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

Construction Sciences

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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.

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

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	PAH
AEC14	Material bays	Pathogens
AEC19	South of greenhouses	Asbestos
AEC20	First flush catchment dam	Pathogens
AEC21	First flush catchment dam	Pathogens

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 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.
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 https://realtimedata.waternsw.com.au/water.stm 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 gaps[1] 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.

Table 6.1 AEC and COPC

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	PAH
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

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 Human Health – Direct Contact

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 Human Health – Asbestos

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 Human Health – Aesthetics

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.

Table 7.2.1 Inferred Remedial Extent

ID	Area	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

[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.pdf

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	$5m^3$	$50m^2$, 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.

Table 7.3.1 Remedial Option Assessment Ranking Criteria

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

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

Table 7.3.2 Remedial Options

Criteria	Onsite Treatment	Containment	Excavation and Disposal	Comment
Applicability	4	1	4	Onsite treatment of pathogens and hydrocarbons in soil integrates well with proposed development work. Containment solution would not integrate well with proposed development design Excavation and disposal integrates well with proposed development work. Dewatering dams for offsite disposal integrates well with proposed development work.
Technical Feasibility	3	2	4	Industry accepted onsite treatment methods readily available, with some limitations based on soil type/structure. Potential constraints during site construction and long term site maintenance with containment. Excavation and disposal methods readily available.
Effectiveness	3	3	4	Onsite 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 are removed from site.
Stakeholder Acceptance	3	1	3	Onsite 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.
Cost	4	2	1	Onsite 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.
Sustainability	4	2	1	Onsite 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 not considered to be consistent with sustainability principles.
Duration	2	3	4	Onsite 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.
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.

Table 7.4.1 Preferred Remedial Option – Soils and Sediments

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.

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-C40[4]	PAH	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
PAH	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 Stability of Structures

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 Remedial Works

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 structures encountered during remedial works (e.g. buried waste, underground storage tank, underground sump/pit).	Cease remedial works. 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 beyond the inferred extent of remediation.	Cease remedial works. 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 pathogens / petroleum hydrocarbons.	Consider amendments to the soil. 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 scenario[5] 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 sampling[8]. 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 sampling[9]. 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.

Table 8.7.1 Validation Sampling Plan

AEC	Contamination Risk	Preferred Validation Strategy
AEC01, AEC02, AEC05, AEC06, AEC07, AEC09, AEC10, AEC11, AEC14, AEC20, AEC21	Soils and sediments impacted with pathogens and/or petroleum hydrocarbons	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. 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.

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 70m^3 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 70m^3 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 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 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 Laboratory Selection

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

ID	AEC	TRH	PAH	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		All				
AEC14	Material bays				All	All	
AEC19	Asbestos pipe						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
-	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 Book[10].

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 relevant[11] 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 relevant[12] 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 methods[13] 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.

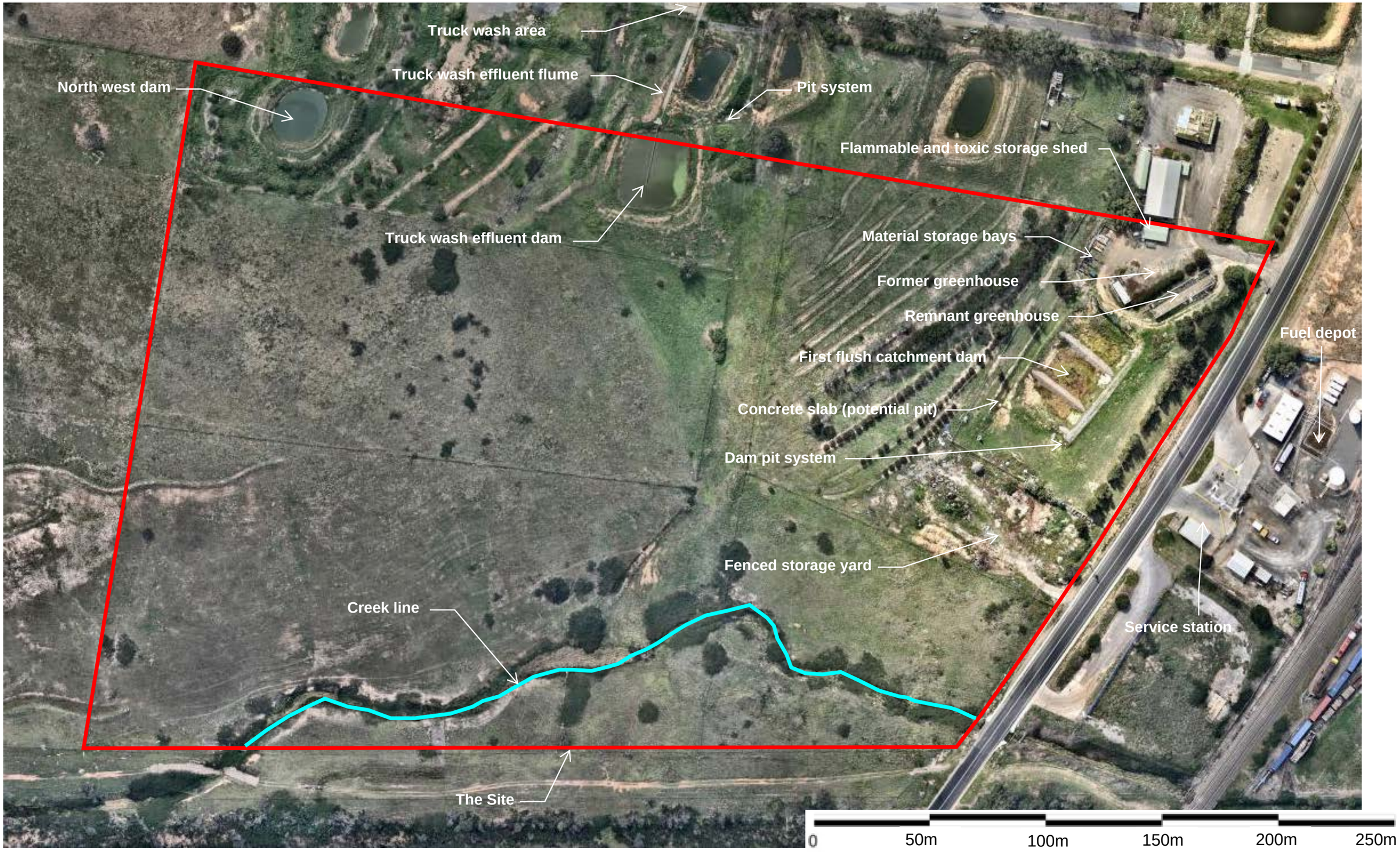
NSW EPA 1995, 'Contaminated Sites: Sampling Design Guidelines', dated September 1995, ref: EPA 95/59.

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

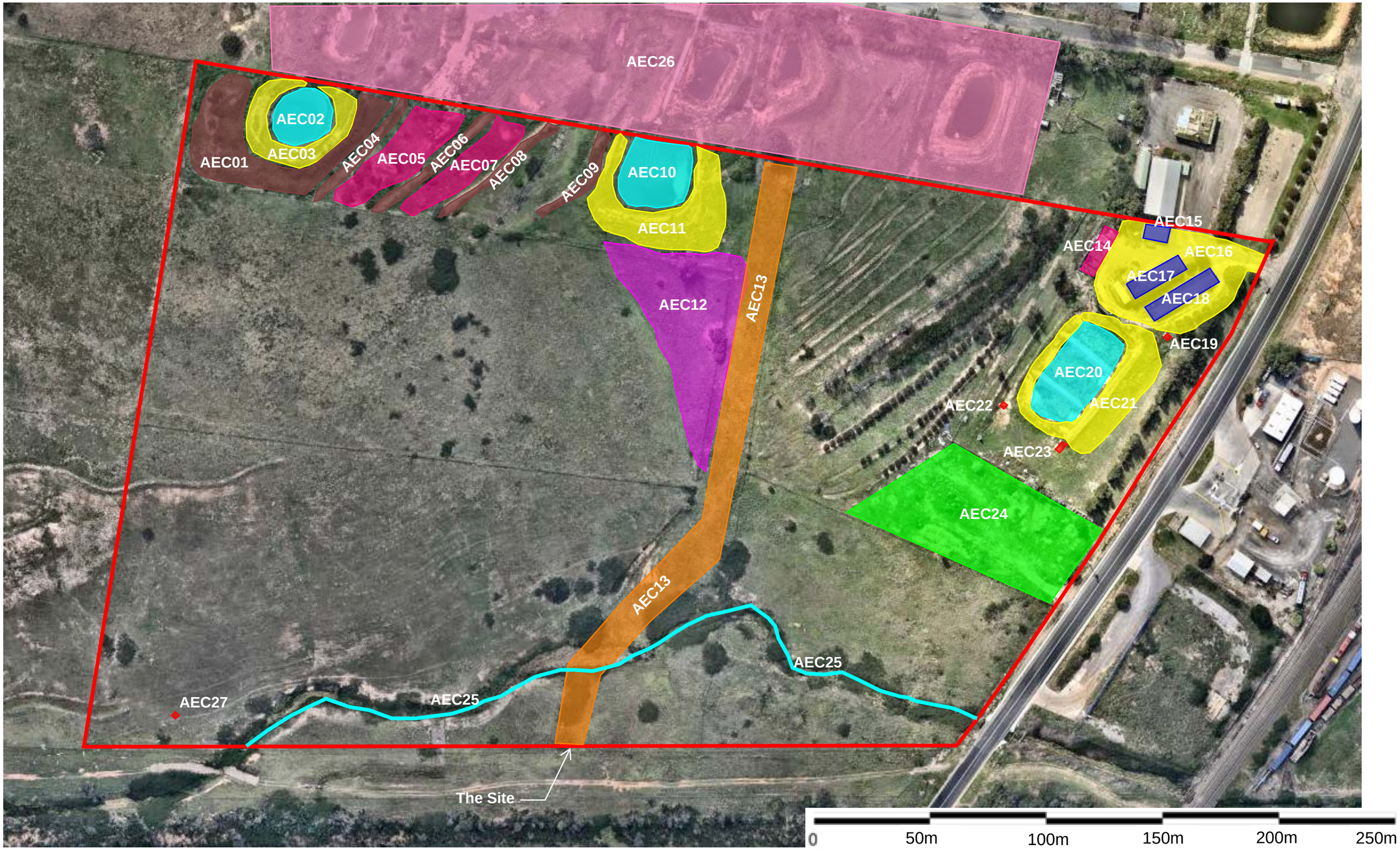
NSW OEH 2011, 'Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites' dated August 2011, ref: OEH 2011/0650.

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

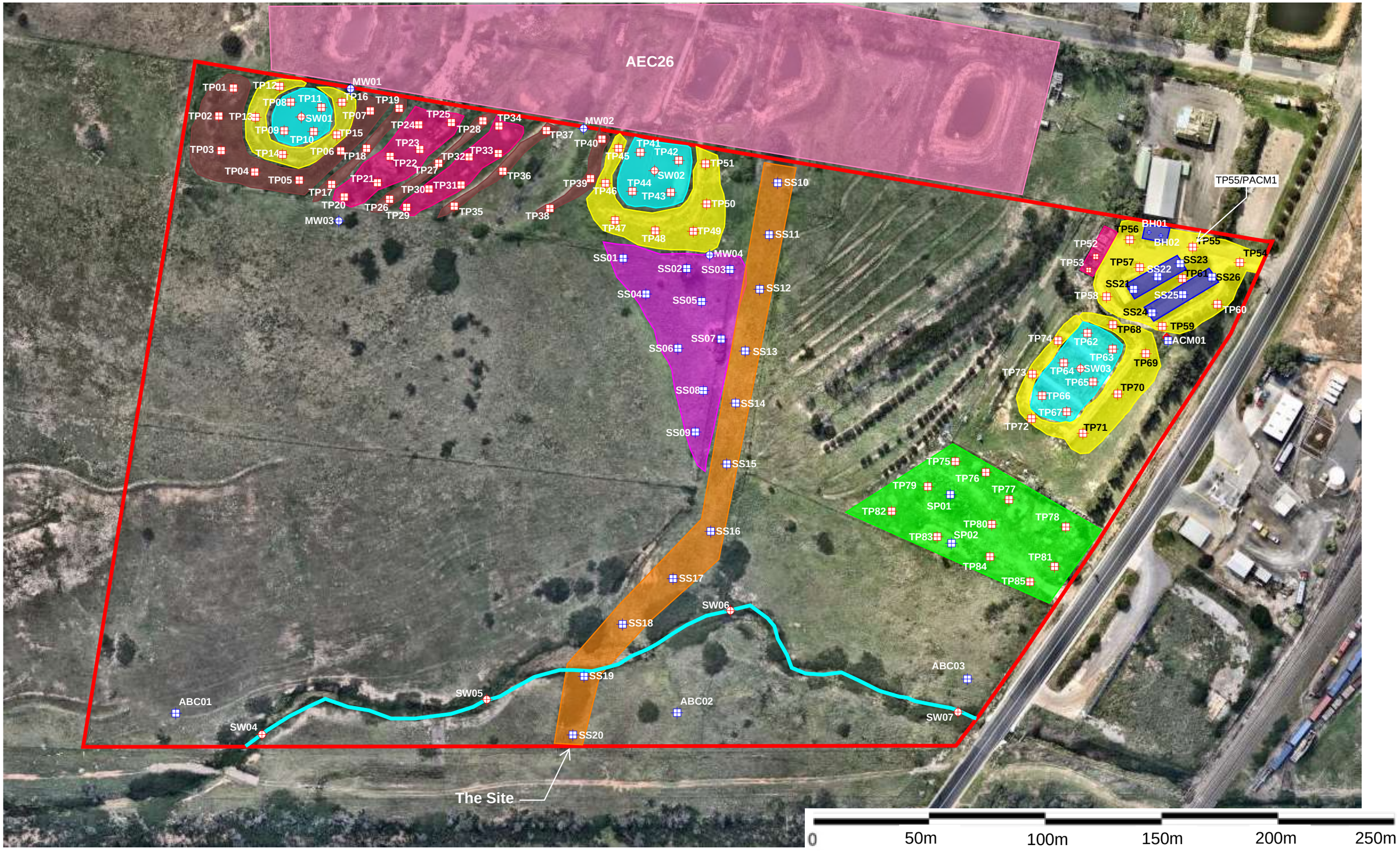
N	**LEGEND:**	Construction Sciences 31 Anvil Road SEVEN HILLS NSW 2147 Tel: (02) 8646 2000 Fax: (02) 8646 2025 Web: www.constructionsciences.net	Scale: NTS	Client: Goulburn Mulwaree Council
			Date: 18 May 2020	Project: Remedial Action Plan
			Drawn By: CAC	Location: Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW
			Drawing No: 5046200019-R03 Figure 1	Sheet: 1 of 1
				SITE LOCALITY PLAN



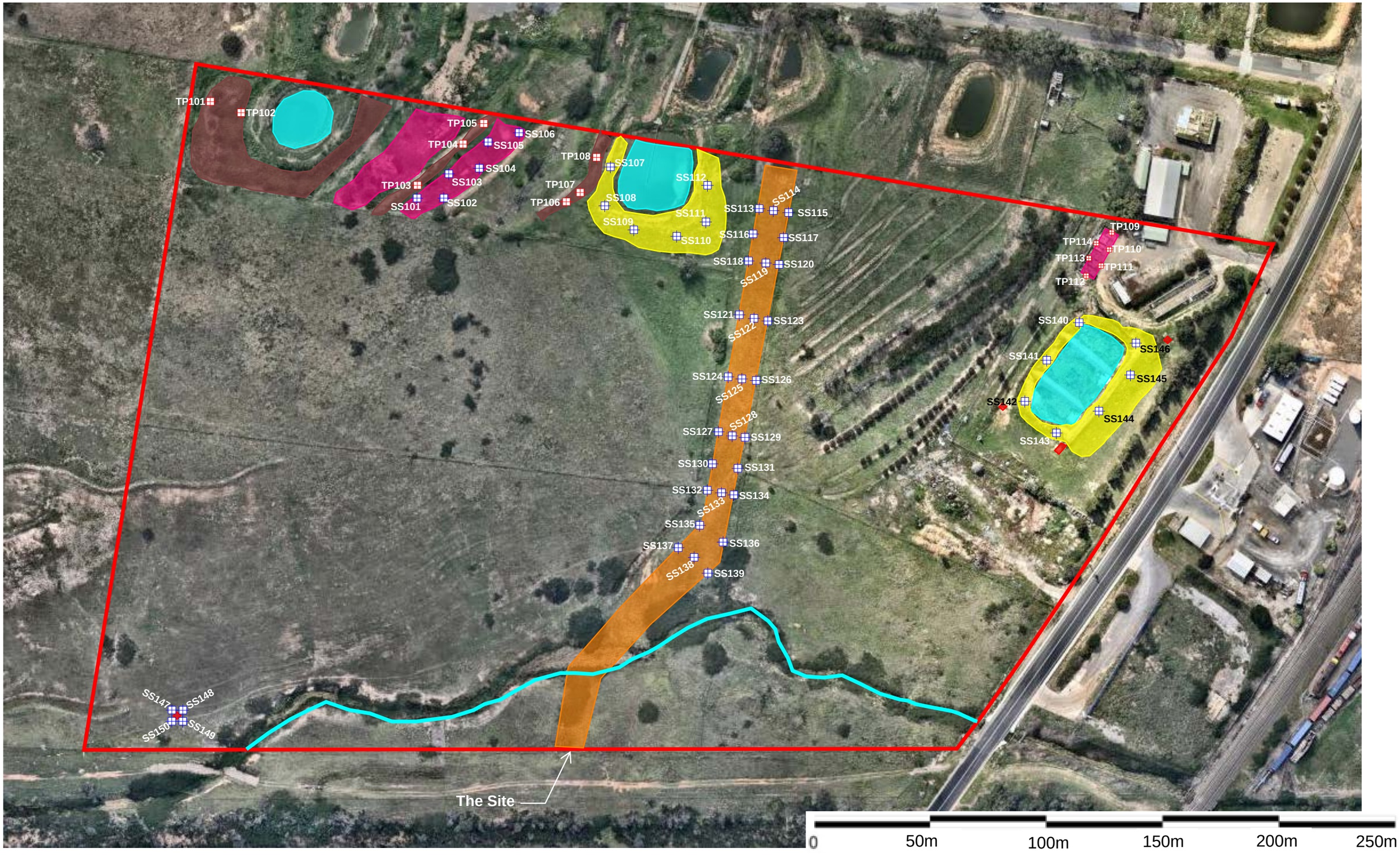
N	**LEGEND:**	Construction Sciences 31 Anvil Road SEVEN HILLS NSW 2147 Tel: (02) 8646 2000 Fax: (02) 8646 2025 Web: www.constructionsciences.net	Scale: See site plan	Client: Goulburn Mulwaree Council	
			Date: 18 May 2020	Project: Remedial Action Plan	
			Drawn By: CAC	Location: Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW	
			Drawing No: 5046200019-R03 Figure 2	Sheet: 1 of 1	**SITE LAYOUT PLAN**



N	**LEGEND:**	Construction Sciences 31 Anvil Road SEVEN HILLS NSW 2147 Tel: (02) 8646 2000 Fax: (02) 8646 2025 Web: www.constructionsciences.net	Scale: See site plan	Client: Goulburn Mulwaree Council	
			Date: 18 May 2020	Project: Remedial Action Plan	
			Drawn By: CAC	Location: Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW	
			Drawing No: 5046200019-R03 Figure 3	Sheet: 1 of 1	**PREVIOUSLY REPORTED AREAS OF ENVIRONMENTAL CONCERN**



N	**LEGEND:**	Construction Sciences 31 Anvil Road SEVEN HILLS NSW 2147 Tel: (02) 8646 2000 Fax: (02) 8646 2025 Web: www.constructionsciences.net	Scale: See site plan	Client: Goulburn Mulwaree Council	
			Date: 27 May 2020	Project: Remedial Action Plan	
			Drawn By: CAC	Location: Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW	
			Drawing No: 5046200019-R03 Figure 4	Sheet: 1 of 1	**PREVIOUS STAGE 2 DSI SAMPLING POINT LAYOUT PLAN**

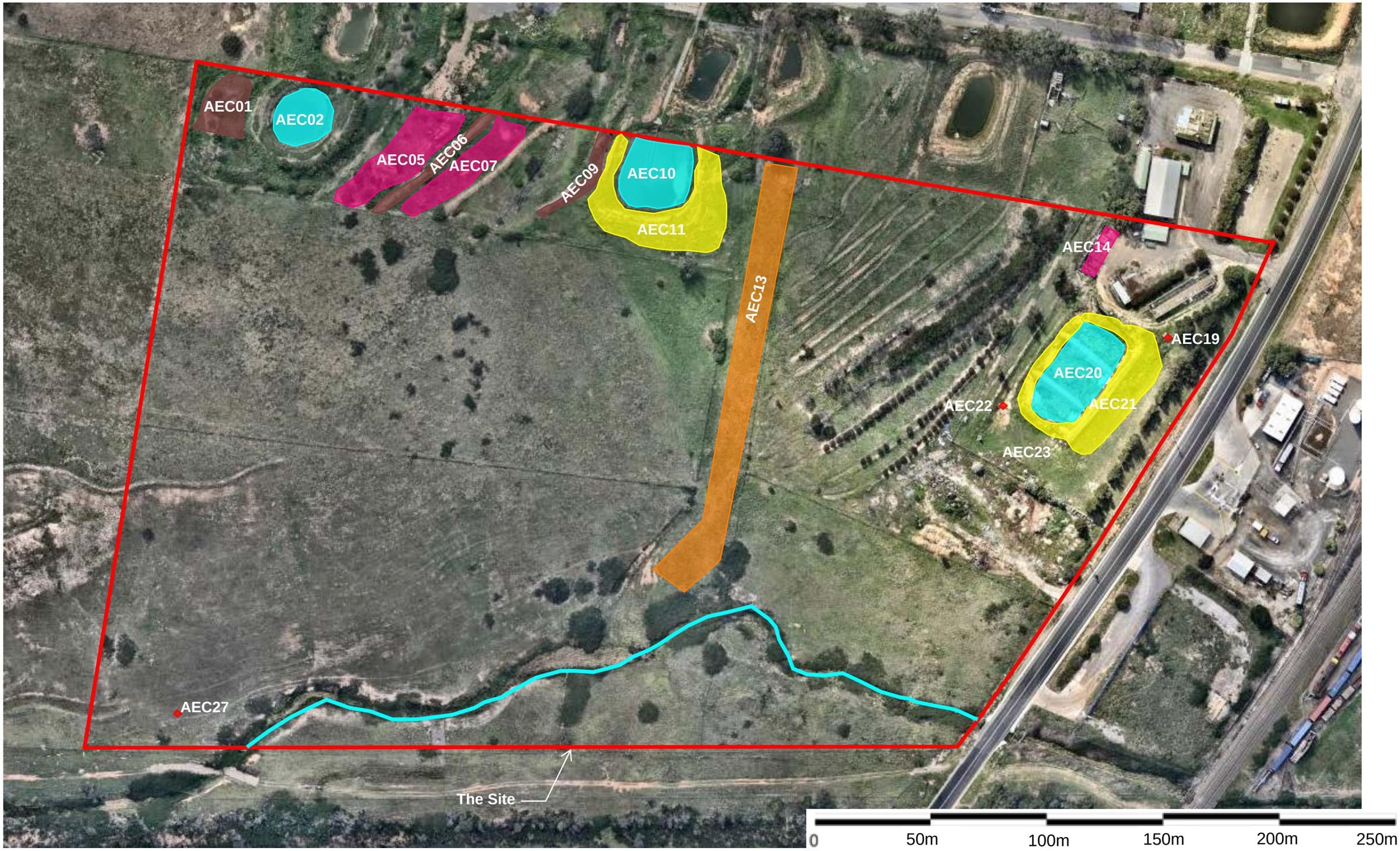


LEGEND:

N

Construction Sciences
31 Anvil Road
SEVEN HILLS NSW 2147
Tel: (02) 8646 2000
Fax: (02) 8646 2025
Web: www.constructionsciences.net

Scale: See site plan	Client: Goulburn Mulwaree Council	
Date: 18 May 2020	Project: Remedial Action Plan	
Drawn By: CAC	Location: Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW	
Drawing No: 5046200019-R03 Figure 5	Sheet: 1 of 1	**SUPPLEMENTARY CONTAMINATION ASSESSMENT SAMPLING POINT LAYOUT PLAN**



N	**LEGEND:** The inferred remedial extents on this figure are preliminary, based on limited data. Supplementary assessment works set out in the RAP should be undertaken, in order to further refine these extents.	Construction Sciences 31 Anvil Road SEVEN HILLS NSW 2147 Tel: (02) 8646 2000 Fax: (02) 8646 2025 Web: www.constructionsciences.net	Scale: See site plan	Client: Goulburn Mulwaree Council
			Date: 18 May 2020	Project: Remedial Action Plan
			Drawn By: CAC	Location: Lot 1 in DP1034565 and Lot 3 in DP1008818, Corner of Dossie St and Sloane St, Goulburn, NSW
			Drawing No: 5046200019-R03 Figure 6	Sheet: 1 of 1 — **PRELIMINARY INFERRED REMEDIAL EXTENT**

S046200019
Stage 2 - Detailed Site Investigation
Corner of Dossie and Sloane St, Goulburn

LR01 - Soil Results (Residential Land Use)

Construction Sciences

	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		Field ID	ABC01	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	21/02/2020	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
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
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
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
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
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		<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
TRH																																
C6-C10 (F1 minus BTEX)	mg/kg	20		45	180	4400								<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
C16-C34	mg/kg	100	2,500		300	4500								<100	<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	<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																																
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	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																																
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
PAH																																
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		**7.8**
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**		**12**
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		**65.5**
PCBs																																
PCBs (Sum of total)	mg/kg	0.5				1														<0.5													<0.5

LR01 - Soil Results (Residential Land Use)

Construction Sciences

	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	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
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)	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	**150**	**260**	<100		<100	<100		**300**	**1,300**	<100		**110**			<100		
C34-C40	mg/kg	100	10,000		2,800	6300				<100		<100	<100	**120**	<100		<100	<100		**110**	**310**	<100		<100			<100		
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	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	
Nickel	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	5				7,400		250		**47**	**37**	**19**	**70**	**66**	**16**	**15**	**41**	**47**		**71**		**35**		**100**	**7.5**	**77**			**18**	
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
PAH																												
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**	
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																												
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

LR01 - Soil Results (Residential Land Use)

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									Field ID	TP05 0.4-0.5	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	18/02/2020	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	18/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020
	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			<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	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	**140**	**200**			<100			<100		<100			<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	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
PAH																													
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	<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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									Field 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	19/02/2020	19/02/2020
	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	<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	0.1										<0.1	<0.1	<0.1	<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	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	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	5				300		1,100		**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
PAH																												
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	<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**	**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					

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	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	Field ID	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	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
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)	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	
C34-C40	mg/kg	100	10,000		2,800	6300					<100	<100		<100	<100	<100		<100		<100				<100	<100	<100		<100	<100	
Biological																													
E. Coli	MPN/G	1					100			<10		<10	<10		<10		**4,900**	<10			<10			**640**	**360**	<10	<10		<10	
Thermotolerant Coliforms	MPN/G	1					1000			**86**		**20**	<10		<10		**4,900**	<10			<10			**17,000**	**540**	<10	<10		<10	
Metals																													
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	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
Nickel	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																													
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
PAH																													
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			

LR01 - Soil Results (Residential Land Use)

Construction Sciences

								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
								Date	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	2,500		300	4500			<100			<100	<100	
C34-C40	mg/kg	100	10,000		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
PAH														
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	

S046200019
Stage 2 - Detailed Site Investigation
Corner of Dossie and Sloane St, Goulburn

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

Construction Sciences

								Field ID	DUP 20	DUP25	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	21/02/2020	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	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		<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	<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	<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 Naphthalene)	mg/kg	50			20000						<500	<50							<50		<50	<50	<50		<50	<50	<50	<50		<50		<50	<50	<50	<50	**51**	<50
C16-C34	mg/kg	100	3,500		27000						**2,300**	**570**							<100		<100	<100	<100		<100	<100	<100	<100		<100		<100	<100	<100	<100	**230**	<100
C34-C40	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																																						
E. Coli	MPN/G	1				100													<10	**1,600**																		
Thermotolerant Coliforms	MPN/G	1				1000													**52**	**4,900**																		
Metals																																						
Arsenic	mg/kg	2			3,000				**8.8**	**13**	<2	<2	**6.7**	**6**	**5.7**	**4.2**	**5**	**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	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	<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							**53**	**40**	<5	**6.6**	<5	**5**	**11**	**14**	**8.9**	<5	<5		**20**	**42**	**16**	**27**	**13**	**31**	**7.4**	**8**	**17**	**26**	**57**	**32**	**12**	**19**	**31**	**80**	**36**
Copper	mg/kg	5			240,000				**20**	**48**	**130**	<5	**6.1**	**16**	**42**	**9.1**	**5.1**	<5	<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**	<5	**31**	**28**	**24**	**15**	**23**	**29**	**12**		**10**	**25**	**28**	**110**	**17**	**20**	**12**	**8.8**	**34**	**23**	**20**	**25**	**13**	**16**	**17**	**26**	**17**
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																																						
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)	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						

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

Construction Sciences

							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	21/02/2020
	Unit	EQL	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		<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
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	0.2						<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	0.1						<0.1	<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		230	81000			<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	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		<0.5	<0.5		<0.5	<0.5	

LR03 - Sediment Results (Residential Land Use)

Construction Sciences

	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	Field ID	TP08 0.1-0.3	TP09 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	18/02/2020	18/02/2020	18/02/2020	18/02/2020	20/02/2020	20/02/2020	20/02/2020	20/02/2020
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
Toluene	mg/kg	0.1		160	85	14000				<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
Xylene (m & p)	mg/kg	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
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
TRH																	
C6-C10 (F1 minus BTEX)	mg/kg	20		45	180	4400				<20	<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				**160**	<100	**290**	**340**	**2,300**	<100	**1,300**	<100
C34-C40	mg/kg	100	10,000		2,800	6300				<100	<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				<0.4	<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				<0.1	<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								<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
PAH																	
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
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				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PCBs																	
PCBs (Sum of total)	mg/kg	0.5				1											

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

LR04 - Sediment Results (Comm. / Indus. Land Use)

Construction Sciences

	Unit	EQL	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	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
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
PAH													
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								

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

LR05 - Water Results

Construction Sciences

						Field ID	QAQC1	SW01	SW02	SW03	SW04	SW05	SW06	SW07
						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
	Unit	EQL	ANZECC 2000 Recreational Secondary Contact	ANZECC 2000 FW 95% Adopted Criteria (Dam Water)	ANZECC 2000 FW 95% Adopted 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														
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														
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														
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**

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

APPENDIX A

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

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS01

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			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 gravel, with organics 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
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PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Phito Ionization Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS02

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
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VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS03

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
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PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS04

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
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Refusal

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water inflow
water outflow

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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS05

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS06

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS07

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS08

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
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B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS09

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			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 gravel, with organics 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS10

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 18/2/20 **Date Completed:** 18/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organics 0.10m	D to M		TOPSOIL 0.00 m: PID=1.0 No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS11

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 18/2/20 **Date Completed:** 18/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organics 0.10m	D to M		TOPSOIL 0.00 m: PID=2.9 No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS12

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 18/2/20 **Date Completed:** 18/2/20 **Logged By:** SI **Checked By:** AN

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organics 0.10m	D to M		TOPSOIL 0.00 m: PID=2.1 No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS13

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 18/2/20 **Date Completed:** 18/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Gravelly SILT: low plasticity, dark brown, fine to coarse grained, sub-angular gravel, with organics 0.10m	D to M		TOPSOIL 0.00 m: PID=1.4 No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS14

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 18/2/20 **Date Completed:** 18/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	SILT: low plasticity, dark brown, with organics 0.10m TERMINATED AT 0.10 m Target depth	D to M		TOPSOIL 0.00 m: PID=2.0 No staining, odour or PACM observed

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS15

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 18/2/20 **Date Completed:** 18/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			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 0.10m	D to M		TOPSOIL 0.00 m: PID=1.6 No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS16

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 18/2/20 **Date Completed:** 18/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			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 0.10m	D to M		TOPSOIL 0.00 m: PID=1.7 No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS17

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Rig Type: Hand Tools **Driller:** Construction Sciences

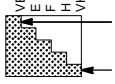
Borehole Diameter: **Contractor:**

Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

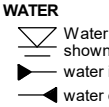
Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			CL	Gravelly Silty CLAY: low plasticity, grey/brown/orange, fine to medium grained (sandstone) gravel 0.10m	D to M		TOPSOIL 0.00 m: PID=1.3 No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- 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
- RR Rock roller

PENETRATION



WATER



FIELD TESTS
- 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)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS18

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	SILT: low plasticity, brown, with organics 0.10m TERMINATED AT 0.10 m Target depth	D to M		TOPSOIL 0.00 m: PID=1.1 No staining, odour or PACM observed

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS19

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Rig Type: Hand Tools **Driller:** Construction Sciences

Borehole Diameter: **Contractor:**

Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			CI	Gravelly CLAY: medium plasticity, brown, fine to medium grained, sub-angular (sandstone) gravel, with organics 0.10m TERMINATED AT 0.10 m Target depth	D to M		TOPSOIL 0.00 m: PID=2.0 No staining, odour or PACM observed

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
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U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
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SOIL CONSISTENCY
VS - Very Soft
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RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS20

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
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 0.10m TERMINATED AT 0.10 m Target depth	D to M		TOPSOIL 0.00 m: PID=1.2 No staining, odour or PACM observed

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
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RELATIVE DENSITY
VL - Very Loose
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS21

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Sandy SILT: low plasticity, grey/brown, fine to coarse grained sand 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
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PL - Plastic limit
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SOIL CONSISTENCY
VS - Very Soft
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RELATIVE DENSITY
VL - Very Loose
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MD - Medium Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS22

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Sandy SILT: low plasticity, grey/brown, fine to coarse grained sand 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
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SOIL CONSISTENCY
VS - Very Soft
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VSt - Very Stiff
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RELATIVE DENSITY
VL - Very Loose
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MD - Medium Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS23

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Sandy SILT: low plasticity, grey/brown, fine to coarse grained sand 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
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w - Moisture content

SOIL CONSISTENCY
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RELATIVE DENSITY
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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS24

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Sandy SILT: low plasticity, brown, fine to coarse grained sand, with (surface grass) organics 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
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St - Stiff
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RELATIVE DENSITY
VL - Very Loose
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MD - Medium Dense
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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS25

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HAND TOOLS			Groundwater Not Observed	B 0.00 - 0.10 m ES 0.00 - 0.10 m			ML	Sandy SILT: low plasticity, brown, fine to coarse grained sand, with (surface grass) organics 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
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PL - Plastic limit
LL - Liquid limit
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SOIL CONSISTENCY
VS - Very Soft
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F - Firm
St - Stiff
VSt - Very Stiff
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RELATIVE DENSITY
VL - Very Loose
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VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Detailed Site Investigation
Location: Corner Dossie St and Sloane St

Hole No: SS26

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Tools **Driller:** Construction Sciences
Borehole Diameter: **Contractor:**
Data Started: 19/2/20 **Date Completed:** 19/2/20 **Logged By:** SI **Checked By:** AN

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	Sandy SILT: low plasticity, brown, fine to coarse grained sand 0.10m	D to M		TOPSOIL 0.00 m: No staining, odour or PACM observed
								TERMINATED AT 0.10 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
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PL - Plastic limit
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SOIL CONSISTENCY
VS - Very Soft
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RELATIVE DENSITY
VL - Very Loose
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CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: MW01

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Comacchio Geo 215 **Driller:** CW
Borehole Diameter: 125 mm **Contractor:** Stratacore Drilling
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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			Not Encountered		0.0		ML	FILL: Gravelly SILT: low plasticity, dark brown, medium grained gravel	D to M		FILL
					2.00m		GM	FILL: Silty GRAVEL: fine to medium, dark grey, low plasticity silt			
					3.50m		GM	FILL: Silty GRAVEL: fine to medium, dark grey/cream/buff, low plasticity silt	D		
					4.00m			TERMINATED AT 4.00 m Refusal			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
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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
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VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
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MOISTURE
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SOIL CONSISTENCY
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RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: MW01A

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Comacchio Geo 215 **Driller:** MG
Borehole Diameter: 125 mm **Contractor:** Stratacore Drilling
Data Started: 25/2/20 **Date Completed:** 25/2/20 **Logged By:** AD **Checked By:** AN

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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			Not Encountered		0		ML	FILL: Gravelly SILT: low plasticity, brown, medium grained gravel	D to M		FILL
					2		GP	2.00m FILL: Silty GRAVEL: fine to medium, grey/brown, low plasticity silt			
AH					4			3.00m SANDSTONE: Remoulds as Gravelly Sand, fine to coarse grained, white/pale brown/yellow/grey, fine to coarse grained gravel	D		BEDROCK 3.00 m: Well not constructed.
					6						
					8						
					10			10.00m TERMINATED AT 10.00 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: MW02

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Comacchio Geo 215 **Driller:** CW
Borehole Diameter: 125 mm **Contractor:** Stratacore Drilling
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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			Not Encountered		0.5		ML	0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics			TOPSOIL
							CL-CI	FILL: Gravelly CLAY: low to medium plasticity, brown/orange, fine to medium grained, sub-angular gravel	M		FILL
					1.0			1.00m			
					1.5		ML	Gravelly SILT: low plasticity, brown/dark brown, fine to medium grained, sub-angular gravel	D to M		NATURAL
					2.0			2.00m			
					2.5		GP	Sandy GRAVEL: fine to medium, cream/buff, fine grained (sandstone) sand			
					3.0			3.00m	D		
					3.5		SW	Gravelly SAND: fine to medium grained, cream/buff, fine to medium grained gravel			
					4.0			4.00m			
								TERMINATED AT 4.00 m Refusal			4.00 m: Refusal on Rock Well not constructed.
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: MW03

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Comacchio Geo 215 **Driller:** CW
Borehole Diameter: 125 mm **Contractor:** Stratacore Drilling
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
AD/V			Not Encountered		0.5		ML	Gravelly SILT: low plasticity, brown, fine to medium grained (sandstone) gravel	M to D		NATURAL
					1.0		GP	1.00m GRAVEL: fine to medium, cream/buff (weathered sandstone)	D		
					1.5			1.30m TERMINATED AT 1.30 m Refusal			1.30 m: Refusal on sandstone bedrock Well not constructed.

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: MW03A

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Comacchio Geo 215 **Driller:** MG
Borehole Diameter: 125 mm **Contractor:** Stratacore Drilling
Data Started: 25/2/20 **Date Completed:** 25/2/20 **Logged By:** AD **Checked By:** AN

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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			Not Encountered		0		ML	FILL: Gravelly SILT: low plasticity, brown, fine to medium grained (sandstone) gravel	D		FILL
					1			1.00m			
							GP	GRAVEL: fine to medium, (sandstone) brown/pale brown			NATURAL
								1.30m			
AH					2			SANDSTONE: Remoulds as Gravelly Sand, fine to coarse grained, pale brown/yellow, fine to medium grained gravel			BEDROCK
					3						
					4						
					5						
					6						
					7						
					8						
					9			9.00m			
								TERMINATED AT 9.00 m Target depth			9.00 m: Well not constructed.

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

BOREHOLE LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: MW04

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Comacchio Geo 215 **Driller:** CW
Borehole Diameter: 125 mm **Contractor:** Stratacore Drilling
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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			Not Encountered		0		ML	Gravelly SILT: low plasticity, brown/dark brown, fine to medium grained gravel, with organics			TOPSOIL
					0.10m			Gravelly SILT: low plasticity, brown/orange, fine to medium grained gravel			NATURAL
					0.5		ML		M		
					1.00m			Gravelly SAND: fine to medium grained, cream/buff, fine to medium grained gravel			
					1.0		SW		D		
					1.5						
					2.0						
					2.5						
					2.70m			TERMINATED AT 2.70 m Refusal			2.70 m: Refusal on sandstone bedrock. Well not constructed.

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

HAND AUGER SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: BH01

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Rig Type: Hand Auger **Driller:** CS
Borehole Diameter: **Contractor:**
Data Started: 17/2/20 **Date Completed:** 17/2/20 **Logged By:** SI **Checked By:** AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HA			Not Encountered	0.00 - 0.10 m			CL	0.02m ASPHALT/CONCRETE CORE 0.10m FILL: Gravelly Sandy CLAY: low plasticity, grey	M		FILL 0.00 m: No staining, odour or PACM observed
HA				0.40 - 0.50 m			CI-CH	Gravelly CLAY: medium to high plasticity, grey/orange 0.70m TERMINATED AT 0.70 m			Possibly NATURAL
					1						
					2						
					3						
					4						
					5						
					6						
					7						
					8						
					9						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

HAND AUGER SHEET

Hole No: BH02

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn
Job No: 5046200019
Sheet: 1 of 1

Position:
Angle from Horizontal: 90°
Surface Elevation:

Rig Type: Hand Auger
Driller: CS

Borehole Diameter:
Contractor:

Data Started: 17/2/20
Date Completed: 17/2/20
Logged By: SI
Checked By: AN

Drilling			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or 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
HA			Not Encountered	0.00 - 0.10 m			CL	0.02m ASPHALT/CONCRETE CORE 0.10m FILL: Gravelly Sandy CLAY: low plasticity, grey	M		0.00 m: No staining, odour or PACM observed FILL
				0.40 - 0.60 m			CI-CH	Gravelly CLAY: medium to high plasticity, grey/orange 0.70m			Possibly NATURAL
								TERMINATED AT 0.70 m			
					1						
					2						
					3						
					4						
					5						
					6						
					7						
					8						
					9						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
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PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
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VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP01

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m DUP3/DUP3A	0		ML	0.10m FILL: Gravelly SILT: low plasticity, dark brown with organic matter, fine to medium grained gravel	M		FILL 0.00 m: PID = 3.1ppm No staining, odour or PACM observed
				0.40 - 0.50 m	0.5		ML	FILL: Gravelly SILT: low plasticity, dark brown, with concrete and metal, fine to medium grained gravel 0.50m	M to D		0.40 m: PID = 2.2ppm No staining, odour or PACM observed
							CL-CI	FILL: Gravelly CLAY: low to medium plasticity, brown/orange with bones 1.00m			
				0.90 - 1.00 m	1.0				D		0.90 m: PID = 4.1ppm No staining, odour or PACM observed
							ML	FILL: Gravelly SILT: low plasticity, brown with subangular gravel and sandstone 1.50m			
				1.40 - 1.50 m	1.5			TERMINATED AT 1.50 m Refusal			1.40 m: PID = 2.0ppm No staining, odour or PACM observed 1.50 m: REFUSAL ON ROCK (SANDSTONE)
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
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w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
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VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP02

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	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
EX			Not Encountered	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, with roots and organics	M		TOPSOIL 0.00 m: PID = 1.5ppm No staining, odour or PACM observed
				0.30 - 0.40 m	0.5		ML	FILL: Gravelly SILT: low plasticity, brown, with concrete slab, plastic and fragment of siltstone	D to M		FILL 0.30 m: PID = 1.9ppm No staining, odour or PACM observed
				0.70 - 0.80 m				0.80m			0.70 m: PID = 1.6ppm No staining, odour or PACM observed
					1.0			1.00m SANDSTONE TERMINATED AT 1.00 m Refusal	D		NATURAL
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP03

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		ML	0.10m Gravelly SILT: low plasticity, brown, with organics	M		TOPSOIL 0.00 m: PID = 3.3ppm No staining, odour or PACM observed
							ML	FILL: Gravelly SILT: low plasticity, brown-dark brown, with concrete, glass, ahphalt	D to M		FILL
				0.40 - 0.50 m	0.5			0.50m			0.40 m: PID = 3.7ppm No staining, odour or PACM observed
							SM	FILL: Silty SAND: fine to medium grained, brown-orange, with gravel	M		
				0.90 - 1.00 m	1.0			1.00m			0.90 m: PID = 4.5ppm No staining, odour or PACM observed
							SP	Gravelly SAND: fine to medium grained, orange-white-pale brown, with sandstone present	M		NATURAL
				1.40 - 1.50 m	1.5			1.50m			1.40 m: PID = 3.8ppm No staining, odour or PACM observed
								TERMINATED AT 1.50 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP04

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	FILL: Gravelly Sandy SILT: low plasticity, brown, fube ti neduyn gravel, with organics	M		FILL 0.00 m: PID = 1.8ppm No staining, odour or PACM observed
				0.30 - 0.40 m	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
				0.70 - 0.80 m	0.5						0.70 m: PID = 3.9ppm No staining, odour or PACM observed
				1.30 - 1.40 m	1.0		ML		M		1.30 m: PID = 6.0ppm No staining, odour or PACM observed
				1.80 - 1.90 m	1.5						
					1.80m		SP	Gravelly SAND: fine to medium grained, orange-brown	M		NATURAL 1.80 m: PID = 4.1ppm No staining, odour or PACM observed
					2.0						
					2.10m			TERMINATED AT 2.10 m Target depth			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP05

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	Gravelly SILT: low plasticity, dark brown, with organics and siltstone gravels	M		TOPSOIL 0.00 m: with organics and siltstone gravels 0.00 m: PID = 6.5mm No staining, odour or PACM observed
				0.40 - 0.50 m			SP	0.30m FILL: SAND: fine to medium grained, brown-white, with sandstone	D to M		FILL 0.30 m: with sandstone 0.40 m: PID = 8.6mm No staining, odour or PACM observed
					0.5	0.50m TERMINATED AT 0.50 m Refusal					
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP06

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	0.10m FILL: Gravelly SAND: low plasticity, brown, with organics	M		FILL 0.00 m: PID = 1.6ppm No staining, odour or PACM observed
				0.30 - 0.40 m	0.5		ML	FILL: Gravelly SILT: low plasticity, brown 0.70m	D to M		0.30 m: PID = 2.4ppm No staining, odour or PACM observed
				0.70 - 0.80 m			SW	0.80m FILL: Gravelly SAND: fine to coarse grained, orange-brown	D to M		0.70 m: PID = 2.3ppm No staining, odour or PACM observed
					1.0			TERMINATED AT 0.80 m Refusal			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP07

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		ML	FILL: Gravelly SILT: low plasticity, brown, with organics and siltstone	M		FILL 0.00 m: PID = 6.1ppm No staining, odour or PACM observed
				0.40 - 0.50 m	0.5			0.80m			0.40 m: PID = 4.7ppm No staining, odour or PACM observed
				0.90 - 1.00 m	1.0		ML	FILL: Gravelly Sandy SILT: low plasticity, brown-white, with sandstone 1.00m			0.90 m: PID = 5.9ppm No staining, odour or PACM observed
					1.5			TERMINATED AT 1.00 m Refusal			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP08

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			GW	FILL: Silty GRAVEL: fine to coarse, dark grey-pale brown	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						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
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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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP09

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
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						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
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H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
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VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP10

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				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)
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
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SOIL CONSISTENCY
VS - Very Soft
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RELATIVE DENSITY
VL - Very Loose
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CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP11

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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			GM	FILL: Silty GRAVEL: fine to coarse, grey	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						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
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MD - Medium Dense
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VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP12

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		CL-CI	0.10m FILL: Gravelly Silty CLAY: low to medium plasticity, brown, with organics	M		FILL 0.00 m: PID = 3.9ppm No staining, odour or PACM observed
				0.40 - 0.50 m			CL-CI	FILL: Gravelly Silty CLAY: low to medium plasticity, brown	M		0.40 m: PID = 4.3ppm No staining, odour or PACM observed
				0.90 - 1.00 m DUP5/DUP5A	0.5			0.50m FILL: Gravelly SILT: low plasticity, brown, with sandstone and siltstone			0.90 m: PID = 3.7ppm No staining, odour or PACM observed
				1.40 - 1.50 m	1.0		ML		D to M		1.40 m: PID = 2.7ppm No staining, odour or PACM observed
				1.70 - 1.80 m	1.5			1.80m TERMINATED AT 1.80 m Refusal			1.70 m: PID 3.2ppm No staining, odour or PACM observed
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP13

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.5		ML	0.10m Gravelly Sandy SILT: low plasticity, dark brown-pale brown, with sandstone FILL: Gravelly SILT: low plasticity, dark grey-brown, with sandstone and siltstone	M		TOPSOIL 0.00 m: PID = 4.7ppm No staining, odour or PACM observed FILL
				0.50 - 0.60 m DUP6/DUP6A			ML				0.50 m: PID = 3.2ppm No staining, odour or PACM observed
				1.00 - 1.10 m	1.0			1.10m			1.00 m: PID = 3.1ppm No staining, odour or PACM observed
							CL-CI	FILL: Gravelly Silty CLAY: low to medium plasticity, brown-orange	D to M		
				1.50 - 1.60 m	1.5			1.60m			1.50 m: PID = 6.1ppm No staining, odour or PACM observed
							ML	FILL: Gravelly SILT: low plasticity, grey, with siltstone gravels			
				2.00 - 2.10 m	2.0			2.10m			2.00 m: PID = 4.9ppm No staining, odour or PACM observed
							SP	FILL: Gravelly SAND: fine to medium grained, brown-pale brown			
				2.40 - 2.50 m	2.5			2.50m			2.40 m: PID = 3.6ppm No staining, odour or PACM observed
								TERMINATED AT 2.50 m Refusal			
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP14

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description				
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.5		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, with sandstone and siltstone	D to M		FILL 0.00 m: PID = 3.3ppm No staining, odour or PACM observed
				0.40 - 0.50 m	1.0		ML				0.40 m: PID = 6.1ppm No staining, odour or PACM observed
				0.90 - 1.00 m	1.5						0.90 m: PID = 3.6ppm No staining, odour or PACM observed
				1.40 - 1.50 m	2.0						1.40 m: PID = 2.4ppm No staining, odour or PACM observed
				1.90 - 2.00 m	2.5						1.90 m: PID = 5.8qppm No staining, odour or PACM observed
				2.40 - 2.50 m	3.0		GM	2.20m FILL: Silty GRAVEL: fine to coarse, pale brown-grey 2.50m			2.40 m: PID = 5.4ppm No staining, odour or PACM observed
					3.5			TERMINATED AT 2.50 m Refusal			
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP15

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered		0.5		ML	0.10m FILL: Gravelly Sandy SILT: low plasticity, brown-pale brown, with organic matter, sandstone and siltstone	D to M		FILL 0.00 m: PID = 2.7ppm No staining, odour or PACM observed
							SW	FILL: Gravelly SAND: fine to coarse grained, brown-pale brown, with sandstone and siltstone	M		0.40 m: PID = 3.4ppm No staining, odour or PACM observed
					1.0			0.50m FILL: Gravelly SILT: low plasticity, brown-grey, with siltstone and sandstone			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
								2.30m			2.20 m: PID = 3.8ppm No staining, odour or PACM observed
					2.5			TERMINATED AT 2.30 m Refusal			
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP16

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.0		ML	0.10m FILL: Gravelly SILT: low plasticity, dark brown, with siltstone and organic matter			FILL 0.00 m: PID = 4.3ppm No staining, odour or PACM observed
				0.40 - 0.50 m	0.5		ML	FILL: Gravelly Sandy SILT: low plasticity, brown-dark brown, with sandstone and siltstone	M		0.40 m: PID = 24.4ppm No staining, odour or PACM observed
				0.90 - 2.00 m	1.0			1.00m			0.90 m: PID = 4.4ppm No staining, odour or PACM observed
				1.40 - 1.50 m	1.5		ML	FILL: Gravelly SILT: brown-pale brown, with sandstone and silstone	D		1.50 m: PID = 6.5ppm No staining, odour or PACM observed
				1.90 - 2.00 m	2.0			2.00m TERMINATED AT 2.00 m Refusal			1.90 m: PID = 8.1ppm No staining, odour or PACM observed
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP17

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m			SW-SM	0.10m FILL: Sandy Silty SAND: fine to coarse grained, brown-pale brown	D to M		FILL 0.00 m: PID = 3.5ppm No staining, odour or PACM observed
				0.40 - 0.50 m			SW	FILL: Gravelly SAND: fine to coarse grained, pale brown, with crushed sandstone			0.40 m: PID = 2.7ppm No staining, odour or PACM observed
					0.5			0.50m TERMINATED AT 0.50 m			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP18

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m PID = 3.7ppm	0		SW-SM	0.10m Gravelly Silty SAND: fine to coarse grained, pale brown, with organics	D		TOPSOIL 0.00 m: PID = 3.7ppm No staining, odour or PACM observed
				0.40 - 0.50 m PID = 4.1ppm	0.5		SW	Gravelly Silty SAND: fine to coarse grained, pale brown 0.80m	M		NATURAL 0.40 m: PID = 4.1ppm No staining, odour or PACM observed
					1.0			TERMINATED AT 0.80 m Refusal			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP19

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 18/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		SW	0.10m Gravelly SAND: fine to coarse grained, pale brown, with organics	M		TOPSOIL 0.00 m: PID = 6.3ppm No staining, odour or PACM observed
				0.30 - 0.40 m	0.5		SW	FILL: Gravelly SAND: fine to coarse grained, pale brown 0.60m	D to M		FILL 0.30 m: PID = 5.1ppm No staining, odour or PACM observed
				0.90 - 1.00 m	1.0		SW-SM	Gravelly Silty SAND: fine to coarse grained, pale brown 1.00m	D		NATURAL 0.90 m: PID = 5.9ppm No staining, odour or PACM observed
					1.5			TERMINATED AT 1.00 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP20

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		ML	0.10m Gravelly SILT: low plasticity, brown, with organics	D to M		TOPSOIL 0.00 m: PID = 1.8ppm No staining, odour or PACM observed
				0.40 - 0.50 m DUP9/DUP9A	0.5		SW-SM	Gravelly Silty SAND: fine to coarse grained, brown-orange-pale brown, with sandstone			NATURAL 0.40 m: PID = 2.4ppm No staining, odour or PACM observed
				0.90 - 1.00 m	1.0			1.00m TERMINATED AT 1.00 m Target depth			0.90 m: PID = 4.1ppm No staining, odour or PACM observed
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- 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
- RR Rock roller

PENETRATION
VE E F H VH — No Resistance — Refusal

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- 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)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP21

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, with organics	M		TOPSOIL 0.00 m: PID = 2.1ppm No staining, odour or PACM observed
				0.20 - 0.30 m			SW-SM	Gravelly Silty SAND: fine to coarse grained, brown-orange 0.40m			NATURAL 0.20 m: PID = 2.6ppm No staining, odour or PACM observed
					0.5			TERMINATED AT 0.40 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP22

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, sub-angular, sandstone gravel, with organics			TOPSOIL 0.00 m: PID = 1.6ppm No staining, odour or PACM observed
				0.30 - 0.40 m			SW-SM	Gravelly Silty SAND: fine to coarse grained, orange-grey-pale brown, with weathered sandstone	M		NATURAL 0.30 m: PID = 2.4ppm No staining, odour or PACM observed
					0.5			0.40m TERMINATED AT 0.40 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP23

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, sub-angular, sandstone gravel, with organics			TOPSOIL 0.00 m: PID = 3.2ppm No staining, odour or PACM observed
				0.30 - 0.40 m			SW-SM	Gravelly Silty SAND: fine to coarse grained, orange-pale brown-grey, with weathered sandstone	M		NATURAL 0.30 m: PID = 2.1ppm No staining, odour or PACM observed
					0.5			0.40m TERMINATED AT 0.40 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance — Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP24

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, with sandstone and organic			TOPSOIL 0.00 m: PID = 1.6ppm No staining, odour or PACM observed
				0.30 - 0.40 m			SW-SM	Gravelly Silty SAND: fine to coarse grained, orange-pale brown, with sandstone	M		NATURAL 0.30 m: PID = 3.3ppm No staining, odour or PACM observed
					0.5			0.40m TERMINATED AT 0.40 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP25

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m SILT: low plasticity, dark brown with sub angular gravel of sandstone, organic matter	M		TOPSOIL 0.00 m: PID = 1.7ppm No staining, odour or PACM observed
				0.30 - 0.40 m			SP-SM	SAND: fine to coarse grained, orange/cream/buff with weathered sandstone 0.40m			NATURAL 0.30 m: PID = 2.2ppm No staining, odour or PACM observed
					0.5			TERMINATED AT 0.40 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP26

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	FILL: Gravelly SILT: low plasticity, brown-pale brown, with sandstone	M		FILL 0.00 m: PID = 1.9ppm No staining, odour or PACM observed 0.30 m: PID = 7.4ppm No staining, odour or PACM observed
				0.30 - 0.40 m				0.50m			
				0.50 - 0.60 m	0.5		SW	Gravelly SAND: fine to coarse grained, pale brown-orange, with sandstone	D to M		NATURAL 0.50 m: PID = 2.1ppm No staining, odour or PACM observed
								0.70m TERMINATED AT 0.70 m Refusal			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP27

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0.5		ML	FILL: Gravelly SILT: low plasticity, brown/grey/cream, fine to medium grained (weathered sandstone) gravel	M		FILL 0.00 m: PID=2.0ppm No staining, odour or PACM observed.
								0.20m			
				ES 0.50 - 0.60 m			SW	FILL: Gravelly Silty SAND: fine to coarse grained, brown/orange/grey/cream, low plasticity silt, fine to medium grained (weathered sandstone) gravel			0.50 m: PID=4.1ppm No staining, odour or PACM observed.
				ES 0.70 - 0.80 m	1.0		SW	Gravelly Silty SAND: fine to coarse grained, orange/grey/cream, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M to D		NATURAL 0.70 m: PID=3.6PPM No staining, odour or PACM observed.
								1.00m TERMINATED AT 1.00 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP28

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0		SW	FILL: Gravelly Silty SAND: fine to coarse grained, orange/cream/buff, low plasticity silt, fine to medium grained, sub-angular gravel (weathered sandstone) gravel	M to D		FILL 0.00 m: PID=1.6ppm No staining, odour or PACM observed.
				ES 0.40 - 0.50 m	0.5			0.50m			0.40 m: PID=2.0ppm No staining, odour or PACM observed.
				ES 0.70 - 0.80 m			SW	Gravelly Silty SAND: fine to coarse grained, orange/cream/buff, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M		NATURAL 0.70 m: PID=2.1ppm No staining, odour or PACM observed.
								0.80m			
					1.0			TERMINATED AT 0.80 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance — Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP29

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	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
EX			Not Encountered	ES 0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics	M		TOPSOIL 0.00 m: PID=2.7ppm No staining, odour or PACM observed.
				ES 0.30 - 0.40 m			SW	Gravelly Silty SAND: fine to coarse grained, cream/orange/buff, low plascity silt, fine to medium grained (weathered sandstone) gravel	D to M		NATURAL 0.30 m: PID=3.2ppm No staining, odour or PACM observed.
								0.40m TERMINATED AT 0.40 m Target depth			
					0.5						
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP30

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	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
EX			Not Encountered	ES 0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics	M		TOPSOIL 0.00 m: PID=1.6ppm No staining, odour or PACM observed.
				ES 0.30 - 0.40 m			SW	Gravelly Silty SAND: fine to coarse grained, cream/orange/buff, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M to D		NATURAL 0.30 m: PID=2.2ppm No staining, odour or PACM observed.
								0.40m TERMINATED AT 0.40 m Target depth			
					0.5						
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP31

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, brown/orange, fine to medium grained gravel, with organics	M		TOPSOIL 0.00 m: PID=1.6ppm No staining, odour or PACM observed.
				ES 0.20 - 0.30 m			SW	0.30m Gravelly Silty SAND: fine to coarse grained, orange/cream/grey, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M to D		NATURAL 0.10 m: PID=2.1ppm No staining, odour or PACM observed.
								TERMINATED AT 0.30 m Refusal			
					0.5						
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP32

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel	M		TOPSOIL 0.00 m: PID=1.4ppm No staining, odour or PACM observed.
				ES 0.10 - 0.20 m			SW	0.20m Gravelly Silty SAND: fine to coarse grained, orange/red/cream/grey, low plasticity silt, fine to medium grained (weathered sandstone) gravel, with sandstone boulders	D to M		NATURAL 0.10 m: PID=2.1ppm No staining, odour or PACM observed.
					0.5			TERMINATED AT 0.20 m Refusal			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP33

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	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
EX			Not Encountered	ES 0.00 - 0.10 m			ML	0.10m Gravelly Sandy SILT: low plasticity, dark brown/orange/cream, fine to coarse grained sand, fine to medium grained (weathered sandstone) gravel, with organics	M		TOPSOIL 0.00 m: PID=4.5ppm No staining, odour or PACM observed.
				ES 0.20 - 0.30 m			SW	0.30m Silty Gravelly SAND: fine to coarse grained, orange/grey/cream, fine to medium grained (weathered sandstone) gravel, low plasticity silt, with crushed sandstone			NATURAL 0.20 m: PID=6.2ppm No staining, odour or PACM observed.
					0.5			TERMINATED AT 0.30 m Refusal			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP34

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0		ML	0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics	M		TOPSOIL 0.00 m: PID=1.9ppm No staining, odour or PACM observed.
							SW	Gravelly Silty SAND: fine to coarse grained, orange/grey/cream/red, low plasticity silt, fine to medium grained (weathered sandstone) gravel			NATURAL
				ES 0.40 - 0.50 m	0.5			0.50m TERMINATED AT 0.50 m Refusal			0.40 m: PID=6.1ppm No staining, odour or PACM observed.
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP35

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0		SW	FILL: Gravelly Silty SAND: fine to coarse grained, brown/cream, low plasticity silt, fine to medium grained (weathered sandstone) gravel	D		FILL 0.00 m: PID=2.5ppm No staining, odour or PACM observed.
				ES 0.40 - 0.50 m	0.5			0.50m			0.40 m: PID=3.0ppm No staining, odour or PACM observed.
				ES 0.70 - 0.80 m			SW	Gravelly Silty SAND: fine to coarse grained, cream/buff/pink, low plasticity silt, fine to medium grained (weathered sandstone) gravel			NATURAL
								0.80m			0.70 m: PID=2.7ppm No staining, odour or PACM observed.
								TERMINATED AT 0.80 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP36

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0.5		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.
				ES 0.60 - 0.70 m				0.70m			0.60 m: No staining, odour or PACM observed.
					1.0		SW	Gravelly Silty SAND: fine to coarse grained, orange/cream/grey, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M		NATURAL
				ES 1.00 - 1.10 m				1.10m			1.00 m: No staining, odour or PACM observed.
					1.5			TERMINATED AT 1.10 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP37

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0		SW	FILL: Gravelly Silty SAND: fine to coarse grained, orange/cream/buff/grey, low plasticity silt, fine to medium grained (weathered sandstone) gravel	D		FILL 0.00 m: PID=2.6ppm No staining, odour or PACM observed.
				ES 0.40 - 0.50 m	0.5			0.50m			0.40 m: PID=2.4ppm No staining, odour or PACM observed.
							SW	Gravelly Silty SAND: fine to coarse grained, orange/cream/grey/buff, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M		NATURAL
				ES 0.90 - 1.00 m	1.0			1.00m			0.90 m: PID=4.1ppm No staining, odour or PACM observed.
								TERMINATED AT 1.00 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance — Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP38

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description				
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0.0		ML	FILL: Gravelly SILT: low plasticity, brown, fine to medium grained gravel, with organics	D to M		FILL 0.00 m: PID=2.1ppm No staining, odour or PACM observed.
				ES 0.40 - 0.50 m	0.5						0.40 m: PID=1.6ppm No staining, odour or PACM observed.
				ES 0.90 - 1.00 m	1.0			1.30m			0.90 m: PID=1.3ppm No staining, odour or PACM observed.
				ES 1.40 - 1.50 m	1.5		SW	Gravelly Silty SAND: fine to medium grained, brown/orrange, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M		NATURAL 1.40 m: PID=1.0ppm No staining, odour or PACM observed.
								1.70m			
					2.0			TERMINATED AT 1.70 m Target depth			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance — Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP39

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0.0		ML	0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained gravel, with organics	M		TOPSOIL 0.00 m: PID=1.8ppm No staining, odour or PACM observed.
								FILL: Gravelly Sandy SILT: low plasticity, brown with mottled orange/red, fine to coarse grained sand, fine to medium grained (weathered sandstone) gravel			FILL
				ES 0.50 - 0.60 m	0.5						0.50 m: PID=1.6ppm No staining, odour or PACM observed.
							ML		D to M		
				ES 1.00 - 1.10 m	1.0						1.00 m: PID=1.8ppm No staining, odour or PACM observed.
				ES 1.50 - 1.60 m	1.5						1.50 m: PID=1.7ppm No staining, odour or PACM observed.
				ES 1.70 - 1.80 m				1.70m			
							SW	Gravelly Silty SAND: fine to coarse grained, orange/red/brown, low plasticity silt, fine to medium grained (weathered sandstone) gravel	M		Possibly NATURAL 1.70 m: PID=1.9ppm No staining, odour or PACM observed.
					2.0			2.00m TERMINATED AT 2.00 m Target depth			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - DSI
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP40

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** Bucket

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 19/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	ES 0.00 - 0.10 m	0		ML	0.10m Gravelly SILT: low plasticity, dark brown, fine to medium grained (weathered sandstone) gravel	M		TOPSOIL 0.00 m: PID=1.2ppm No staining, odour or PACM observed
								FILL: Gravelly SILT: low plasticity, brown/grey, fine to medium grained (weathered sandstone) gravel			FILL
				ES 0.40 - 0.50 m	0.5		ML		D		0.40 m: PID=1.6ppm No staining, odour or PACM observed.
					1.0			1.00m			
				ES 1.00 - 1.10 m			ML	FILL: Gravelly Clayey SILT: low plasticity, brown/orange, fine to medium grained gravel	M		1.00 m: PID=1.4ppm No staining, odour or PACM observed.
				ES 1.50 - 1.60 m	1.5		ML	1.50m Gravelly Clayey SILT: low plasticity, orange/red/brown, fine to medium grained (weathered sandstone) gravel			NATURAL 1.50 m: PID=1.4ppm No staining, odour or PACM observed.
								1.70m TERMINATED AT 1.70 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP41

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			ML	FILL: SILT: dark grey 0.30m TERMINATED AT 0.30 m	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP42

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			ML	FILL: Gravelly SILT: grey/brown/orange with siltstone 0.30m	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR
								TERMINATED AT 0.30 m			

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP43

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX				0.10 - 0.30 m			ML	FILL: SILT: dark grey	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR
					0.5			0.50m TERMINATED AT 0.50 m			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP44

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			ML	FILL: SILT: dark grey/orange 0.30m TERMINATED AT 0.30 m	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP45

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m SILT: low plasticity, dark brown with sandstone	M		TOPSOIL 0.00 m: PID = 1.2ppm No staining, odour or PACM observed. NATURAL
				0.40 - 0.50 m			SP-SM	Gravelly Silty SAND: fine to coarse grained, orange/red/cream/grey with sandstone 0.50m			0.40 m: PID = 1.9ppm No staining, odour or PACM observed.
					0.5			TERMINATED AT 0.50 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP46

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Seeping	0.00 - 0.10 m	0			0.10m TOPSOIL			TOPSOIL 0.00 m: PID = 2.1ppm No staining, odour or PACM observed.
				0.40 - 0.50 m	0.5		ML	FILL: Gravelly SILT: low plasticity, dark brown/grey with organic matter, and gravel of sandstone 0.60m	M to W		FILL
				0.70 - 0.80 m	1.0		SP-SM	Gravelly Silty SAND: fine to coarse grained, red/orange/grey 1.00m	M		NATURAL 0.70 m: PID = 1.6ppm No staining, odour or PACM observed.
								TERMINATED AT 1.00 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP47

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.5		SP-SC	0.10m FILL: Gravelly Clayey SAND: fine to medium grained, orange/brown with organic matter and sandstone FILL: Gravelly Clayey SILT: low plasticity, orange/grey/dark brown with sandstone	M		FILL 0.00 m: PID = 2.8ppm No staining, odour or PACM observed.
				0.30 - 0.40 m			ML				0.30 m: PID = 2.6ppm No staining, odour or PACM observed.
				0.80 - 0.90 m DUP14, DUP14A	1.0			1.00m			0.80 m: PID = 3.0ppm No staining, odour or PACM observed.
				1.00 - 1.10 m			ML	FILL: Gravelly SILT: low plasticity, dakr brown/grey with weathered sandstone 1.50m	D / M		1.00 m: PID = 2.5ppm No staining, odour or PACM observed.
				1.50 - 1.60 m	1.5		CL	FILL: Gravelly Silty CLAY: low plasticity, orange/grey with siltstone 1.80m			1.50 m: PID = 2.4ppm No staining, odour or PACM observed.
					2.0			TERMINATED AT 1.80 m Refusal			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP48

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		ML	0.10m Gravelly SILT: low plasticity, dark brown/grey with organic matter	D to M		TOPSOIL 0.00 m: PID = 2.1ppm No staining, odour or PACM observed.
				0.40 - 0.50 m	0.5		SP-SM	FILL: Gravelly Silty SAND: fine to coarse grained, grey/orange/brown with weathered sandstone	D / M		Possibly FILL 0.40 m: PID = 2.0ppm No staining, odour or PACM observed.
				0.90 - 1.00 m	1.0			1.00m			0.90 m: PID = 1.5ppm No staining, odour or PACM observed.
				1.20 - 1.30 m			SP-SM	Gravelly Silty SAND: orange with weathered sandstone 1.30m	D		NATURAL 1.20 m: PID = 1.9ppm No staining, odour or PACM observed.
					1.5			TERMINATED AT 1.30 m Refusal			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- 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
- RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- 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)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP49

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	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
EX			Not Encountered	0.00 - 0.10 m DUP15, DUP15A	0		ML	0.10m SILT: low plasticity, dark brown/grey with organic matter	D / M		TOPSOIL 0.00 m: PID = 2.1ppm No staining, odour or PACM observed.
							SP	FILL: Gravelly Silty SAND: fine to coarse grained, with SANDSTONE, orange/grey			FILL
				0.50 - 0.60 m	0.5						0.50 m: PID = 3.2ppm No staining, odour or PACM observed.
				0.80 - 0.90 m			SP	0.70m Gravelly Silty SAND: fine to coarse grained, orange/cream with weathered sandstone			NATURAL 0.80 m: PID = 1.8ppm 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						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP50

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	Gravelly SILT: low plasticity, dark brown/grey with organic matter 0.20m	D / M		TOPSOIL 0.00 m: PID = 1.8ppm No staining, odour or PACM observed.
				0.20 - 0.30 m	0.5		SP	FILL: Gravelly Silty SAND: fine to medium grained, dark brown/grey/orange/cream with sandstone 0.70m			FILL 0.20 m: PID = 1.8ppm No staining, odour or PACM observed.
				0.70 - 0.80 m	1.0		SP	Gravelly Silty SAND: fine to coarse grained, orange/cream with weathered sandstone 1.10m			NATURAL 0.70 m: PID = 1.4 ppm No staining, odour or PACM observed.
					1.5			TERMINATED AT 1.10 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP51

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m SILT: low plasticity, dark brown/grey with organic matter			TOPSOIL 0.00 m: PID = 2.4ppm No staining, odour or PACM observed.
				0.40 - 0.50 m DUP16, DUP16A	0.5		SP	FILL: Gravelly Silty SAND: fine to coarse grained, dark grey/orange/brown with sandstone	D / M		FILL 0.40 m: PID = 4.4ppm No staining, odour or PACM observed.
				0.90 - 1.00 m	1.0		SP	0.90m Gravelly Silty SAND: fine to coarse grained, orange/grey with weathered sandstone			NATURAL 0.90 m: PID = 3.7ppm No staining, odour or PACM observed.
					1.5			1.30m TERMINATED AT 1.30 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP52

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m DUP18/DUP18A	0.0		SP	FILL: Gravelly SAND: fine to medium grained, brown/dark brown with siltstone	M		FILL 0.00 m: PID = 9.2ppm No staining, odour or PACM observed.
				0.40 - 0.50 m	0.40m		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.
				0.90 - 1.00 m	0.80m		CI-CH	Gravelly CLAY: medium to high plasticity, orange/red with sandstone gravels	M		NATURAL 0.90 m: PID = 7.2ppm No staining, odour or PACM observed.
					1.50m			TERMINATED AT 1.50 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP53

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.5		ML	0.10m FILL: Gravelly Sandy SILT: low plasticity, grey with siltstone	M / W		FILL 0.00 m: PID = 8.9ppm No staining, odour or PACM observed. 0.20 m: PID = 10.3ppm No staining, odour or PACM observed.
				0.20 - 0.30 m			ML	0.30m FILL: Gravelly SILT: low to medium plasticity, grey with weathered sandstone			
				0.50 - 0.60 m			CI-CH	Gravelly CLAY: medium to high plasticity, grey/orange/red with weathered sandstone			NATURAL 0.50 m: PID = 1.0ppm 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						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP54

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.5		ML	FILL: Gravelly SILT: low plasticity, grey/brown 0.20m	D		FILL 0.00 m: PID = 9.2ppm No staining, odour or PACM observed.
				0.40 - 0.50 m			ML	FILL: Gravelly SILT: low plasticity, grey 0.70m			0.40 m: PID = 6.1ppm No staining, odour or PACM observed.
				0.90 - 1.00 m	1.0		ML	Gravelly SILT: low plasticity, grey with weathered sandstone 1.10m			NATURAL 0.90 m: PID = 0.4ppm No staining, odour or PACM observed.
					1.5			TERMINATED AT 1.10 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP55

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.0		SP	0.10m FILL: Gravelly Silty SAND: fine to medium grained, grey/brown with siltstone			FILL 0.00 m: PID = 24.5ppm No staining, odour or PACM observed.
				0.40 - 0.50 m	0.5		ML	FILL: Gravelly SILT: low plasticity, grey	D		0.40 m: PID = 13.1ppm No staining, odour or PACM observed.
				0.90 - 1.00 m	1.0		SP	1.00m FILL: Gravelly Silty SAND: fine to coarse grained, grey/brown with glass, plastic and PACM			0.90 m: PID = 7.4ppm No staining, odour or PACM observed.
				1.40 - 1.50 m	1.5		SP	1.50m Gravelly Clayey SAND: fine to coarse grained, orange/grey with weathered sandstone	M		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						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP56

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	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
EX			Not Encountered	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 No staining, odour or PACM observed.
				0.20 - 0.30 m			SP	Gravelly Clayey SAND: fine to coarse grained, orange/brown with weathered sandstone	M		NATURAL 0.20 m: PID = 2.2ppm No staining, odour or PACM observed.
					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						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP57

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		ML	0.10m FILL: Gravelly Sandy SILT: low plasticity, grey/brown with siltstone	D		FILL 0.00 m: PID = 10.4ppm No staining, odour or PACM observed.
				0.30 - 0.40 m			ML	FILL: Gravelly Sandy SILT: low to medium plasticity, grey/orange 0.40m			0.30 m: PID = 8.9ppm No staining, odour or PACM observed.
				0.60 - 0.70 m	0.5		CL	Gravelly Sandy CLAY: low to medium plasticity, orange/grey	M		NATURAL 0.60 m: PID = 7.2ppm No staining, odour or PACM observed.
					1.0			1.00m TERMINATED AT 1.00 m			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP58

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	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 observed. NATURAL
				0.40 - 0.50 m	0.5		CI-CH	Gravelly Silty CLAY: medium to high plasticity, grey/orange/red with weathered sandstone	M		0.40 m: PID = 4.1ppm No staining, odour or PACM observed.
								0.80m TERMINATED AT 0.80 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP59

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.5		SP	0.10m FILL: Gravelly Silty SAND: fine to medium grained, brown/grey	D		FILL 0.00 m: PID = 11.9ppm No staining, odour or PACM observed.
				0.40 - 0.50 m DUP20, DUP20A			ML	FILL: Gravelly Sandy SILT: low plasticity, brown/grey with brick and plastic and asphalt slab 0.60m			0.40 m: PID = 10.5ppm No staining, odour or PACM observed.
					1.0		CI-CH	Gravelly CLAY: medium to high plasticity, grey/orange	M		NATURAL
				1.20 - 1.30 m				1.30m			1.20 m: PID = 2.0ppm No staining, odour or PACM observed.
					1.5			TERMINATED AT 1.30 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP60

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 20/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.0		SP	0.10m FILL: Gravelly Silty SAND: fine to medium grained, grey/brown with siltstone			FILL 0.00 m: PID = 14.5ppm No staining, odour or PACM observed.
				0.40 - 0.50 m	0.5		ML	FILL: Gravelly SILT: low plasticity, grey with sandstone 0.50m			0.40 m: PID = 13.3ppm No staining, odour or PACM observed.
				0.90 - 1.00 m	1.0		SP	FILL: Gravelly Silty SAND: fine to coarse grained, brown/grey with sandstone	D		0.90 m: PID = 12.9ppm No staining, odour or PACM observed.
				1.40 - 1.50 m	1.5			1.50m			1.40 m: PID = 11.1ppm No staining, odour or PACM observed.
				1.90 - 2.00 m	2.0		ML	Gravelly SILT: low plasticity, grey with sandstone 2.00m			NATURAL 1.90 m: PID = 4.3ppm No staining, odour or PACM observed.
								TERMINATED AT 2.00 m Target depth			

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP61

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	FILL: Gravelly SILT: low plasticity, grey/brown 0.30m	M		FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed.
				0.40 - 0.50 m	0.5		CL	FILL: Gravelly Silty CLAY: low plasticity, grey/brown with plastic and cloth 0.50m			0.40 m: PID = 1.8ppm No staining, odour or PACM observed.
				0.60 - 0.70 m			CI-CH	Gravelly CLAY: medium to high plasticity, grey/orange 0.80m			NATURAL 0.60 m: PID = 1.2ppm No staining, odour or PACM observed.
					1.0			TERMINATED AT 0.80 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP62

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				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
								0.30m TERMINATED AT 0.30 m			
					0.5						
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- 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
- RR Rock roller

PENETRATION
VE E F H VH — No Resistance — Refusal

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- 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)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP63

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			ML	FILL: Gravelly Clayey SILT: low plasticity, grey with organic matter 0.30m	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR
								TERMINATED AT 0.30 m			
					0.5						
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP64

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			CI-CH	FILL: CLAY: medium to high plasticity, grey/orange 0.30m TERMINATED AT 0.30 m	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP65

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			CI-CH	FILL: Gravelly Silty CLAY: medium to high plasticity, grey/orange 0.30m TERMINATED AT 0.30 m	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP66

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			GM	Silty GRAVEL: fine to coarse, grey 0.30m TERMINATED AT 0.30 m	W		0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP67

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX				0.10 - 0.30 m			CI-CH	FILL: CLAY: medium to high plasticity, grey/orange 0.30m TERMINATED AT 0.30 m	W		FILL 0.00 m: SEDIMENTARY SAMPLE FROM DAM FLOOR

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP68

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		CL	FILL: CLAY: low plasticity, grey/orange with organic matter	M		FILL 0.00 m: PID = 0.9ppm No staining, odour or PACM observed.
				0.40 - 0.50 m	0.20m		ML	FILL: SILT: low plasticity, grey with plastic			0.40 m: PID = 0.9ppm No staining, odour or PACM observed.
					0.5		ML	SILT: low plasticity, grey with weathered sandstone	D		NATURAL
				0.90 - 1.00 m	0.50m 1.0			TERMINATED AT 1.00 m Target depth			0.90 m: PID = 0.7ppm No staining, odour or PACM observed.
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP69

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Resistance	Stability	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
EX			Not Encountered	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, grey with organic matter	M		TOPSOIL 0.00 m: PID = 0.6ppm No staining, odour or PACM observed.
				0.30 - 0.40 m			CL-CI	Gravelly Silty CLAY: low to medium plasticity, grey with weathered sandstone			NATURAL 0.30 m: PID =0.5ppm No staining, odour or PACM observed.
					0.5			0.50m TERMINATED AT 0.50 m			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP70

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		ML	FILL: Gravelly SILT: low plasticity, grey/cream/brown with siltstone and sandstone	D		FILL 0.00 m: PID = 1.4ppm No staining, odour or PACM observed.
					0.20m						NATURAL
				0.40 - 0.50 m	0.5		CI-CH	Gravelly Silty CLAY: medium to high plasticity, grey	M		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						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP71

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0		ML	FILL: Clayey SILT: low plasticity, grey with organic matter and siltstone			FILL 0.00 m: PID = 0.5ppm No staining, odour or PACM observed.
								0.20m Gravelly Silty CLAY: medium to high plasticity, grey			NATURAL
				0.40 - 0.50 m	0.5						0.40 m: PID = 0.6ppm No staining, odour or PACM observed.
					1.0		CI-CH		M		
					1.5						
					2.0			2.00m TERMINATED AT 2.00 m Target depth			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP72

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m	0.5		CL-CI	Silty CLAY: low to medium plasticity, grey/orange with organic matter 0.20m	M		TOPSOIL 0.00 m: PID = 1.5ppm No staining, odour or PACM observed.
				0.20 - 0.30 m			ML	FILL: Gravelly SILT: low plasticity, grey with weathered sandstone 0.60m	D / M		Possibly FILL 0.20 m: PID = 1.0ppm No staining, odour or PACM observed.
				0.60 - 0.70 m	1.0		ML	Gravelly SILT: low plasticity, grey with weathered sandstone 1.00m	M		NATURAL
					1.5			TERMINATED AT 1.00 m			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP73

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: 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	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, grey with organic matter	M		TOPSOIL 0.00 m: PID = 1ppm No staining, odour or PACM observed. NATURAL
				0.40 - 0.50 m	0.5		ML	Gravelly SILT: low plasticity, grey with weathered sandstone 0.70m	M / D		0.40 m: PID = 1.1ppm No staining, odour or PACM observed.
					1.0			TERMINATED AT 0.70 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP74

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description				
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m DUP21, DUYP21A	0		ML	Gravelly SILT: low plasticity, grey/brown with organic matter			TOPSOIL
				0.20 - 0.30 m				0.20m			0.00 m: PID = 1.1ppm No staining, odour or PACM observed.
							SP	FILL: Gravelly Silty SAND: fine to coarse grained, grey/brown			FILL
				0.50 - 0.60 m	0.5			0.40m			0.20 m: PID = 1.3ppm No staining, odour or PACM observed.
							ML	FILL: Gravelly Clayey SILT: low plasticity, grey/orange with plastic and weathered sandstone			0.50 m: PID = 1.4ppm No staining, odour or PACM observed.
				0.80 - 0.90 m	1.0			0.80m			NATURAL
					1.5		CI-CH	Silty CLAY: medium to high plasticity, grey/orange	M		0.80 m: PID = 1.0ppm No staining, odour or PACM observed.
					2.0			2.00m			
								TERMINATED AT 2.00 m Target depth			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP75

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	0.10m FILL: Gravelly Sandy SILT: low plasticity, grey with organic matter and siltstone	M / D		FILL 0.00 m: PID = 1.9ppm No staining, odour or PACM observed.
				0.20 - 0.30 m			ML	Gravelly SILT: low plasticity, grey with weathered sandstone			NATURAL 0.20 m: PID = 1.8ppm No staining, odour or PACM observed.
					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						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP76

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.5		SP	FILL: Gravelly Silty SAND: fine to medium grained, dark grey with siltstone gravel	D		FILL 0.00 m: PID = 1.1ppm STOCKPILE No staining, odour or PACM observed.
				1.50 - 1.60 m	1.0 1.5			1.50m			
							CI-CH	1.60m FILL: Gravelly CLAY: medium to high plasticity, orange/grey with siltstone			1.50 m: GROUNDLEVEL No staining, odour or PACM observed.
							CI-CH	Gravelly Silty CLAY: medium to high plasticity, orange/grey with weathered sandstone	M		NATURAL
				1.90 - 2.00 m	2.0			2.00m			
								TERMINATED AT 2.00 m Target depth			
					2.5 3.0 3.5 4.0 4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance … Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP77

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.20 - 0.30 m DUP24, DUP24A	0.5		ML	FILL: Gravelly SILT: low plasticity, brown with traces brick and plastic	M		FILL 0.20 m: PID = 1.6ppm STOCKPILE No staining, odour or PACM observed.
				2.20 - 2.30 m	1.0 1.5 2.0		ML	2.20m 2.30m FILL: Gravelly SILT: low plasticity, brown/orange			2.20 m: PID = 3.4ppm No staining, odour or PACM observed.
				2.40 - 2.50 m	2.5		ML	Gravelly SILT: low to medium plasticity, orange/grey 3.00m			NATURAL 2.40 m: PID = 2.2ppm No staining, odour or PACM observed.
					3.0			TERMINATED AT 3.00 m Target depth			
					3.5 4.0 4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP78

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or 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
EX			Not Encountered	0.00 - 0.20 m	0.5		SP	FILL: Gravelly Silty SAND: fine to coarse grained, brown/grey with asphalt slab 1.10m	M		FILL 0.00 m: PID = 2.6 ppm No staining, odour or PACM observed.
				1.10 - 1.20 m	1.0		ML	FILL: Gravelly Sandy SILT: low plasticity, grey/brown with wood 1.30m			1.10 m: PID = 3.1ppm No staining, odour or PACM observed.
				1.30 - 1.40 m	1.5		ML	Gravelly SILT: low plasticity, orange/grey with weathered sandstone 1.60m			NATURAL 1.30 m: PID = 1.8 ppm No staining, odour or PACM observed.
					2.0			TERMINATED AT 1.60 m Target depth			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP79

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	0.10m Gravelly SILT: low plasticity, grey with organic matter	D / M		TOPSOIL 0.00 m: PID = 1.6ppm No staining, odour or PACM observed.
							ML	Gravelly SILT: low plasticity, grey/orange with weathered sandstone	M		NATURAL
				0.40 - 0.50 m	0.5			0.50m TERMINATED AT 0.50 m Target depth			0.40 m: PID = 1.2ppm No staining, odour or PACM observed.
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP80

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.40 - 0.50 m	0.5		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	1.0 1.5		ML	1.50m SILT: low plasticity, grey	M		NATURAL 1.50 m: No staining, odour or PACM observed.
							ML	1.70m Gravelly SILT: low plasticity, grey/orange with weathered sandstone	M / D		
					2.0			2.00m TERMINATED AT 2.00 m Target depth			
					2.5 3.0 3.5 4.0 4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
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
RR	Rock roller

PENETRATION

VE E F H VH — No Resistance — Refusal

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

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)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP81

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	0.10m FILL: Gravelly Sandy SILT: low plasticity, grey	D / M		FILL 0.00 m: PID = 1.8ppm No staining, odour or PACM observed.
				0.40 - 0.50 m			ML	Gravelly SILT: low plasticity, grey/orange with weathered sandstone			NATURAL
					0.5			0.50m TERMINATED AT 0.50 m			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP82

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m DUP23, DUP23A	0		ML	0.10m FILL: Sandy SILT: low plasticity, grey with organic matter and cloth	M		FILL 0.00 m: PID = 2.5ppm No staining, odour or PACM observed.
				0.20 - 0.30 m			ML	0.30m Gravelly SILT: low plasticity, grey			NATURAL 0.20 m: PID = 3.2ppm No staining, odour or PACM observed.
					0.5		ML	Gravelly Clayey SILT: low plasticity, grey/orange with weathered sandstone	D		
					1.0						
					1.5			1.50m TERMINATED AT 1.50 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- 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
- RR Rock roller

PENETRATION
VE E F H VH — No Resistance — Refusal

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- 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)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP83

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m			ML	FILL: SILT: low plasticity, brown with organic matter 0.30m	M		FILL 0.00 m: PID = 1.7ppm STOCKPILE No staining, odour or PACM observed.
				0.40 - 0.50 m	0.5		ML	Gravelly SILT: low plasticity, grey with weathered sandstone 0.70m	D / M		NATURAL
								TERMINATED AT 0.70 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP84

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET

Excavation Dimensions: **Contractor:** JPK Excavations

Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered	0.00 - 0.10 m	0.0		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 observed.
				0.30 - 0.40 m DUP25, DUP25A	0.30m		ML	FILL: Gravelly Sandy SILT: low plasticity, grey/brown/dark grey with asphalt	M		0.30 m: PID = 2.7ppm STOCKPILE possible oil staining
				1.00 - 1.10 m	1.00m		ML	Gravelly SILT: low plasticity, grey with weatherd sandstone			NATURAL 1.00 m: PID = 1.2ppm No staining, odour or PACM observed.
					1.50m			TERMINATED AT 1.50 m Target depth			

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

Construction Sciences

TEST PIT LOG SHEET

Client: Goulburn Mulwaree Council
Project: Stage 2 - Detailed Site Investigation
Location: Corner Dossie St and Sloane St, Goulburn

Hole No: TP85

Job No: 5046200019 **Sheet:** 1 of 1

Position: **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 5 tonne Excavator **Excavation Method:** BUCKET
Excavation Dimensions: **Contractor:** JPK Excavations
Date Excavated: 21/2/20 **Logged By:** SI **Checked By:** AN

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or 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
EX			Not Encountered		0.5			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	1.0						
					1.5			1.50m			
							ML	FILL: SILT: low to medium plasticity, grey with glass and metal			1.50 m: PID = 1.1ppm No staining, odour or PACM observed.
				1.70 - 1.80 m				1.70m			
					2.0		CI-CH	CLAY: medium to high plasticity, grey/orange	M		NATURAL 1.70 m: PID = 1.3ppm No staining, odour or PACM observed.
								2.10m			
								TERMINATED AT 2.10 m Target depth			
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
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
RR Rock roller

PENETRATION
VE E F H VH
No Resistance
Refusal

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - 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 notes for details of abbreviations and basis of descriptions

CONSTRUCTION SCIENCES

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