATED AT 0.30 m | | | |
| | | | | | | | | | | | |
| | | | | | - - - 1.5 - | | | | | | |
| | | | | | - - 2.0 - | | | | | | |
| | | | | | - - - 2.5 - | | | | | | |
| | | | | | - 3.0 | | | | | | |
| | | | | | - - 3.5 | | | | | | |
| | | | | | - - 4.0 | | | | | | |
| | | | | | - - - 4.5 - - | | | | | | |
| ME EX RAPTOAH SAD/ AD/ AD/ HF/ WB | Riµ Ha Pu N So Air Pe Sh V So YT So A Ho | pper nd aug sh tub nic dril hamm rcussic ort spi lid fligl lid fligl llow fli | e ling ler on sam ral aug nt auge | pler er r: V-Bit ger wate | — No Res — Refusa er Level or /n r inflow | | S F F F | PT - Standard Penetration Test B IP - Hand/Pocket Penetrometer D ICP - Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U IC - Moisture Content MOIs BT - Plate Bearing Test D IP - Borehole Impression Test M ID - Phito Ionization Detector W S - Vane Shear, P=Peak, L | IPLES - Bulk distu - Environme - Thin wall 1 STURE - Dry - Moist - Wet - Plastic lim - Liquid limi - Moisture of | sample ental samp ube 'undis it t | le S - Soft F - Firm |

| Ē | C | ons cier | truc | tion | | | | | | TE | ST PIT LOG SHE | EET |
|---|--|---|--|---|---------------------|----------------|------------------|--|------------------------------|------------------------------------|--|-----------------------|
| Clie | nt: | (| Goull | burn Mulwaree Counci | | | | | | | Hole No: TP | |
| Proj Loca | ect: atio | n: (| Stage | e 2 - Detailed Site Invester Prossie St and Sloan | e St, G | on Goulbu | rn | Job No: 5046200019 | | - | Sheet: 1 | |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: | |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | | |
| | | | | nsions: | | | | | | | actor: JPK Excavations | |
| | | | | Sampling & Testing | | | | Logged By: SI Material Description | | Check | ed By: AN | |
| | | | - | | | | c | | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | |
| <-EX-► | | | | 0.10 - 0.30 m | - | | CI- CH | FILL: Gravelly Silty CLAY: medium to high plasticity, grey/orange | w | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR | E - |
| | | 1 | | | - | | | TERMINATED AT 0.30 m | | | | |
| | | | | | -0.5 | | | | | | | - |
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| ME EX RAPTOA SO AD AD AD BR R | Ri Pu N So Ai Pe Sh V So V So V So A Ho S W | xcavato ipper and au ush tub onic dri r hamn ercussi hort spi olid flig | ger lling ner on sam ral aug ht aug ht aug ght au ght au | pler ler sr. V-Bit ger Water shown water i | -Refusa Level on | | S F F F | IP Hand/Pocket Penetrometer D Display ICP Dynamic Cone Penetrometer ES Er ISP Perth Sand Penetrometer U Th ICC Moisture Content MOISTURE IBT Plate Bearing Test D D IID Phito Ionization Detector W W VS Vane Shear; P=Peak, PL PL | in wall tu : y pist | ample tal sampl be 'undis | Ie S - Soft F - Firm | Y e ense |
| Refe | er to ex | planator | / notes f | or details of | | <u> </u> | | STRUCTION SCIENCES | | | | |
| abbi | reviatio | ns and b | asis of d | escriptions | | 00 | INC | | | | | |

CS ENVIRONMENTAL 2014 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <</td>

 CS ENVIRONMENTAL 2014 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <</td>
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 2503/2020 13:51 10.0.000 Datgel AGS RTA, Phodp, Monitoring Tools

| Proj | nt: ect: | 5 | Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | estigatio | on | | | | ŀ | lole No: TP |
|---|--|--|---|---|---|----------------|----------------------------|--|---|------------------------------------|--|
| | ation | | Corne | er Dossie St and Sloa | ne Št, G | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | tion | | | | | | | Angle from Horizontal: 90° | | Surface | Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Caret | |
| | | | | sions: | | | | | | | ctor: JPK Excavations |
| _ | e Exc | | eu: 2 | 1/2/20 | | | | Logged By: SI | | GHECKE | d By: AN |
| | Javali | ULI | | Sampling & Testing | \neg | | | Material Description | 1 | <u>т</u> т | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ▲ × u | | | | 0.10 - 0.30 m | | | GМ | Silty GRAVEL: fine to coarse, grey | w | | 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| | | | | | 0.5 | ~~~~ | | TERMINATED AT 0.30 m | | | |
| | | | | | - | | | | | | |
| | | | | | - 1.0 | | | | | | |
| | | | | | - - - 1.5 - | | | | | | |
| | | | | | - - - 2.0 | | | | | | |
| | | | | | - - 2.5 | | | | | | |
| | | | | | - - 3.0 - | | | | | | |
| | | | | | - - - 3.5 - - | | | | | | |
| | | | | | - - 4.0 - | | | | | | |
| | | | | | - - 4.5 - | | | | | | |
| ME | THOD | | | PENETRATIO | | | F | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R HA PT SOI AH PS AD/ AD/ HF4 WB | Ex Rip Ha Pu N So Air Sh V So T So A Ho Wa | oper nd aug sh tub nic dril hamm rcussic ort spil lid fligh lid fligh llow flig ashbor | e ling er on sam ral auge nt auge ght auge ght auge e drillin | t ^y www.z≯ water er r: V-Bit r: TC-Bit per | ── No Res └── Refusal er Level on /n | I | S H D P N P | PT - Standard Penetration Test B - Bui P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer ES - En SP - Perth Sand Penetrometer U - Thi IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dry ID - Phito Ionization Detector M - Mo S - Vane Shear; P=Peak, PL - Pla D - Dry M - Mo | iturbed sa vironmen in wall tul / / | tal sample be 'undistu | e VS - Very Soft S - Soft F - Firm VSt - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Den D - Dense |
| RR | Ro | ck rolle | *1 | | | | | | | | VD - Very Dense |

| Clie: Proje | ect: | 5 | Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | stigati | on | | | | ł | Hole No: TP |
|---|--|--|---|--|--|----------------|----------------------------|--|--|------------------------------------|--|
| | ation | | Corne | er Dossie St and Sloa | ne St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| | tion | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Contra | oton IDK Freesetter |
| | | | | sions: | | | | Loggod Dry Sl | | | ctor: JPK Excavations |
| | | | ea: 2 | 1/2/20 | | | | Logged By: SI | | CHECK | ed By: AN |
| Exc | cavati | on | | Sampling & Testing | _ | ļ | | Material Description | | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ▲ × | | | | 0.10 - 0.30 m | - | | CI- CH | FILL: CLAY: medium to high plasticity, grey/orange | w | | FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR |
| | | | | | 0.5 | | | TERMINATED AT 0.30 m | | | |
| | | | | | - | | | | | | |
| | | | | | - 1.0 | | | | | | |
| | | | | | - - 1.5 - | | | | | | |
| | | | | | | | | | | | |
| | | | | | - - - 2.5 | | | | | | |
| | | | | | - - - 3.0 - | | | | | | |
| | | | | | - - - 3.5 - | | | | | | |
| | | | | | - - 4.0 - | | | | | | |
| | | | | | - - - 4.5 - | | | | | | |
| MET | THOD | | | PENETRATIO | | | | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R HA PT SON AH PS AD/ AD/ HFA WB | Ex Rip Ha Pu N So Air Sh V So T So N Ho Wa | oper nd aug sh tub nic dril hamm rcussic ort spil lid fligh lid fligh llow flig ashbor | e ling er on sam ral auge nt auge ght auge ght auge e drillin | tt ⇒ <u>w w w w w w</u> er r: V-Bit r: TC-Bit per | ──No Res ──Refusa r Level or n ^r inflow | I | S H D P N I | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Di CP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Di ID - Phito Ionization Detector M - MK Vane Shear, P=Peak, PL - Pilate Penedulu (uncomponded IDP) LL - Lice | Ik disturb sturbed s nvironmen in wall tu y pist et astic limit quid limit | ample tal sampl be 'undist | le VS - Very Soft S - Soft turbed' St - Stiff VSt - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Der |
| AD/ HFA | T So A Ho Wa | lid fligh llow flig ashbor ck rolle | nt auge ght aug e drillin er | er: TC-Bit water | rinflow | | | S - Vane Shear; P=Peak, PL - Pl: LL - Lic | astic limit | | L - Loose MD - Medium De |

| Clie Proj | nt: ect: | 5 | Stage | ourn Mulwaree Counci | stigati | on | | | | | Hole No: TP |
|----------------------------------|--|--|--|---|---|----------------|--------------------------------------|---|-----------------------|------------------------------------|---|
| | ation | : 0 | Corne | er Dossie St and Sloar | ne Št, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 |
| | ition | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | isions: | | | | | | | ctor: JPK Excavations |
| | | | ed: 2 | 1/2/20 | | | | Logged By: SI | (| Check | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | Material Description | | | 1 |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | | 0.00 - 0.10 m | 1 | | CL | FILL: CLAY: low plasticity, grey/orange with organic matter | м | | FILL 0.00 m: PID = 0.9ppm |
| | | | Not Encountered | 0.40 - 0.50 m | + | | ML | 0.20m FILL: SILT: low plasticity, grey with plastic | | - | No staining, odour or PACM observed. 0.40 m: PID = 0.9ppm |
| EX | | | Not E | | 0.5 | | ML | SILT: low plasticity, grey with weathered sandstone | D | | No staining, odour or PACM observed. NATURAL |
| ↓ | | | | 0.90 - 1.00 m | + | | | 1.00m | | | 0.90 m: PID = 0.7ppm |
| • | | | | | | 10116 | | TERMINATED AT 1.00 m Target depth | 1 | | No staining, odour or PACM observed. |
| | | | | | - 1.5 | | | | | | |
| | | | | | - - - 4.5 - - | | | | | | |
| ME EX R A P O A P S A D A F WB R | Rip Ha Pu N So Air Pe Sh V So T So A Ho | per nd aug sh tub nic dril hamm cussic ort spi id fligh id fligh llow fli | e ling ber on sam ral auge nt auge ght auge ght auge e drillir | pler er r:: V-Bit ger water | – No Res – Refusa · Level or n inflow | | S H D P M P I P | P Hand/Pocket Penetrometer D Display CP Dynamic Cone Penetrometer ES En SP Perth Sand Penetrometer U Thi IC Moisture Content MOISTURE BT Plate Bearing Test D Dynamic Content ID Phito Ionization Detector M Mo ID Phito Ionization Detector W We S Vane Shear; P=Peak, LL LI | / ist | ample tal sampl be 'undis | Ie S - Soft F - Firm |

| Control Corrector Deside 31 and Shane St, Goulburn Jubo No.: 564620019 Surface Elevation: Bachine Type: 5 tome Ecoavator Ecoavation Dismostration: Ecoavation Dismostration: Ecoavation: | Clie Proj | nt: ect: | 5 | Stage | ourn Mulwaree Counc 2 - Detailed Site Inve | stigati | on | | | | ŀ | Hole No: TP6 |
|--|---------------|-----------------|----------------|---------|---|-------------|-------------------------|----------------|--|---|------------------------------------|----------------------------|
| Bachine Type: 5 tome Escavator Excavator Method: 3 UCKET Contractor: .PK Escavator Data Escavator Sampling A Testing understand Sampling A Testing Material Description understand Sampling A Testing Material Description understand Sampling A Testing Understand understand Sampling A Testing Understand understand Sampling A Testing Understand understand Sampling A Testing Sampling A Testing Sampling A Testing understand Sampling A Testing Sampling A Testing Sampling A Testing understand Sampling A Testing Understand Sampling A Testing understand Understand Understand Understand understand Understand Understand Understand understand Understand Understand Understand understand Understand Understand understand | | | i: (| Corn | er Dossie St and Sloa | ne Št, (| Goulbu | rn | | | | Sheet: 1 c |
| Contractor: - IPK Excavations Decention: Contractor: - IPK Excavations Decention: Service or Field Test: Service or Field Test: <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th>Surface</th> <th>e Elevation:</th> | | | | | | | | | - | | Surface | e Elevation: |
| Description Sampling & Tesling Logged By: 51 Checked By: AN Exeration Sampling & Tesling 0 < | | | | | | | | | Excavation Method: BUCKET | | 0 - <i>i</i> | |
| Execution Sample 1 Testing Material Description gg | | | | | | | | | Longrad Dyn. Cl | | | |
| Bit Model Bit Model <t< td=""><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td>Checke</td><td>a by: An</td></t<> | | | | | - | | | | | | Checke | a by: An |
| C C C C S ⁻¹ C S ⁻¹ S 4 0.00 - 0.10 m -0.0 | | Caval | | - | Sampling & resulig | _ | | - | | | | |
| METHOD Participation Participation Participation Participation Participation 000 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0 | Method | Resistance | Stability | Water | Sample or Field Test | Depth (m | Graphic Log | Classification | colour, secondary and minor components ROCK TYPE, grain size and type, colour, | Moisture Condition | Consistency Relative Density | |
| Constants studed Constants Con | A | | | tered | 0.00 - 0.10 m | _ | لد علد علد علد علد ع | ML | 0.10m Gravelly SILT: low plasticity, grey with organic | | | |
| Constants studed Constants Con | × | | | Icoun. | | - | | | Gravelly Silty CLAY: low to medium plasticity, gre | y | | No staining, odour or PACM |
| Constants studed Constants Con | Ш | | | lot En | 0.30 - 0.40 m | - | | | with weathered sandstone | м | | NATURAL |
| METHOD 0.3 Comparison TERMINATED AT 0.50 m -1.0 -1.1 -1.1 -1.1 -1.1 -1.5 -1.5 -1.5 -1.5 -1.5 -2.0 -2.5 -2.5 -3.0 -3.5 -3.5 -3.0 -3.5 | • | | | | | + | | | 0.50m | | | No staining, odour or PACM |
| METHOD Constrained by the second | | | | | | 0.5- | | | | | | |
| METHOD Constrained by the second | | | | | | - | | | | | | |
| METHOD Constrained by the second | | | | | | - | | | | | | |
| METHOD Constrained by the second | | | | | | + | | | | | | |
| NETHOO -2.0 -2.5 -3.0 -3.0 -3.5 -3.5 -3.5 -4.0 -4.5 -4.0 -4.5 -4.5 -5.5 -5.5 -5.5 -7.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>- 1.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | - 1.0 | | | | | | |
| NETHOO -2.0 -2.5 -3.0 -3.0 -3.5 -3.5 -3.5 -4.0 -4.5 -4.0 -4.5 -4.5 -5.5 -5.5 -5.5 -7.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>Ę</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | Ę | | | | | | |
| NETHOO -2.0 -2.5 -3.0 -3.0 -3.5 -3.5 -3.5 -4.0 -4.5 -4.0 -4.5 -4.5 -5.5 -5.5 -5.5 -7.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>F</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | F | | | | | | |
| NETHOO -2.0 -2.5 -3.0 -3.0 -3.5 -3.5 -3.5 -4.0 -4.5 -4.0 -4.5 -4.5 -5.5 -5.5 -5.5 -7.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | - | | | | | | |
| METHOD -2.5 -3.0 -3.0 -3.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -5 -5 -6 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 | | | | | | - 1.5 | | | | | | |
| METHOD -2.5 -3.0 -3.0 -3.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -5 -5 -6 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 | | | | | | [| | | | | | |
| METHOD -2.5 -3.0 -3.0 -3.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -5 -5 -6 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 | | | | | | - | | | | | | |
| METHOD -2.5 -3.0 -3.0 -3.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -3.6 -4.5 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -4.7 -4.5 -4.6 -4.5 -5 -5 -6 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 -10.7 -7 | | | | | | ŀ | | | | | | |
| METHOD -3.0 -3.5 -3.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -5.5 -5.5 -6.7 -5.5 -7.5 -5.5 -7.5 -5.5 -7.5 -7.5 -7.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>-2.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | -2.0 | | | | | | |
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| METHOD -3.0 -3.5 -3.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -5.5 -5.5 -6.7 -5.5 -7.5 -5.5 -7.5 -5.5 -7.5 -7.5 -7.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>[</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | [| | | | | | |
| METHOD PENETRATION FILD TESTS SAMPLES SOIL CONSISTENCY -4.0 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.4 -4.5 -5.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>-2.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | -2.5 | | | | | | |
| METHOD PENETRATION FILD TESTS SAMPLES SOIL CONSISTENCY -4.0 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.4 -4.5 -5.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | - | | | | | | |
| METHOD PENETRATION FILD TESTS SAMPLES SOIL CONSISTENCY -4.0 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.4 -4.5 -5.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | - | | | | | | |
| METHOD PENETRATION FILD TESTS SAMPLES SOIL CONSISTENCY -4.0 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.4 -4.5 -5.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | - | | | | | | |
| METHOD PENETRATION FILD TESTS SAMPLES SOIL CONSISTENCY -4.0 -4.5 -4.5 -4.5 -4.5 -4.5 -4.5 -4.4 -4.5 -5.5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>3.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | 3.0 | | | | | | |
| METHOD FA.0 EX Excavator bucket R Rupper AF Are drauger Sonic drilling No Resistance MA Are harmorer Sonic drilling No Resistance Sonic drilling Refusal WATER Water Level on Date shown VB Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow Parcussion sampler ADV/Solid flight auger: VBI HFA Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow WW Water More drilling Water Level on Date shown WW Water More drilling Water Inflow WW Water More drilling Water Inflow WW Water More drilling Water Inflow WW Water More drilling Water More drilling MP Browshore drilling Water More drilling <td< td=""><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | - | | | | | | |
| METHOD FA.0 EX Excavator bucket R Rupper AF Are drauger Sonic drilling No Resistance MA Are harmorer Sonic drilling No Resistance Sonic drilling Refusal WATER Water Level on Date shown VB Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow Parcussion sampler ADV/Solid flight auger: VBI HFA Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow WW Water More drilling Water Level on Date shown WW Water More drilling Water Inflow WW Water More drilling Water Inflow WW Water More drilling Water Inflow WW Water More drilling Water More drilling MP Browshore drilling Water More drilling <td< td=""><td></td><td></td><td></td><td></td><td></td><td>F</td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | F | | | | | | |
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| METHOD FA.0 EX Excavator bucket R Rupper AF Are drauger Sonic drilling No Resistance MA Are harmorer Sonic drilling No Resistance Sonic drilling Refusal WATER Water Level on Date shown VB Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow Parcussion sampler ADV/Solid flight auger: VBI HFA Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow WW Water More drilling Water Level on Date water inflow WW Water More drilling Water Level on Date shown WW Water More drilling Water Inflow WW Water More drilling Water Inflow WW Water More drilling Water Inflow WW Water More drilling Water More drilling MP Browshore drilling Water More drilling <td< td=""><td></td><td></td><td></td><td></td><td></td><td>35</td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | 35 | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOIL CONSISTENCY KETHOD F F Standard Penetration Test B - Bulk disturbed sample VS - Very Soft K R Ripper Maintager POP Popmatic Cone Penetrometer DCP Dynamic Cone Penetrometer DCP Dynamic Cone Penetrometer D - Disturbed sample VS - Very Soft SN Sonic drilling MAir hammer Refusal MAITER Short Spiral auger MOISTURE D Disturbed sample VS - Very Soft AD/T Soid flight auger: V-Bit Mair hammer PB Petrussion Sampler No Resistance MOISTURE D Dy No Hair AD/T Soid flight auger: V-Bit Moist Water Level on Date PD Pite bearing Test D Dy MOISTURE RELATIVE DENSITY VB Washbord drilling water outflow Water Level outflow Researce Penetage PL Plate Latin IIII L Liquid limit L Loose WW Washbord drilling Water Level outflow Researcerenter Researcerenter PL | | | | | | - 3.5 | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOIL CONSISTENCY KETHOD F F Standard Penetration Test B - Bulk disturbed sample VS - Very Soft K R Ripper Maintager POP Popmatic Cone Penetrometer DCP Dynamic Cone Penetrometer DCP Dynamic Cone Penetrometer D - Disturbed sample VS - Very Soft SN Sonic drilling MAir hammer Refusal MAITER Short Spiral auger MOISTURE D Disturbed sample VS - Very Soft AD/T Soid flight auger: V-Bit Mair hammer PB Petrussion Sampler No Resistance MOISTURE D Dy No Hair AD/T Soid flight auger: V-Bit Moist Water Level on Date PD Pite bearing Test D Dy MOISTURE RELATIVE DENSITY VB Washbord drilling water outflow Water Level outflow Researce Penetage PL Plate Latin IIII L Liquid limit L Loose WW Washbord drilling Water Level outflow Researcerenter Researcerenter PL | | | | | | F | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOIL CONSISTENCY KETHOD F F Standard Penetration Test B - Bulk disturbed sample VS - Very Soft K R Ripper Maintager POP Popmatic Cone Penetrometer DCP Dynamic Cone Penetrometer DCP Dynamic Cone Penetrometer D - Disturbed sample VS - Very Soft SN Sonic drilling MAir hammer Refusal MAITER Short Spiral auger MOISTURE D Disturbed sample VS - Very Soft AD/T Soid flight auger: V-Bit Mair hammer PB Petrussion Sampler No Resistance MOISTURE D Dy No Hair AD/T Soid flight auger: V-Bit Moist Water Level on Date PD Pite bearing Test D Dy MOISTURE RELATIVE DENSITY VB Washbord drilling water outflow Water Level outflow Researce Penetage PL Plate Latin IIII L Liquid limit L Loose WW Washbord drilling Water Level outflow Researcerenter Researcerenter PL | | | | | | F | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOIL CONSISTENCY KETHOD F F Standard Penetration Test B - Bulk disturbed sample VS - Very Soft K R Ripper Maintager POP Popmatic Cone Penetrometer DCP Dynamic Cone Penetrometer DCP Dynamic Cone Penetrometer D - Disturbed sample VS - Very Soft SN Sonic drilling MAir hammer Refusal MAITER Short Spiral auger MOISTURE D Disturbed sample VS - Very Soft AD/T Soid flight auger: V-Bit Mair hammer PB Petrussion Sampler No Resistance MOISTURE D Dy No Hair AD/T Soid flight auger: V-Bit Moist Water Level on Date PD Pite bearing Test D Dy MOISTURE RELATIVE DENSITY VB Washbord drilling water outflow Water Level outflow Researce Penetage PL Plate Latin IIII L Liquid limit L Loose WW Washbord drilling Water Level outflow Researcerenter Researcerenter PL | | | | | | L, | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOL CONSISTENCY EX Excavator bucket R Ripper HA Hand auger No Resistance SPT - Standard Penetration Test B - Bulk disturbed sample VS - Very Soft S - Soft PT Push tube Refusal WATER PBT - Plats Baring Test No Resistance B - Bulk disturbed sample S - Very Soft S - Very Soft PS Percussion sampler WATER Water Level on Date MC - Moisture Content PBT - Plate Bearing Test MOSTURE MOSTURE VL - Very Loose AD/T Solid flight auger Water Inflow Water Inflow VS - Vane Shear, P=Peak, No Resist VL - Very Loose VL - Very Loose WB Washbore drilling Water utflow Water Unflow Reschall (uncorrected kPa) MD - Medium Der | | | | | | -4.0 | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOL CONSISTENCY EX Excavator bucket R Ripper HA Hand auger No Resistance SPT - Standard Penetration Test B - Bulk disturbed sample VS - Very Soft S - Soft PT Push tube Refusal WATER PBT - Plats Baring Test No Resistance B - Bulk disturbed sample S - Very Soft S - Very Soft PS Percussion sampler WATER Water Level on Date MC - Moisture Content PBT - Plate Bearing Test MOSTURE MOSTURE VL - Very Loose AD/T Solid flight auger Water Inflow Water Inflow VS - Vane Shear, P=Peak, No Resist VL - Very Loose VL - Very Loose WB Washbore drilling Water utflow Water Unflow Reschall (uncorrected kPa) MD - Medium Der | | | | | | ŀ | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOL CONSISTENCY EX Excavator bucket R Ripper HA Hand auger No Resistance SPT - Standard Penetration Test B - Bulk disturbed sample VS - Very Soft S - Soft PT Push tube Refusal WATER PBT - Plats Baring Test No Resistance B - Bulk disturbed sample S - Very Soft S - Very Soft PS Percussion sampler WATER Water Level on Date MC - Moisture Content PBT - Plate Bearing Test MOSTURE MOSTURE VL - Very Loose AD/T Solid flight auger Water Inflow Water Inflow VS - Vane Shear, P=Peak, No Resist VL - Very Loose VL - Very Loose WB Washbore drilling Water utflow Water Unflow Reschall (uncorrected kPa) MD - Medium Der | | | | | | F | | | | | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOL CONSISTENCY EX Excavator bucket R Ripper HA Hand auger No Resistance SPT - Standard Penetration Test B - Bulk disturbed sample VS - Very Soft S - Soft PT Push tube Refusal WATER PBT - Plats Baring Test No Resistance B - Bulk disturbed sample S - Very Soft S - Very Soft PS Percussion sampler WATER Water Level on Date MC - Moisture Content PBT - Plate Bearing Test MOSTURE MOSTURE VL - Very Loose AD/T Solid flight auger Water Inflow Water Inflow VS - Vane Shear, P=Peak, No Resist VL - Very Loose VL - Very Loose WB Washbore drilling Water utflow Water Unflow Reschall (uncorrected kPa) MD - Medium Der | | | | | | F | | | | | | |
| EX Excavator bucket R B - Bulk disturbed sample VS - Very Soft R Ripper Hand auger P - Hand/Pocket Penetrometer DCP - Disturbed sample S - Soft VT Push tube - Refusal WATER PS - No Resistance MC - Moisture Content MOSTURE WS - Very Soft AD/V Solid flight auger: V-Bit Mothow flight auger: TC-Bit Water Level on Date No PID Pito lonization Detector V V Very Loose L - | | | | | | 4.5 | | | | | | |
| EX Excavator bucket R B - Bulk disturbed sample VS - Very Soft R Ripper Hand auger P - Hand/Pocket Penetrometer DCP - Disturbed sample S - Soft VT Push tube - Refusal WATER PS - No Resistance MC - Moisture Content MOSTURE WS - Very Soft AD/V Solid flight auger: V-Bit Mothow flight auger: TC-Bit Water Level on Date No PID Pito lonization Detector V V Very Loose L - | | | | | | ŀ | | | | | | |
| EX Excavator bucket R B - Bulk disturbed sample VS - Very Soft R Ripper Hand auger P - Hand/Pocket Penetrometer DCP - Disturbed sample S - Soft VT Push tube - Refusal WATER PS - No Resistance MC - Moisture Content MOSTURE WS - Very Soft AD/V Solid flight auger: V-Bit Mothow flight auger: TC-Bit Water Level on Date No PID Pito lonization Detector V V Very Loose L - | | | | | | F | | | | | | |
| EX Excavator bucket R B - Bulk disturbed sample VS - Very Soft R Ripper Hand auger P - Hand/Pocket Penetrometer DCP - Disturbed sample S - Soft VT Push tube P - No Resistance MP - Hand/Pocket Penetrometer DCP - Disturbed sample S - Soft SON Sonic drilling - Air Air hammer PS Percussion sampler No Resistance MC - Moisture Content MOSTURE Water Level on Date No Resisting Test D - Dry Moist VL - Very Loose AD/T Solid flight auger: VS Very Loose PID Phito lonization Detector W Wet Wet U - L - Loose L - | | | | | | ł | | | | | | |
| SON Sonic drilling AH Air hammer PSP Perth Sand Penetrometer MOISTURE VSt Very Stiff PS Percussion sampler MATER PBT Plate Bearing Test D Dry RELATIVE DENSITY AD/V Solid flight auger: V-Bit AD/T Water Level on Date shown MP Borehole Impression Test M Moist VU Very Loose HFA Hollow flight auger water inflow VS Vane Shear; P=Peak, PL Plate Liguid limit D Dense WB Washbore drilling water outflow RERestual (uncorrected kPa) Reserved kPa) D D Dense | EX R HA | Ex Rij Ha | oper nd aug | ger | | | sistance | S H D | PT - Standard Penetration Test B - P - Hand/Pocket Penetrometer D - CP - Dynamic Cone Penetrometer U - | Bulk disturb Disturbed s Environmer | ample ital sample | e S - Soft F - Firm |
| PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling water unflow W water unflow | SO | N So | nic dril | lling | | — Refusa | al | | SP - Perth Sand Penetrometer | | _ analot | VSt - Very Stiff |
| M Soficit spinal auger M AD/V Solid flight auger: V-Bit AD/V Solid flight auger: TC-Bit HFA Hollow flight auger: TC-Bit W ater inflow W ater outflow W | PS | Pe | rcussio | on sam | proi | ا د د م ا م | Dete | P | BT - Plate Bearing Test D - | Dry | | |
| AD/T Solid light auger: 10-bit HFA Hollow flight auger WB Washbore drilling water outflow RERestual (uncorrected kPa) | AD/ | /V So | lid fligh | ht auge | er: V-Bit show | n | 1 Date | | IP - Borehole Impression Test M - ID - Phito Ionization Detector W - | Moist Wet | | VL - Very Loose |
| We washbule dhilling water outliow R=Residual (incorrected kPa) | HF | A Ho | llow fli | ght au | ger water | | | | S - Vane Shear; P=Peak, PL - LL - | Plastic limit Liquid limit | | MD - Medium Der |
| | | | ck rolle | er | | Samow | | | | | ntent | |

| Exc Exc | Typ on D | | er Dossie St and Sloar | no Št (| | | | | | |
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| nine vati Exc avati | Typ on D | o. 5 t | | | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| Exc Exc | on D | 0 · 5 t | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Exc avati | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| avati | | | nsions: | | | | | | | ctor: JPK Excavations |
| | avat | ed: 2 | 21/2/20 | | | | Logged By: SI | | Check | ed By: AN |
| lce | on | | Sampling & Testing | | | | Material Description | _ | | |
| Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | 0.00 - 0.10 m | 1 | | ML | FILL: Gravelly SILT: low plasticity, | D | | FILL 0.00 m: PID = 1.4ppm |
| | | Not Encountered | 0.40 - 0.50 m | | | CI- CH | | M | - | No staining, odour or PACM observed. NATURAL 0.40 m: PID = 1.2ppm No staining, odour or PACM observed. |
| | | | | - 1.0 - - - | | | 1.00m TERMINATED AT 1.00 m Target depth | | | |
| | | | | - 1.5 - - | | | | | | |
| | | | | - 2.0 - - | | | | | | |
| | | | | - 2.5 - - | | | | | | |
| | | | | - 3.0 - | | | | | | |
| | | | | - 3.5 - - | | | | | | |
| | | | | - 4.0 - | | | | | | |
| | | | | - - 4.5 - - - | | | | | | |
| Rip Ha Pu So Air Pe Sh / So Ho Wa | oper nd aug sh tub nic dri hamm rcussio ort spi lid flig lid flig llow fli ashbor | ger e lling ner on sam ral auge nt auge ght au e drillir | et ⇒ u u u z → water er er: V-Bit er: TC-Bit ger water water water | – No Res – Refusa · Level or n inflow | I | SI H D P M P I M P | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Di CP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th C - Moisture Content MOISTURE 3T - Plate Bearing Test D - Dr IP - Borehole Impression Test M - Mk D - Phito Ionization Detector W - With S - Vane Shear; P=Peak, L - Lic | sturbed sa nvironmen in wall tul s y pist et astic limit quid limit | ample tal samp be 'undis | le F - Firm |
| | Exe Rip Ha Sol Air Pel Sol Sol Ho Ro To exp | Excavato Ripper Hand auc Push tub Sonic dril Air hamm Percussic Short spi Solid flig Hollow fli Washbor Rock rolli | HOD Excavator buckk Ripper Hand auger Part tube Solid flight auger Solid flight auger Solid flight auger Solid flight auger Hand auger Percusion sam Short spiral augur Solid flight auger Hollow filler Washbore drillir Rock roller to explanatory notes f | HOD Excavator bucket Ripper Hand auger Hand auger Parcussion sampler Solid flight auger: V-Bit Solid flight auger: V-Bit Solid flight auger: V-Bit Solid flight auger: V-Bit Solid flight auger: V-Bit Hollow flight auger: Water Solid flight auger: V-Bit Hollow flight au | HO Excavator bucket Ripper Hand auger Penting Ar hammer Percussion sampler Sonic driling Ar hammer Percussion sampler Sonic driling Ar hammer Percussion sampler Solid flight auger: V-Bit Solid flight auger: V-Bit Hollow flight auger: V-Bit Solid flight auger: V-Bit Hollow flight auger: V-Bit Solid flight auger: V-Bit Hollow fli | HO -1.0 Exervision Sucket -2.0 -3.0 -3.5 -4.0 -4.5 -3.5 -4.0 -4.5 -5 -5 -6.0 -7.5 -7.5 - | HO 0.40 - 0.50 m 0.5 Ct- -1.5 -1.5 -1.5 -2.0 -2.5 -2.0 -2.5 -3.0 -3.5 -4.0 -2.5 -3.5 -4.0 -4.5 -4.5 -5 -4.5 -4.5 -5 -5 Solid flight auger V-Bit Solid flight au | CONCEPTION OF White Products of a standard of the product of the | OD PENETRATION FELD TESTS -0.5 -0.5 -0.5 -1.5 -0.5 -0.5 -1.5 -0.5 -0.5 -1.5 -0.5 -0.5 -1.5 -0.5 -0.5 -2.0 -0.5 -0.5 -2.0 -0.5 -0.5 -3.5 -0.5 -0.5 -3.5 -0.5 -0.5 -3.5 -0.5 -0.5 -3.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -4.5 -0.5 -0.5 -5 -0.5 -0.5 -6.5 -0.5 | OP Performation with statute and surfactor D 100 000 Gravety Sty CLAY: medum to high plasticity, gray M 100 100 100 100 M 101 100 100 TermMMATED AT 100 m Target depth 102 2.0 -0.0 100 Target depth M 103 -0.0 -0.0 Target depth N N 104 -0.0 -0.0 Target depth N N 105 -0.0 -0.0 Target depth N N 105 -0.0 -0.0 -0.0 N N N 106 -0.0 -0.0 -0.0 N N N N 105 -0.0 -0.0 -0.0 -0.0 N < |

| Proj .oc | nt: ect: atior | s n: C | Stage | urn Mulwaree Counci 2 - Detailed Site Inve r Dossie St and Sloar | stigatio | on Soulbu | rn | Job No: 5046200019 | | | | Hole No: TP7 |
|-----------------------|--|---|---|--|--|----------------|----------------------------|--|---|---|------------------------------------|--|
| | ition | | | | | | | Angle from Horizontal: | | 5 | Surface | e Elevation: |
| | | | | onne Excavator sions: | | | | Excavation Method: BU | CKET | | ontra | ctor: JPK Excavations |
| | | | | 1/2/20 | | | | Logged By: SI | | | | ed By: AN |
| Ex | cavati | on | | Sampling & Testing | | | | | escription | | | • |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle charact colour, secondary and minor compoo ROCK TYPE, grain size and type, co fabric & texture, strength, weatheri defects and structure | nents plour, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | + | | ML | FILL: Clayey SILT: low plasticity, grey wit matter and siltstone | th organic | | | FILL 0.00 m: PID = 0.5ppm No staining, odour or PACM |
| | | | | | Ļ | | | Gravelly Silty CLAY: medium to high plas | ticity, grey | | | observed. NATURAL |
| | | | - | 0.40 - 0.50 m | + | | | | | | | 0.40 m: PID = 0.6ppm No staining, odour or PACM |
| | | | | | 0.5 | | | | | | | No staining, odour or PACM observed. |
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| Ë | | | Not Encountered | | - 1.0 | | CI- | | | М | | |
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| | | | | | F | | | 2.00m | | | | |
| ¥ | | | | | | | | TERMINATED AT 2.00 m Target depth | | | | |
| | | | | | F | | | J 1 | | | | |
| | | | | | Ę | | | | | | | |
| | | | | | -2.5 | | | | | | | |
| | | | | | Ę | | | | | | | |
| | | | | | - | | | | | | | |
| | | | | | -3.0 | | | | | | | |
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| | | | | | Ē | | | | | | | |
| | | | | | - | | | | | | | |
| | | | | | - 3.5 - | | | | | | | |
| | | | | | F | | | | | | | |
| | | | | | F | | | | | | | |
| | | | | | -4.0 | | | | | | | |
| | | | | | F | | | | | | | |
| | | | | | t | | | | | | | |
| | | | | | -4.5 | | | | | | | |
| | | | | | È | | | | | | | |
| | | | | | F | | | | | | | |
| | | | | 1 | | | | | | | | |
| ME EX RAT SAR ADA ADA | Riµ Ha Pu N So Air Pe Sh /V So /T So A Ho | cavator oper ind aug ish tub nic dril hamm rcussio ort spii lid fligh lid fligh lid fligh | e ling ler on samp ral auge nt auger | er WATER WATER Water Water water | – No Res – Refusa Level on inflow | | SF HF DC PS MC | PT Standard Penetration Test P Hand/Pocket Penetrometer P Dynamic Cone Penetrometer PP Perth Sand Penetrometer C Moisture Content T Plate Bearing Test P Borehole Impression Test O Phito Ionization Detector G Vane Shear; P=Peak, Packadul (Pac) | D - Dist ES - Envi U - Thin MOISTURE D - Dry M - Mois W - Wet PL - Plas LL - Liqu | urbed sa ironment wall tub st stic limit uid limit | al samplo | e S - Soft F - Firm |
| RR | | ck rolle | | | | | 1 | | w - Mois | sture cor | nent | VD - Very Dense |

| il. | | | | truc | tion | | | | | | TE | ST PIT LOG | SHEET |
|-----------------|-----------------|---|--|---|---|----------------------------------|--|------------------|--|--|------------------------------------|---|---|
| | ient ojec | : | 0 9 | Goull Stage | ourn Mulwaree Counci | stigati | on | | | | | Hole No: | |
| | ocati | | : (| Corn | er Dossie St and Sloan | e Št, C | Goulbu | rn | Job No: 5046200019 | | | She | et: 1 of 1 |
| - | ositi | - | | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: | |
| | | | | | onne Excavator | | | | Excavation Method: BUCKET | | | | |
| - | | | | | nsions: | | | | | | | ctor: JPK Excava | ations |
| | | _ | | ed: 2 | 21/2/20 | | | | Logged By: SI | | Check | ed By: AN | |
| E | Exca | vatio | on | | Sampling & Testing | | | | Material Description | | | 1 | |
| Method | | Kesistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTL & Other Obse | |
| | | | | | 0.00 - 0.10 m | + | ير علير علير علير علير ع ير علير علير علير علير ع | CL- | Silty CLAY: low to medium plasticity, grey/orange with organic matter 0.20m | м | | TOPSOIL 0.00 m: PID = 1.5ppm No staining, odour or PA | .CM |
| | | | | red | 0.20 - 0.30 m | + | वस्रप | - | FILL: Gravelly SILT: low plasticity, grey with | | 1 | observed. Possibly FILL | |
| - EX | | | | Not Encountered | 0.00.070 | -0.5 | | ML | 0.60m | D/M | | 0.20 m: PID = 1.0ppm No staining, odour or PA observed. | CM - |
| | | | | | 0.60 - 0.70 m | + | | ML | Gravelly SILT: low plasticity, grey with weathered sandstone | м | | NATURAL | - - - |
| | · | | | | | 1.0 | | | 1.00m TERMINATED AT 1.00 m | | | | - |
| | | | | | | - | | | | | | | |
| | | | | | | - 1.5 - | | | | | | | - |
| 0 | | | | | | - | | | | | | | |
| | | | | | | -2.0 | | | | | | | - |
| | | | | | | - | | | | | | | |
| | | | | | | -2.5 - | | | | | | | - |
| | | | | | | - | | | | | | | |
| | | | | | | - 3.0 | | | | | | | - |
| | | | | | | - | | | | | | | |
| | | | | | | - 3.5 | | | | | | | - |
| | | | | | | - | | | | | | | |
| | | | | | | - 4.0 | | | | | | | _ |
| | | | | | | - | | | | | | | |
| | | | | | | - 4.5 | | | | | | | - |
| | | | | | | - | | | | | | | • |
| | METH | OD | | | PENETRATION | - | | F | IELD TESTS SAMPLES | | | SOIL CON | SISTENCY |
| E F F S A F A A | ΞX | Exc Rip Har Pus Sor Air Per Sho Sol | per nd aug sh tub nic dril hamm rcussio ort spi lid fligl | e ling ler on sam ral aug nt aug | et ⇒ uu ⊥ ± uu ⊥ ± water er sr. V-Bit sr. V-Bit sr. V-Bit shown | - No Res - Refusa Level or | | F F F F | SPT - Standard Penetration Test B - Bu IP - Hand/Pocket Penetrometer D - Dit IP - Dynamic Cone Penetrometer U - Th IP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE IP - Plate Bearing Test D - Dit IP - Phito Ionization Detector W - W | sturbed s ivironmer in wall tu : y vist et | ital sampl be 'undis | le VS - V le S - S turbed' St - S VSt - V H - F RELATIVE VL - V L - L | ery Soft oft irm tiff ery Stiff ard DENSITY ery Loose oose |
| F | HFA WB RR | Hol Wa Roo | llow fli ishbor ck rolle | ght au e drillir er | ger water o | | | | R=Resdual (uncorrected kPa) | astic limit juid limit pisture co | | MD - N D - D | ledium Dense ense ery Dense |
| | | | | | or details of lescriptions | | CC | NNS | STRUCTION SCIENCES | | | | |

CS ENVIRONMENTAL 2014 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <<DrawingFile>> 25/03/2020 13:51 10.0.000 Datgel AGS RTA, Photo, Monitoring Tools

| Client: Project: ∟ocatior Position | n: | Stad | Iburn Mulwaree Counci ge 2 - Detailed Site Inves | I | | | | | | ST PIT LOG SHEET |
|--|---|--|--|--------------------------------------|----------------|------------------|--|--|------------------------------------|--|
| Position Machine Excavati Date Exc | | | ner Dossie St and Sloar | stigatio | on | | | | ł | Hole No: TP73 |
| Machine Excavati Date Exc | 1: | 0011 | her Dossie St and Sloar | ie St, G | JOUIDU | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| Excavati Date Exc | _ | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| Date Exc | | | tonne Excavator | | | | Excavation Method: BUCKET | | 0 | |
| | | | | | | | Longood Dyn. Cl | | | ctor: JPK Excavations |
| Excavat | | | | | | | Logged By: SI | | Shecke | ed By: AN |
| | tion | _ | Sampling & Testing | | | | Material Description | 1 | | |
| Method Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | ered | 0.00 - 0.10 m | + | | ML | matter | М | | TOPSOIL 0.00 m: PID = 1ppm No staining, odour or PACM |
| EX | | Not Encountered | 0.40 - 0.50 m | 0.5 | | ML | Gravelly SILT: low plasticity, grey with weathered sandstone | M/D | | NATURAL 0.40 m: PID = 1.1ppm No staining, odour or PACM observed. |
| | | | | - 1.0 - 1.0 - 1.5 - 2.0 | | | TERMINATED AT 0.70 m Target depth | | | |
| R Rij HA Ha PT Pu SON Sc AH Air PS Pe AS Sr AD/V Sc AD/T Sc HFA Hc WB W3 | xcavato ipper and au ush tul onic dr ir hamr ercuss hort sp olid flig olid flig ollow f | be rilling mer sion sa piral au ght au ght au ght au flight a pre drill | impler Iger ger: V-Bit ger: TC-Bit uger tuger | − No Res − Refusa Level on | I | F F F F | IP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PCP - Perth Sand Penetrometer IC - Moisture Content MBT - Plate Bearing Test MP - Borehole Impression Test ID - Plate Bear, P=Peak, ID - Plate Bear, P=Peak, | turbed sa vironmen in wall tul / ist | tal sampl be 'undist | e S - Soft F - Firm |
| Refer to exp abbreviation | cplanato Ins and t | ry notes basis of | s for details of f descriptions | | CC | NS | STRUCTION SCIENCES | | | I |

| | ect: | 9 | Stage | burn Mulwaree Counci 2 - Detailed Site Inves | stigati | on | | | | | Hole No: TP7 |
|---|--|--|--|---|----------------------------------|--|---------------------------|---|------------------------|------------------------------------|--|
| | ation | | Corne | er Dossie St and Sloar | ie St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 c |
| | ition | | 0 · E + | onne Excavator | | | | Angle from Horizontal: 90° | | Surrac | e Elevation: |
| | | | | nsions: | | | | Excavation Method: BUCKET | | Contra | ctor: JPK Excavations |
| | | | | 21/2/20 | | | | Logged By: SI | | | ed By: AN |
| | cavati | | | Sampling & Testing | | | | Material Description | | | |
| | | | | | E) | 0 | ion | SOIL TYPE, plasticity or particle characteristic, | _ | ~ | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m DUP21, DUYP21A | ┟ | لىر غلىر غلىر غلىر غلىر غلىر لىر غلىر غلىر | ML | Gravelly SILT: low plasticity, grey/brown with organic matter | | | TOPSOIL 0.00 m: PID = 1.1ppm No staining, odour or PACM |
| | | | | 0.20 - 0.30 m | + | | | D.20m FILL: Gravelly Silty SAND: fine to coarse grained, | 1 | | observed. |
| | | | | | Ţ | | SP | grey/brown 0.40m | | | 0.20 m: PID = 1.3ppm No staining, odour or PACM |
| | | | Ţ | 0.50 - 0.60 m | 0.5 | | ML | FILL: Gravelly Clayey SILT: low plasticity, grey/orange with plastic and weathered sandstone | | | No staining, odour of PACM observed. 0.50 m: PID = 1.4ppm No staining, odour or PACM observed. |
| | | | unter | 0.80 - 0.90 m | 1 | | | 0.80m Silty CLAY: medium to high plasticity, grey/orange | 1 | | NATURAL |
| EX | | | Not Encountered | | - 1.0 | | | | м | | 0.80 m: PID = 1.0ppm No staining, odour or PACM observed. |
| | | | | | - | | CI- CH | | | | |
| | | | | | - - | | | | | | |
| | | | | | | | | 2.00m TERMINATED AT 2.00 m | | | |
| | | | | | - | | | Target depth | | | |
| | | | | | F | | | | | | |
| | | | | | 2.5 - - | | | | | | |
| | | | | | -3.0 | | | | | | |
| | | | | | | | | | | | |
| | | | | | - 3.5 | | | | | | |
| | | | | | - 4.0 | | | | | | |
| | | | | | - - - | | | | | | |
| | | | | | - 4.5 - | | | | | | |
| | | | | | | | | | | | |
| EX RHA PT SOI AH PS AD/ AD/ HF/ WB | Rip Ha Pu N So Air Pe Sh V So T So A Ho | oper ind aug ish tub nic dri hamm rcussio ort spi lid flig lid flig illow fli ashbor | e Illing her on sam ral aug ht auge ht auge ght au e drillin | ppler ler er: V-Bit er: TC-Bit ger water | – No Res – Refusa Level or | | SI HI D' P' M | P - Hand/Pocket Penetrometer D - Disparatic Cone Penetrometer CP - Dynamic Cone Penetrometer U - Thi SP - Perth Sand Penetrometer U - Thi C0 - Moisture Content MOISTURE ST - Plate Bearing Test D - Dry P - Borehole Impression Test M - Moisture C0 - Phito Ionization Detector W - We Secondrul (uncorrected (RP)) L - Liq | n wall tul / ist | ample tal sampl be 'undis | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Der D - Dense |
| RR | Ro | ck roll | | for details of | | | | | | | VD - Very Dense |

| 1 | | ons cien | | tion | | | | | | ΤE | ST PIT LOG SHEET |
|--|--|--|--|---|--|----------------|------------------|---|-----------------------|------------------------------------|---|
| Clie | ent: ject: | | | ourn Mulwaree Counci | | on | | | | | Hole No: TP75 |
| Loc | atio | n: (| Corn | er Dossie St and Sloar | ne St, C | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| | ition | | ə [.] 5 t | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surfac | e Elevation: |
| | | | | isions: | | | | | | Contra | ctor: JPK Excavations |
| | | | ed: 2 | 1/2/20 | | <u>г</u> | | Logged By: SI | | Check | ed By: AN |
| E | cavat | tion | | Sampling & Testing | - | | _ | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | tered | 0.00 - 0.10 m | _ | | ML | 0.10m FILL: Gravelly Sandy SILT: low plasticity, grey with | | | FILL 0.00 m: PID = 1.9ppm - |
| ■ EX | | | Not Encountered | 0.20 - 0.30 m | 0.5- | | ML | Gravelly SILT: low plasticity, grey with weathered sandstone | M/D | | No staining, odour or PACM observed. NATURAL 0.20 m: PID = 1.8ppm No staining, odour or PACM observed. |
| | |] | | | | | | TERMINATED AT 0.50 m Target depth | | | - |
| | | | | | - 1.0 - 1.0 - 1.5 1.5 | | | | | | |
| ME EX EX EX EX EX EX EX EX EX EX EX EX EX | Ri Pi N So Ai Si VV So VV So VT So A Ho 3 W | xcavato ipper and aug ush tub onic dri r hamm ercussio hort spi olid fligi | ger e ling ier on sam ral auge nt auge nt auge ght au e drillir | pler er er: V-Bit er: TC-Bit ger water | – No Res – Refusa Level or inflow | | S F F F | IP - Hand/Pocket Penetrometer D - Dige ICP Dynamic Cone Penetrometer U - Tr ISP Perth Sand Penetrometer U - Tr ICF Moisture Content MOISTURI IBT Plate Bearing Test D - Dige IP Borehole Impression Test M - M ID Phito Ionization Detector W W VS Vane Shear; P=Peak, L - Pite | y pist | ample tal sampl be 'undis | e F - Firm |
| Ref abb | er to ex reviatio | planator ns and b | notes f | or details of escriptions | | CO | NS | STRUCTION SCIENCES | | | |

CS ENVIRONMENTAL 2014 LIB GLB Log CARDNO NON-CORED 5046200019 GINT 7P LOGS- SEQ ENG GPJ <CDrawingFile>> 2503/2020 13:51 10.0.000 Daigel GCS RTA, Pholo, Monitoring Tools

| | nt: ect: | 5 | Stage | ourn Mulwaree Counci | stigati | on | | | | ŀ | Hole No: TP7 |
|---|--|--|---|----------------------------------|----------------------|----------------|----------------------------|--|--|--|--|
| | atior | n: Č | Corne | er Dossie St and Sloar | e St, C | Soulbu | rn | Job No: 5046200019 | | | Sheet: 1 o |
| osi | ition | : | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | _ | |
| | | | | isions: | | | | Longrad Dyn. Cl | | | ctor: JPK Excavations |
| | cavati | | eu: z | Sampling & Testing | 1 | | | Logged By: SI Material Description | | Checke | ed By: AN |
| | cavau | | | Sampling & resting | - | | | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m | - | | | FILL: Gravelly Silty SAND: fine to medium grained, dark grey with siltstone gravel | | | FILL 0.00 m: PID = 1.1ppm STOCKPILE No staining, odour or PACM observed. |
| | | | | | - 0.5 | | | | | | |
| | | | Not Encountered | | - - - 1.0 | | SP | | D | | |
| | | | Ň | | - | | | | | | |
| | | | | 1.50 - 1.60 m | - 1.5 | | CI- | 1.50m 1.60m FILL: Gravelly CLAY: medium to high plasticity, | | - | 1.50 m: GROUNDLEVEL |
| | | | | | † | | СН | orange/grey with siltstone Gravelly Silty CLAY: medium to high plasticity, | 1 | | No staining, odour or PACM observed. |
| | | | | | F | | CI- CH | orange/grey with weathered sandstone | М | | NATURAL |
| | | | | 1.90 - 2.00 m | | XX. | | 2.00m TERMINATED AT 2.00 m | | | |
| | | | | | | | | Target depth | | | |
| | | | | | - 2.5 - | | | | | | |
| | | | | | - 3.0 - | | | | | | |
| | | | | | - - -3.5 | | | | | | |
| | | | | | - 4.0 | | | | | | |
| | | | | | | | | | | | |
| | | | | | - 4.5 - | | | | | | |
| | THOD | | | | - | | | ELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R HA PT SOI AH PS AD/ AD/ HF/ | Riµ Ha Pu N So Air Pe Sh V So T So | oper ind aug ish tub nic dril hamm rcussio ort spi lid fligl lid fligl | e lling her on sam ral aug nt auge | pler er cr: V-Bit water | - Refusa Level or | | HI DO PS MI PE | P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer ES - En SP - Perth Sand Penetrometer U - Thi C - Moisture Content MOISTURE BT - Plate Bearing Test D - Dry IP - Borehole Impression Test M - Moisture Content D - Phito Ionization Detector W - We S - Vane Shear: "=Peneak PL - Plate | turbed sa vironmen n wall tu ist et ustic limit | ed sampl ample tal sampl be 'undist | e S - Soft F - Firm |
| WB RR | Wa | ashbor ck roll | e drillir | ig — water | outflow | | | D-Deadual (uncomposited L/Da) LL - Liq | uid limit isture co | ntent | D - Dense VD - Very Dense |

| Client: Goulburn Mulwaree Council | |
|---|--|
| Project: Stage 2 - Detailed Site Investigation | Hole No: TP77 |
| Location: Corner Dossie St and Sloane Št, Goulburn Job No: 5046200019 Position: Angle from Horizontal: 90° Su | Sheet: 1 of rface Elevation: |
| Machine Type: 5 tonne Excavator Excavation Method: BUCKET | |
| Excavation Dimensions: Co | ntractor: JPK Excavations |
| | ecked By: AN |
| Excavation Sampling & Testing Material Description | |
| Wethod Wethod <td>Attrace Attrace & Other Observations</td> | Attrace Attrace & Other Observations |
| FILL: Gravely SILT: low plasticity, brown with traces brick and plastic | FILL |
| 0.20 - 0.30 m DUP24, DUP24A | 0.20 m: PID = 1.6ppm STOCKPILE |
| | No staining, odour or PACM observed. |
| | |
| | |
| -1.0 ML | |
| | |
| | |
| | |
| | |
| 2.20 - 2.30 m | 2.20 m: PID = 3.4ppm |
| 2.20 - 2.30 m ML 2.30m FILL: Gravelly SILT: low plasticity, brown/orange Gravelly SILT: low to medium plasticity, orange/grey | No staining, odour or PACM observed. |
| 2.40 - 2.50 m | NATURAL 2.40 m: PID = 2.2ppm |
| | No staining, odour or PACM observed. |
| | |
| ▼ 3.00m | |
| 3.0 A FILE South TERMINATED AT 3.00 m Target depth | |
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| | |
| | |
| -4.0 | |
| | |
| | |
| -4.5 | |
| | |
| | |
| | |
| METHOD PENETRATION FIELD TESTS SAMPLES EX Excavator bucket | ole S - Soft sample F - Firm |
| PS Percussion sampler AS Short spiral auger WATER PBT - Plate Bearing Test D - Dry AD/V Solid flight auger: V-Bit AD/T Water Level on Date shown IMP - Borehole Impression Test M - Moist PID Phito Ionization Detector VS Vane Shear; P=Peak, Resck roller VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) LL - Liquid limit w - Moisture conter | RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense |
| Refer to explanatory notes for details of abbreviations and basis of descriptions CONSTRUCTION SCIENCES | I |

Datgel AGS RTA, Photo, Monitoring Tools CS ENVIRONMENTAL 2:01.4 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ << DrawingFile>> 25/03/2020 13:51 10.0.000

<u>___</u> Construction

| roject ocatio | | Star | e 2 - Detailed Sit | Council le Investigati | on | | | | | Hole No: TP7 |
|---|---|--|--|---------------------------|----------------|-------------------|--|---|------------------------------------|---|
| ositio | | Cori | her Dossie St and | d Sloane St, | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of |
| | n: | | | | | | Angle from Horizontal: 90° | ; | Surfac | e Elevation: |
| | | - | tonne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | nsions: 21/2/20 | | | | Logged By: SI | | | ector: JPK Excavations |
| | | ateu. | Sampling & Te | esting | | | Material Description | | CHECK | ed By: AN |
| | | - | Camping & re | | | - | | 1 | | |
| Resistance | Stability | Water | Sample of Field Test | | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | 0.00 - 0.20 m | | | | FILL: Gravelly Silty SAND: fine to coarse grained, brown/grey with asphalt slab | | | FILL 0.00 m: PID = 2.6 ppm No staining, odour or PACM observed. |
| 5 | | Not Encountered | | -0.5 | | SP | | м | | |
| | | | 1.10 - 1.20 m | | | ML | 1.10m FILL: Gravelly Sandy SILT: low plasticity, grey/brown with wood | _ | | 1.10 m: PID = 3.1ppm No staining, odour or PACM |
| | | | 1.30 - 1.40 m | | | ML | 1.30m Gravelly SILT: low plasticity, orange/grey with weathered sandstone | | | observed. NATURAL 1.30 m: PID = 1.8 ppm No staining, odour or PACM |
| <u> </u> | | | | - 1.5 | 19/19 | | 1.60m | | | observed. |
| | | | | - | | | TERMINATED AT 1.60 m Target depth | | | |
| | | | | - | | | | | | |
| | | | | -2.0 | | | | | | |
| | | | | - | | | | | | |
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| | | | | - 2.5 | | | | | | |
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| | | | | - 3.0 | | | | | | |
| | | | | F | | | | | | |
| | | | | - | | | | | | |
| | | | | F | | | | | | |
| | | | | - 3.5 | | | | | | |
| | | | | F | | | | | | |
| | | | | F | | | | | | |
| | | | | - 4.0 | | | | | | |
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| | | | | F | | | | | | |
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| | | | | -4.5 | | | | | | |
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| | | | | F | | | | | | |
| | | | | F | | | | | | |
| R HA PT SON AH AS AD/V AD/T HFA WB | Excava Ripper Hand a Push t Sonic o Air har Percus Short s Solid fl Solid fl Hollow | auger ube drilling nmer sion sa spiral au ight au ight au flight a ore dril | mpler ger ger: V-Bit ger: V-Bit ger: V-Bit | Refus | | SH P P P | P Hand/Pocket Penetrometer D Display CP Dynamic Cone Penetrometer ES En SP Perth Sand Penetrometer U Th GE Moisture Content MOISTURE BT Plate Bearing Test D Dr IP Borehole Impression Test M Mc ID Phito Ionization Detector W W S Vane Shear; P=Peak, LL Lit | turbed sa vironmen in wall tu / / | tal sampl be 'undis | Ie S - Soft F - Firm |

| | ect: ation | : 0 | Stage Corne | 2 - Detailed Site Inve r Dossie St and Sloa | stigati ne St, C | on Goulbu | rn | Job No: 5046200019 | | | Hole No: TP7 Sheet: 1 c |
|---------------------|-----------------|--------------------------|-------------------------------|--|---------------------|------------------------------|----------------|--|---|------------------------------------|---|
| | ition | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | Contra | |
| | | | | sions: 1/2/20 | | | | Logged By: SI | | | ctor: JPK Excavations ed By: AN |
| | cavati | | 50.2 | Sampling & Testing | | | | Material Descript | | | |
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| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | ered | 0.00 - 0.10 m | | لىر غاير غاير غاير غاير غ | ML | 0.10m Gravelly SILT: low plasticity, grey with organic | D/M | | TOPSOIL 0.00 m: PID = 1.6ppm |
| ļ | | | count | | 7 | 070 | | matter Gravelly SILT: low plasticity, grey/orange with | -⁄ | | No staining, odour or PACM observed. |
| L L | | | Not Encountered | | + | P2 46K | ML | weathered sandstone | м | | NATURAL |
| | | | z | 0.40 - 0.50 m | + | 095 | | 0.50m | | | 0.40 m: PID = 1.2ppm |
| | | | | | 0.5_ | | | TERMINATED AT 0.50 m Target depth | | | No staining, odour or PACM observed. |
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| EX R HA PT | Rip Ha Pu | oper nd aug sh tub | e | t PENETRATIO | | sistance | S H D | BELD TESTS SAMPL PT - Standard Penetration Test B - P - Hand/Pocket Penetrometer D - CP - Dynamic Cone Penetrometer ES - SP - Perth Sand Penetrometer U - | ES Bulk disturb Disturbed sa Environmen Thin wall tul | ample tal sampl | le S - Soft F - Firm |
| SOI AH PS | Air | nic dril hamm | | bler WATER | 1101058 | • | N | IC - Moisture Content MOISTU | | | H - Hard |
| AS AD/ | Sh | ort spi | al auge | er Wate | r Level or | Date | IN | BT - Plate Bearing Test D - M - M - | Moist | | RELATIVE DENSITY VL - Very Loose |
| AD/ AD/ HF/ | T So | lid fligh | nt auge of auge ght aug | r: TC-Bit | | | | S - Vane Shear: P=Peak. PL - | Wet Plastic limit | | L - Loose MD - Medium Der |
| WB RR | Wa | shbor ck rolle | e drillin | g — water | outflow | | | R=Resdual (uncorrected kPa) | Liquid limit Moisture cor | ntent | D - Dense VD - Very Dense |
| | | | | r details of | | | | | | | , _ 5100 |

| | nt: ect: | (| Goult | ourn Mulwaree Counci 2 - Detailed Site Inves | l stinati | on | | | | ŀ | Hole No: TP8 |
|---------------------|--|---|---|--|---|----------------|--------------------------------------|--|---|------------------------------------|--|
| | atior | : (| Corne | er Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of |
| | ition | · | | | | | | Angle from Horizontal: 90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | sions: 1/2/20 | | | | Longood Dyn. Cl | | | ctor: JPK Excavations ed By: AN |
| | cavati | | eu: z | Sampling & Testing | | | | Logged By: SI Material Description | | Snecke | ed by: AN |
| | | | | Sampling & resting | - | | _ | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| EX EX | | | Not Encountered | 0.40 - 0.50 m | - - - - - - - - - - - - - - - - - - - | | ML | FILL: Gravelly SILT: low plasticity, brown with fragments of siltstone, plastic | D / M | | FILL 0.40 m: PID = 2ppm STOCKPILE No staining, odour or PACM observed. |
| | | | | 1.50 - 1.60 m | - 1.5 | | ML | 1.50m SILT: low plasticity, grey 1.70m Gravelly SILT: low plasticity, grey/orange with weathered sandstone | M | - | NATURAL 1.50 m: No staining, odour or PACM observed. |
| v | | | | | 2.0- | | ML | 2.00m TERMINATED AT 2.00 m Target depth | | | |
| | | | | | - 2.5 | | | | | | |
| | | | | | | | | | | | |
| | | | | | - 3.5 - - | | | | | | |
| | | | | | - 4.0 - | | | | | | |
| | | | | | - 4.5 - - | | | | | | |
| EX R HA PT | Riµ Ha Pu N Sc Air Pe Sh V Sc V Sc A Ho S Wa | oper nd aug sh tub nic dri hamm rcussio ort spi lid flig lid flig llow fli | e lling her on sam ral auge nt auge ght auge ght auge e drillir | pler er r: V-Bit r: TC-Bit ger water i | - No Res - Refusa Level on | | S H D P M P I P | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test IP - Borehole Impression Test ID - Phito Ionization Detector V - Plate Searing Test ID - Phito Ionization Detector V - Plate Searing Test | turbed sa vironmen n wall tul st | tal sampl | e S - Soft F - Firm |

| Ę | | ons cien | | tion | | | | | | ΤE | ST PIT LOG SHEET |
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| Clie Proi | | (| Goull | burn Mulwaree Counci | | on | | | | ł | Hole No: TP81 |
| Loc | atio | n: (| Corn | er Dossie St and Sloar | e St, C | Goulbu | rn | Job No: 5046200019 | | | Sheet: 1 of 1 |
| | ition hine | | ə: 5 t | onne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surfac | e Elevation: |
| | | | | nsions: | | | | | | Contra | ctor: JPK Excavations |
| Date | e Ex | cavat | ed: 2 | 21/2/20 | | | | Logged By: SI | | Checke | ed By: AN |
| Ex | cavat | ion | | Sampling & Testing | | | - | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | ered | 0.00 - 0.10 m | | | ML | 0.10m FILL: Gravelly Sandy SILT: low plasticity, grey | | | FILL 0.00 m: PID = 1.8ppm - |
| — EX — | | | Not Encountered | | - | | ML | Gravelly SILT: low plasticity, grey/orange with weathered sandstone | D/M | | No staining, odour or PACM observed. NATURAL |
| ¥ | | - | | 0.40 - 0.50 m | 0.5- | <u>146</u> | - | 0.50m TERMINATED AT 0.50 m | - | | |
| Commentation with the same of a second stand of the cost and the cost and cost and the cost and | | | | | - 1.0 - 1.0 - 1.5 - 1.5 - 2.0 - 2.5 2.5 | | | | | | |
| | | | | | -4.5 - - | | | | | | |
| | | | | | - | | | | | | 4 |
| ME EX RAD DI GOD GID TO CONTRACTOR DI CONTRACTORI DI CONTRACTOR DI CONTRACTOR DI CONTRACTOR DI CONTR | Ri Ha Pu N So N So N V So V V So V V So V V So A Ho B W C Ro E r to ex | kcavato pper and aug ush tub pnic dril r hammer cussion nort spi blid flig flig flig flig flig flig flig flig | ger e ling er on sam ral auge nt auge ght au e drillir er | ppler ler sr: V-Bit sr: TC-Bit ger ng or details of | - No Res - Refusa Level or nflow | n Date | S F F II F | $\begin{array}{rcl} P & - & Hand/Pocket Penetrometer \\ CP & - & Dynamic Cone Penetrometer \\ SP & - & Perth Sand Penetrometer \\ IC & - & Moisture Content \\ BT & - & Plate Bearing Test \\ ID & - & Borehole Impression Test \\ ID & - & Phito Ionization Detector \\ S & - & Vane Shear; P=Peak, \\ R=Pendual (Unexpresented UPD) \\ \end{array}$ | ulk disturb sturbed si nvironmen nin wall tu E ry oist et | ample tal sampl be 'undist | e S - Soft F - Firm |
| abb | | | | escriptions | | 00 | 143 | | | | |

CS ENVIRONMENTAL 2014 LIB.GLB Log CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ <<DrawingFile>> 25/03/2020 13:52 10.0.000 Datgel AGS RTA, Photo, Monitoring Tools

----- Construction

| | nt: ect: | 5 | Stage | ourn Mulwaree Council 2 - Detailed Site Inves | tigati | on | | | | ŀ | Hole No: TP8 |
|-------------------|-------------|--------------------|-------------|--|--------------|----------------|----------------|--|-------------------------|------------------------------------|---|
| | atior | : C | Corne | er Dossie St and Sloan | e St, C | Goulbu | rn | Job No: 5046200019 | | Sheet: 1 o | |
| | ition | | | | | | | Angle from Horizontal: 90° | : | Surface | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | <u> </u> | |
| | | | | sions: | | | | Lowerd Day Ol | | | ctor: JPK Excavations |
| | | | ea: 2 | 1/2/20 | | | | Logged By: SI | | Спеске | ed By: AN |
| EX | cavati | on | | Sampling & Testing | | | - | Material Description | - | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 0.00 - 0.10 m DUP23, DUP23A | - | | ML | 0.10m FILL: Sandy SILT: low plasticity, grey with organic matter and cloth | - | | FILL 0.00 m: PID = 2.5ppm |
| | | | | 0.20 - 0.30 m | + | | ML | Gravelly SILT: low plasticity, grey | м | | No staining, odour or PACM observed. |
| | | | | | + | | | 0.30m Gravelly Clayey SILT: low plasticity, grey/orange | | 1 | NATURAL 0.20 m: PID = 3.2ppm |
| | | | pé | | -0.5 | B | - | with weathered sandstone | | | No staining, odour or PACM observed. |
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| ME EX | THOD Ex | cavato | r bucke | t PENETRATION ששש± | | | | ELD TESTS SAMPLES PT - Standard Penetration Test B - Bul | lk disturb | ed sampl | le VS - Very Soft |
| R HA | Rip | per nd aug | | | -No Re | sistance | н | P - Hand/Pocket Penetrometer D - Dis | sturbed sa | | S - Soft |
| PT SO | Pu | sh tub nic dril | e | | -Refusa | al | | SP - Perth Sand Penetrometer | in wall tul | be 'undist | |
| AH | Air | hamm | | | | | N | C - Moisture Content MOISTURE | | | H - Hard |
| AS AD/ | Sh | ort spi | ral aug | er Water | Level or | n Date | IN | IP - Borehole Impression Test M - Mo | ist | | RELATIVE DENSITY VL - Very Loose |
| AD/ AD/ HF/ | T So | lid fligh | | r: TC-Bit water i | | | | ID - Phito Ionization Detector W - We S - Vane Shear: P=Peak PL - Pla | et astic limit | | L - Loose MD - Medium Den |
| WB | Wa | ashbor ck rolle | e drillin | ig water of | outflow | | ' | D-Deaduel (uncomposited LDa) LL - Liq | uid limit isture cor | ntent | D - Dense VD - Very Dense |
| | 1.0 | | | | | | | | | | |

| Client: Goulburn Mulwaree Council Project: Stage 2 - Detailed Site Investigation | | | | | | | | | lole No: TP8 | | |
|---|--|---|--|-------------------------|------------------------------------|----------------|--------------------|--|---------------------------|------------------------------------|---|
| ocation: Corner Dossie St and Sloane St, C | | | | | | | rn | Job No: 5046200019 | Sheet: 1 | | |
| | tion | | | | | | | Angle from Horizontal: 90° | : | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: BUCKET | | | |
| | | | | sions: | | | | Logged By: SI | | | ctor: JPK Excavations |
| Date | Exc | avat | ed: 2 | 1/2/20 | | | | ed By: AN | | | |
| Ex | cavati | on | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | Not Encountered | 0.00 - 0.10 m | + | | ML | FILL: SILT: low plasticity, brown with organic matter | м | | FILL 0.00 m: PID = 1.7ppm STOCKPILE |
| | | | Icoun | | [| \otimes | | 0.30m | | | No staining, odour or PACM observed. |
| Ж | | | et Er | 0.40 - 0.50 m | + | o A o | | Gravelly SILT: low plasticity, grey with weathered sandstone | | | NATURAL |
| | | | | 0.40 - 0.50 11 | 0.5 | PLICK | ML | | D/M | | |
| | | | | | ł | 091 | 1 | 0.70m | 1 | | |
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| EX R HA PT SOI AH PS AS AD/ | Rip Ha Pu So Air Pe Sh V So | per nd aug sh tub nic dril hamm rcussic ort spil lid fligt | e ling ler on sam ral aug nt auge | pler er tr. V-Bit | — No Res — Refusa r Level or | | SH DP P P | P - Hand/Pocket Penetrometer D - Dis CP Dynamic Cane Penetrometer ES - En | y bist | ample tal sampl | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose |
| AD/ HF/ | T So A Ho | lid fligh llow fli | nt auge ght au | er: TC-Bit water | inflow | | | S - Vane Shear: P=Peak PL - Pla | astic limit | | L - Loose MD - Medium De |
| WB RR | Wa | shbor ck rolle | e drillir | ng — water | outflow | | | D-Deadual (uncompeted I/Da) LL - Lic | juid limit pisture cor | ntent | D - Dense VD - Very Dense |
| | | | | | | | | | | | , 20100 |

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| Clie Proj Loca | nt: ect: | : | Goul Stag | burn Mulwaree Council e 2 - Detailed Site Inves er Dossie St and Sloan | tigatio | on | rn | Job No: 5046200240 | | | Hole No: TP84 |
| | | | Com | er Dossie St and Stoan | e Si, C | Jourbu | | Job No: 5046200019 | | Cfoo | Sheet: 1 of 1 e Elevation: |
| Posi | | | 0 E 1 | tonne Excavator | | | | Angle from Horizontal: 90° Excavation Method: BUCKET | | Surrac | e Elevation: |
| | | | | nsions: | | | | Excavation Method: BUCKET | | Contra | ctor: JPK Excavations |
| | | | - | 21/2/20 | | | | Logged By: SI | | | ed By: AN |
| | _ | | | | | | | | | CHECK | eu by. An |
| EX | cava | ition | - | Sampling & Testing | - | | _ | Material Descriptior | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | | 0.00 - 0.10 m | + | | CL- CI | FILL: Gravelly Silty CLAY: low to medium plasticity, brown/orange with gravel of siltstone | D | | FILL 0.00 m: PID = 3.8ppm STOCKPILE No staining, odour or PACM |
| EX | | | t Encountered | 0.30 - 0.40 m DUP25, DUP25A | | | ML | 0.30m FILL: Gravelly Sandy SILT: low plasticity, grey/brown/dark grey with asphalt | | | observed. 0.30 m: PID = 2.7ppm STOCKPILE possible oil staining |
| Ī | | | Not | 1.00 - 1.10 m | - 1.0 | | | 1.00m | м | | NATURAL |
| | | | | | + | | ML | Gravelly SILT: low plasticity, grey with weatherd sandstone | | | 1.00 m: PID = 1.2ppm No staining, odour or PACM observed. |
| * | | - | | | -1.5- | <u>n ht</u> k | | 1.50m TERMINATED AT 1.50 m Target depth | | | |
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| ME | THO | | | PENETRATION | - | | F | IELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| EX R HA PT SOI AH PS AD/ AD/ HF/ WB RR | | Excavato Ripper land au Push tub Sonic dri Vir hamr Percussi Short sp Solid flig | ger illing ner iral aug ht aug ht aug ight au ight au | npler ger er: V-Bit ger er: TC-Bit ger | nflow | I | S F F N F | PT - Standard Penetration Test B - B IP - Hand/Pocket Penetrometer D - D ICP - Dynamic Cone Penetrometer U - TI SP - Perth Sand Penetrometer U - TI IC - Moisture Content MOISTURI BT - Plate Bearing Test D - D ID - Phito Ionization Detector W - W S - Vane Shear; P=Peak, PL - D Pendural (VPR) LL - Li | ulk disturb isturbed s nvironmen nin wall tu E | ample tal sampl be 'undis | le VS - Very Soft S - Soft le F - Firm |
| Refe abbr | er to e: reviatio | xplanator ons and b | y notes asis of (| for details of descriptions | | CO | NS | STRUCTION SCIENCES | | | |

| Client: | | Goult | ourn Mulwaree Counci | | | | | | | ST PIT LOG SHEE | | |
|--|---|--|---|---|----------------|--------------------------------------|--|---|------------------------------------|---|--|--|
| Project: Location | ר: S | Stage Corne | 2 - Detailed Site Inves or Dossie St and Sloan | stigatio e St, G | on Goulbu | rn | Job No: 5046200019 | | • | Sheet: 1 of | | |
| Position | | | | | | | Angle from Horizontal: 90° | Surface Elevation: | | | | |
| Machine | Туре | e: 5 t | onne Excavator | | | | Excavation Method: BUCKET | | | | | |
| Excavati | | | | | | | | | | ctor: JPK Excavations | | |
| Date Exc | | ed: 2 | | <u> </u> | | | Logged By: SI | | Check | ed By: AN | | |
| Excavati | ion | | Sampling & Testing | | | | Material Description | | | | | |
| Method Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | | |
| EX | | Not Encountered | | - - - - - - - - - - - - - - - - - - - | | | STOCKPILE OF TIMBER, CONCRETE, WOOD, METAL | M/D | | FILL 0.00 m: No staining, odour or PACM observed. | | |
| • | | | 1.50 - 1.60 m DUP26, DUP26A 1.70 - 1.80 m | - - - - - - - 2.0 | | ML CI- CH | 1.50m FILL: SILT: low to medium plasticity, grey with glass and metal 1.70m CLAY: medium to high plasticity, grey/orange 2.10m | м | - | 1.50 m: PID = 1.1ppm No staining, odour or PACM observed. NATURAL 1.70 m: PID = 1.3ppm No staining, odour or PACM observed. | | |
| | | | | - 2.5 2.5 | | | TERMINATED AT 2.10 m Target depth | | | | | |
| R Rip HA Ha PT Pu SON So AH Air PS Pe AS Sh AD/V So AD/T So HFA Ho WB Wa | cavator pper and aug ush tube onic drill r hamm ercussio nort spir blid fligh | ler e ling er on sam al aug at auge ot auge ght aug ght aug | pler er r: V-Bit ger water i | nflow | I | S H D P M P I P | P Hand/Pocket Penetrometer D Display CP Dynamic Cone Penetrometer ES En SP Perth Sand Penetrometer U Thi IC Moisture Content MOISTURE BT Plate Bearing Test D Dry IP Borehole Impression Test M Mo ID Phito Ionization Detector W We S Vane Shear; P=Peak, LL LI | turbed sa vironmen n wall tul v ist | tal sampl | le F - Firm | | |

CS ENVIRONMENTAL 2.014 LIB GLB Loa CARDNO NON-CORED 5046200019 GINT TP LOGS- SEQ ENG.GPJ << DrawindFile>> 25/03/2020 13:52 100.000 Datael AGS RTA, Photo. Monitorina Tools

Contact

31 Anvil Road Seven Hills NSW 2147

Telephone: +612 8646 2000 Facsimile: +612 8646 2025

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