

Geotechnical Report

Appendix C

Test Hole Logs

Sterling Lyon Parkway

UMA 2003



Memorandum

File: 4231-040-00

To: Bruce Biglow
From: Gil Robinson
Date: 08 March 2004
Office: Winnipeg
RE: Kenaston Blvd. Grade Separation – Geotechnical Investigation

1. INTRODUCTION

This report summarizes the results of our geotechnical investigation conducted along the proposed roadway alignments for 1) Sterling Lyon Parkway from Victor Lewis Drive to Kenaston Blvd; 2) Wilkes Avenue from Kenaston Blvd. to Shaftesbury Blvd. and 3) Wilkes interconnection between Wilkes and Sterling Lyon Parkway. The roadway will consist of concrete pavement using an urban design with curb and gutters. Catch basins will be connected to existing land drainage sewers. The purpose of the geotechnical investigation was to evaluate the soil conditions along the proposed roadways and to provide geotechnical information for the design of the pavement. Test holes were also drilled along Kenaston at the proposed interchange to obtain additional soils information for the realignment of the existing feedermain along the south side of Wilkes Avenue.

2. FIELD INVESTIGATION

Eighty-three test holes were drilled on November 6, 7 and 22, 2004. Test holes were drilled at a spacing of approximately 50m at the locations shown on Figure 01. Site supervision and test hole logging were conducted by Mr. Darryl Schmidt, C.E.T. of UMA Engineering. The test holes were drilled by Paddock Drilling Ltd. using a track mounted RM-30 drill rig equipped with 150mm-diameter solid-stem augers. Test holes were typically advanced to a minimum depth of 3m unless silt or fill soils were encountered at this depth. In these cases, the test holes were advanced through the silt or fill layer into the underlying clay soil. Three of the four test holes located at the existing Wilkes - Kenaston intersection (TH's 82 to 85) were drilled to a depth of 4.6m. Test Holes 71 and 72 on Wilkes Ave. west of Shaftesbury Blvd. were not drilled. Test holes drilled along Wilkes Ave (TH's 66 to 70) were drilled through the gravel shoulder at the edge of the asphalt pavement.

Test holes were visually logged and the consistency of the clay determined using a Pocket Penetrometer. All test holes were backfilled with auger cuttings upon completion. Disturbed (auger cuttings) were recovered at selected locations for further classification and moisture content testing. Standpipe piezometers were installed in 6 test holes to monitor groundwater

levels in wet silt and/or organic layers. Piezometer installation details and groundwater elevations are included on the test hole logs in Appendix A.

3. SITE CONDITIONS

The ground surface along the road alignments is variable due to the presence of fill (higher than prairie level) or low-lying areas. The portion of the alignment east of Kenaston Blvd. is generally clear with intermittent stands of willows and occasional wet areas, in particular at the east end from TH's 10 to 12 and from TH's 17 to 21. The first 900 m of the alignment on the west side of Kenaston (TH's 36 to 54) runs along the edge of and through a treed area. Demolition waste has been deposited in the open area immediately south of tree line and intermittently through the treed area. West of treed area, the alignment crosses the abandoned CN Intermodal yard until it connects with the existing Wilkes Avenue.

4. SUBSURFACE CONDITIONS

Soil Stratigraphy

Below the fill material placed along much of the alignment, the soil profile generally consists of a layer of either peat or topsoil overlying clay and silt. The most problematic soils with respect to construction are expected to be the fill, organic and silt layers. In this regard, we have summarized the information related to contact elevations and thicknesses for each of these layers on Table 1 in Appendix B. A stratigraphic profile along the alignment shown on Figures 02 and 03 illustrates the variability of the soil types and visually identifies problem areas. The horizontal scale on these profiles is referenced to test hole numbers i.e. about 500m for every 10 test holes based on an average spacing of 50m. Note that the silt/organic layers are based on the contact elevations from Table 1 for test holes in which these layers were encountered. Although these layers have been connected between test holes on Figures 02 and 03, no interpretation of soil conditions between the test holes has or should be made due to the natural variability of soil that can be expected. The nature and extent of the variations may not become evident until construction.

Each of the major stratigraphic units is discussed as follows:

Fill

Fill material, ranging in thickness from 0.15m to 2.9m, was encountered in 48 test holes. The fill typically consists of firm to stiff clay intermixed with variable amounts of topsoil, organics and gravel. Test holes in which the fill material was not comprised of clay are summarized as follows:

- A 2 m thick layer of silty sand fill containing plastic bags and burlap sand bags was encountered in TH 31.
- In TH 46, a 1.5m thick fill layer of concrete rubble intermixed with sand and fine gravel was encountered.

Kenaston Blvd. Grade Separation

- In TH's 60 and 61, a layer of gravel, possibly railway ballast, was encountered above the clay fill. The gravel fill was 0.9m and 0.6m thick, respectively.
- In TH's 65 to 70, located along the south side of Wilkes Avenue, a layer of 19mm down crushed limestone fill (road base) ranging in thickness from 0.4m to 1.3m was encountered. A 0.3m thick layer of 19mm down crushed limestone was also encountered above the clay fill in TH 84 located along the east shoulder of Kenaston Blvd.
- Lime was encountered within the clay fill in TH's 74, 75 and 76. The layer ranges in thickness from 0.2 m (TH 74) to 0.5 m (TH 76).

Organics/Peat

A compressible layer of well decomposed organic material and peat was encountered at ground surface in 25 test holes ranging in thickness from 0.1m to 1.7m. Moisture contents of 34.5%, 59.8% and 180.5% were measured in three samples of the organic material indicating that the moisture content of the material is variable that is, ranging from wet to dry. Organics were encountered in TH's 10 to 12 (max 0.8 m deep), TH's 17 to 21 (max 0.45 m deep) and TH's 47 to 52 (max 0.3m deep). The most significant stretch having organics occurs immediately west of Kenaston Blvd. where up to 1.7 m of peat was encountered (TH's 36 to 43).

Topsoil

A topsoil layer was encountered at ground surface in 13 test holes. The topsoil ranges in thickness from 0.05 to 0.3 m and has variable organic and clay contents.

Silt

A silt layer was encountered at depth in 66 test holes and at ground surface in TH-58. A second (lower) silt layer was encountered in ten test holes. The thickness and elevation of the silt layer is highly variable as seen in Figures 02 and 03. The upper silt layer ranges in thickness from 0.15m to 1.7m. The thickness of the lower silt layer ranges in thickness from 0.2m to 0.6m. The silt is yellowish brown or grey, loose (soft) to compact with low plasticity. At the time of drilling, the moisture content classified in the field ranged from dry to wet with moisture contents for seven samples ranging from 24.6% to 45.2%. The silt tends to be soft when wet and compact when in a dry state.

Sand

A sand layer was encountered in two test holes (TH's 13 and 33). The 0.6m thick, grey, moist, loose sand layer in TH-13 was encountered 1.2m below surface. The 0.8m thick, grey, moist, loose clayey sand layer in TH-33 was encountered 1.4m below surface.

Clay

Clay was encountered in all test holes underlying the fill, organic or topsoil layers. The clay closest to ground surface was typically black, dry, stiff, with low to medium plasticity. The upper horizon typically contains trace organics. The clay becomes highly plastic and brown to grey with increasing depth. Measured moisture contents ranged from 20% to 55.3%.

Groundwater

Minor seepage and sloughing was encountered in the majority of the test holes where wet silt layers were encountered. Standpipe piezometers (Casagrande type) were installed in TH's 11, 27, 41, and 78 to measure groundwater levels in the wet silt layers. Piezometers in TH's 64 and 85 were installed in thin silt layers classified as moist at the time of drilling.

Water levels were measured on three occasions. The monitoring dates and corresponding water elevations are presented at the bottom of the test hole logs. The maximum recorded levels are also shown on the left and right margins of the test hole logs in Appendix A and on Figures 02 and 03. Water levels in TH's 11, 27, 41, and 78 peaked approximately two weeks after installation and began to drop off by the third week. Piezometers in TH's 64 and 85 were still dry three weeks after installation. Water levels in TH's 11, 27 and 41 ranged from 0.35m to 0.65m below prairie level. The water level in TH-78 was 2.5m below the fill surface which would correspond to about 1m below prairie level. It is important to note that the groundwater levels measured will vary seasonally or as a result of rainfall.

5. DISCUSSION AND RECOMMENDATIONS

Roadway Considerations

Subgrade Excavation

The clay underlying the fill, organic or topsoil layers is typically stiff to firm with depth and should provide a suitable subgrade for road construction. All organic or topsoil material is considered unsuitable and should be completely removed. When silt or silt fill is encountered during subgrade excavation, it should be treated as unsuitable material, over-excavated down to native clay, or to a maximum depth of 750mm, and bridged with granular fill in accordance with the City of Winnipeg's Standard Construction Specification CW 3110-R6. Geotextile should be placed between the native soil and the granular fill in accordance with the City of Winnipeg's Standard Construction Specification CW 3130 to provide separation and reinforcement. The granular fill should be compacted in uniform layers followed by proof rolling to ensure it is well compacted and that no soft or weak areas exist.

Depending on the final design profile, it is expected that variable thicknesses of clay fill will lie below the subgrade elevation. In most cases, the remaining clay fill is considered to be suitable subgrade material providing any soft material and pockets of organics or silt encountered at the

base of excavations is removed. Soft areas are best identified by following the proof rolling procedures described in the Subgrade Preparation Section below.

Subgrade Preparation

The excavation in clay soil should be scarified and compacted to a minimum of 95 percent of the maximum Standard Proctor dry density. If squeezing and bulking of the subgrade occurs, compaction should be terminated and an investigation undertaken to determine the cause of the squeezing and bulking. For example, a wet silt layer at a shallow depth below the subgrade may cause these problems. In such a case, the sub-grade may need to be over-excavated to reach competent native clay or to a maximum depth of 750mm and bridged with geotextile and granular fill.

Any clay fill sub-grade should be proof rolled with a 30 tonne rubber tired roller or equivalent truck load (fully loaded dump truck) or road grader to identify any soft areas before the granular base and pavement layers are placed. Each successive pass of the equipment used for proof rolling should be offset by not greater than one tire width to provide adequate coverage. The rolling pattern should be completed in a systematic fashion and the results recorded. Best results are generally obtained using the equipment speeds ranging from 4 to 8 kmh.

Areas identified as being weak or soft during proof rolling should be stabilized by additional re-working and compaction or removal and replacement with suitable material. Any softened or weak areas at a relatively shallow depth should be bladed aside and the underlying material scarified and re-compacted. The excavated material should then be bladed back and compacted to a minimum of 95 percent of the maximum Standard Proctor dry density. In areas where the softened material extends to greater depths, over-excavation (sub-cutting) and removal of the weak material may be necessary. Cuts across the roadway alignment should be sloped at a maximum (i.e. no steeper than) of 5H:1V to minimize the potential for differential movement beneath the pavement. Once filled to subgrade elevation, proof rolling of these areas should be completed.

Pavement Drainage

The water table in the silt that remains below and adjacent to the roadway can be expected to rise and fall seasonally. In this regard, maintaining a low water table within the pavement section is recommended to prevent subgrade softening (from increased moisture contents) and minimize frost heave. Underdrains should be placed on both sides of the pavement along the full length of the roadway to keep the construction layers as dry as possible to prevent weakening and also to minimize the potential for frost heaving. The drains should be installed in trenches hydraulically connected to any granular base layers. Underdrains should be fitted with inspection/cleaning points (risers) and connected to a land drainage system (catch basin).

Kenaston Blvd. Grade Separation

Please contact the undersigned if we can be of further assistance.

A handwritten signature in black ink that reads "Gil Robinson" with a horizontal line extending to the right.

Gil Robinson, M.Sc., P.Eng.
Geotechnical Engineer
Earth & Environmental
GR/dh

cc: Randy Fingas – City of Winnipeg
Gil Maurant - STANTEC

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 1
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.294
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa) 50 100 150 200	COMMENTS	ELEVATION (m)
0			CLAY - silty (fill) - trace stone (12 mm dia.) - brown, dry, medium plasticity					233
1	FILL							
2			SILT - yellowish brown, moist to wet with depth - loose, some oxide staining					232
3			CLAY - grey, moist - firm to stiff, medium plasticity					231
3.05			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.7 METRES UPON COMPLETION OF TEST HOLE.			△		230
4								229
5								

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 2
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.385
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	FILL		CLAY - silty (fill) - brown, firm to stiff, medium plasticity				233
1	CL		CLAY - trace organics - black				
	ML		SILT - yellowish brown, dry, loose				232
2	CI		CLAY - grey, moist - firm to stiff, medium plasticity - fine grained sand seam at 1.5 - 1.8 m, oxidized - 100 mm silt pocket at 2.74 m				231
3			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.				230
4							229
5							

△ Pocket Pen. (Su) △
(kPa)
50 100 150 200

△

△

△

△

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 3
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.776
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa) 50 100 150 200	COMMENTS	ELEVATION (m)
0	FILL		CLAY (fill) - and topsoil - black, dry, low plasticity					
	OL		CLAY - with organics - black, dry, low plasticity, crumbly					
1	ML		SILT - dry to moist with depth - loose to compact with depth - yellowish brown					232
2	CI		CLAY - grey, homogeneous, moist - firm to stiff, medium to high plasticity			△		231
3			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.5 METRES UPON COMPLETION OF TEST HOLE.			△		230
4								229
5								228

LOG OF TEST-HOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 4
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.654
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (fill) - some topsoil, black, dry								
	OL		CLAY - some organics, trace roots - black, dry, low plasticity								232
	ML		SILT - yellowish brown, dry, loose								
	CI		CLAY - dark brown, firm to soft, medium plasticity								
	ML		SILT - yellowish brown, moist, loose								231
	CL		CLAY - grey, firm to stiff - medium plasticity - 50 mm silt seam at 2.3 m, yellowish brown								230
			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.5 METRES UPON COMPLETION OF TEST HOLE.								229
											228

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 5
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.684
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	FILL		CLAY (fill) - some topsoil				
	ML		SILT - yellowish brown, dry, loose				
-1	CI		CLAY - dark brown, very stiff, medium plasticity				232
-2	ML		SILT - yellowish brown, moist, loose, oxidized				
-3	CH		CLAY - brown, moist, slightly varved - firm to stiff, high plasticity				230
-3.05			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.				229
-4							228
-5							

△ Pocket Pen. (Su) △
(kPa)
50 100 150 200

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 6
LOCATION: East of Kenaston (see site plan)	PROJECT NO.: 4231-040-00	
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.715
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa) 50 100 150 200	COMMENTS	ELEVATION (m)
0	FILL		CLAY (fill) - some topsoil and organics					
	ML		SILT - grey, dry, loose - turns yellowish brown at .45 m					
1			CLAY - silty - dark brown, medium to high plasticity, stiff - oxidized staining at 2.2 m - 90 mm thick yellowish brown silt seam at 2.4 m - trace silt and sulphates below 2.5 m			△		232
2						△		231
3	SICL					△		230
3.05			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.2 METRES UPON COMPLETION OF TEST HOLE.			△		229
4								228
5								

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 7
LOCATION: East of Kenaston (see site plan)	PROJECT NO.: 4231-040-00	
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.142
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (fill) - trace to some topsoil and fibrous peat - dry								233
0.5	ML		SILT - light brown, dry								
1	CL		CLAY - brown, homogeneous, dry to moist with depth - firm to stiff, medium plasticity								232
2	CL										231
3	CL										230
3.05			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.								230
4											229
5											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 8
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.446
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	OR		TOPSOIL / ORGANICS								
	OH		CLAY - silty - trace organics - black, dry to moist - medium plasticity								233
1	ML		SILT - yellowish brown, dry, loose								232
2	SICL		CLAY - silty - trace silt inclusions - brown, slightly mottled - stiff, moist						Δ		231
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.4 METRES UPON COMPLETION OF TEST HOLE.						Δ		230
4											229
5											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 9
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.233
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (fill) - trace to some organics - dry - low plasticity								233
1	SICL		CLAY - silty - brown, moist - stiff - medium plasticity - homogeneous								232
2	ML		SILT - yellowish brown - dry, loose								231
2	CH		CLAY - trace silt and sulphate inclusions - 10mm - brown - stiff - medium to high plasticity								230
3			END OF TEST HOLE AT 3.05 METRES, NO SLOUGHING OR SEEPAGE.								230
4											229
5											229

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 10
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.081
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

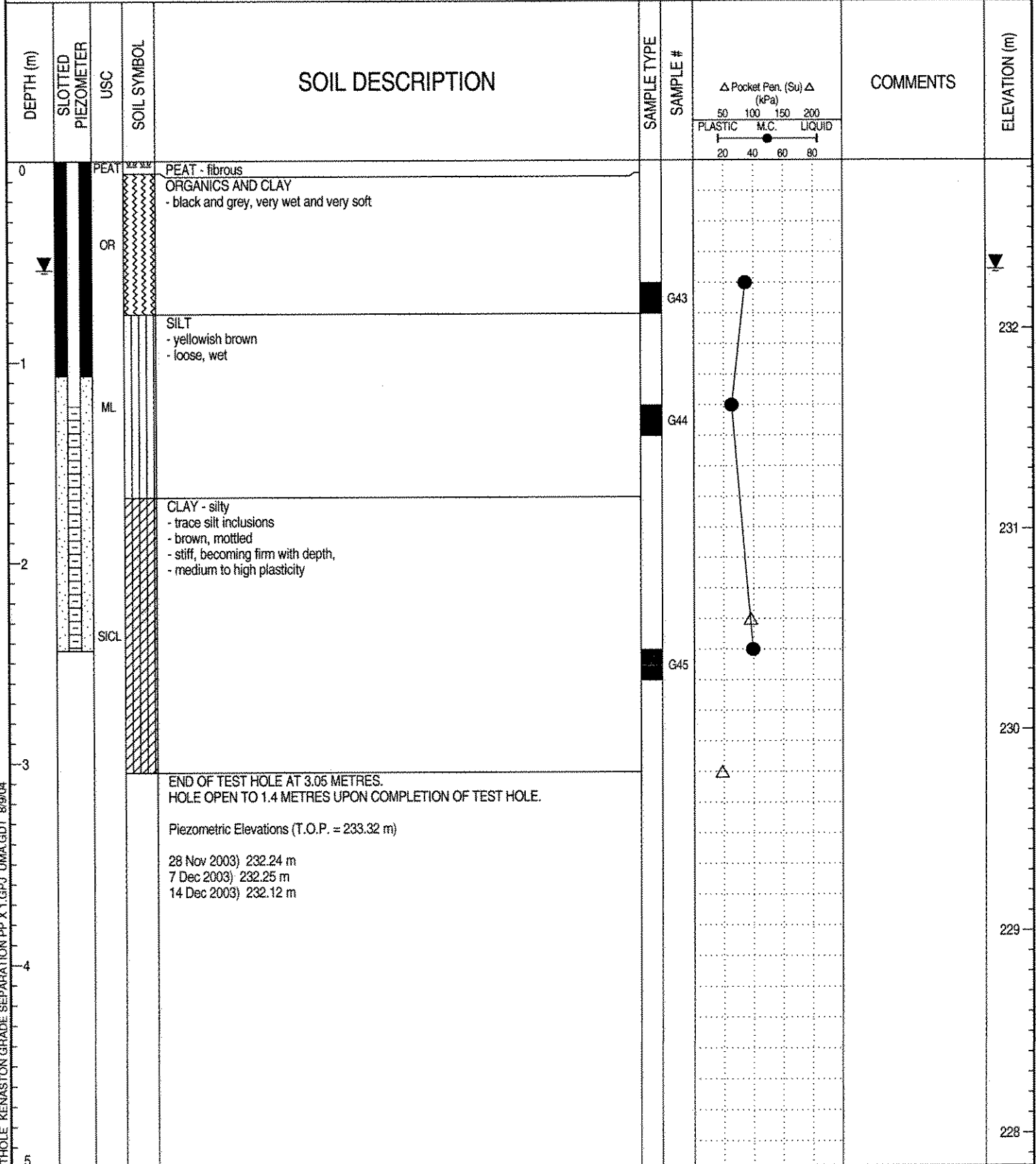
DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			PEAT - very wet								233
0.5	OR		SILT - yellowish brown - moist - compact								232
1.5	ML		CLAY - trace silt and sulphate inclusions - brown - firm to stiff - medium plasticity - red oxide stains below 2.3 m								231
3.0	CI		END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.4 METRES UPON COMPLETION OF TEST HOLE.								230
4.0											229
5.0											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP.X 1.GPJ UMAGDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 11
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.837
SAMPLE TYPE	<input type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	
BACKFILL TYPE	<input type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND	



LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Daryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 12
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.233
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - fibrous								233
	OL		CLAY - some organics - black, very wet								
	ML		SILT - trace clay - grey, wet, loose								
	SICL		CLAY - silty - grey, moist - stiff, highly plastic							△	
	ML		SILT - yellowish brown, dry, compact								
	SICL		CLAY - silty - trace silt and sulphate inclusions - brown, moist - stiff, medium plasticity							△	
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.								230
4											229
5											

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 13
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.111
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY - silty - black, soft, low plasticity								233
1	ML		SILT - yellowish brown and grey intermixed, moist - loose								232
	CI		CLAY - brown and grey intermixed, moist stiff - some black organic inclusions								
2	SA		SAND - grey, moist, loose								231
	CI		CLAY - trace sand lenses (decreasing frequency with depth) - dark brown, moist - firm to stiff - silt inclusions below 2.7 m								
3			END OF TEST HOLE AT 3.05 METRES IN SANDY CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.								230
4											229
5											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 14
LOCATION: East of Kenaston (see site plan)	PROJECT NO.: 4231-040-00	
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.837
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa) 50 100 150 200	COMMENTS	ELEVATION (m)
0	OH		CLAY - with organics, trace roots - black, dry to moist					
	CL		CLAY - grey, moist, low plasticity, soft					
	ML		SILT - light grey, moist, compact					
1	CI		CLAY - dark brown, moist, soft - medium plasticity - oxidized					232
	ML		SILT - yellowish brown, loose, moist, oxidized					
2	SI CL		CLAY - silty - moist - firm to stiff, medium plasticity			△		231
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.5 METRES UPON COMPLETION OF TEST HOLE.			△		230
4								229
5								228

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 15
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.202
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY - silty (possibly fill material) - black, dry, medium plasticity								233
	OH										
1			SILT - yellowish brown, dry, loose								232
	ML										
			CLAY - dark brown, dry, very stiff						△		
	CL										
2			SILT - yellowish brown and grey - dry to wet with depth, compact								231
	ML										
			CLAY - grey, mottled, dry to moist with depth - stiff, medium to high plasticity								
	CI										
3			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.7 METRES UPON COMPLETION OF TEST HOLE.						△		230
4											229
5											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Daryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 16
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.081
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY - silty (fill) - some gravel - black, dry								233
1	ML		SILT - grey, dry, compact								232
2	CL		CLAY - brown with frequent white sulphate inclusions, dry - stiff to very stiff, highly plastic								231
3	ML		SILT - yellowish brown, dry, compact								230
3	CH		CLAY - grey, moist - firm to stiff, highly plastic, homogeneous								230
3			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.2 METRES UPON COMPLETION OF TEST HOLE.								230
4											229
5											229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 17
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.501
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB	<input type="checkbox"/> SHELBY TUBE
	<input checked="" type="checkbox"/> SPLIT SPOON	<input type="checkbox"/> BULK
	<input checked="" type="checkbox"/> NO RECOVERY	<input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - wet, fibrous								
	OH		CLAY - silty - trace to some organics - black, moist								232
1	CH		CLAY - dark grey, dry - very stiff becoming soft to firm at 2.3 metres - highly plastic, homogeneous								231
2	ML		SILT - yellowish brown, dry, compact								230
3	CH		CLAY - trace silt inclusions - brown, soft to firm, highly plastic								229
3.05			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 2.4 METRES UPON COMPLETION OF TEST HOLE.								228

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 18
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.623
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - black, dry, fibrous								
	ML		SILT - grey, dry, loose								232
	ML		SILT - yellowish brown, moist, compact								
1			CLAY - silty - dark brown to grey - stiff, medium to high plasticity - 100 mm silt inclusion at 2.4 m								231
2											230
3											229
3.05			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.								228

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 19
LOCATION: East of Kenaston (see site plan)		PROJECT NO: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.745
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0		PEAT	PEAT - fibrous								
		ML	SILT - upper 150 mm is grey, then yellowish brown - moist, loose, oxidized								232
1		CH	CLAY - grey, slightly mottled, dry to moist with depth - stiff to very stiff, becoming firm to stiff with depth - highly plastic - 100 mm silt seam at 2.3 m - yellowish brown and oxidized - trace silt inclusions (10mm) below 2.4 m								231
2											230
3											229
4											228
5			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 2.4 METRES UPON COMPLETION OF TEST HOLE.								

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 20
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.745
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	PEAT		PEAT - moist, fibrous				
	OL		CLAY - trace to some organics - black, very wet, very soft - low plasticity				
	ML		SILT - yellowish brown, wet, loose, oxidized				232
1							
	CH		CLAY - dark brown to grey, moist - very stiff at 1.5 m, becoming firm to stiff with depth - high plasticity - 100 mm thick sulphate pocket at 1.8 m, - 100 mm silt pocket at 2.4 m, yellowish brown and oxidized			△ Pocket Pen. (Su) △ (kPa) 50 100 150 200	231
2							
							230
3							
			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.0 METRES UPON COMPLETION OF TEST HOLE.				229
4							
							228
5							

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 21
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 232.806
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - moist, fibrous								
	OL		CLAY - trace to some organics, trace roots - black, dry								
1	ML		SILT - yellowish brown, dry, loose, non plastic - 100 mm clay pocket at 1.2 m								232
2	CI		CLAY - brown, slightly varved, moist - stiff becoming firm with depth, medium to high plasticity								231
3			END OF TEST HOLE AT 3.05 METERS IN CLAY. HOLE OPEN TO 1.2 METRES UPON COMPLETION OF TEST HOLE.								230
4											229
5											228

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 9/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 22
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.416
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY - silty (possible fill) - trace organics - black, dry, low plasticity								233
	FILL										
1			CLAY and SILT (possible fill layer) - alternating layers (150mm thick) of silt and silty clay - silt is yellowish brown - silty clay is black - dry to moist with depth								232
	SICL										
2			CLAY - silty - dark brown - dry to moist with depth - stiff - medium plasticity, homogeneous - 100 mm silt seam at 2.44 m								231
	SICL										
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.6 METRES UPON COMPLETION OF TEST HOLE.								230
4											229
5											

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 23
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.416
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	FILL		CLAY - silty (fill) - black to grey from 0 to 0.3 m, black at 0.3 m - dry - stiff - medium plasticity							233
1	ML		SILT, - yellowish brown - upper 150mm is dry, moist below 1.06 m - compact							232
2	CI		CLAY - silty - dark brown - soft to firm, moist - medium plasticity, homogeneous							231
	ML		SILT - yellowish brown to red, moist							231
	CI		CLAY - silty - trace silt inclusions - 10 mm diameter - stiff, moist							230
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.6 METRES UPON COMPLETION OF TEST HOLE.							230
4										229
5										229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 24
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.635
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (fill) - silty, some organics - black, wet								234
	ML		SILT - yellowish brown, dry								
1	SICL		CLAY - silty (possible fill) - trace gravel - black to brown with depth, dry - firm to stiff - very black at 1.82 m						Δ		233
2	ML		SILT - dark grey, dry to moist - loose to compact								
3	CI		CLAY - silty - very stiff - medium plasticity, homogeneous								232
3.05			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.						Δ		231
4											230
5											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X.1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 25
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 235.336
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY (fill) - gravelly - black to brown, dry - stiff								235
1	FILL		CLAY - silty (fill) - trace gravel - black, moist - very stiff, medium plasticity								234
2	FILL		WHITE LIME - some clay								233
3	Cl		CLAY - silty - trace roots - black, dry - stiff, medium plasticity								232
4	Cl		CLAY - silty - grey to brown with depth, dry - very stiff, medium to high plasticity - trace fine gravel to 3.66 m								231
5			END OF TEST HOLE AT 4.57 METRES IN SILTY CLAY. HOLE OPEN TO 4.3 METRES UPON COMPLETION OF TEST HOLE.								

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 26
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 235.001
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

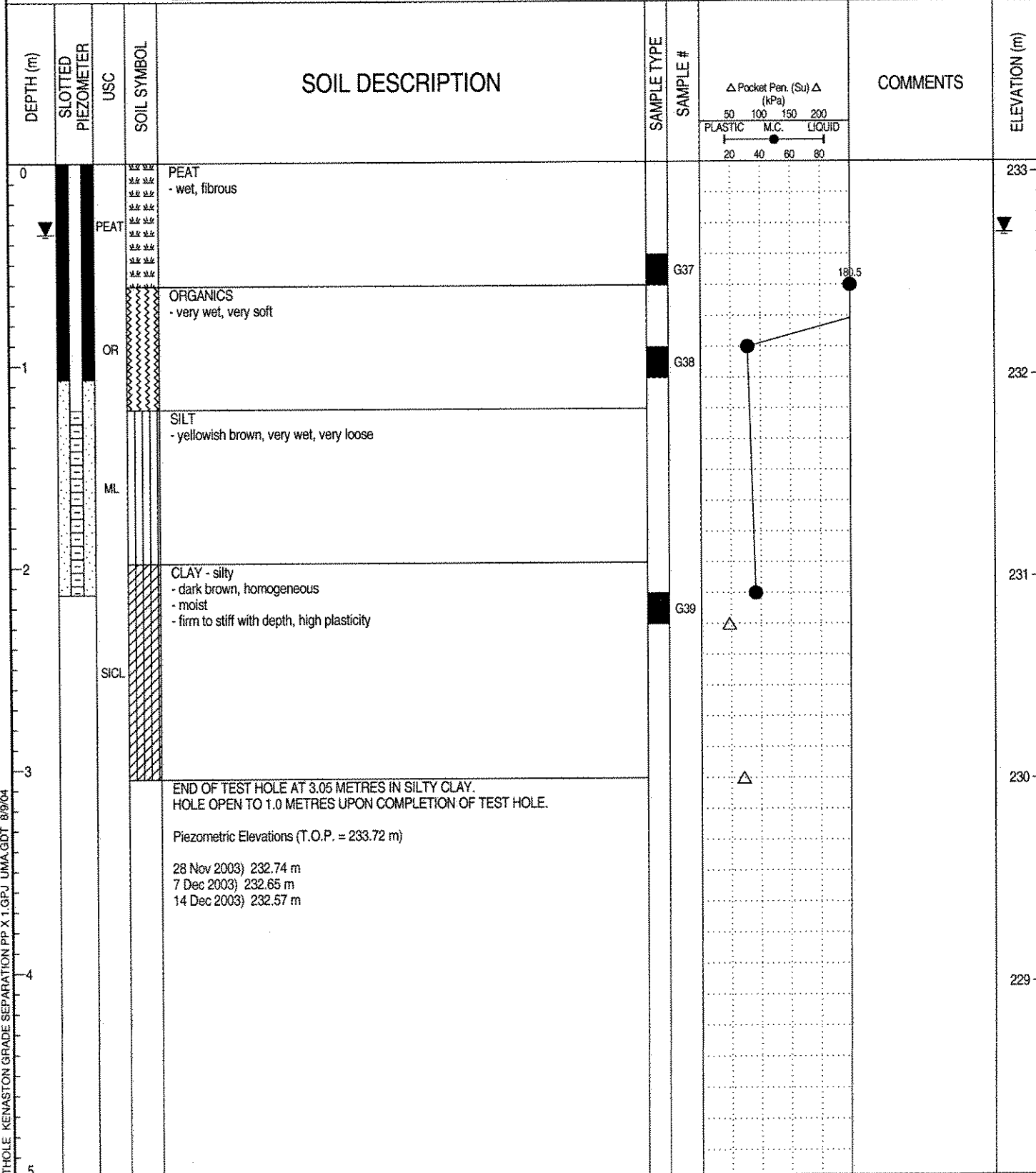
DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY - silty (fill) - black, dry - some medium gravel								
1	FILL		GRAVEL (medium) (fill) - some silty clay - black, dry - loose								234
2	CL		CLAY - silty - trace to some stones - black to dark brown - stiff - low plasticity								233
3	ML		SILT - grey, yellowish brown below 3.0 metres - wet, loose - slightly red, oxidized staining at 3.05 m								232
4	CL		CLAY - grey to dark brown - dry to moist with depth, stiff - medium plasticity - trace silt inclusions below 4.3 m								231
5			END OF TEST HOLE AT 4.57 METRES IN CLAY. HOLE OPEN TO 3.7 METRES UPON COMPLETION OF TEST HOLE.								

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X.1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 27
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.05
SAMPLE TYPE	<input type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	
BACKFILL TYPE	<input type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND	



LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 28
LOCATION: East of Kenaston (see site plan)		PROJECT NO: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.757
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (topsoil - fill)								
	FILL		CLAY (fill) - trace medium gravel - black, dry								
	ML		SILT - yellowish brown, very dry, loose								234
1	SICL		CLAY - silty - dark grey, stiff, medium plasticity								
	CL		CLAY - trace organics / roots - black, firm to stiff								233
2	ML		SILT - yellowish brown, moist, compact								
	SICL		CLAY - silty - grey, moist, stiff, medium plasticity								232
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.								
4											231
5											230

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 29
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 235.062
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (topsoil - fill)								235
			CLAY - silty (fill) - some gravel - black, dry - firm to stiff, low - medium plasticity, crumbles								
-1	FILL										234
-2	OL		CLAY - silty - some organics, grey and black, moist, firm to stiff								233
	SICL		CLAY - silty - grey, homogeneous, moist - stiff, low plasticity								
-3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.								232
-4											231
-5											

LOG OF TESTHOLE, KENASTON GRADE SEPARATION PP X.1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Startec Consulting Ltd.	TESTHOLE NO: 30
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 235.214
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						PLASTIC	M.C.	LIQUID		
0			CLAY (fill) - some gravel - dry							235
1	FILL									
			SILT - yellowish brown, wet							234
	ML									
2			CLAY - silty - some organics - black, wet, soft to firm							233
	SICL									
3			SILT - grey, very wet, loose							232
	ML									
4			CLAY - silty - dark grey, moist - very stiff becoming stiff with depth, medium plasticity - silt inclusions below 4.1 m (10mm diameter)							231
	SICL									
5			END OF TEST HOLE AT 4.6 METRES IN SILTY CLAY, NO SLOUGHING							

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ, UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 31
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 235.245
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			SAND (fill) - silty - dry becoming moist with depth - plastic bags and sandbags intermixed below 1.0 metres								235
1	FILL										234
2			CLAY - trace to some organics - black, wet, very soft								233
	OL										
			SILT - grey, soft, moist to wet								
	ML										
3			CLAY - silty - grey, moist - firm to stiff, medium plasticity - frequent silt inclusions								232
4											231
5			END OF TEST HOLE AT 4.6 METRES IN SILTY CLAY. HOLE OPEN TO 2.6 METRES UPON COMPLETION OF TEST HOLE.								

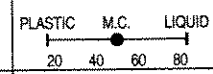
LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 32
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.934
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB	<input type="checkbox"/> SHELBY TUBE
	<input type="checkbox"/> SPLIT SPOON	<input type="checkbox"/> BULK
	<input type="checkbox"/> NO RECOVERY	<input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	OR		TOPSOIL				
0 to 1.2			CLAY - some organics - black, dry to 1.0 m, moist below 1.2 m - low to medium plasticity				233
1.2 to 2.4	OH		CLAY - black to 2.4 m then grey, homogeneous, moist - medium plasticity				232
2.4 to 3.05	CI						231
3.05 to 5			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.7 METRES UPON COMPLETION OF TEST HOLE.				230
							229



LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 33
LOCATION: East of Kenaston (see site plan)		PROJECT NO: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.117
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	OH		CLAY (topsoil) - trace roots								234
	CI		CLAY - grey, moist, medium plasticity								
	OL		CLAY - trace to some organics - black, moist, low- medium plasticity								
	SICL		CLAY - moist, loose silt - frequent silt pockets								
1	CL		CLAY - grey, moist - low plasticity								233
	SA		SAND - trace clay, grey, moist, fine grained								
	SC		SAND - clayey - dark grey, moist, loose								
2	SC										232
	ML		SILT - yellowish brown, moist to wet with depth								
3	ML										
	SICL		CLAY - silty - dark grey, homogeneous, moist - stiff, high plasticity								
4	SICL										230
			END OF TEST HOLE AT 4.6 METRES IN SILTY CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.								
5											

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 1.52 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 34
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.629
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE






DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	OR		TOPSOIL - some roots and intermixed clay								
0.5	OH		CLAY - trace to some organics - black, homogeneous, moist - stiff to very stiff, medium plasticity								233
1.5	CH		CLAY - dark brown, moist - firm to stiff with depth, highly plastic - trace silt inclusions below 2.0 m								232
2.5											231
3.0			END OF TEST HOLE AT 3.05 METRES IN CLAY, NO SLOUGHING								230
4.0											229
5.0											

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 35
LOCATION: East of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.446
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	OR		TOPSOIL CLAY - black, homogeneous - medium plasticity				233
1	CI						
2	ML		SILT - yellowish brown, moist, loose				232
2			CLAY - silty - trace medium gravel to 2.0 m depth - moist, medium to high plasticity - trace sulphate pockets				231
3	SI						
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.				230
4							229
5							

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 36
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.385
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa) 50 100 150 200	COMMENTS	ELEVATION (m)
0	PEAT		PEAT - fibrous					233
	OL		CLAY - trace to some organics, trace roots - black, low plasticity					232
1			CLAY - silty - grey, moist - trace silt inclusions - soft to 0.6 m depth - firm to stiff below 0.6 m - medium plasticity			Δ		231
2						Δ		230
3	SICL		END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.			Δ		229

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 37
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.33
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen, (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	OR		TOPSOIL								
	CI		CLAY - moist, medium plasticity								234
1	OH		CLAY - trace to some organics, trace roots - black								233
2	CI		CLAY - dark brown to black, moist - firm to stiff - 150mm silt pocket at 2.3 m - medium plasticity			Δ					232
3	CH		CLAY - moist, brown - stiff, medium plasticity - trace silt inclusions								231
3.05			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.			Δ					230

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 38
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.452
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	PEAT		PEAT - some topsoil and roots - fibrous				234
0.5	OL		CLAY - silty - trace to some organics - trace gravel - black, low plasticity				234
1.5	ML		SILT - grey, dry, loose - yellowish brown and wet below 1.75 m				233
2.5	SI CL		CLAY - silty - moist - stiff - medium to highly plastic - trace silt inclusions (10mm diameter)			△	232
3.05			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.2 METRES UPON COMPLETION OF TEST HOLE.			△	231
4.0							230
5.0							230

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 39
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.904
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT	PEAT	PEAT - fibrous								
0.75	ML		SILT - trace clay to 0.75 m - dark grey and dry to 1.0 m - grey, wet and loose below 1.0 m								233
1.8	SICL		CLAY - silty - grey, moist, firm - medium plasticity								232
2.1	ML		SILT - yellowish brown, wet, loose								
2.5	SICL		CLAY - silty - grey-brown, mottled - very stiff becoming stiff with depth - medium to high plasticity								231
3.05			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION.								230
5											229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 40
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.385
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

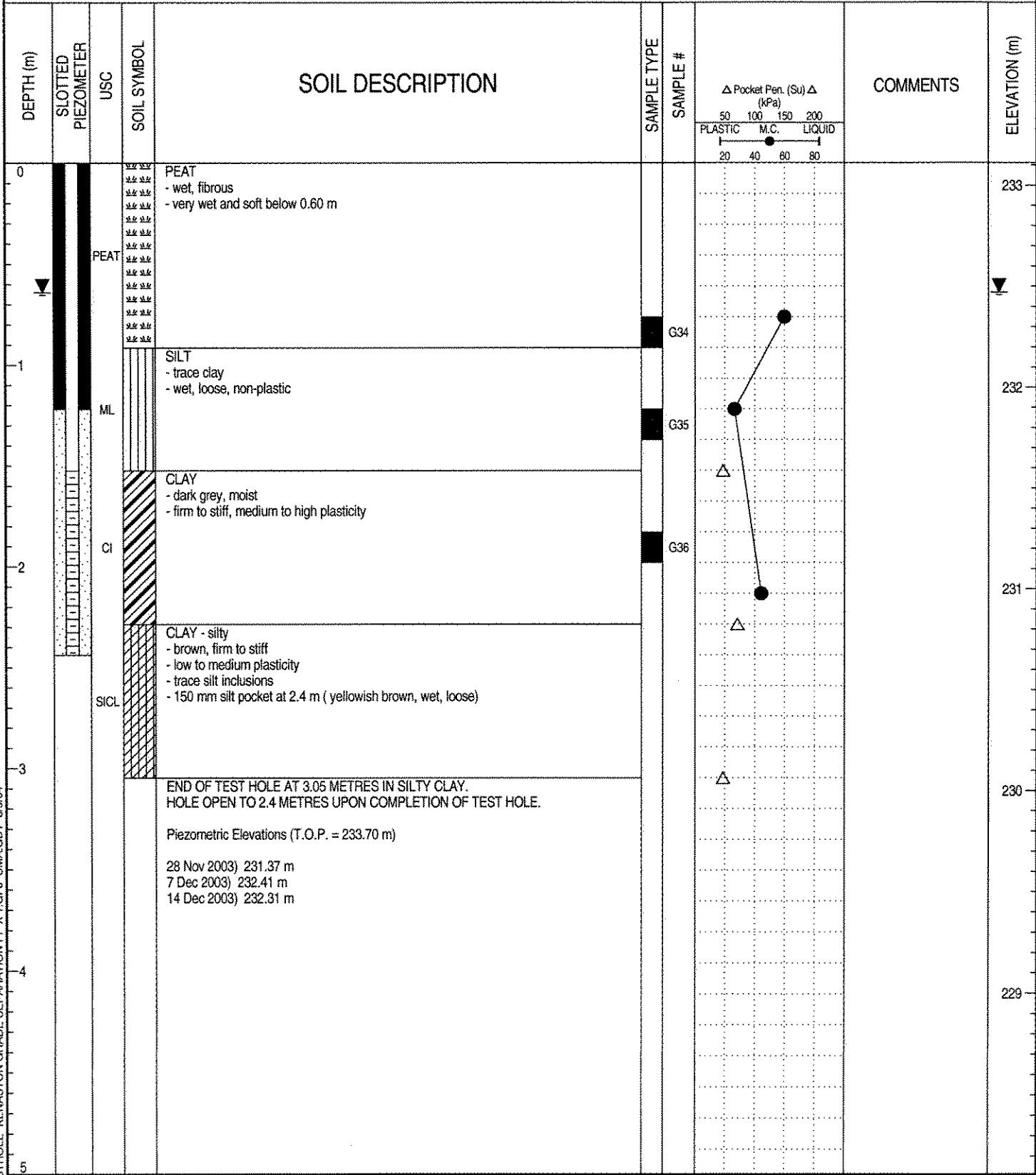
DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - fibrous								
	OL		CLAY - trace to some organics, black, dry, low plasticity								233
			CLAY - silty - grey, moist, homogenous - stiff, medium plasticity								
1	SICL										232
2											
	ML		SILT - yellowish brown, dry, loose								231
			CLAY - silty - brown, moist - very stiff becoming firm with depth - medium to high plasticity - trace silt inclusions								
3	SICL										230
			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.								
4											
5											229

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 41
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.111
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND	



LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 42
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.233
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0		PEAT	<ul style="list-style-type: none"> - black to 0.6 m, grey to 1.0 m and dark brown to 1.2 m - very soft, very wet, fibrous 								233
1		PEAT									
2		CLAY	<ul style="list-style-type: none"> - intermixed with silt to 1.4 m - dark grey, brown below 2.1 m - very stiff becoming firm to stiff with depth - some silt pockets from 1.8 to 2.1 m 								232
3		Cl									231
4			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 0.3 METRES UPON COMPLETION OF TEST HOLE.								230
5											229

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 43
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.782
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	OR		TOPSOIL				
			PEAT - wet, fibrous - grey, very wet and soft below 0.75 m				
1	PEAT						233
2	ML		SILT - yellowish brown, wet, loose, non-plastic				232
			CLAY - firm to stiff with depth, medium to high plasticity - trace silt inclusions (10 mm dia.)				
3	CI						231
			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 0.6 METRES UPON COMPLETION OF TEST HOLE.				
4							230
5							229

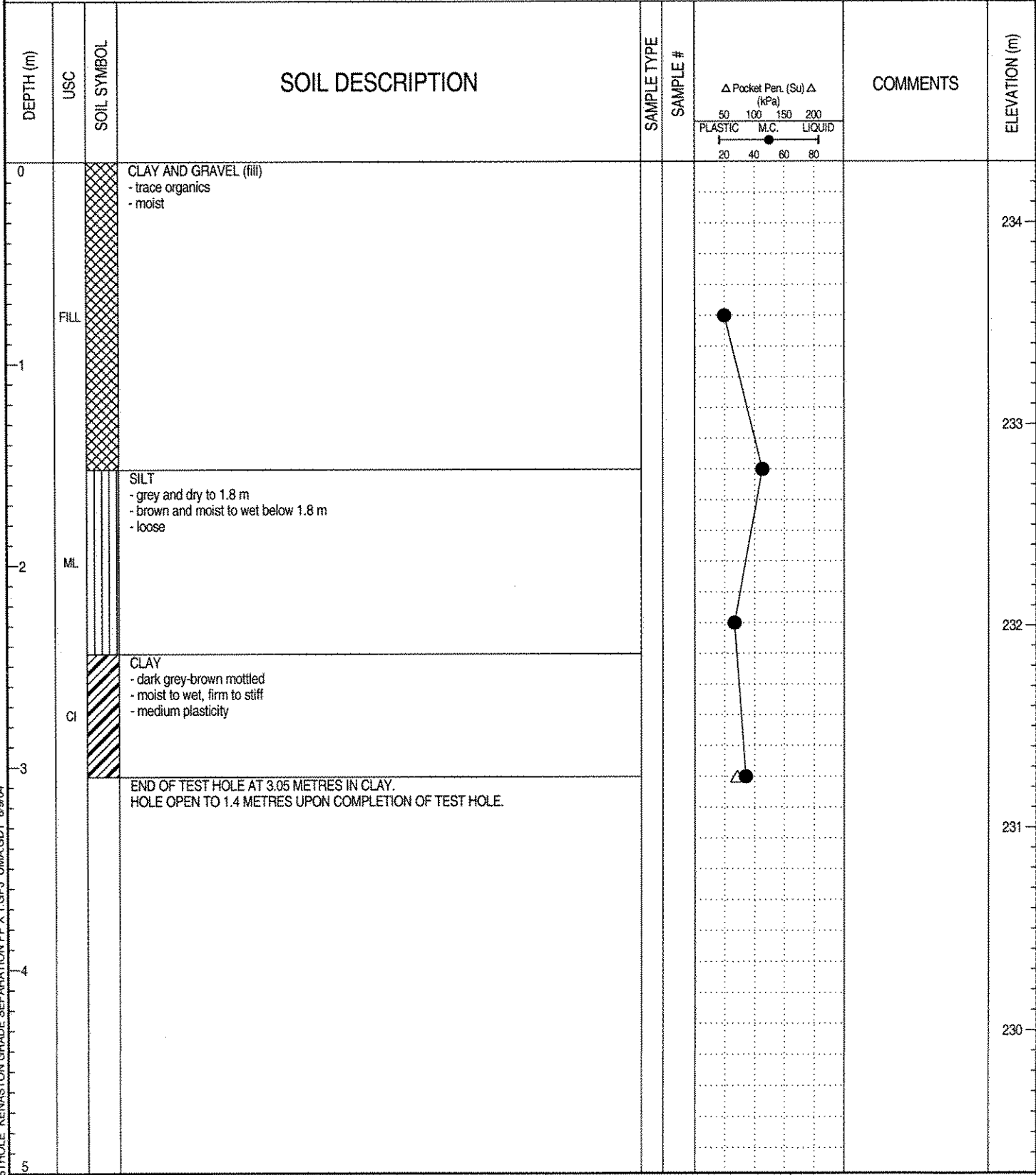
△ Pocket Pen. (Su) △
(kPa)
50 100 150 200

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 44
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.3
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	



LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 45
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.904
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Per. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY AND GRAVEL (fill)								
	FILL		CLAY (fill) - dry, soft, medium plasticity								
1	OR		TOPSOIL - trace roots, dry								233
	ML		SILT - grey, wet, very loose, non-plastic								
2	CH		CLAY - grey-brown, mottled, moist - very stiff becoming firm with depth - highly plastic - trace silt inclusions (10 mm dia.)						△		232
3			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 2.4 METRES UPON COMPLETION OF TEST HOLE.						△		231
4											230
5											229

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 46
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.452
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0			FILL - concrete, fine gravel, sand							234
1	FILL									233
2	ML		SILT - black to grey, yellowish brown below 1.8 m - wet, very loose							232
3	SICL		CLAY - silty - grey, mottled - stiff to very stiff with depth - medium plasticity			△				231
3.05			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.			△				230

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 47
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.416
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - moist, fibrous								
	CL		CLAY - trace roots - black, wet, low plasticity								233
	ML		SILT - wet, loose, non-plastic								
	SICL		CLAY - silty - grey, firm to stiff to 2.4 m - brown, firm below 2.4 m - medium plasticity								232
											231
											230
											229
			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.5 METRES UPON COMPLETION OF TEST HOLE.								

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 48
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.568
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Per. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - moist, fibrous								
	OL		CLAY - trace to some organics, trace roots - black, very wet								233
	ML		SILT - grey, turning yellowish brown with depth - wet to very wet with depth								
	Cl		CLAY - grey, mottled, moist - brown, moist below 2.3 m - medium plasticity - 150 mm silt pocket at 2.3 m - yellowish brown, oxidized - trace to some silt inclusions (10mm dia.)								232
											231
											230
											229
3			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.5 METRES UPON COMPLETION OF TEST HOLE.								

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 49
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.507
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT								
	CL		CLAY - silty - black, moist - soft, low plasticity								
	ML		SILT - yellowish brown, loose								233
	SICL		CLAY - silty - dark grey to 2.3 m, moist - brown below 2.3 m - stiff, medium plasticity - 150 mm silt and sand seam at 2.4 m						Δ		232
			END OF TEST HOLE AT 3.05 METRES IN SILTY SAND. HOLE OPEN TO 2.4 METRES UPON COMPLETION OF TEST HOLE.								230
5											229

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT B9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 50
LOCATION: West of Kenaston (see site plan)		PROJECT NO: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.507
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - fibrous								
	OL		CLAY - trace to some organics - black, low plasticity								
	SICL		CLAY - silty - dark grey to 2 m - brown below 2 m - moist, medium plasticity - firm to stiff - trace silt and sulphate inclusions below 2.4 m								233
1											
2											232
3											231
4											230
5			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.								229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 51
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.629
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT - fibrous								
	CL		CLAY - black, wet, soft - low plasticity								233
	ML		SILT - yellowish brown, dry, loose								
	SI		CLAY - silty - brown to 2.1 m - grey below 2.1m - moist - stiff to 2.5 m, firm to stiff at 3.0 m - medium plasticity								232
	SI										231
	SI										230
	SI										229
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.								

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 52
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 231.922
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	OR		ORGANICS								
			CLAY AND SILT - black and brown, dry, low plasticity								
	SICL										
1			SILT - yellowish brown, dry to moist with depth - trace oxidation stains								231
	ML										
2			CLAY - brown, moist - very stiff to stiff - medium plasticity - trace silt inclusions (10 mm dia.) - trace sulphates								
	CI										
3			END OF TESTHOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.								229
4											228
											227

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 53
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.025
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY - trace to some organics, trace roots - black, dry								
	OL										
1			SILT - yellowish brown, dry								233
	ML										
2			CLAY - silty - grey to 2.4 m - brown below 2.4 m - moist - firm to stiff - medium plasticity - 100 mm silt pocket at 2.4 m - trace silt inclusions (10 mm dia.)						Δ		232
	SICL										
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.4 METRES UPON COMPLETION OF TEST HOLE.						Δ		231
4											230
5											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 54
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.873
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (fill) - some gravel, trace roots								
	OR		TOPSOIL - trace roots - black, dry								
1	ML		SILT - grey to 1.0 m, then yellowish brown - dry, loose - low plasticity								233
2	SICL		CLAY - silty - grey, dry to moist with depth - firm to stiff - medium plasticity - trace silt inclusions and silt pockets (<50mm diameter)								232
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.6 METRES UPON COMPLETION OF TEST HOLE.								231
4											230
5											229

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 55
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.904
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE




DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		TOPSOIL (fill) - trace roots								
	FILL		CLAY (fill) - trace gravel - grey, dry								
1	OR		TOPSOIL - trace roots - black, dry to moist								233
	ML		SILT - grey, very dry, non-plastic								
2	CH		CLAY - dark grey to 2.4 m - brown below 2.4 m - stiff becoming firm with depth - high plasticity - homogeneous - 75 mm silt pocket at 2.4 m								232
3			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 2.4 METRES UPON COMPLETION OF TEST HOLE.								231
4											230
5											229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 56
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.025
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0			CLAY - silty - black, dry - low plasticity							
1			SILT - grey, yellowish brown below 0.9 m - dry, loose							233
2			CLAY - silty - dark grey, turns brown below 2.3 m - moist - high plasticity - trace silt inclusions							232
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY, NO SLOUGHING MEASURED							231
4										230
5										

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 57
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.568
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	OR		ORGANICS - black								
	ML		SILT - grey, dry								233
1	CH		CLAY - grey, dry - stiff to very stiff - medium to high plasticity - homogeneous to 1.5 m								232
2	ML		SILT - yellowish brown, moist								
	SI CL		CLAY - silty - brown, moist - firm to stiff - highly plastic - some small silt inclusions (10 mm dia.)								231
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.								230
4											229

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 58
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.934
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			SILT (possible fill) - yellowish brown, dry								
	ML										
	OR		TOPSOIL - black, trace organics								
1			CLAY - silty - dark grey, brown below 1.5 m - dry - medium plasticity - small silt seam at 2.1 m - trace silt inclusions (10 mm dia.) below 2.1 m								233
2											232
	SI CL										231
3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.								230
4											229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 59
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.904
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	PEAT		PEAT / ROOTS								
	OL		CLAY - trace roots - black, dry, low plasticity								
	ML		SILT - grey, yellowish brown below 0.75 m - moist, loose								233
	SICL		CLAY - silty - grey, moist - firm to stiff - highly plastic - 100 mm silt seam at 2.0 m								232
			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.0 METRES UPON COMPLETION OF TEST HOLE.								231
											230
											229

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/7/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 60
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.94
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0		▲	GRAVEL - railway ballast, 19 mm diameter							234.94
0.5	GR	▲								
1.0	FILL	▨	CLAY (fill) - trace roots, silt inclusions - black, dry							
1.5	ML	▨	SILT - yellowish brown - moist to wet, loose							
2.0		▨								
2.5	CI	▨	CLAY - grey, moist, - very stiff becoming firm to stiff with depth - 150mm silt pocket at 8.5 m - trace oxides stains							
3.0			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.							
3.5										
4.0										
4.5										
5.0										

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 61
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.97
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0		▲	GRAVEL - ranging in gradation from railway ballast to sub base							
0.5	GR	▲								
1.0		▨	CLAY (possible fill) - trace roots - black, dry, stiff							234
1.5	CL	▨								
2.0		▨	CLAY - dark brown to black, dry - stiff to very stiff - medium plasticity - small silt pocket at 2.3 m							233
2.5	CI	▨								
3.0		▨	CLAY - brown, moist - stiff - high plasticity - silt inclusions							232
3.5	CH	▨								
3.05			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.							230

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 62
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.574
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY (fill) - black, medium plasticity, frozen								234
1			CLAY - black, moist, stiff - medium plasticity								233
2			CLAY - brown, moist, stiff - medium to high plasticity								
			SILT- moist, yellowish brown								
			CLAY - brown, moist, stiff - high plasticity								232
3			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.								231
4											230

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 63
LOCATION: West of Kenaston (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.056
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0	FILL		CLAY (fill) - roots, moist				234
0.5	CI		CLAY - black to brown, moist, medium plasticity				233
1.2	ML		SILT - yellowish brown, dry, compact				232
2.1	CH		CLAY - silty - brown, moist, firm to stiff - high plasticity - trace silt and sulphate inclusions				231
3.0			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.				230

△ Pocket Pen. (Su) △
(kPa)
50 100 150 200

△

△

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation		CLIENT: Stantec Consulting Ltd.		TESTHOLE NO: 64	
LOCATION: West of Kenaston (see site plan)				PROJECT NO.: 4231-040-00	
CONTRACTOR: Paddock Drilling Ltd.		METHOD: RM-30 c/w 150mm SS Augers		ELEVATION (m): 234.025	
SAMPLE TYPE		<input checked="" type="checkbox"/> GRAB	<input type="checkbox"/> SHELBY TUBE	<input checked="" type="checkbox"/> SPLIT SPOON	<input type="checkbox"/> BULK
BACKFILL TYPE		<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT
		<input type="checkbox"/> NO RECOVERY	<input type="checkbox"/> CORE	<input type="checkbox"/> CUTTINGS	<input type="checkbox"/> SAND

DEPTH (m)	SLOTTED PIEZOMETER	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
							50	100	150	200		
0			FILL	CLAY (fill) - brown, dry, 150mm frost - medium plasticity								
0.5			CH	CLAY - grey, moist - firm to stiff - high plasticity								233
1.0			ML	SILT - yellowish brown, moist, loose								
1.5			SICL	CLAY - silty - moist, stiff - medium plasticity - homogeneous - trace silt inclusions								232
2.0												
2.5												
3.0				END OF TEST HOLE AT 3.0 METRES IN CLAY. Piezometric Elevations (T.O.P. = 234.65 m) 28 Nov 2003) dry 7 Dec 2003) dry 14 Dec 2003) dry								231
3.5												
4.0												230

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ_UMA.GDT_8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 65
LOCATION: South lane on Wilkes Ave. (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.361
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	GR		GRAVEL - 19 mm max diameter - frozen to 0.3 m							234
	FILL		CLAY (fill) - black, moist, medium plasticity							
1	CH		CLAY - silty - brown, moist - stiff, firm to stiff below 2 metres - medium to high plasticity - 200mm silt pocket at 1.8 m: yellowish brown, moist							233
2										232
3										231
4										230
5										
			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.							

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 66
LOCATION: South lane on Wilkes Ave. (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.696
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	GR		GRAVEL (fill) - max diameter = 19 mm - frozen to 0.5 m							
	FILL		CLAY (fill) - silty - black/brown, moist - medium to low plasticity							234
1	ML		SILT - yellowish brown, moist to wet, loose							233
2	CH		CLAY - silty - brown, moist, firm to stiff - high plasticity - trace silt inclusions							232
3			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.							231
4										230
5										230

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 67
LOCATION: South lane on Wilkes Ave. (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.33
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	GR		GRAVEL (fill) - max diameter = 19 mm - frozen to 0.5 m								234
0.5	FILL		CLAY (fill) - trace gravel - black, dry to moist - low plasticity								
1	ML		SILT - yellowish brown, moist, loose								233
2	CI		CLAY - silty - brown, moist - stiff, becoming firm to stiff with depth - medium plasticity - trace silt inclusion 5 to 10 mm diameter								232
3			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 1.8 METRES UPON COMPLETION OF TEST HOLE.								231
4											230
5											

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 68
LOCATION: South lane on Wilkes Ave. (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.513
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	GR		GRAVEL (fill) - max diameter = 19 mm - frozen to 0.5 m							
	FILL		CLAY (fill) - trace gravel, black							234
1	CI		CLAY - brown, moist - firm to stiff - medium plasticity						Δ	233
2	CH		CLAY - and silt to 2.15m - grey, dry becoming moist with depth - firm to stiff - high plasticity						Δ	232
3			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.						Δ	231
4										230
5										

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 69
LOCATION: South lane on Wilkes Ave. (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.452
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0		▲▲▲▲	GRAVEL (fill) - max diameter = 19 mm - frozen to 0.6 m								234
1	GR	▲▲▲▲									
2		▨▨▨▨	CLAY - silty - brown, dry becoming moist with depth - firm to stiff - medium to high plasticity							△	233
2			- 100mm thick silt seam at 2.0 m								
3	CH	▨▨▨▨	- trace silt inclusions below 2.4 m							△	232
3			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 2.3 METRES UPON COMPLETION OF TEST HOLE.							△	231
4											230
5											

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 70
LOCATION: South lane on Wilkes Ave. (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.757
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB	<input type="checkbox"/> SHELBY TUBE
	<input type="checkbox"/> SPLIT SPOON	<input type="checkbox"/> BULK
	<input checked="" type="checkbox"/> NO RECOVERY	<input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0			GRAVEL (fill) - max diameter =19 mm (limestone base course)				234
1	GR						
2			CLAY - silty - brown, moist, firm - medium to high plasticity, homogeneous - trace silt inclusions 5 to 10 mm diameter				233
3	SICL		- small silt seam 0.1 m thick at 2.3 m				232
4			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 2.1 METRES UPON COMPLETION OF TEST HOLE.				231
5							230

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 73
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.934
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY - silty (fill) - trace gravel (6 mm diameter) - black, dry - stiff to very stiff - low to medium plasticity								
1	FILL										233
2			CLAY - dark brown to 2.25m - brown below 2.25 m - moist - very stiff becoming stiff with depth - medium plasticity - trace silt inclusions - trace silt pockets at 2.4 m								232
3	Cl										231
3.05			END OF TEST HOLE AT 3.05 METRES IN CLAY. HOLE OPEN TO 2.6 METRES UPON COMPLETION OF TEST HOLE.								230
4											229
5											229

LOG OF TESTHOLE, KENASTON GRADE SEPARATION PP X 1.GPJ, UMA.GDT, 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 74
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.904
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0			CLAY (fill) - trace to some medium gravel - brown, dry							
0.5	FILL									233
1.0	FILL		LIME (fill) - trace to some fine gravel - white							
1.5	FILL		CLAY (possible fill) - trace organics - black, firm to stiff							
2.0	ML		SILT - yellowish brown, moist, loose							232
2.5			CLAY - silty - dark brown to grey - stiff to very stiff, medium plasticity - homogeneous							
3.0	SI CL									231
3.05			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.4 METRES UPON COMPLETION OF TEST HOLE.							
4.0										230
5.0										229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X.1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 75
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.751
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY AND GRAVEL (fill) - dark brown to grey - dry								233
	FILL		LIME (fill) - white								
	FILL		CLAY (fill) - black to brown - dry to moist - firm to stiff - medium plasticity								232
	FILL		SILT - yellowish brown, wet, loose								
-2	ML		CLAY - silty - dark brown - very stiff becoming stiff with depth - medium to high plasticity - trace silt inclusions (10mm diameter)								231
	SICL										
-3			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY, NO SLOUGHING OR SEEPAGE								230
											229

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 76
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.934
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		ORGANICS - wet CLAY (fill) - silty, trace medium gravel - black								
	FILL		LIME - white, wet, loose								233
	FILL		CLAY - silty - black and grey mottled - firm, medium plasticity - some red oxide stains		76G1						
	ML		SILT - yellowish brown - wet, loose, non-plastic								232
	SICL		CLAY - silty - dark brown, moist - very stiff, becoming stiff with depth - medium to high plasticity								231
3			END OF TEST HOLE AT 3.05 METRES. HOLE OPEN TO 1.7 METRES UPON COMPLETION OF TEST HOLE.								230
4											229

LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 77
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.086
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

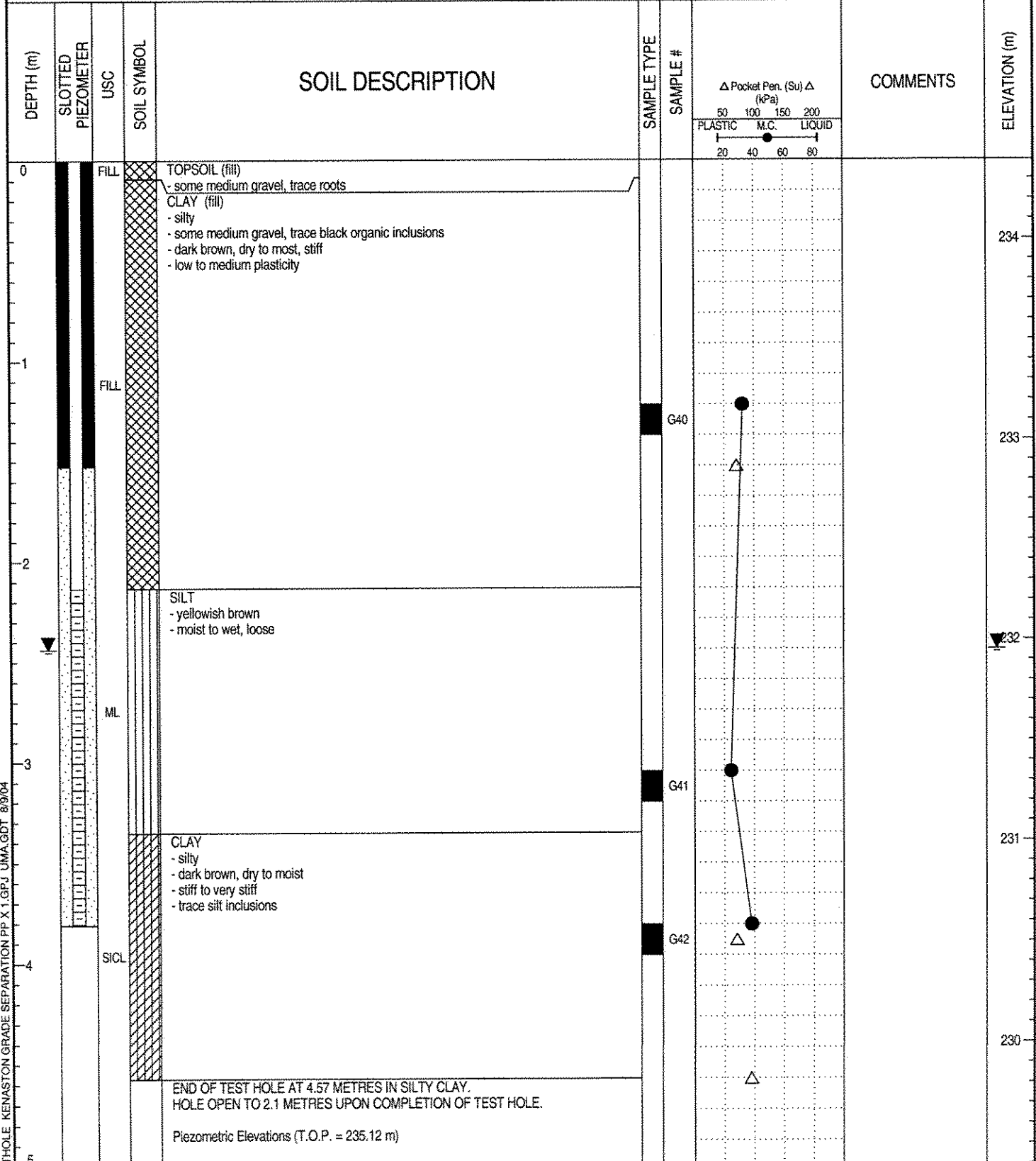
DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Per. (Su) (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		TOPSOIL - trace roots CLAY (fill) - silty - trace: medium gravel, roots - black, dry, stiff - small silt pockets at 1.2 m								234
1	FILL										233
2	ML		SILT - grey, wet								232
3	SICL		CLAY - silty - dark brown, moist, stiff - some silt inclusions - 10mm diameter								231
4			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.5 METRES UPON COMPLETION OF TEST HOLE.								230
5											

LOG OF TESTHOLE KENASTON GRADE SEPARATION PE X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 78
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.391
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND	



LOG OF TESTHOLE - KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 2

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 78
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.391
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND	

DEPTH (m)	SLOTTED PIEZOMETER	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)		COMMENTS	ELEVATION (m)
							PLASTIC	M.C. LIQUID		
5				28 Nov 2003) 231.92 m 7 Dec 2003) 231.91 m 14 Dec 2003) 231.88 m						229
6										228
7										227
8										226
9										225
10										

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 2 of 2

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 79
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.361
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0			CLAY (fill) - silty, trace medium gravel, trace roots - dry, frozen to 0.60 m - 50 mm silt layer at 1.2 m								234
1	FILL										
2	ML		SILT - dark grey - moist, non-plastic								
	ML		SILT - yellowish brown - wet, loose, non-plastic								232
3	SICL		CLAY - silty - brown, dry - stiff to very stiff, medium plasticity								231
			END OF TEST HOLE AT 3.05 METRES IN SILTY CLAY. HOLE OPEN TO 1.5 METRES UPON COMPLETION OF TEST HOLE.								230
4											
5											

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 80
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.056
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	FILL		TOPSOIL / organics CLAY (fill) - silty - black, slightly mottled - dry, medium plasticity							234
1	FILL									233
2	SICL		CLAY - trace silt - dark brown, dry to moist - very stiff, medium plasticity - trace silt inclusions					Δ		232
3	ML		SILT - yellowish brown - wet, loose							231
4	SICL		CLAY - silty - grey, moist - firm to stiff - highly plastic					Δ		230
5			END OF TEST HOLE AT 4.57 METRES IN SILTY CLAY. HOLE OPEN TO 3.05 METRES UPON COMPLETION OF TEST HOLE.					Δ		

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 81
LOCATION: Between Sterling Lyon Parkway and Wilkes (see site plan)		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.056
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	FILL		TOPSOIL - trace roots CLAY (fill) - trace silt, trace organics - black, dry - stiff to very stiff with depth - medium plasticity							234
1	FILL									233
2	ML		SILT - yellowish brown - wet, loose, low plasticity							232
3	ML									231
4	CI		CLAY - silty - brown, moist, stiff - medium plasticity							230
5			END OF TEST HOLE AT 4.57 METRES IN CLAY. NO SEEPAGE OR SLOUGHING.							

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 11/6/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 82
LOCATION: Kenaston / Wilkes Intersection		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.385
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)				COMMENTS	ELEVATION (m)
						50	100	150	200		
0	FILL		CLAY (fill) - black to grey								
	OL		TOPSOIL - trace organics, black								233
	ML		SILT - grey, moist, loose								
1			CLAY - silty - dark brow to brown, moist - firm to stiff - high plasticity								232
2	SI CL		- small silt pocket, 0.1 m thick, yellowish brown, at 2.1 m depth								231
3			CLAY - grey, moist - firm to stiff - high plasticity								230
4	CH		- silt inclusions below 3.7 m - trace oxide stains below 4.0 m								229
5			END OF TEST HOLE AT 4.6 METRES IN CLAY. HOLE OPEN TO 3.4 METRES UPON COMPLETION OF TEST HOLE.								

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 83
LOCATION: Kenaston / Wilkes Intersection		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.263
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	△ Pocket Pen. (Su) △ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	FILL		CLAY (fill) - trace roots, black, dry							233
	ML		SILT AND CLAY (INTERMIXED) - black, loose, low plasticity							
1	CL		CLAY - dark brown to black, moist, firm - low plasticity							232
2	SI CL		CLAY - silty - brown to 2.7 m - moist, firm to stiff - medium plastic - trace silt inclusions (5 mm diameter) - turns grey below 2.7 m							231
3			END OF TEST HOLE AT 3.0 METRES IN CLAY. HOLE OPEN TO 3.0 METRES UPON COMPLETION OF TEST HOLE.							230
4										229
5										

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 84
LOCATION: Kenaston / Wilkes Intersection		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 233.568
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE

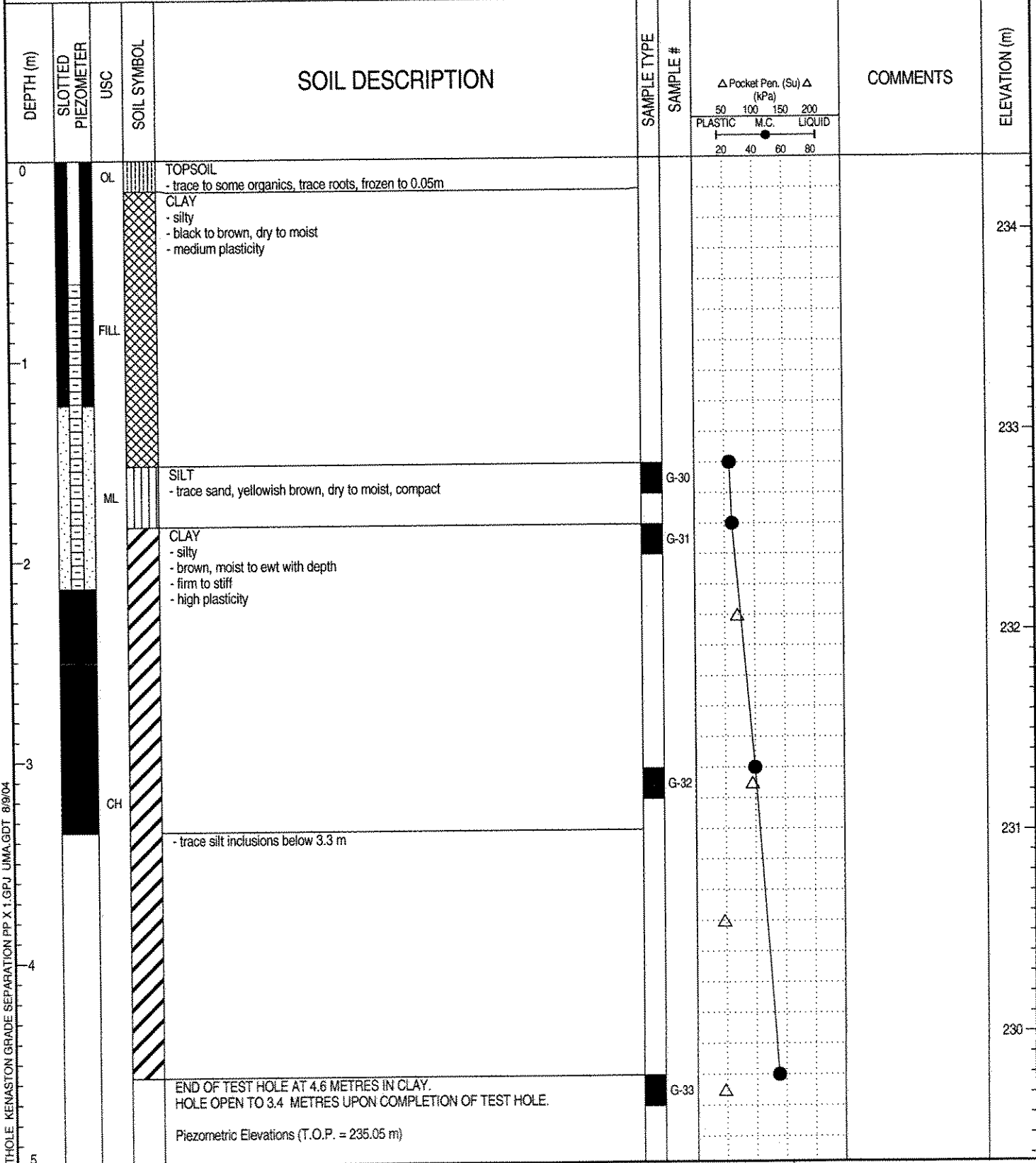
DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Δ Pocket Pen. (Su) Δ (kPa)			COMMENTS	ELEVATION (m)
						50	100	150		
0	GR	GRAVEL	- 19 mm crushed limestone - frozen to 0.2 m							
	FILL	CLAY (fill)	- brown, moist, medium plasticity							233
	OL	TOPSOIL	- trace to some organics - trace roots - black, low plasticity							
1	CL	CLAY	- grey, moist, low plasticity							
	ML	SILT	- yellowish brown, moist, loose							
2		CLAY	- silty - dark grey to 2.4 m - dry to moist with depth - firm to stiff - high plasticity - trace silt inclusions							232
			- brown from 2.4 to 3.0 m							231
3	CH		- dark grey below 3.0 m							230
4										
5			END OF TEST HOLE AT 4.6 METRES IN CLAY. HOLE OPEN TO 3.2 METRES UPON COMPLETION OF TEST HOLE.							229

LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ, UMA.GDT, 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 1

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Startec Consulting Ltd.	TESTHOLE NO: 85
LOCATION: Kenaston / Wilkes Intersection		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.361
SAMPLE TYPE	<input type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	
BACKFILL TYPE	<input type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND	



LOG OF TESTHOLE: KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 1 of 2

PROJECT: Kenaston Blvd. Grade Separation	CLIENT: Stantec Consulting Ltd.	TESTHOLE NO: 85
LOCATION: Kenaston / Wilkes Intersection		PROJECT NO.: 4231-040-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: RM-30 c/w 150mm SS Augers	ELEVATION (m): 234.361
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND	

DEPTH (m)	SLOTTED PIEZOMETER	USC	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Pocket Pen. (Su) (kPa)			COMMENTS	ELEVATION (m)
							PLASTIC	M.C.	LIQUID		
5				28 Nov 2003) dry 7 Dec 2003) dry 14 Dec 2003) dry							229
6											228
7											227
8											226
9											225
10											225

LOG OF TESTHOLE KENASTON GRADE SEPARATION PP X 1.GPJ UMA.GDT 8/9/04



LOGGED BY: Darryl Schmidt	COMPLETION DEPTH: 4.57 m
REVIEWED BY: Gil Robinson	COMPLETION DATE: 22/11/03
PROJECT ENGINEER: Gil Robinson	Page 2 of 2