TEST PIT LOG

Test Pit #: **TP21-03**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Langley Twp, B.C.

Date(s) Drilled: June 7, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: JP Reviewed by: CJC

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5438541 , 537556 Station/Offset:
Elevation: 99.3 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS / SPT	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; Dynamic Cone (Blows/300mm); SPT "N" (BLOWS/300 mm); W_P% 20 — W% — W_L% 40 60 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL. 0.2m			99
		26.6		1			Stiff, grey, clayey SILT to SILT and CLAY with traces of organics and sand. 0.5m	ML/CL		
1							Stiff, grey-brown SILT with a trace to some organics and a trace of sand.	ML/OL		98
		46.4		2						
		15.2		3			1.7m Dense (inferred), brown SAND with traces of gravel, clay and silt.	SP-SM		
2										97
3							3.0m End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			96
4										95
5										94
6										93
7										92
8										91
9										90
10										

Legend
Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Final Depth of Hole: 3.0 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-04**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Langley Twp, B.C.

Date(s) Drilled: June 7, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: JP Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5438485 , 537663 Station/Offset:

Elevation: 102.2 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS / SPT	Pocket Penetrometer (kPa) / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% W% W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL. 0.2m			102
		17.6		1			Stiff, brown-grey, clayey SILT to SILT and CLAY with traces of gravel, sand and organics.	ML/CL		
1										101
2		19.6		2			- firm to stiff with zones of silt and sand below 2.0 m depth	CL/SC		100
							2.6m Brown SAND and SILT with traces of gravel and clay.			
3		26.2		3			3.7m End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.	SM/ML		99
4										98
5										97
6										96
7										95
8										94
9										93
10										

Legend
Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.7 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-07**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Langley Twp, B.C.

Date(s) Drilled: June 8, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989 Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5438011 , 538469 Station/Offset:

Elevation: 94.2 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS (SPT)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; Dynamic Cone (Blows/300mm); SPT "N" (BLOWS/300 mm); W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							TOPSOIL. 0.2m			94
							Stiff, brown SILT with traces of gravel, sand, clay, organics and oxidation.	ML		
1		35.2		1			0.9m			
		42.7		2			Stiff, dark brown SILT with some organics and traces of sand and wood debris. 1.2m	OL/ML		93
		26.4		3			Firm to stiff, grey-brown SILT with some sand, organics and oxidation. 1.6m	ML	Sieve (Sa#3) G:% S:% F:81%	
2							Very stiff SILT and CLAY with a trace of sand.			92
		20.5		4				CL		
							2.7m			
3							End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			91
4										
										90
5										
										89
6										
										88
7										
										87
8										
										86
9										
										85
10										

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 2.7 m

Depth to Top of Rock:

TEST PIT LOG

Test Pit #: **TP21-08**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Langley Twp, B.C.

Date(s) Drilled: June 8, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5437828 , 538762 Station/Offset:
Elevation: 94.5 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; Dynamic Cone (Blows/300mm); SPT "N" (BLOWS/300 mm); W_P% 20 W% 40 60 W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL. 0.2m			94
							Very stiff, grey-brown SILT and CLAY with traces sand and organics.			
1		21.9		1				CL		
							1.2m			93
		30.5		2			Stiff, grey-brown, clayey SILT to SILT and CLAY with traces of gravel and sand. - 75 mm cobble at 1.2 m depth	CL/ML		
2										92
		25.5		3			2.6m Firm, grey-brown CLAY and SILT with traces of gravel and sand.	CL		
3		25.4		4			- dark grey below 2.7 m depth 3.0m	CL		91
							End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.			
4										90
5										89
6										88
7										87
8										86
9										85
10										

Legend
Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Final Depth of Hole: 3.0 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-09**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Langley Twp, B.C.

Date(s) Drilled: June 8, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGWReviewed by: CJC

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5437737 , 538918 Station/Offset:
Elevation: 96.2 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS / SPT	Pocket Penetrometer (kPa) 100 200 300 400; Dynamic Cone (Blows/300mm); SPT "N" (BLOWS/300 mm); W_P% 20 W% 40 60 W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL.			96
							0.3m Very stiff, brown-grey SILT and CLAY with a trace of organics.	CL		
1		19.6		1						95
							1.2m Stiff to very stiff, grey CLAY and SILT with traces of gravel, sand and wood debris.	CL		
2		21.8		2						94
3		23.1		3				CL		93
							3.4m End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.			
4										92
5										91
6										90
7										89
8										88
9										87
10										

Legend
Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Final Depth of Hole: 3.4 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-10**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Langley Twp, B.C.

Date(s) Drilled: June 9, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5437604 , 539146 Station/Offset:

Elevation: 97.0 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% W% W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							TOPSOIL. 0.2m			97
		22.9		1			Stiff, light brown, clayey SILT to SILT and CLAY with traces of sand and organics. 0.8m	ML/CL		
1		38.1		2			Firm, dark brown SILT with some organics and a trace to some sand. 1.2m	ML		96
		26.3		3			Firm to stiff, grey SILT with some sand and oxidation and traces of organics and wood debris.	ML		
2										95
		21.5		4			2.7m Very stiff, grey SILT and CLAY with traces of gravel and sand. 3.0m	CL		
3							End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.			94
4										93
5										92
6										91
7										90
8										89
9										88
10										

Legend
Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.0 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-11**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Abbotsford, B.C.

Date(s) Drilled: June 9, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83
Northing/Easting: 5437500 , 539321
Elevation: 98.2 m

Alignment:
Station/Offset:
Coordinates Surveyed

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% W% W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL. 0.1m			98
				1			Very stiff, grey SILT and CLAY with traces of sand and organics.	CL		
1		17.5					0.9m			97
				2			Stiff, grey SILT and CLAY with traces of gravel and sand.	CL	Atterberg (Sa#2): PL:19% LL:39%	
2		21.3								96
				3				CL		
3		21.4					3.0m			95
							End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			
4										94
5										93
6										92
7										91
8										90
9										89
10										

Legend
Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.0 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-19**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Abbotsford, B.C.

Date(s) Drilled: June 9, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5436595 , 540855 Station/Offset:
Elevation: 103.8 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS / SPT	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; Dynamic Cone (Blows/300mm); SPT "N" (BLOWS/300 mm); W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL. 0.2m Very soft, brown SILT and ORGANICS.			103
1		40.4		1			0.8m Soft to firm, brown to dark brown SILT with some organics and sand, and a trace of organic silt.	OL/ML		
2		23.5		2			1.7m Very stiff to hard, grey SILT and CLAY with traces of sand and gravel.	CL	Atterberg (Sa#2): PL:24% LL:45%	102
3							2.6m End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			101
4										100
5										99
6										98
7										97
8										96
9										95
10										94

Legend
Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Final Depth of Hole: 2.6 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-20**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Abbotsford, B.C.

Date(s) Drilled: June 9, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989 Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5436496 , 541023 Station/Offset:

Elevation: 105.5 m *Coordinates Surveyed*

Pocket Penetrometer (kPa) 100 200 300 400

Shear Strength (kPa)

Dynamic Cone (Blows/300mm)

SPT "N" (BLOWS/300 mm)

W_P% 20 — W% 40 60 — W_L% 80

DEPTH (m)	DRILLING DETAILS SPT	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0						TOPSOIL. 0.1m			105
						Soft, brown SILT and ORGANICS. 0.3m			
1	22.7		1			Very stiff to hard, brown-grey SILT and CLAY with traces of gravel, sand and organics.	CL		104
2	22.7		2				CL		103
3						3.0m			102
						End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			
4									101
5									100
6									99
7									98
8									97
9									96
10									

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.0 m

Depth to Top of Rock:

TEST PIT LOG

Test Pit #: **TP21-21**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Abbotsford, B.C.

Date(s) Drilled: June 9, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5436195 , 541548 Station/Offset:
Elevation: 109.1 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% W% W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							TOPSOIL. 0.1m Firm to stiff, brown SILT with some sand and traces of gravel and organic silt.	OL/ML		109
1		40.2		1			1.1m Very soft to soft, dark brown to brown SILT with some sand and organics (wood debris) and traces of clay and organic silt. - 150 mm thick lens of very soft silt at 1.7 m depth	ML/OL		108
2		43.2		2			2.1m Very stiff to hard, brown-grey SILT and CLAY with traces of sand and gravel.	CL	Atterberg (Sa#3): PL:23% LL:43%	107
3		23.7		3			3.2m End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.			106
4										105
5										104
6										103
7										102
8										101
9										100
10										

Legend
Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.2 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-22**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Abbotsford, B.C.

Date(s) Drilled: June 10, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5436237 , 541492 Station/Offset:
Elevation: 110.9 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% / W% / W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							TOPSOIL. 0.1m			110
		19.1		1			Stiff, brown-grey, clayey SILT to SILT and CLAY with traces of organics and gravel.	ML/CL		
							0.6m			
1		38.1		2			Stiff, brown SILT with some sand and traces of organics and wood debris.	ML		109
2							2.4m			
							Very stiff to hard, brown-grey, clayey SILT to SILT and CLAY with traces of sand, organics and oxidation.	ML/CL		
3		21.3		3						108
		19.6		4				ML/CL		
4							3.7m			107
							End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			
5										106
6										105
7										104
8										103
9										102
10										101

Legend
Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.7 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-23**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Abbotsford, B.C.

Date(s) Drilled: June 10, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989 Thurber Engineering Ltd.
Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5436391 , 541201 Station/Offset:
Elevation: 106.7 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% / W% / W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							TOPSOIL.			106
							0.3m			
		21.2		1			Firm to stiff, dark brown, clayey SILT to SILT and CLAY with traces of gravel, sand and oxidation.	ML/CL		
		20.7		2			- very stiff to hard below 0.5 m depth	ML/CL		
1										105
2							2.0m			
							End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			104
3										103
4										102
5										101
6										100
7										99
8										98
9										97
10										

Legend
Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Final Depth of Hole: 2.0 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-24**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Abbotsford, B.C.

Date(s) Drilled: June 10, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989 Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5436305 , 541371 Station/Offset:

Elevation: 112.4 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% W% W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL.			112
							0.6m			
1		51.7		1			Firm to stiff, dark brown-brown SILT with some organic silt and a trace to some sand, organics, and wood debris.	OH		111
2										110
							2.7m			
3		36.7		2			Soft, grey-brown SILT with a trace to some organics and traces of sand, clay and oxidation.	ML		109
							3.0m			
		23.5		3			Stiff to very stiff, grey-brown SILT with some clay to clayey, a trace to some sand and traces of gravel and organics.	ML		
4							4.0m			108
							End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.			
5										107
6										106
7										105
8										104
9										103
10										

Legend
Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 4.0 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-25**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Abbotsford, B.C.

Date(s) Drilled: June 10, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989 Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5436353 , 541291 Station/Offset:

Elevation: 112.2 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% W% W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0		21.1		1			TOPSOIL. 0.1m Firm to stiff, grey-brown SILT, with some clay to clayey, some sand and traces of gravel, organics and oxidation.	ML/CL		112
1							1.2m Soft to firm, brown-dark brown SILT with some organic silt, wood debris and a trace of sand.	OH		111
2		53.3		2						110
3		25.1		3			3.0m Very stiff, grey SILT and CLAY with some oxidation and traces of sand and organics.	CL		109
4							3.7m End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.			108
5										107
6										106
7										105
8										104
9										103
10										

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.7 m

Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-46**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Abbotsford, B.C.

Date(s) Drilled: June 12, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83
Northing/Easting: 5436438 , 541174
Elevation: 105.4 m

Alignment:
Station/Offset:
Coordinates Surveyed

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% / W% / W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL.			105
							0.3m Very stiff, brown-grey, clayey SILT to SILT and CLAY with traces of sand and oxidation.	ML/CL		
1		24.4		1						104
		23.6		2			1.8m End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.	CL		103
2										102
3										101
4										100
5										99
6										98
7										97
8										96
9										
10										

Legend
Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Final Depth of Hole: 1.8 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-47**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**
Location: Abbotsford, B.C.

Date(s) Drilled: June 12, 2021
Company: Backhoe Unlimited
Operator: Matt Daff
Excavator: JD85G

Prepared by: 30989
Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83
Northing/Easting: 5436570 , 540923
Elevation: 108.2 m
Alignment:
Station/Offset:
Coordinates Surveyed

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% / W% / W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							TOPSOIL. 0.1m			108
		24.2		1			Soft to firm, brown, clayey SILT to SILT and CLAY with traces of sand, gravel and organics.	CL/ML		
1										107
		44.3		2			1.5m Soft, dark brown-brown, organicy SILT with traces of sand, clay, wood debris, and organic silt. 1.8m	OL		
2		28.9		3			Firm to stiff, brown-grey, clayey SILT to SILT and CLAY with traces of wood debris, organics and oxidation. 2.7m	ML/CL		106
3							Very soft to stiff, brown-grey, clayey SILT to SILT and CLAY with traces of gravel, sand and oxidation.			105
		24.0		4			- stiff below 3.4 m depth 3.7m	ML/CL		
4							End of test pit at required depth. No sloughing observed. No seepage observed upon completion of excavation.			104
5										103
6										102
7										101
8										100
9										99
10										

Legend
Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.7 m
Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

TEST PIT LOG

Test Pit #: **TP21-55**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Abbotsford, B.C.

Date(s) Drilled: June 13, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989 Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5437441 , 539446 Station/Offset:

Elevation: 99.9 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% W% W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0		18.2		1			TOPSOIL. 0.2m Firm to stiff, grey, clayey SILT to SILT and CLAY with traces of sand, organics and wood debris.	CL/ML		99
1										
2		65.9		2			1.7m Soft, dark brown-brown, organicy SILT with some sand and wood debris and a trace of organic silt.	OH		98
		31.5		3			2.4m Stiff to very stiff, grey SILT with a trace to some sand, and clay and traces of gravel and oxidation.	ML	Sieve (Sa#3) G:% S:% F:86%	97
3		23.1		4				ML		
							3.4m End of test pit due to difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			96
4										
5										95
6										94
7										93
8										92
9										91
10										90

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 3.4 m

Depth to Top of Rock:

TEST PIT LOG

Test Pit #: **TP21-56**

Ministry of Transportation and Infrastructure

Project: **TC - FV Segment 1**

Location: Langley Twp, B.C.

Date(s) Drilled: June 13, 2021

Company: Backhoe Unlimited

Operator: Matt Daff

Excavator: JD85G

Prepared by: 30989 Thurber Engineering Ltd.

Logged by: AGW Reviewed by: CJC

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5437563 , 539263 Station/Offset:

Elevation: 97.3 m *Coordinates Surveyed*

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) / Dynamic Cone (Blows/300mm) / SPT "N" (BLOWS/300 mm) / W_P% / W% / W_L%	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0		24.0		1			TOPSOIL. 0.1m	CL		97
		39.0		2			Soft, brown-grey, clayey SILT to SILT and CLAY with a trace to some organics and traces of gravel and sand. - very stiff to hard, a trace of organics below 0.2 m depth	ML/CL		
1		21.7		3				ML/CL		96
2							1.8m End of test pit due difficult excavation. No sloughing observed. No seepage observed upon completion of excavation.			95
3										94
4										93
5										92
6										91
7										90
8										89
9										88
10										

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 1.8 m

Depth to Top of Rock:

MOTI-SOIL-REV3 (EST COORDS) DEPTH 0.0 30989 MOTI.GPJ MOTI_DATATEMPLATE_REV3.GDT 28/9/21

SUMMARY LOG

Drill Hole #: **PH22-SEG 1-15**

Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Langley, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: IFA Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5437844 , 538720 Station/Offset:

Elevation: 95.2 m *Coordinates taken with GPS*

Date(s) Drilled: 2022-09-28

Company: Ontrack

Driller: Craig

Drill Make/Model: MPP Geoteck 60

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400 / SPT "N" (BLOWS/300 mm) / W_P% 20 40 W% 60 W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							ASPHALT 0.09m			95
1		3.0		1			SP - SAND and GRAVEL, trace silt; fine to coarse grained sand; sub-angular to sub-rounded, 19 mm max. size gravel, brown (FILL); non-cohesive, moist.	GP-GM/SP-SM		94
2		23.0		2			1.37m CL - SILTY CLAY, trace sand, trace oxidation, trace organics; medium to high plasticity, grey-brown; cohesive, moist, very stiff.	CL		93
3							3.05m End of hole at 3.0 m depth, open to 1.2 m depth. No water observed.			92
4										91
5										90
6										89
7										88
8										87
9										86
10										

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Legend Installation: Sand, Grout, Cement, Bentonite, Drill Cuttings, Slotted, Slough, Piezometer

Final Depth of Hole: 3.0 m
Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 5/18/23

SUMMARY LOG

Drill Hole #: **PH22-SEG 1-32**

Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Langley, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: IFA Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5437505 , 539386 Station/Offset:

Elevation: 98.3 m *Coordinates taken with GPS*

Date(s) Drilled: 2022-09-29

Company: Ontrack

Driller: Craig

Drill Make/Model: MPP Geoteck 60

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; SPT "N" (BLOWS/300 mm); W_P% 20, W% 40 60, W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							ASPHALT			98
		4.6		1			0.4m SP - SAND and GRAVEL, some silt; fine to coarse grained sand; sub-angular, 25 mm max. size gravel, brown (FILL); non-cohesive, moist. 0.7m	SM/GM		
1		21.2		2			CL - SILTY CLAY, trace to some sand, trace gravel; low to medium plasticity, brown-grey; cohesive, moist, firm to stiff.	CL		97
2										96
		23.9		3				CL		
3							3.05m End of hole at 3.0 m depth, hole open to 1.2 m depth. No water observed.			95
4										94
5										93
6										92
7										91
8										90
9										89
10										

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Legend Installation: Sand, Grout, Cement, Bentonite, Drill Cuttings, Slotted, Slough, Piezometer

Final Depth of Hole: 3.0 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 5/18/23

SUMMARY LOG

Drill Hole #: **PH22-SEG 1-36**

Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Langley, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: IFA Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5438541 , 537638 Station/Offset:

Elevation: 99.3 m *Coordinates taken with GPS*

Date(s) Drilled: 2022-09-30

Company: Ontrack

Driller: Craig

Drill Make/Model: MPP Geoteck 60

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS (SPT)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; SPT "N" (BLOWS/300 mm); W_P% 20 W% 40 60 W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							ASPHALT			99
		5.8		1			0.24m SP - SAND, gravelly, some silt; fine to coarse grained sand; sub-rounded to sub-angular, 25 mm max. size gravel, brown (FILL); non-cohesive, moist.	SM		
1		8.5		2			0.61m SM - Intermixed SAND, some silt and SILTY CLAY, trace sand, trace gravel; fine to coarse grained sand, brown-grey; non-cohesive, moist, stiff to very stiff.	SM CL		98
		24.9		3			1.52m ML - SILT, trace sand, trace organic silt, trace gravel, some zones of fine sand, some silt; low to medium plasticity, brown-grey; cohesive, moist, firm to stiff.			
2										97
		27.3		4				ML		
3							3.05m End of hole at 3.0 m depth, hole open to 2.7 m depth. No water observed.			96
4										95
5										94
6										93
7										92
8										91
9										90
10										

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 3.0 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 5/18/23

BRITISH COLUMBIA — Ministry of Transportation and Infrastructure

SUMMARY LOG

Drill Hole #: **PH23-SEG 1-42**

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Langley, BC

Prepared by: 32079 Thurber Engineering Ltd.

Logged by: HG Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5439434 , 536026 Station/Offset:

Elevation: 91.5 m *Coordinates taken with GPS*

Date(s) Drilled: 2023-01-10

Company: Ontrack

Driller: Craig

Drill Make/Model: MPP Geoteck 60

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS (SPT)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400 — SPT "N" (BLOWS/300 mm) — W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING — Drillers Estimate {G % S % F %}	ELEVATION (m)
0							ASPHALT. 0.16m			91
1		5.2		1			SP/SP - SAND and GRAVEL, cobbley to some cobbles, some to trace silt; fine to medium grained sand; sub-angular, 25 mm max. size gravel, brown (FILL); non-cohesive, moist.	GP-GM/SP-SM		90
2		28.9		2			1.52m CL - SILTY CLAY, trace sand, trace gravel; medium plasticity, grey-brown; cohesive, moist, soft.	CL		89
3							3.05m End of hole at 3.1 m depth, hole open to 1.0 m depth. No water observed upon completion of drilling.			88
4										87
5										86
6										85
7										84
8										83
9										82
10										

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Legend Installation: Sand, Grout, Cement, Bentonite, Drill Cuttings, Slotted, Slough, Piezometer

Final Depth of Hole: 3.0 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 5/18/23

Ministry of Transportation and Infrastructure

SUMMARY LOG

Drill Hole #: **PH23-SEG 1-44**

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Langley, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: HG Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5439314 , 536240 Station/Offset:

Elevation: 92.1 m *Coordinates taken with GPS*

Date(s) Drilled: 2023-01-10

Company: Ontrack

Driller: Craig

Drill Make/Model: MPP Geoteck 60

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS (SPT)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400 / SPT "N" (BLOWS/300 mm) / W_P% 20 W% 40 60 W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING — Drillers Estimate {G % S % F %}	ELEVATION (m)
0							ASPHALT. 0.06m			92
							SP - SAND, gravelly to some gravel, some silt to silty, brown (FILL); non-cohesive. 0.61m			
1		20.6		1			CL - SILTY CLAY, trace sand, trace gravel; medium plasticity, brown; cohesive, moist, very stiff.	CL		91
		21.0		2			- sandy to some sand, firm below 1.5 m depth	CL		
2							- trace sand, stiff below 2.1 m depth			90
3		23.6		3			- no gravel, very stiff below 3.0 m depth	CL		89
4		24.5		4				CL		88
5										87
6		24.7		5				CL		86
7										85
8		25.2		6				CL		84
9							9.14m			83
							End of hole at 9.2 m depth, hole open to 8.5 m depth. Water observed at 6.1 m depth upon completion of drilling.			
10										

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 9.1 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 5/18/23

SUMMARY LOG

Drill Hole #: **PH23-SEG 1-46**

Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Langley, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: HG Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5437774 , 538840 Station/Offset:

Elevation: 95.9 m *Coordinates taken with GPS*

Date(s) Drilled: 2023-01-11

Company: Ontrack

Driller: Craig

Drill Make/Model: MPP Geoteck 60

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS (S P T)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; SPT "N" (BLOWS/300 mm); W_P% 20 — W% — 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							ASPHALT.			95
							0.24m SP/SP - SAND and GRAVEL to gravelly SAND, some to trace silt, trace cobbles (FILL); non-cohesive. 0.3m			
1		23.5		1			CL - SILTY CLAY, trace sand, trace gravel; medium plasticity, grey; cohesive, moist, firm.	CL		94
2		25.5		2				CL		93
3							3.05m End of hole at 3.1 m depth, hole open to 2.3 m depth. No water observed upon completion of drilling.			92
4										91
5										90
6										89
7										88
8										87
9										86
10										

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 3.0 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 5/18/23

SUMMARY LOG

Drill Hole #: **TH23-SEG 1-96**

BRITISH COLUMBIA — Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Langley, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: HG Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5438629 , 537459 Station/Offset:

Elevation: 97.6 m *Coordinates taken with GPS*

Date(s) Drilled: 2023-01-23

Company: OnTrack

Driller: Andrew

Drill Make/Model: Diedrick D-120

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS (SPT)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; Natural Vane (KPa) ⊕ Remold Vane (KPa); SPT "N" (BLOWS/300 mm); W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
0							ASPHALT. 0.1m			97
		10.0		1			SP - SAND and GRAVEL, some silt; sub-rounded, 19 mm max. size gravel, grey (FILL); non-cohesive. 0.46m	SP-SM		
1		20.6		2			CL - SILTY CLAY, trace sand, brown; cohesive, very stiff.	CL		96
2										
		22.4		3				CL		95
3							3.05m			
							CL - SILTY CLAY; medium plasticity, brown; cohesive, very stiff.			94
4		23.8		4				CL		
							4.57m			93
			208	V1			CL - SILTY CLAY; medium plasticity, grey; cohesive, stiff.			
5		26.6		5				CL		92
6										
7		29.6		6				CL		91
			120	V2						90
8										
		31.8		7				CL		89
9							9.14m			
							End of hole at 9.2 m depth. Hole open to 9.0 m depth. No water observed upon completion of drilling.			88
10										

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 9.1 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 23-5-19

TETRA TECH

SUMMARY LOG

Drill Hole #: **WTH21-03**

Project: **TCFV Highway Widening - Segment 2**

Location: Abbotsford, BC - Highway 1

Prepared by: 704-ENG.VGEO04000-01 Shane Mulholland

Logged by: SM Reviewed by: TG

Datum: NAD83 Z10N Geodetic Alignment: L2000

Northing/Easting: 5434890.28 , 543740.05 Station/Offset: 2012+05.1

Elevation: 132.93 m *Coordinates Surveyed*

Date(s) Drilled: 04/20/2021

Company: Omega Environmental Drilling

Driller: Dan Gibson

Drill Make/Model: B54 Auger Rig

Drilling Method: Solid Stem Auger

⊕ Field Vane ┼ Remold Field Vane (kPa)
⊗ Lab Vane Peak ╳ Lab Vane - Remold (kPa)
■ UU Triaxial (kPa)
▲ SPT "N" (BLOWS/300 mm) ▲
△ LPT "N" (BLOWS/300 mm) △
Wp% ●W% ⊙ Organic% WL%
20 40 60 80

DEPTH (m)	DRILLING DETAILS	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING	ELEVATION (m)
0						ASPH - ASPHALT. 0.18m	ASPH		
			1			SW - gravelly SAND, fine to coarse sand, well graded, fine to coarse sub-angular to rounded gravel up to 50 mm diameter, brown (dry), homogeneous, (FILL), non-cohesive, dry, dense. 0.76m	SW		
1			2			CL - SILTY CLAY, low to medium plasticity, trace to some sand, trace fine rounded gravel up to 10 mm diameter, trace cobbles up to 150 mm diameter, brown, homogeneous, cohesive, w < PL, stiff to very stiff. - trace to no sand below 1.83 m depth			132
2									131
			3			- damp below 2.74 m depth			
3							CL		130
						- colour change to grey, packets of fine sand below 3.81 m depth			
4			4						129
						- some sand to sandy between 5 m and 5.5 m depth			
5			5						128
6						6.1m END TESTHOLE AT 6.1 m DEPTH (Target Depth). - Testhole location surveyed by Stantec. - Soil descriptions are based on visual classifications, field observations and testing, drill performance, and laboratory testing. Some variation through the interpreted soil layers is expected. - Testhole backfilled to surface with drill cuttings, bentonite chips, sand, and asphalt patch.			127
7									126
8									125
9									124
10									123

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 6.1 m
Depth to Top of Rock: N/A

TETRA TECH

SUMMARY LOG

Drill Hole #: **WTH21-04**

Project: **TCFV Highway Widening - Segment 2**

Location: Abbotsford, BC - Highway 1

Date(s) Drilled: 04/20/2021

Company: Omega Environmental Drilling

Prepared by: 704-ENG.VGEO04000-01 Shane Mulholland

Logged by: SM Reviewed by: TG

Datum: NAD83 Z10N Geodetic Alignment: L2000

Northing/Easting: 5434795.56 , 543901.07 Station/Offset: 2013+91.9

Elevation: 125.99 m *Coordinates Surveyed*

Driller: Dan Gibson

Drill Make/Model: B54 Auger Rig

Drilling Method: Solid Stem Auger

⊕ Field Vane ┼ Remold Field Vane (kPa)
⊗ Lab Vane Peak ╳ Lab Vane - Remold (kPa)
■ UU Triaxial (kPa)
▲ SPT "N" (BLOWS/300 mm) ▲
△ LPT "N" (BLOWS/300 mm) △
Wp% ●W% ⊙ Organic% WL%
20 40 60 80

DEPTH (m)	DRILLING DETAILS	SPT	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING	ELEVATION (m)
0							ASPH - ASPHALT. 0.15m	ASPH		
				1			GW-GM - GRAVEL and SAND, fine to coarse sand, well graded, sub-angular to rounded fine to coarse gravel, brown (dry), homogeneous, (FILL), non-cohesive, dry, compact to dense. 0.7m	GW-GM	**Sieve** (Sa#1) G:48% S:46% F:6%	
1										125
2				2			CL - SILTY CLAY, low to medium plasticity, trace to some sand, trace gravel, brown, homogeneous, cohesive, w > PL, stiff to very stiff. - at 1.07 m depth colour change to grey, damp		**Atterberg** (Sa#2): PL:16% LL:34%	124
3		2 3 4 4		3	113			CL		123
4				4						122
5		1 0 3 5		5	113				**Atterberg** (Sa#6): PL:17% LL:36%	121
				6	100					
6							5.79m END TESTHOLE AT 5.79 m DEPTH (Target Depth). - Testhole location surveyed by Stantec. - Soil descriptions are based on visual classifications, field observations and testing, drill performance, and laboratory testing. Some variation through the interpreted soil layers is expected. - Testhole backfilled to surface with drill cuttings, bentonite chips, sand, and asphalt patch.			120
7										119
8										118
9										117
10										

Legend Sample Type: **A**-Auger, **B**-Becker, **C**-Core, **G**-Grab, **V**-Vane, **L#**-Lab Sample, **S**-Split Spoon, **O**-Odex (air rotary), **W**-Wash (mud return), **T**-Shelby Tube

Final Depth of Hole: 5.8 m
Depth to Top of Rock: N/A

SUMMARY LOG

TETRA TECH

Drill Hole #: **WTH21-05**

Project: **TCFV Highway Widening - Segment 2**

Location: Abbotsford, BC - Highway 1

Date(s) Drilled: 04/21/2021

Company: Omega Environmental Drilling

Prepared by: 704-ENG.VGEO04000-01
Shane Mulholland

Logged by: SM Reviewed by: TG

Datum: NAD83 Z10N Geodetic Alignment: L2000

Northing/Easting: 5434701.61 , 544060.41 Station/Offset: 2015+76.9

Elevation: 117.45 m *Coordinates Surveyed*

Driller: Dan Gibson

Drill Make/Model: B54 Auger Rig

Drilling Method: Solid Stem Auger

⊕ Field Vane ┼ Remold Field Vane (kPa)
⊗ Lab Vane Peak ╳ Lab Vane - Remold (kPa)
■ UU Triaxial (kPa)
▲ SPT "N" (BLOWS/300 mm) ▲
△ LPT "N" (BLOWS/300 mm) △
Wp% ●W% ⊙ Organic% WL%
20 40 60 80

DEPTH (m)	DRILLING DETAILS	SPT	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING	ELEVATION (m)
0							ASPH - ASPHALT. 0.18m	ASPH		117
							SW - gravelly SAND, fine to coarse sand, fine to coarse sub-angular to rounded gravel up to 40 mm diameter, trace cobbles up to 180 mm diameter, brown (dry), homogeneous, (FILL), non-cohesive, dry, compact to dense. 0.61m	SW		
1				1			CL - SILTY CLAY, medium plastic, trace fine to coarse sand, trace gravel up to 10 mm diameter, brown, homogeneous, cohesive, w < PL, stiff to very stiff.			116
2				2						115
3								CL		114
4				3						113
5				4			- colour change to grey, slightly softer, slightly higher moisture content below 4.57 m depth			112
6							6.1m END TESTHOLE AT 6.10 m DEPTH (Target Depth). - Testhole location surveyed by Stantec. - Soil descriptions are based on visual classifications, field observations and testing, drill performance, and laboratory testing. Some variation through the interpreted soil layers is expected. - Testhole backfilled to surface with drill cuttings, bentonite chips, sand, and asphalt patch.			111
7										110
8										109
9										108
10										

Legend Sample Type:
A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 6.1 m
Depth to Top of Rock: N/A

MOTI-SOIL-REV3 ENG-VGEO04000-01 - TCFV SEGMENT 2 WIDENING 080321.GPJ MOTI_DATATEMPLATE_REV3.GDT 9/28/21

SUMMARY LOG

TETRA TECH

Drill Hole #: **WTH21-06**

Project: **TCFV Highway Widening - Segment 2**

Location: Abbotsford, BC - Highway 1

Date(s) Drilled: 04/21/2021

Company: Omega Environmental Drilling

Prepared by: 704-ENG.VGEO04000-01
Shane Mulholland

Logged by: SM Reviewed by: TG

Datum: NAD83 Z10N Geodetic Alignment: L2000

Northing/Easting: 5434589.04 , 544251.65 Station/Offset: 2017+98.8

Elevation: 107.86 m *Coordinates Surveyed*

Driller: Dan Gibson

Drill Make/Model: B54 Auger Rig

Drilling Method: Solid Stem Auger

⊕ Field Vane ┼ Remold Field Vane (kPa)
⊗ Lab Vane Peak ╳ Lab Vane - Remold (kPa)
■ UU Triaxial (kPa)
▲ SPT "N" (BLOWS/300 mm) ▲
△ LPT "N" (BLOWS/300 mm) △
Wp% ●W% ⊙ Organic% WL%
20 40 60 80

DEPTH (m)	DRILLING DETAILS	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING	ELEVATION (m)
0						ASPH - ASPHALT. 0.18m	ASPH		
						SW - gravelly SAND, fine to coarse sand, fine to coarse sub-angular to rounded gravel up to 70 mm diameter, brown (dry), homogeneous, (FILL), non-cohesive, dry, compact to dense. 0.69m	SW		
1			1			CL - SILTY CLAY, low to medium plasticity, some fine to coarse sand, trace gravel up to 15 mm diameter, mottled grey/brown, trace organics (wood fragments), cohesive, w < PL, firm to stiff.			107
2			2						106
3						- wood pieces at 3.05 m depth, minor to no decomposition	CL		105
4			3						104
5									103
6			4			6.1m			102
						END TESTHOLE AT 6.10 m DEPTH (Target Depth). - Testhole location surveyed by Stantec. - Soil descriptions are based on visual classifications, field observations and testing, drill performance, and laboratory testing. Some variation through the interpreted soil layers is expected. - Testhole backfilled to surface with drill cuttings, bentonite chips, sand, and asphalt patch.			101
7									
8									100
9									99
10									98

Legend
Sample Type:
A-Auger, B-Becker, C-Core, G-Grab, V-Vane
L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Final Depth of Hole: 6.1 m
Depth to Top of Rock: N/A

TETRA TECH

SUMMARY LOG

Drill Hole #: **WTH21-06**

Project: **TCFV Highway Widening - Segment 2**

Location: Abbotsford, BC - Highway 1

Prepared by: 704-ENG.VGEO04000-01 Shane Mulholland

Logged by: SM Reviewed by: TG

Datum: NAD83 Z10N Geodetic Alignment: L2000

Northing/Easting: 5434589.04 , 544251.65 Station/Offset: 2017+98.8

Elevation: 107.86 m *Coordinates Surveyed*

Date(s) Drilled: 04/21/2021

Company: Omega Environmental Drilling

Driller: Dan Gibson

Drill Make/Model: B54 Auger Rig

Drilling Method: Solid Stem Auger

DEPTH (m)	DRILLING DETAILS	⊕ Field Vane ┼ Remold Field Vane (kPa) ⊗ Lab Vane Peak ╳ Lab Vane - Remold (kPa) ■ UU Triaxial (kPa) ▲ SPT "N" (BLOWS/300 mm) ▲ △ LPT "N" (BLOWS/300 mm) △ Wp% ●W% ⊙ Organic% WL% 20 40 60 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING	ELEVATION (m)
10										97
11										96
12										95
13										94
14										93
15										92
16										91
17										90
18										89
19										88
20										

Legend Sample Type: **A**-Auger, **B**-Becker, **C**-Core, **G**-Grab, **V**-Vane, **L#**-Lab Sample, **S**-Split Spoon, **O**-Odex (air rotary), **W**-Wash (mud return), **T**-Shelby Tube

Final Depth of Hole: 6.1 m

Depth to Top of Rock: N/A

SUMMARY LOG

Drill Hole #: **CPT22-SEG 2-14**

Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Abbotsford, BC

Prepared by: 32079 Thurber Engineering Ltd.

Logged by: SY Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5434635 , 544232 Station/Offset:

Elevation: 108.7 m *Coordinates taken with GPS*

Date(s) Drilled: 2022-05-05

Company: OnTrack

Driller: Andrew

Drill Make/Model: MPP Geoteck 60

Drilling Method: CPT/Solid Stem Auger

DEPTH (m)	DRILLING DETAILS	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; SPT "N" (BLOWS/300 mm); W_P% 20, W% 40 60, W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							ASPHALT. 0.09m			108
1		7.0		1			SP - SAND and GRAVEL; fine to coarse grained, well graded sand; fine to coarse grained gravel, brown; non-cohesive (FILL), moist.	SW/GW		107
2		18.6		2			1.83m CL - SILTY CLAY, trace sand, trace gravel; medium plasticity; grey; cohesive, dry, firm to stiff.	CL		106
3		21.1		3			3.05m CL - SILTY CLAY, trace to some sand, trace gravel; medium plasticity; fine to coarse grained sand; grey-brown; cohesive, dry, very stiff.	CL		105
4		19.8		4				CL		104
5										103
6										102
7		19.9		5				CL		101
8										100
9		20.6		6				CL		99
10										

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Legend Installation: Sand, Grout, Cement, Bentonite, Drill Cuttings, Slotted, Slough, Piezometer

Final Depth of Hole: 21.3 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 23-5-19

SUMMARY LOG

Drill Hole #: **CPT22-SEG 2-14**

BRITISH COLUMBIA — Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**
Location: Abbotsford, BC

Prepared by: 32079
Thurber Engineering Ltd.
Logged by: SY Reviewed by: ANR

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5434635 , 544232 Station/Offset:
Elevation: 108.7 m *Coordinates taken with GPS*

Date(s) Drilled: 2022-05-05
Company: OnTrack
Driller: Andrew
Drill Make/Model: MPP Geoteck 60
Drilling Method: CPT/Solid Stem Auger

DEPTH (m)	DRILLING DETAILS (S P T)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400 ; SPT "N" (BLOWS/300 mm) ; W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
10		20.8		7			10.06m CL - SILTY CLAY, trace sand, trace partially decomposed fibrous organics; low plasticity; fine to medium grained sand, grey-dark brown; cohesive, dry, very stiff to hard.	CL		98
11		22.5		8				CL		97
12										
13		27.4		9				ML		96
		22.9		10			13.41m CL - SILTY CLAY, trace sand, trace wood chips, trace gravel; low to medium plasticity; grey-dark brown; cohesive; dry to moist, very stiff to hard.	CL		95
14										
		23.1		11				CL		94
15							- stiff below 15.0 m depth			
16		21.2		12				CL		93
										92
17										
		21.0		13				CL		91
18										
		25.3		14				CL		90
19										
		18.0		15				CL		89
20							19.81m			

Legend Sample Type: A-Auger, B-Becker, C-Core, G-Grab, V-Vane, L#-Lab Sample, S-Split Spoon, O-Odex (air rotary), W-Wash (mud return), T-Shelby Tube

Legend Installation: Sand, Grout, Cement, Bentonite, Drill Cuttings, Slotted, Slough, Piezometer

Final Depth of Hole: 21.3 m
Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 23-5-19

SUMMARY LOG

Drill Hole #: **CPT22-SEG 2-14**

Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Abbotsford, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: SY Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5434635 , 544232 Station/Offset:

Elevation: 108.7 m *Coordinates taken with GPS*

Date(s) Drilled: 2022-05-05

Company: OnTrack

Driller: Andrew

Drill Make/Model: MPP Geoteck 60

Drilling Method: CPT/Solid Stem Auger

DEPTH (m)	DRILLING DETAILS (SPT)	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400 ; SPT "N" (BLOWS/300 mm) ; W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING — Drillers Estimate {G % S % F %}	ELEVATION (m)
20							CL - SILTY CLAY, trace to some sand, trace gravel; medium plasticity; fine to coarse grained sand; grey; cohesive, moist, stiff. *(continued)*	CL		88
		21.2		16						
21							21.34m			87
							End of hole at 21.3 m depth. Hole open to 20.7 m depth. No water observed.			
22										86
23										85
24										84
25										83
26										82
27										81
28										80
29										79
30										

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 21.3 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 23-5-19

SUMMARY LOG

Drill Hole #: **MRH23-SEG 2-08**

Ministry of Transportation and Infrastructure — BRITISH COLUMBIA

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Abbotsford, BC

Prepared by: 32079 Thurber Engineering Ltd.

Logged by: DKP Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5434611 , 544217 Station/Offset:

Elevation: 109.1 m *Coordinates taken with GPS*

Date(s) Drilled: 2023-01-26 to 27

Company: Sea to Sky

Driller: Chad Brown

Drill Make/Model: Mobile B53

Drilling Method: Mud Rotary

DEPTH (m)	DRILLING DETAILS SPT	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; Natural Vane (KPa) ⊕ Remold Vane (KPa); SPT "N" (BLOWS/300 mm); W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
0							ASPHALT. 0.15m No recovery.		Drillers notes: Feels like gravelly fill	109
1	5 5 6 4	11		SPT 1			1.52m			108
2							CL - SILTY CLAY, trace sand, trace gravel; medium plasticity, grey-brown; cohesive, moist, firm to stiff.			107
3	4 6 6 7	12 20.8		SPT 2				CL		106
4	2 5 5 5	10 23.0		SPT 3			3.96m CL - SILTY CLAY, trace sand, trace gravel, trace organics; medium plasticity; brown-grey; cohesive, moist, stiff.	CL		105
5										104
6	3 4 6 6	10 23.9		SPT 4			- no organics below 5.5 m depth	CL		103
7	4 5 5 7	10 24.3		SPT 5				CL		102
8										101
9	3 5 6 6	11 22.4		SPT 6				CL		100
10										

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 19.8 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 23-5-19

SUMMARY LOG

Drill Hole #: **MRH23-SEG 2-08**

BRITISH COLUMBIA — Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**
Location: Abbotsford, BC

Prepared by: 32079 Thurber Engineering Ltd.
Logged by: DKP Reviewed by: ANR

Datum: UTM-Nad83 Alignment:
Northing/Easting: 5434611 , 544217 Station/Offset:
Elevation: 109.1 m *Coordinates taken with GPS*

Date(s) Drilled: 2023-01-26 to 27
Company: Sea to Sky
Driller: Chad Brown
Drill Make/Model: Mobile B53
Drilling Method: Mud Rotary

DEPTH (m)	DRILLING DETAILS SPT	Pocket Penetrometer / Shear Strength (kPa) 100 200 300 400; Natural Vane (KPa) ⊕ Remold Vane (KPa); SPT "N" (BLOWS/300 mm); W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate {G % S % F %}	ELEVATION (m)
10	4 6 6 5	12 ▲ 26.0 ●	SPT	7			CL - SILTY CLAY, trace sand, trace gravel, trace organics; medium plasticity; brown-grey; cohesive, moist, stiff. *(continued)*	CL		99
11			V	1						98
12	4 6 7 8	13 ▲ 27.9 ●	SPT	8				CL		97
13	8 8 8 5	16 ▲ 26.1 ●	SPT	9				CL		96
14										95
15	4 3 4 6	7 ▲ 24.6 ●	SPT	10				CL		94
							15.01m OL - ORGANIC SILT, trace sand, trace gravel; medium plasticity, brown-grey; cohesive, moist, firm.			
			V	2						
16										93
17	2 3 2 3	5 ▲ 30.4 ●	SPT	11				OL/CL		92
							17.68m OL - ORGANIC SILT, trace sand, trace gravel; low to medium plasticity, grey; cohesive, wet to moist, stiff.			
18	3 3 9 7	12 ▲ 23.3 ●	SPT	12				OL/CL		91
							18.59m CL - SILTY CLAY, trace sand, trace gravel; medium plasticity, grey; cohesive, moist, stiff.			
19										90
	4 6 8 10	14 ▲ 22.4 ●	SPT	13				CL/ML		
20							19.81m End of hole at 19.8 m depth.			

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 19.8 m
Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 23-5-19

SUMMARY LOG

Drill Hole #: **MRH23-SEG 2-08**

Ministry of Transportation and Infrastructure

Project: **Fraser Valley Highway 1 Corridor Improvement**

Location: Abbotsford, BC

Prepared by: 32079
Thurber Engineering Ltd.

Logged by: DKP Reviewed by: ANR

Datum: UTM-Nad83 Alignment:

Northing/Easting: 5434611 , 544217 Station/Offset:

Elevation: 109.1 m *Coordinates taken with GPS*

Date(s) Drilled: 2023-01-26 to 27

Company: Sea to Sky

Driller: Chad Brown

Drill Make/Model: Mobile B53

Drilling Method: Mud Rotary

DEPTH (m)	DRILLING DETAILS	SPT	Pocket Penetrometer ✕ / Shear Strength (kPa) 100 200 300 400; + Natural Vane (KPa) ⊕ Remold Vane (KPa); ▲ SPT "N" (BLOWS/300 mm) ▲; W_P% 20 — W% 40 60 — W_L% 80	SAMPLE TYPE	SAMPLE NO	RECOVERY (%)	SOIL SYMBOL	SOIL DESCRIPTION	CLASSIFICATION	COMMENTS TESTING Drillers Estimate *{G % S % F %}*	ELEVATION (m)
20										89
21										88
22										87
23										86
24										85
25										84
26										83
27										82
28										81
29										80
30										

Legend Sample Type: A-Auger; B-Becker; C-Core; G-Grab; V-Vane; L#-Lab Sample; S-Split Spoon; O-Odex (air rotary); W-Wash (mud return); T-Shelby Tube

Legend Installation: Sand; Grout; Cement; Bentonite; Drill Cuttings; Slotted; Slough; Piezometer

Final Depth of Hole: 19.8 m

Depth to Top of Rock:

MOTI-SOIL-REV3_EL. 1 DECIMAL PLACE 32079_FRASER VALLEY HWY 1 CORRIDOR.GPJ MOTI_DATATEMPLATE_REV3.GDT 23-5-19