



**MILTON PUBLIC SCHOOL UPDATE
INTRUSIVE GEOTECHNICAL
INVESTIGATION REPORT**

10 April 2025

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NSW Department of Education (DoE)

Prepared by:
Stantec Australia Pty Ltd

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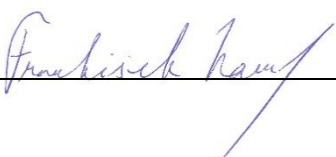
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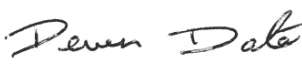
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1 Introduction

This *Milton Public School Update Intrusive Geotechnical Investigation Report* has been prepared to support a Review of Environmental Factors (REF) for the NSW Department of Education (DoE) for Milton Public School upgrade (the activity).

The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as “development permitted without consent” on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP.

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI) as well as the Addendum Division 5.1 guidelines for schools. The purpose of this report is to summarise potential geohazards presented on the site and present geotechnical recommendations.

1.1 Site Description

The site is located at 9 Thomas Street, Milton, NSW, 2538 (the site). The site is legally referred to as Lot 1 in Deposited Plan 861814 and is within the Shoalhaven Local Government Area (LGA) and has an approximate area of 4 hectares. An aerial photograph of the site is provided at **Figure 1-1**.

The site is zoned SP2 Educational Establishment and existing development comprises various buildings, sports facilities and play space associated with Milton Public School. Milton Public School currently comprises 24 permanent teaching spaces (PTS) and 12 demountable teaching spaces (DTS). The site contains two locally heritage listed buildings (Building A and Q).

The site is predominantly cleared; however, there is existing vegetation interspersed throughout the site and significant trees are present along the northern and western boundary of the site. There is a gradual slope downwards from the south-east to the north-east of the site.

The site is an irregularly shaped lot with a narrow frontage along Thomas Street. Pedestrian and vehicular access is provided from Thomas Street and from Wason Street. Milton Public School is adjoined by low density residential properties to the south, west and east and Milton Rainforest Reserve is located to the north.





Source: Urbis, April, 2025

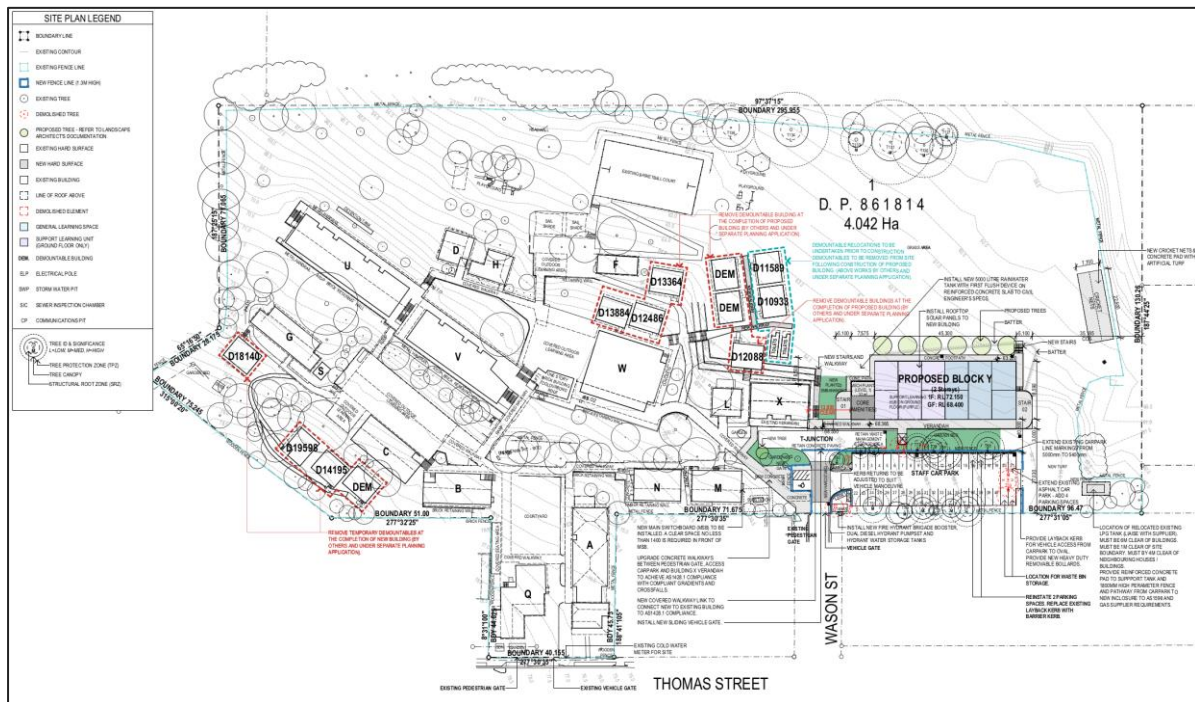
Figure 1-1 Aerial Photograph

1.2 Proposed Activity description

The proposed activity relates to upgrades to Milton Public School. Specifically, the proposed activity comprises the following:

- > Construction of a new two-storey home base building.
- > Installation of additional solar panels.
- > Relocation of existing cricket nets to the eastern boundary of site.
- > Construction of new stairs and covered walkways linking the new building to the existing school.
- > Construction of new fencing.
- > Construction of new hardstand area.
- > Minor alterations to the existing staff car park.
- > Disconnection and relocation of existing LPG tank.
- > Tree removal.
- > External landscape works.

Any works relating to demountables or the water tank will proceed via a separate planning pathway.



Source: Fulton Trotter, 2025

Figure 1-2 Site Plan

2 Findings of Investigation

2.1 Site Description

The site is located at 9 Thomas Street, Milton, NSW, 2538 (the site), and has an approximate site area of 4ha. The site is legally referred to as Lot 1 in Deposited Plan 861814 and is within the Shoalhaven Local Government Area (LGA). An aerial photograph of the site is provided at Figure 1.

The site is zoned SP2 Educational Establishment and existing development comprises various buildings, sports facilities and play space associated with Milton Public School. Milton Public School currently comprises 24 permanent teaching spaces (PTS) and 12 demountable teaching spaces (DTS). The site contains two local heritage listed buildings (Building A and Q).

The site is predominantly cleared of vegetation; however, there is existing vegetation interspersed throughout the site and significant trees are present along the northern and western boundary of the site. There is a gradual slope downwards from the south-east to the north-east. of the site.

The site is an irregularly shaped lot with a narrow frontage along Thomas Street. Pedestrian and vehicular access is provided to Thomas Street. Milton Public School is surrounded by low density residential properties to the south, west and east whilst Milton Rainforest Reserve is located to the north.



The site is shown in the following **Figure 2-1**, The detailed site layout plan and its surrounds are attached in **Appendix A**.



Source: Urbis, April, 2025

2.2 Surrounding Land Use

The land uses immediately surrounding the site were identified using aerial imagery and land zoning information from the local council, as summarized below in **Table 2-1**. Details of the site and surrounding land uses are shown in **Appendix A**.

Table 2-1 Surrounding Land Use

Direction	Land Zoning	Land Use or Activity
North	RE1 (Public Recreation) RU1 (Primary Production)	Milton Rainforest Reserve.
East	R2 (Low-Density Residential)	Residential dwellings.
South	RE1 (Public Recreation) R1 (General Residential) R2 (Low-Density Residential) SP2 (Infrastructure)	Comprise residential dwellings, public recreation areas, infrastructure administration building carpark and retails.



Direction	Land Zoning	Land Use or Activity
	E1(Local Centre)	
West	R2 (Low-Density Residential)	Residential dwellings.

2.3 Regional and Site Settings

Site setting information, as listed within publicly available data sets, is summarised in Error! Reference source not found.-2.

Table 2-2 Site Setting Information

ITEMS	DETAILS
Regional Soil Landscape	A review of soil data from Minview, 2023 indicated that the site is underlain with Brown Podzolic Soils. Information obtained from, Britannica 2023, suggests that podzolic soils are characterised by moderate leaching, an accumulation of iron and clay content, a higher content of humic acid, and are shallow, occurring at less than 50cm from the surface.
Regional Geology	In reference to the Shoalhaven 1:100,000 coastal quaternary geological map, the site geology is identified as being underlain by Milton Mesozoic formations of Monzonite (MZ__m). This is described as porphyritic monzonite with phenocrysts of glassy plagioclase in a black fine-grained (and sporadically sub-aphanitic) matrix; variable to a monzonite porphyry; weathers to a light colour; small zones of olivine basalt dyke material. Refer to Appendix C Geological Map.
Regional Groundwater	The Lotsearch report (LS046788 EP) with data sourced from National Groundwater Information System (NGIS) and WaterNSW identified that there are five (5) bores within 2 km of the Site. No standing Groundwater Level (SWL) data are made available from the installed groundwater boreholes.
Surface Water Bodies	An unnamed drainage channel is located approximately 80 metres north of the site, which flows in an easterly direction and ultimately the catchment discharges to Narrawallee Creek, located approximately 2km northeast. It is inferred that surface water originating at the site, and potentially groundwater, would flow in a north-to-north easterly direction.
Acid Sulphate Soils	The site is classified as Class 5 ASS in accordance with Shoalhaven Local Environmental Plan 2014, described as, - Class 5: Acid sulphate soils are not typically found in Class 5 areas. Areas classified as Class 5 are located within 500 meters on adjacent Class 1,2,3 or 4 land. Furthermore, data presented by Lotsearch indicates that the site is within an area of low probability of acid sulphate soil occurrence, described as, - Class B: Low Probability of occurrence. 6-70% chance of occurrence. Refer to Appendix D Acid Sulfate Map Based on soils encountered and analysed as part of the contamination investigation (Stantec, 2024), soils assessed as part of the investigation are not considered to be potential or actual acid sulphate soils based on laboratory analysis and desktop review of available data. Therefore, an Acid Sulphate Soil Management Plan (ASSMP) is not applicable.



ITEMS	DETAILS
Salinity	> No Dryland Salinity – National Assessment data on-site available.

2.4 Geology

An assessment of the regional geology has been undertaken through review of MinView spatial geology website (NSW Department of Planning, Industry and Environment, 2023) which indicated the site is underlain by the following geological units as shown in Error! Reference source not found. below.

- Puim – Milton Monzonite – Porphyritic monzonite with phenocrysts of glassy plagioclase in a black fine-grained matrix; variable to monzonite-porphyry; weather to a light colour; small zones of olivine basalt dyke material.
- Pshs – Snapper Point Formation – fine to medium grained sandstone, pebbly sandstone and polymictic pebble conglomerate, medium to coarse grained sandstone with lithic pebbles and fragments, minor siltstone.
- Q_avf – Alluvial fan deposits – Fluvially-deposited quartz-lithic sand, silt, gravel and clay.



Figure 2-2 Regional Geology

3 Investigation Findings

3.1 Borehole Locations

The ground coordinates of the test locations were picked up by authorized surveyor nominated by the client. The coordinates of the location are reference to GDA2020 MGA, Zone 56, and are displayed below in **Table 3-1**.

Table 3-1 Borehole Locations

ID	Easting	Northing (m)
BH01	266953.9645	6089066.7786
BH02	266968.0615	6089067.9533
BH03	266964.2290	6089076.7698
BH04	266948.2466	6089077.6509
BH05	266972.9544	6089080.0416

3.2 Fieldwork Activities

Fieldwork for the geotechnical investigation was carried out 28th November 2023 and comprised the following:

- Drilling of five (5) boreholes (BH01 to BH05) to depths ranging from 0.80m to 4.10m below ground level (mbgl). Drilling was carried out using a track mounted drill rig using solid flight augers with Tungsten Carbide (TC) bit.
- Standard Penetration Tests (SPTs) were conducted at nominal 1.50m intervals in conjunction with auger drilling at the borehole locations to assess the in-situ strength characteristics of the encountered materials and to allow sample retrieval for laboratory testing.
- Dynamic Cone Penetrometer (DCP) testing conducted from surface at borehole locations to a maximum 1.25m depth bgl, to assist with the assessment of the in-situ soil strength conditions at each borehole location.
- Logging of encountered subsurface conditions for all BHs was carried out in accordance with AS1726 – Geotechnical Site Investigation (Standards Australia Limited, 2017) by a geotechnical engineer from Stantec.
- Sampling of soil samples for material classification purposes.
- Backfilling of boreholes using with auger cuttings. The soils were compacted with back auger rotation and crowbar and returned to original surface level.

A site plan with borehole locations is provided in Error! Reference source not found.. Engineering logs of the boreholes are presented in **Error! Reference source not found.** together with explanatory notes.



3.3 Sub-Surface Conditions

Based on the observations from the geotechnical investigation, the sub surface profile within the footprint of the proposed development can be generalised in the following soil units shown in **Table 3-2** and Subsurface conditions encountered are summarised in Table 3-3 and detailed in engineering borehole logs attached in **Appendix B** together with explanatory notes.

Table 3-3 Table 3-2 Summary of Sub-Surface Units

Unit	Material Type	Description of Layer
1	TOPSOIL	Sandy CLAY: low plasticity, brown, fine to coarse grained sand, trace roots.
2	FILL	Sandy CLAY: medium to high plasticity clay, brown to dark brown, fine to coarse grained sand, trace fine gravel, trace roots.
3a	RESIDUAL	Gravelly CLAY / Sandy CLAY: low to high plasticity clay, grey to yellow-brown to brown, fine to coarse gravel, fine to coarse grained sand, trace low plasticity silt
4a	EXTREMELY WEATHERED	Extremely weathered Monzonite recovered as Gravelly SAND and Clayey SAND: fine to coarse grained sand, yellow-brown, fine to coarse, sub-rounded to sub-angular gravel, low plasticity clay, trace roots.
4b	EXTREMELY WEATHERED	Extremely weathered Monzonite recovered as Sandy CLAY: low to medium plasticity clay, yellow-brown to dark brown, fine to coarse grained sand.

Subsurface conditions encountered are summarised in **Table 3-3** and detailed in engineering borehole logs attached in **Appendix B** together with explanatory notes.

Table 3-3 Summary of Sub-Surface material encountered m below ground level

BH ID	Topsoil	Fill	Residual Clay	XW Sand	XW Clay	GW Seepage	TD
BH01	0.00	-	0.15	-	-	NE	0.80
BH02	0.00	0.20	0.50	1.20	-	NE	2.20
BH03	0.00	0.20	0.50	1.20	-	NE	2.50
BH04	0.00	0.20	0.50	-	2.50	NE	4.10
BH05	0.00	-	-	0.30	1.60	NE	3.40



Notes:

- i) TD = Termination Depth
- ii) NE = Not Encountered
- iii) XW = Extremely Weathered
- iv) GW = Groundwater

3.4 Groundwater

Groundwater standing level or seepage was not encountered in any of the boreholes at the time of investigation. It should be noted however, that variations in groundwater seepage flows may occur due to variations in rainfall duration and intensity. It is anticipated the proposed bulk earthworks will not intersect with the groundwater table.

3.5 Lab Test Results

Laboratory testing conducted on strategically selected samples recovered during the fieldwork comprised the following:

- Two (2) Moisture Content tests.
- Two (2) Atterberg & Linear Shrinkage tests.
- Two (2) Particle Size Distribution tests.
- Two (2) Emerson Classification tests.

Testing was performed by NATA-accredited laboratories Australian Soil and Concrete Testing (ASCT) Illawarra laboratory. Laboratory test report sheets and certificates are included in **Error! Reference source not found..**

3.5.1 FIELD MOISTURE CONTENT

Moisture content tests were scheduled on selected samples. The results are summarised in **Table 3-4** below.

Table 3-4 Field Moisture

Borehole No	Depth (m)	Material Description	Field Moisture Content (%)
BH03	0.50-1.00	Sandy CLAY: high plasticity, brown to dark brown, fine to coarse grained sand, trace fine gravel, trace roots.	18.8
BH05	0.50-1.00	Clayey SAND: fine to coarse grained, pale brown, low plasticity clay, trace fine gravel.	8.2

3.5.2 ATTERBERG LIMIT TEST RESULTS

Atterberg Limits tests were scheduled on selected samples. The results are summarised in **Table 3-5** below.



Table 3-5 Atterberg Limits Test Results

Borehole No	Depth (m)	Material Description	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)
BH03	0.50-1.00	Sandy CLAY: high plasticity, brown to dark brown, fine to coarse grained sand, trace fine gravel, trace roots.	54	25	29
BH05	0.50-1.00	Clayey SAND: fine to coarse grained, pale brown, low plasticity clay, trace fine gravel.	31	18	13

3.5.3 PARTICLE SIZE DISTRIBUTION TEST AND EMERSON CRUMB TEST RESULTS

The Particle Size Distribution (PSD) and Emerson Class tests were performed on a selection of disturbed and SPT soil samples. The results are summarized in **Table 3-6** below.

Table 3-6 Particle Size Distribution and Emerson Crumb Test Results

Borehole No	Depth (m)	Material Description	Gravels (%)	Sand (%)	Fines (Silt & Clay %)	Emerson Class
BH02	0.50-1.00	Sandy CLAY	-	-	-	5
BH03	0.50-1.00	Sandy CLAY	4	46	50	-
BH04	0.50-1.00	Sandy CLAY	-	-	-	5
BH05	0.50-1.00	Clayey SAND	8	72	20	-

4 Geotechnical Comments

4.1 Excavation and Earthwork

Following available information, we believe that excavation will be limited to the general levelling for proposed relocation of demountables, new school buildings and landscaping. It is expected that mainly soil will be encountered during all earthworks. Very low to low strength rock can be expected which are underlying the residual soils and can be encountered during earthworks.

Prior to bulk earthworks, the site shall be cleared of any foreign matter or unsuitable material which includes but may not be limited to the following:

- Vegetation or organic matter including root balls of any larger trees onsite;
- Topsoil or soil significantly affected by roots or root fibres;



- Any scattered waste or dumped materials;
- Uncontrolled filling which may be subject to further assessment;
- Loose or low strength (soft to firm) soils or otherwise 'unsuitable' soils; or
- Expansive soils.

Excavation of soil and very low to low strength rock can be readily achieved using conventional earthmoving equipment. Ripping or hammering may not be required for the proposed earthwork. However, considering the condition of the structures within the school, the induced vibration level control will be required to avoid impacting the adjacent properties.

Induced vibrations in structures adjacent to the excavation should not exceed a Peak Particle Velocity (PPV) of 10mm/sec for brick or unreinforced structures.

If vibrations in adjacent structures exceed the values recommended above or appear excessive during construction, excavation should cease, and the project Geotechnical Engineer should be contacted immediately for appropriate reviews so that counter- measures/actions can be taken.

Earthwork should be carried out in compliance with AS3798-2007 "Guidelines on earthworks for commercial and residential developments".

4.2 Subgrade Preparation

The following site preparation measures are recommended:

- Remove all topsoil, fill and deleterious materials (including roots/vegetation);
- Proof roll testing to be carried out using a minimum 12 tonne roller and compact the exposed subgrade to at least 98% Standard Maximum Dry Density (SMDD) at +/- 2% Optimum Moisture Content (OMC).
- Should isolated soft/loose areas be encountered during this process, this material should be removed and replaced with suitable granular structural fill. Structural fill could comprise a select well graded granular material such as processed sandstone and road-base (DGB20).
- Backfill excavation with approved structural fill in 150mm layers to a standard compaction of at least 98%.
- Surface drainage should be maintained at all times by adopting appropriate cross-falls across the site. Surface drainage should be installed as soon as is practicable in order to capture and remove surface flows to prevent erosion and softening of the exposed surface.

Filling delivered to site must be approved by the geotechnical consultant prior to delivery to site. Highly reactive clay filling should be avoided.

Conventional sediment and erosion control measures should be implemented during the construction phase, with exposed surfaces to be topsoiled and vegetated as soon as practicable following the completion of earthworks.



4.3 Site Classification

It is considered that the subsurface conditions comprise topsoil overlying fill, residual clay/sand and extremely weathered Monzonite. Based on the geotechnical sub-surface logs and laboratory testing, it is expected the site classification of “Class S” be adopted (if applicable) for footings constructed in accordance with AS2870-2011. For this project, Atterberg limits results were used to estimate the Iss based on published data.

As shown in **Table 3-5**, liquid limits resulted in the range of 31% to 54%, which was estimated to be 0.9 to 2.5% Iss. Taking into consideration of these Iss values, the site can be classified as slightly reactive clay site (Class ‘S’), which may experience only slight ground movement from moisture changes with a characteristic surface movement up to 20mm.

4.4 Temporary Cuts

Careful consideration must be given to the planning and design of excavation and excavation retention system (if required) to reduce the risks of destabilising and causing damage to the adjacent school structures and surrounding public footpaths/roads. As with any excavation (if any) some movement of the surrounding ground should be expected, the extent of which will depend on the encountered ground profile, support type and other factors such as stress relief in medium strength rock.

Where open cuts are required as part of temporary works during ground support. Recommendations for temporary unsupported cuts and batters (if required) are presented below in **Table 4-1**.

Table 4-1 Cut / Batter Recommendations

Geotechnical profile	Temporary Batter (Horizontal to Vertical Ratio)
Fill	2.5H:1V
Residual Soil	1.5H:1V

Notes:

- Table 4-1 applies to temporary unsupported cut batters only, for a period of no greater than 3 months once constructed
- Temporary batters apply to cuts no greater than 1.50m in vertical height. Where deeper cuts are proposed for each stratum, further geotechnical designed support or retention systems may be required.
- Excavations in soil have assumed no groundwater table has been encountered;
- The ground surface at the crest of the excavation is horizontal;
- There is no surcharge at the crest of the excavation for a distance equal to the depth of the excavation;
- All cuts are protected from erosion.

4.5 Geotechnical Parameters

Geotechnical soil parameters and rock mass classifications are provided below and are based on a combination of the subsurface data and laboratory tests conducted. The geotechnical parameters provided are inferred and presented to assist with geotechnical design.



4.5.1 GEOTECHNICAL SOIL PARAMETERS

Geotechnical soil parameters for both cohesive and non-cohesive soils encountered on site have been provided below in **Table 4-2** and **Table 4-3**, respectively. No geotechnical parameters have been assigned to topsoil and manmade fill layers due to the potential variability. All topsoil and manmade fill layers are recommended to be considered soft for cohesive soils, and loose for granular soils.

Table 4-2 Cohesive Soil Parameters

Unit	Material	Cu (kPa)	Unit Weight (kN/ m ³)	C' (kPa)	φ' (°)	Poisson's Ratio	E' (MPa)
1/2	T / F - CLAY	-	17	-	-	-	-
3	RS – Firm CLAY	25	18	2	22	0.30	2
3	RS – Stiff CLAY	50	19	5	24	0.30	4
3	RS – Very Stiff CLAY	100	20	10	26	0.30	8
3/4b	RS / XW – Hard CLAY	200	21	20	27	0.30	15

Notes:

- i) Cu = undrained shear strength in kPa
- ii) c' = cohesion of soil in kPa
- iii) φ' = friction angle of soil in degrees
- iv) E = elastic modulus of soil in MPa

Table 4-3 Non-Cohesive Soil Parameters

Unit	Material	Unit Weight ((kN/ m ³)	C' (kPa)	φ' (°)	Poisson's Ratio	E' (MPa)
1/2	T / F - SAND	16	-	-	-	-
3/4a	RS / XW – Medium Dense SAND	17	-	30	0.30	10
4a	XW – Dense SAND	18	-	34	0.30	40
4a	XW – Very Dense SAND	20	-	37	0.30	80

Notes:

- v) T = Topsoil
- vi) F = Fill
- vii) RS = Residual Soil
- viii) XW = Extremely Weathered

4.6 Expected Structural Foundations

Foundation options for the proposed development can be both shallow and or deep foundations, depending on the subsurface materials encountered and structural loads. Parameters for both shallow and deep footing system options are provided below.

4.6.1 SHALLOW / PAD FOOTINGS

Due to the unknown loads and footing systems, no specified allowable bearing capacities can be determined at this time and all values presented below are just preliminary. Once specific loadings have been ascertained, Stantec can assist to optimise the footing size and depth to suit the loading



on the founding material. Bearing capacity of footings in soil needs to be subjected to geotechnical checking considering footing size, depth, slope (ground surface and/or footing base) and loadings (i.e. bearing capacity is not a soil property but is dependent of footing size, depth, slope and loadings). A footing subjected to pull out forces should be further geotechnical assessment in addition to bearing capacity, overturning and sliding.

Conventional shallow footings designed in accordance with engineering principles and nominally embedded 0.5m into the design founding material, may be proportioned on the following allowable end-bearing pressures, summarised in **Table 4-4** and **Table 4-5** below.

Table 4-4 Allowable End Bearing Pressures – Cohesive Soils

Founding Material	Area (m ²)	Allowable Bearing Capacity (kPa)
CLAY – Soft	1 x 1	35
CLAY – Firm	1 x 1	75
CLAY – Stiff	1 x 1	150
CLAY – Very Stiff to Hard or better	1 x 1	250

Note:

1. Ultimate bearing capacity tabulated above assuming eccentricity of 1/6 x footing width.
2. Horizontal ground is assumed
3. The settlement for shallow footings depends upon the loading conditions, footing size and foundation material, but it should be less than 1% of the footing width if proportioned on the basis of above parameters.
4. A minimum geotechnical strength reduction factor ϕ_g of 0.4 can be applied for the allowable design values.

Table 4-5 Allowable End Bearing Pressures - Non-Cohesive Soils

Founding Material	Area (m ²)	Allowable Bearing Capacity (kPa)
SAND – Loose	1 x 1	75
SAND – Medium Dense	1 x 1	125
SAND – Dense	1 x 1	250
SAND – Very Dense	1 x 1	400

4.7 Groundwater

It is anticipated that groundwater will most likely not be encountered during construction. If groundwater is encountered, it will most likely be associated with seepage flows along the interface of the residual sand/clay, bedrock and also minor seepage through fractures and joints in the rock above the permanent regional groundwater table. Considering the proposed earthwork will be limited to general levelling only, it is anticipated the proposed development earthwork will not intersect with the groundwater table.

5 Mitigation Measures

The following mitigation measure are proposed on the site, subject to detailed geotechnical design.



Table 5-1 Mitigation Measures

Project Stage*	Mitigation Measures	Reason for Mitigation Measures	Section of Report
C	Prior to bulk earthworks, the site shall be cleared of any foreign matter or unsuitable material.	To reduce the risks differential settlement and/or failures.	Section 4.1
C	Proof roll testing to be carried out using a minimum 12 tonne roller and compact the exposed subgrade to at least 98% Standard Maximum Dry Density (SMDD) at +/- 2% Optimum Moisture Content (OMC).	To reduce the risks differential settlement and/or failures.	Section 4.2
C	Should isolated soft/loose areas be encountered during this process, this material is required to be removed and replaced with suitable granular structural fill. Structural fill may comprise a select well graded granular material such as processed sandstone and road-base (DGB20)	To reduce the risks differential settlement and/or failures.	Section 4.2
C	Backfill excavation with approved structural fill in 150mm layers to a standard compaction of at least 98%.	To reduce the risks differential settlement and/or failures.	Section 4.2
C	Surface drainage must be maintained at all times by adopting appropriate cross-falls across the site. Surface drainage must be installed as soon as is practicable in order to capture and remove surface flows to prevent erosion and softening of the exposed surface	To reduce the risks differential settlement and/or failures.	Section 4.2
D, C	Design and construction of temporary and batter cuts should follow recommendations presented in Table 9.	To prevent stability of the batter cuts.	Section 4.4
D	Foundation options for the proposed development can be both shallow and or deep foundations, depending on the subsurface materials encountered and structural loads, subject to detail design.	To reduce the risks differential settlement and/or failures.	Section 4.6

*Note: Project stages include:

- (D) Design
- (C) Construction
- (O) Operation

6 Conclusion and evaluation of environmental impact

Based on our Intrusive Geotechnical Investigation, we conclude with the following:

- The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment.



- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment

7 Limitations

Milton Public School Updated - Geotechnical Investigation Report for the purpose and objectives and scope identified in this report.

The agreed scope of this assessment has been limited for the current purposes of the Client. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This Document has been provided by Stantec subject to the following limitations:

- This Document has been prepared for the particular purpose outlined in Stantec's proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.
- The scope and the period of Stantec's services are as described in Stantec's proposal and are subject to restrictions and limitations. Stantec did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Stantec in regard to it.
- Conditions may exist which were undetectable given the limited nature of the enquiry Stantec was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.
- In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Stantec's opinions are based upon information that existed at the time of the production of the Document. It is understood that the services provided allowed Stantec to form no more than an opinion of the actual conditions of the site at the time this Document was prepared and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.
- Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either express or implied, that the actual conditions will conform exactly to the assessments contained in this Document.
- Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by Stantec for incomplete or inaccurate data supplied by others.
- Stantec may have retained sub consultants affiliated with Stantec to provide services for the benefit of Stantec. To the maximum extent allowed by law, the Client acknowledges and agrees it will not have any direct legal recourse to, and waives any claim, demand, or cause of action against, Stantec's affiliated companies, and their employees, officers and directors.



Appendix A Boreholes



Client: Schools Infrastructure NSW		Hole No: BH01	
Project: Schools Infrastructure NSW			
Location: Milton High School		Job No: 304100928	Sheet: 1 of 1
Position:		Angle from Horizontal: 90°	Surface Elevation:
Rig Type: Track Mounted Drill Rig		Mounting: Track	Driller: MATT
Casing Diameter: NA		Contractor: Stratacore	
Data Started: 28/11/23		Date Completed: 28/11/23	Logged By: SA
		Checked By: TH	

Drilling			Sampling & Testing		Material Description					
Method	Resistance	Casing	Sample or Field Test	DCP (blows per 100 mm)	Depth (m)	Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition Consistency Relative Density	STRUCTURE & Other Observations
	F	NA		1 3 6 12	0.15m	CL	Sandy CLAY: low plasticity, brown, fine to coarse grained sand, trace roots	M (>PL)	TOPSOIL	
	H				0.5		Gravelly CLAY: low plasticity, grey, fine to coarse gravel, trace low plasticity silt, with roots	M (<PL)	RESIDUAL SOIL	
				R 30mm	0.80m		TERMINATED AT 0.80 m Refusal			
					1.0					
					1.5					
					2.0					
					2.5					
					3.0					
					3.5					

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 Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (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 - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (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
--	--	--	---	---

Client: Schools Infrastructure NSW		Hole No: BH02	
Project: Schools Infrastructure NSW			
Location: Milton High School		Job No: 304100928	
		Sheet: 1 of 1	
Position:		Angle from Horizontal: 90°	
Rig Type: Track Mounted Drill Rig		Surface Elevation:	
Casing Diameter: NA		Mounting: Track	
Data Started: 28/11/23		Driller: MATT	
Date Completed: 28/11/23		Contractor: Stratacore	
Logged By: SA		Checked By: TH	

Drilling			Sampling & Testing		Material Description			
Method	Resistance	Casing	Sample or Field Test	DCP (blows per 100 mm)	Depth (m)	Graphic Log	Classification	Moisture Condition
AD/T ↑ ↓ VH	E	NA ↑ ↓ Not Encountered		1 3 6 12	0.20m		Sandy CLAY: low to medium plasticity, brown, fine to coarse grained sand, trace roots	M (>PL)
				0.50m		FILL: Sandy CLAY: medium plasticity, brown, fine to coarse grained sand	M (>PL)	
	F-H			1.0		Sandy CLAY: medium plasticity, dark brown, fine to coarse grained sand	M (<PL)	
				1.20m		Gravelly SAND: fine to coarse grained, yellow-brown, fine to coarse, sub-rounded to sub-angular gravel, with low plasticity clay, trace roots	M	
	F			1.5				
	H		SPT 1.50 - 1.68 m 2, 25/25mm HB N=R		2.0			
	VH				2.20m		TERMINATED AT 2.20 m Refusal	
					2.5			
					3.0			
					3.5			

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 Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (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 - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (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
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Schools Infrastructure NSW Project: Schools Infrastructure NSW Location: Milton High School		Job No: 304100928 Sheet: 1 of 1	
Position:		Angle from Horizontal: 90°	
Rig Type: Track Mounted Drill Rig		Driller: MATT	
Casing Diameter: NA		Contractor: Stratacore	
Data Started: 28/11/23		Date Completed: 28/11/23	
Logged By: SA		Checked By: TH	

Drilling			Sampling & Testing		Material Description						
Method	Resistance	Casing	Sample or Field Test	DCP (blows per 100 mm)	Depth (m)	Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
AD/T ↑ ↓ NA ↓ AD/T	E	Not Encountered		1 3 6 12	0.20m	[Pattern]		Sandy CLAY: medium plasticity, dark brown, fine to coarse grained sand, trace roots	M (>PL)		TOPSOIL
				0.50m	[Pattern]		FILL: Sandy CLAY: medium to high plasticity, brown to dark brown, fine to coarse grained sand, trace fine gravel, trace roots	M (>PL)		FILL	
				1.0m	[Pattern]	CH	Sandy CLAY: high plasticity, brown to dark brown, fine to coarse grained sand, trace fine gravel, trace roots	M (>PL)	VSt	RESIDUAL SOIL	
				1.20m				M (<PL)	H		
				1.50m	[Pattern]	SC	Gravelly SAND: fine to coarse grained, yellow-brown, fine to coarse, sub-rounded to sub-angular gravel, with low plasticity clay	M	VD	EXTREMELY WEATHERED	
	H				2.0m						
	E				2.50m			TERMINATED AT 2.50 m Refusal			
	VH				3.0m						
					3.5m						

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 Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (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 - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (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
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client:	Schools Infrastructure NSW
Project:	Schools Infrastructure NSW
Location:	Milton High School

Job No: 304100928

Sheet: 1 of 1

Position:

Angle from Horizontal: 90°

Surface Elevation:

Rig Type: Track Mounted Drill Rig
--

Mounting: Track

Driller: MATT

Casing Diameter: NA

Contractor: Stratacore

Data Started: 28/11/23

Date Completed: 28/11/23

Logged By: SA

Checked By: TH

[illegible]

METHOD	PENETRATION	FIELD TESTS	SAMPLES	SOIL CONSISTENCY
EX Excavator bucket	VE Very Easy (No Resistance)	SPT - Standard Penetration Test	B - Bulk disturbed sample	VS - Very Soft
R Ripper	E Easy	HP - Hand/Pocket Penetrometer	D - Disturbed sample	S - Soft
HA Hand auger	F Firm	DCP - Dynamic Cone Penetrometer	ES - Environmental sample	F - Firm
PT Push tube	H Hard	PSP - Perth Sand Penetrometer	U - Thin wall tube 'undisturbed'	St - Stiff
SON Sonic drilling	VH Very Hard (Refusal)	MC - Moisture Content		VSt - Very Stiff
AH Air hammer		PBT - Plate Bearing Test	MOISTURE	H - Hard
PS Percussion sampler	WATER	IMP - Borehole Impression Test	D - Dry	RELATIVE DENSITY
AS Short spiral auger	 Water Level on Date shown	PID - Photoionisation Detector	M - Moist	VL - Very Loose
AD/V Solid light auger: V-Bit	 water inflow	VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	W - Wet	L - Loose
AD/T Solid light auger: TC-Bit	 water outflow		PL - Plastic limit	MD - Medium Dense
HFA Hollow flight auger			LL - Liquid limit	D - Dense
WB Washbore drilling			w - Moisture content	VD - Very Dense
RR Rock roller				

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

Stantec Australia PTY LTD

Client:	Schools Infrastructure NSW
Project:	Schools Infrastructure NSW
Location:	Milton High School

Job No: 304100928

Sheet: 1 of 1

Position:

Angle from Horizontal: 90°

Surface Elevation:

Rig Type: Track Mounted Drill Rig
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Mounting: Track

Driller: MATT

Casing Diameter: NA

Contractor: Stratacore

Data Started: 28/11/23

Date Completed: 28/11/23

Logged By: SA

Checked By: TH

Drilling			Sampling & Testing			Material Description						
Method	Resistance	Casing	Water	Sample or Field Test	DCP (blows per 100 mm)	Depth (m)	Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
AD/T	E	NA	Not Encountered		13612	0.30m			Sandy CLAY: medium plasticity, brown to dark brown, fine to coarse grained sand	M (>PL)		TOPSOIL
				R		0.5	SC	Clayey SAND: fine to coarse grained, pale brown, low plasticity clay, trace fine gravel	D	D	EXTREMELY WEATHERED	
	F				SPT 1.50 - 1.80 m 8, 20 N=R	1.5		Sandy CLAY: low plasticity, yellow-brown, fine to coarse grained sand	M (<PL)			
						2.0	CL					
						2.5		Sandy CLAY: medium plasticity, brown to dark brown, fine to coarse grained sand		H		
					SPT 3.00 - 3.30 m 4, 25 HB N=R	3.0	CI		M (<PL)			
	VH					3.40m		TERMINATED AT 3.40 m Refusal				
						3.5						

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 Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (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 - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (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
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia PTY LTD

Appendix B Test Results





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A.B.N. 34 635 062 609

Report on Moisture Content, Emerson Class, Soil pH, EC, PASS/AASS and Foreign Material

Client:	Stantec Australia Pty Ltd	Report No:	1292-EC
Client Address:	16 Burelli St, Wollongong NSW 2500	Report Date:	7/12/2023
Project:	Geotechnical Testing	Report Page:	Page 1 of 1
Works Component:	Milton	Project No:	26
Material Used:	Insitu	Test Request/Order:	304100928
Material Description:	-	Lot Number:	-
Lot Boundaries:	Chainage - to -. Offsets - to -.	ITP/PCP Number:	-
Lab Test Date/s:	Laboratory testing 06/12/2023	Control Line:	BH02

Sample Number:	18224	18226	-	-	-
Field Sample/Test Date:	28/11/2023	28/11/2023	-	-	-
Chainage / Location:	(m) -	-	-	-	-
Offset from control line:	(m) -	-	-	-	-
Level of Test:	(m) BH02	BH04	-	-	-
Test Depth:	(mm) 0.5-1.0m	0.5-1.0m	-	-	-

Lab Test Date (Moisture):	-	-	-	-	-
Moisture Content:	(%) -	-	-	-	-

Test Water Used:	Distilled	Distilled	-	-	-
Temperature of Water:	(°C) 22	22	-	-	-
Soil Description:	-	-	-	-	-
Emerson Class Number:	CLASS 5	CLASS 5	-	-	-

Soil Moisture Condition:	-	-	-	-	-
Distilled Water:	(pH) -	-	-	-	-
Soil Suspension Ratio (Soil:Water)	-	-	-	-	-
Test Temperature:	(°C) -	-	-	-	-
pH Value of Soil-suspension:	(pH) -	-	-	-	-

Electrical Conductivity:	0	-	-	-	-
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Field pH:	(pH _f) -	-	-	-	-
Field pH Oxidised:	(pH _{FOX}) -	-	-	-	-
Acid Sulfate Soil Indication:	-	-	-	-	-

Foreign Material - Type III	(%) -	-	-	-	-
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Sampling & Test Methods (Results relate only to the items sampled/tested)	Report Remarks & Endorsement
Sampled by Customer: Results apply to the sample/s as received. ** AS 1289.1.1: (2001)Preparation of disturbed soil samples AS 1289.3.8.1: (2017)Emerson Class number of a soil (** NATA accreditation does not cover the performance of this service)	Accredited for compliance with ISO/IEC 17025 - Testing. NATA Accreditation number: 20656 Issued By:  P. Baltoski Approved Signatory WB054 - Rev 4, 06/02/2023



ASCT Illawarra

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WB080 - Rev 32, 28/11/2023

Report on Material Quality

Client:	Stantec Australia Pty Ltd	Report No:	26-1293-MQ
Client Address:	16 Burelli St, Wollongong NSW 2500	Report Date:	7/12/2023
Project:	Geotechnical Testing	Report Page:	Page 1 of 2
Works Component:	Milton	Project No:	26
Material Used:	Insitu	Request/Order:	304100928
Material Description:	-	Lot Number:	-
Lot Comments:	-	ITP/PCP Number:	-
Lab Test Date/s:	Laboratory testing 30/11/2023 to 04/12/2023	Control Line:	BH03

Sample Number	Sample Date	Chainage/Location	Offset	Level of Test	Test Depth
18225	28/11/2023	-	-	BH03	0.5-1.0m

Sampling & Test Methods (Results relate only to the items sampled/tested)

(** NATA accreditation does not cover the performance of this service)

Sampled by Customer: Results apply to the sample/s as received. **
 AS 1289.3.6.1 Coarse: (2009) Particle size distribution of a soil
 AS 1289.3.1.2: (2009) Determination of Liquid Limit (1 point Casagrande)
 AS 1289.3.3.1: (2009) Calculation of the Plastic Index of a soil

AS 1289.1.1: (2001) Preparation of disturbed soil samples
 AS 1289.3.6.1 Fine: (2009) Particle size distribution of a soil
 AS 1289.3.2.1: (2009) Determination of the Plastic Limit
 PSD: Ratios, Co-efficients & Weighted Indices

Report Remarks & Endorsement



Accredited for compliance with
 ISO/IEC 17025 - Testing.
 NATA Accreditation number: 20656

Issued By:

P. Baltoski
 P. Baltoski

Approved Signatory

Specification Name					Graphical Representation
Particle Size Distribution (WASHED)	Units	Result	Specification Limits		
Passing 150mm Sieve	%				Particle Size Distribution Passing (%) Sieve Aperture (mm)
Passing 125mm Sieve	%				
Passing 100mm Sieve	%				
Passing 75.0mm Sieve	%				
Passing 63.0mm Sieve	%				
Passing 53.0mm Sieve	%				
Passing 37.5mm Sieve	%				
Passing 31.5mm Sieve	%				
Passing 26.5mm Sieve	%				
Passing 19.0mm Sieve	%	100			
Passing 16.0mm Sieve	%				
Passing 13.2mm Sieve	%	100			
Passing 9.5mm Sieve	%	100			
Passing 6.7mm Sieve	%	99			
Passing 4.75mm Sieve	%	99			
Passing 2.36mm Sieve	%	96			
Passing 1.18mm Sieve	%	88			
Passing 0.600mm Sieve	%	77			
Passing 0.425mm Sieve	%	71			
Passing 0.300mm Sieve	%	66			
Passing 0.150mm Sieve	%	55			
Passing 0.075mm Sieve	%	50			
Passing 0.0135mm Sieve	%				
Moisture, Ratios, Coefficients & Indices	Units	Result	Specification Limits	Remarks	
Moisture Content (AS1289.2.1.1-2005)	%	18.8		Field Condition Total sample	

**ASCT Illawarra**

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Mobile: 0497 979 929

A.B.N. 34 635 062 609

WB080 - Rev 32, 28/11/2023

Report on Material Quality

Client:	Stantec Australia Pty Ltd	Report No:	26-1293-MQ
Client Address:	16 Burelli St, Wollongong NSW 2500	Report Date:	7/12/2023
Project:	Geotechnical Testing	Report Page:	Page 2 of 2
Works Component:	Milton	Project No:	26
Material Used:	Insitu	Request/Order:	304100928
Material Description:	-	Lot Number:	-
Lot Comments:	-	ITP/PCP Number:	-
Lab Test Date/s:	Laboratory testing 30/11/2023 to 04/12/2023	Control Line:	BH03

Sample Number	Sample Date	Chainage/Location	Offset	Level of Test	Test Depth
18225	28/11/2023	-	-	BH03	0.5-1.0m

Plasticity	Units	Result	Specification Limits	Remarks
Liquid Limit	%	54		Oven Dried & Dry Sieved
Plastic Limit	%	25		Oven Dried & Dry Sieved
Plastic Index	%	29		Oven Dried & Dry Sieved



ASCT Illawarra

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WB080 - Rev 32, 28/11/2023

Report on Material Quality

Client:	Stantec Australia Pty Ltd	Report No:	26-1295-MQ
Client Address:	16 Burelli St, Wollongong NSW 2500	Report Date:	7/12/2023
Project:	Geotechnical Testing	Report Page:	Page 1 of 2
Works Component:	Milton	Project No:	26
Material Used:	Insitu	Request/Order:	304100928
Material Description:	-	Lot Number:	-
Lot Comments:	-	ITP/PCP Number:	-
Lab Test Date/s:	Laboratory testing 30/11/2023 to 04/12/2023	Control Line:	BH05

Sample Number	Sample Date	Chainage/Location	Offset	Level of Test	Test Depth
18227	28/11/2023	-	-	BH05	0.5-1.0m

Sampling & Test Methods (Results relate only to the items sampled/tested)

(** NATA accreditation does not cover the performance of this service)

Sampled by Customer: Results apply to the sample/s as received. **
 AS 1289.3.6.1 Coarse: (2009) Particle size distribution of a soil
 AS 1289.3.1.2: (2009) Determination of Liquid Limit (1 point Casagrande)
 AS 1289.3.3.1: (2009) Calculation of the Plastic Index of a soil

AS 1289.1.1: (2001) Preparation of disturbed soil samples
 AS 1289.3.6.1 Fine: (2009) Particle size distribution of a soil
 AS 1289.3.2.1: (2009) Determination of the Plastic Limit
 PSD: Ratios, Co-efficients & Weighted Indices

Report Remarks & Endorsement



Accredited for compliance with
 ISO/IEC 17025 - Testing.
 NATA Accreditation number: 20656

Issued By:

P. Baltoski

P. Baltoski

Approved Signatory

Specification Name					Graphical Representation
Particle Size Distribution (WASHED)	Units	Result	Specification Limits		
Passing 150mm Sieve	%				Particle Size Distribution Passing (%) Sieve Aperture (mm)
Passing 125mm Sieve	%				
Passing 100mm Sieve	%				
Passing 75.0mm Sieve	%				
Passing 63.0mm Sieve	%				
Passing 53.0mm Sieve	%				
Passing 37.5mm Sieve	%				
Passing 31.5mm Sieve	%				
Passing 26.5mm Sieve	%				
Passing 19.0mm Sieve	%	100			
Passing 16.0mm Sieve	%				
Passing 13.2mm Sieve	%				
Passing 9.5mm Sieve	%				
Passing 6.7mm Sieve	%	100			
Passing 4.75mm Sieve	%	100			
Passing 2.36mm Sieve	%	92			
Passing 1.18mm Sieve	%	66			
Passing 0.600mm Sieve	%	45			
Passing 0.425mm Sieve	%	37			
Passing 0.300mm Sieve	%	32			
Passing 0.150mm Sieve	%	25			
Passing 0.075mm Sieve	%	20			
Passing 0.0135mm Sieve	%				
Moisture, Ratios, Coefficients & Indices	Units	Result	Specification Limits	Remarks	
Moisture Content (AS1289.2.1.1-2005)	%	8.2		Field Condition Total sample	

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WB080 - Rev 32, 28/11/2023

Report on Material Quality

Client:	Stantec Australia Pty Ltd	Report No:	26-1295-MQ
Client Address:	16 Burelli St, Wollongong NSW 2500	Report Date:	7/12/2023
Project:	Geotechnical Testing	Report Page:	Page 2 of 2
Works Component:	Milton	Project No:	26
Material Used:	Insitu	Request/Order:	304100928
Material Description:	-	Lot Number:	-
Lot Comments:	-	ITP/PCP Number:	-
Lab Test Date/s:	Laboratory testing 30/11/2023 to 04/12/2023	Control Line:	BH05

Sample Number	Sample Date	Chainage/Location	Offset	Level of Test	Test Depth
18227	28/11/2023	-	-	BH05	0.5-1.0m

Plasticity	Units	Result	Specification Limits	Remarks
Liquid Limit	%	31		Oven Dried & Dry Sieved
Plastic Limit	%	18		Oven Dried & Dry Sieved
Plastic Index	%	13		Oven Dried & Dry Sieved