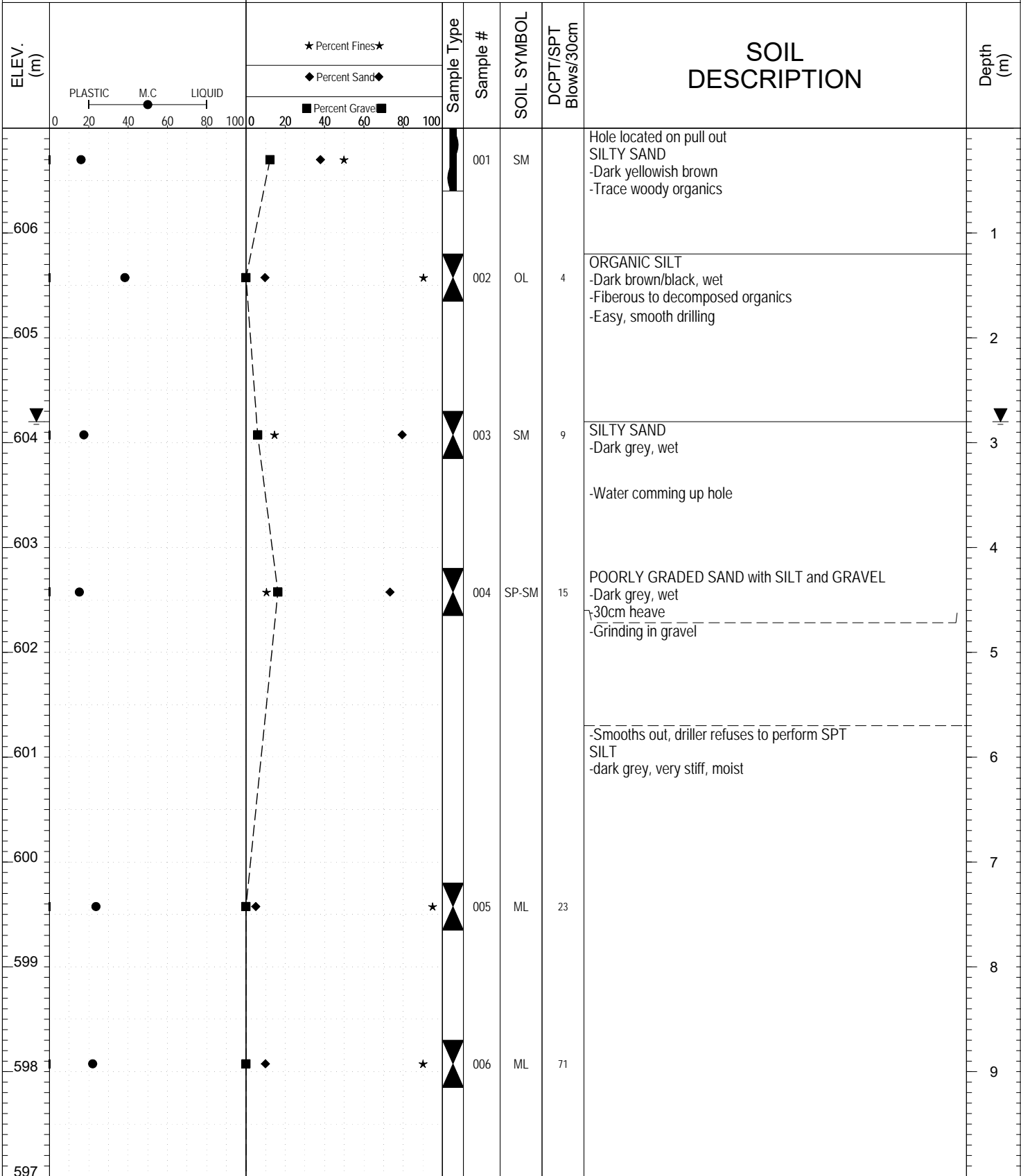
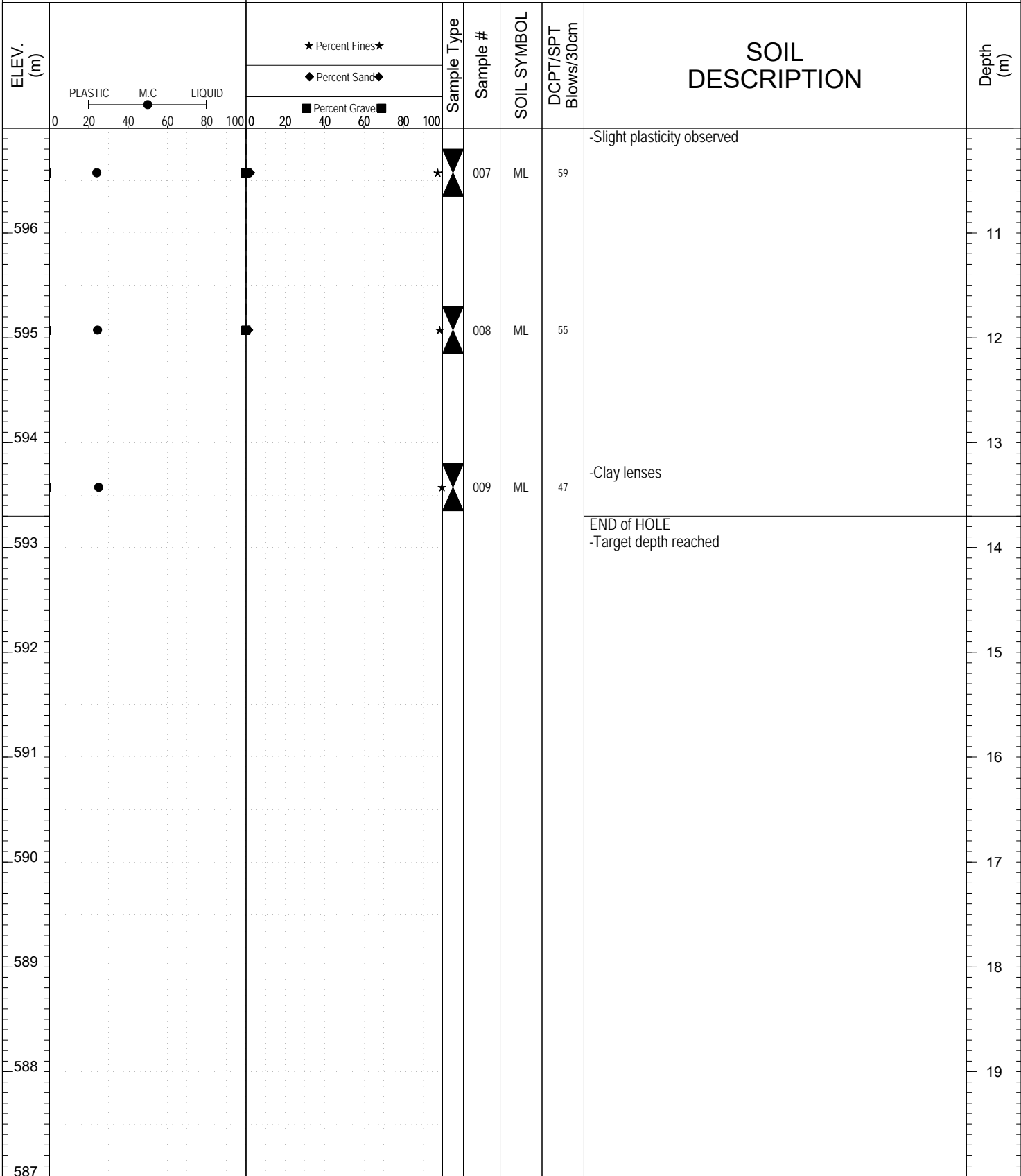


SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE

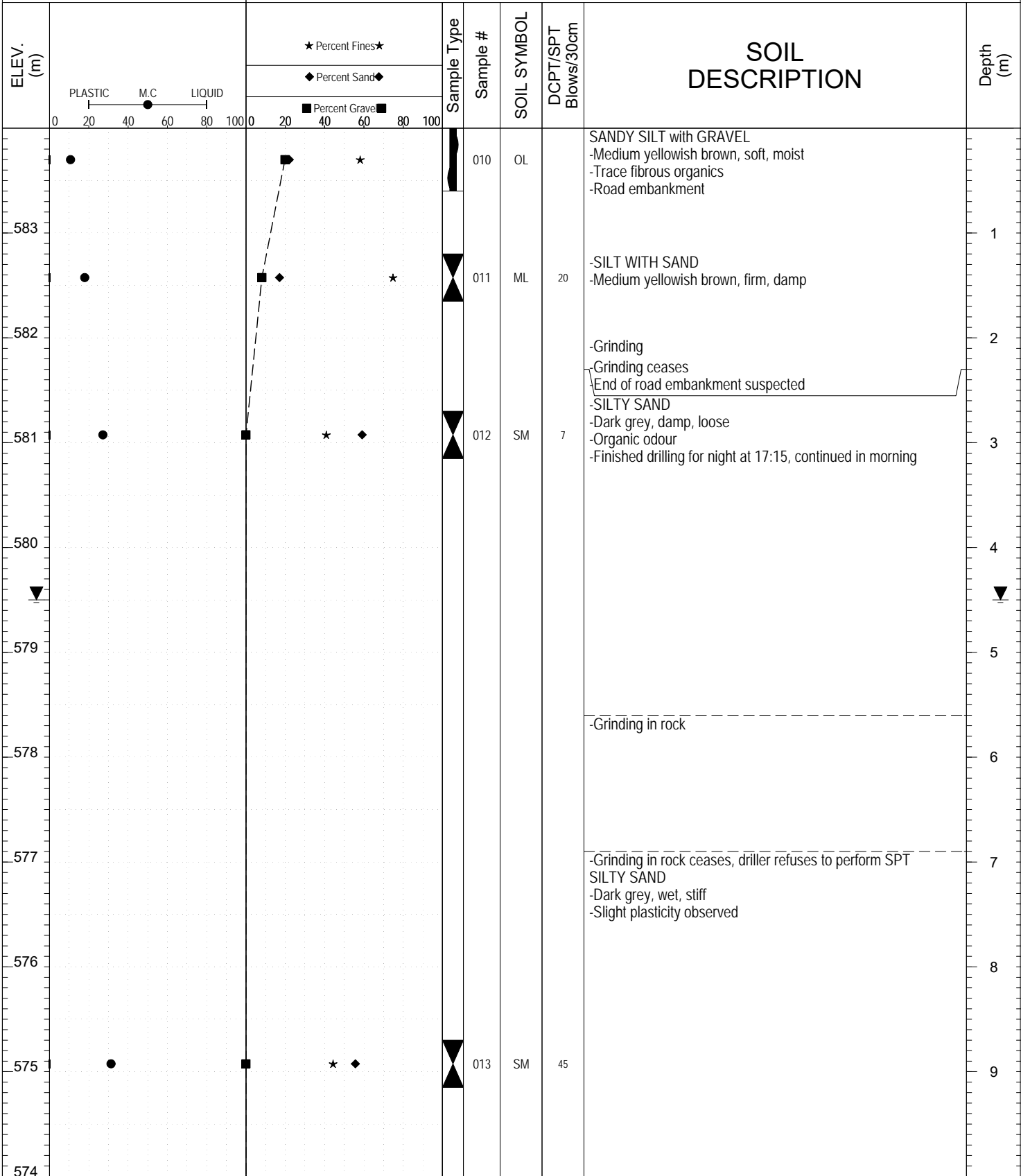


Highways and Public Works
Transportation Engineering Branch

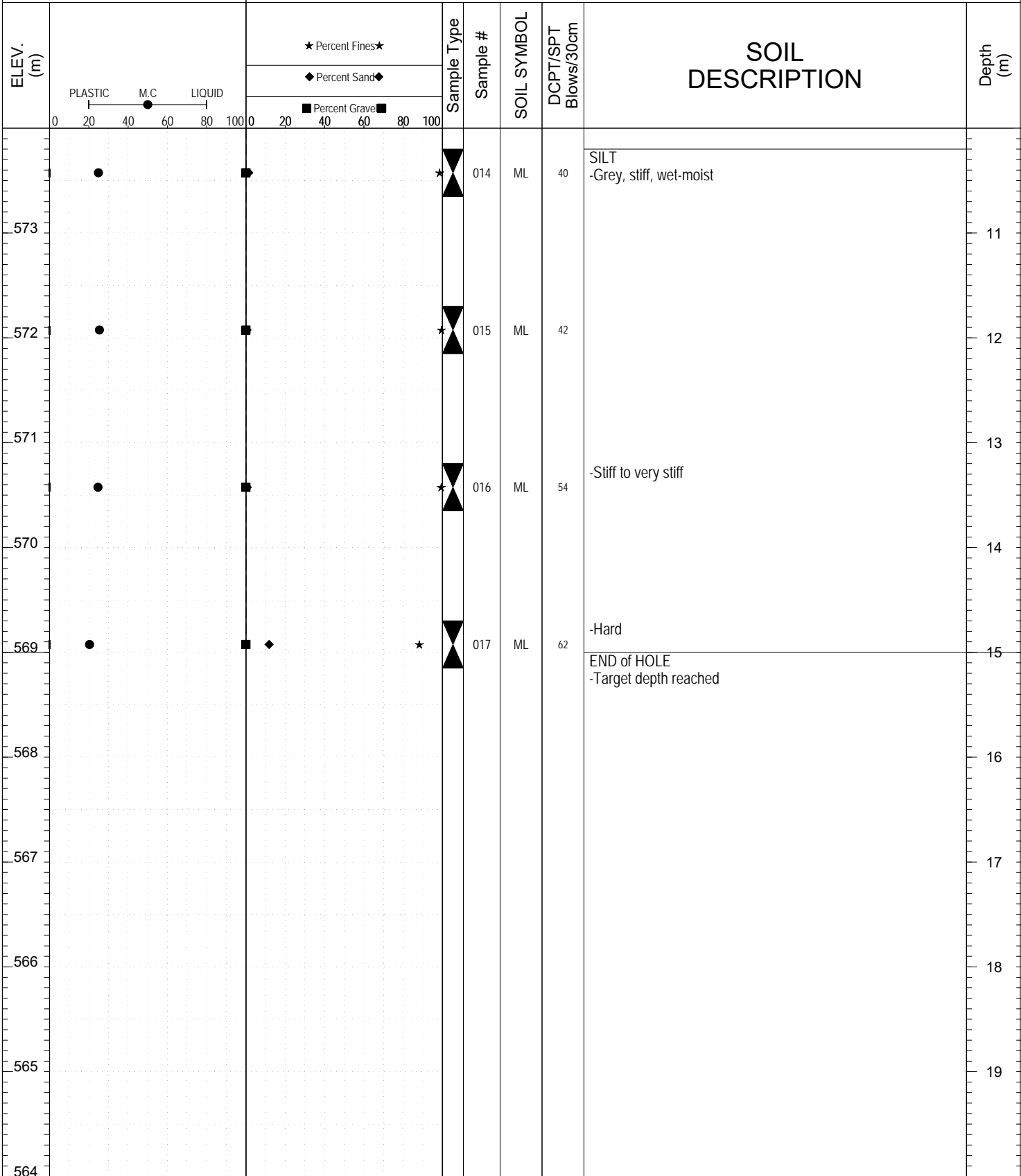
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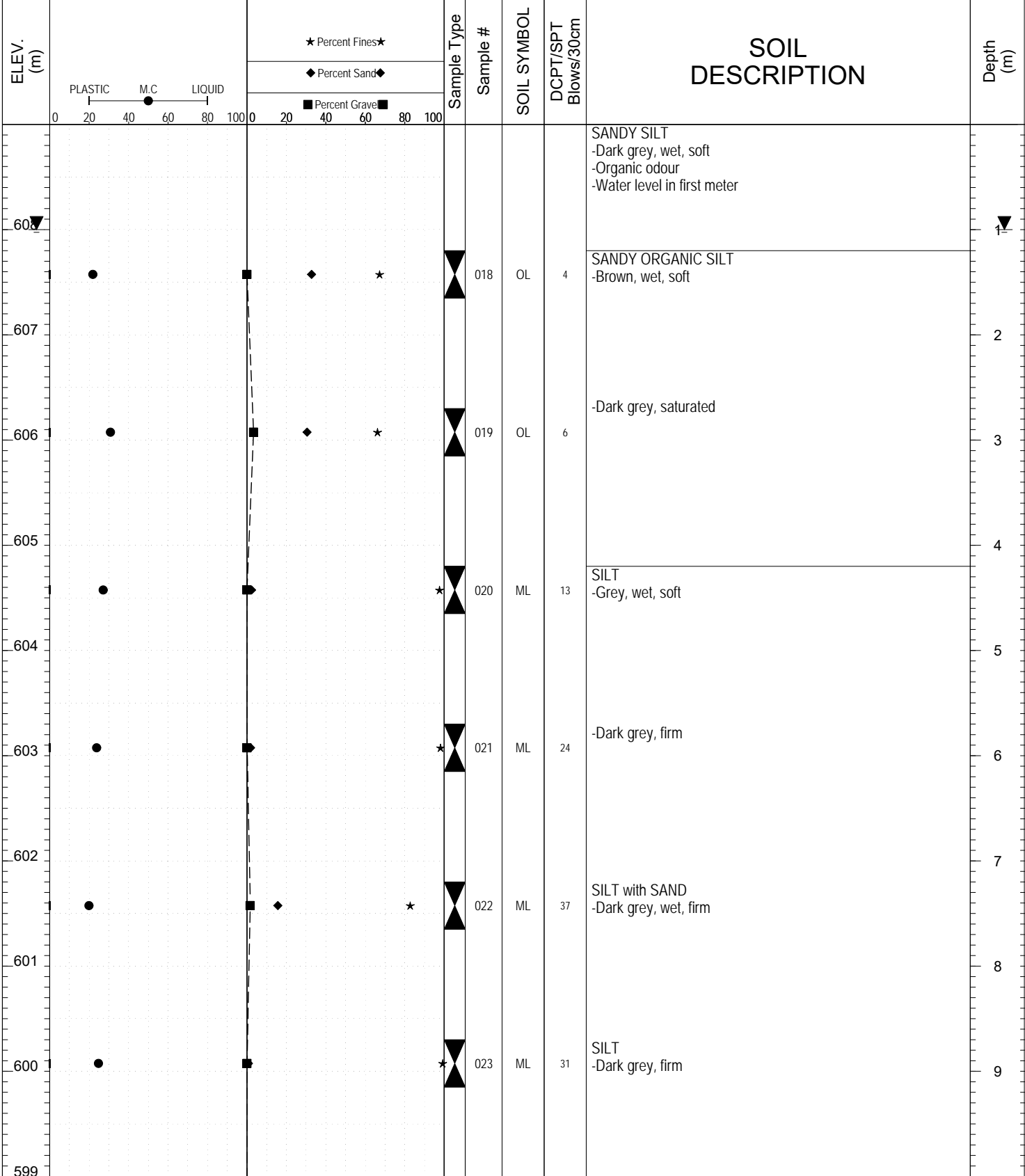
SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



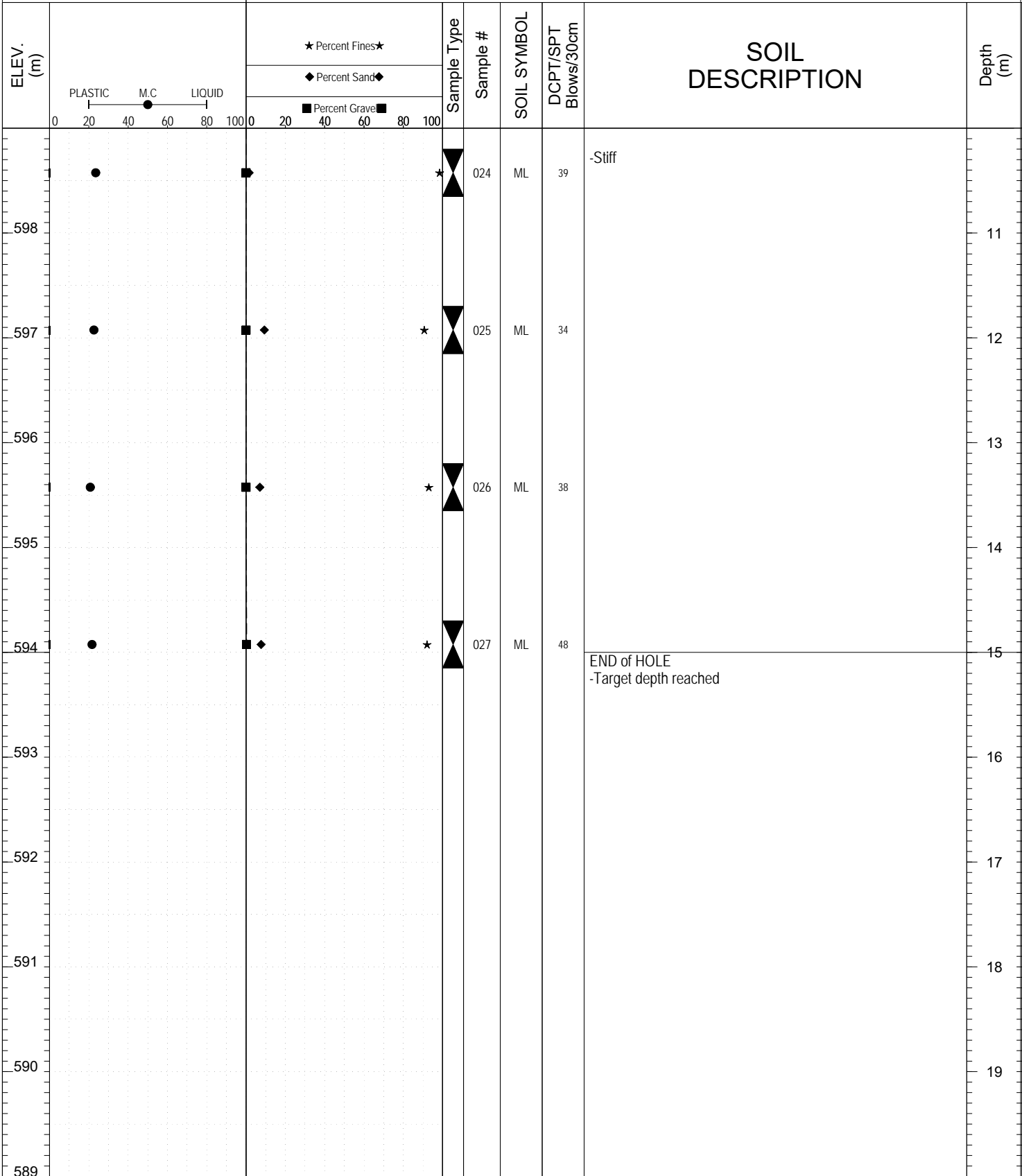
SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



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SUBSURFACE EXPLORATION AND TEST REPORT		Campbell Highway	SOURCE/TP#: 895-5691
Gateway Drilling		Lucky Creek Drilling, Km 74 RHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem		Coordinates: ZZ09V N6720172m E490568m	ELEVATION: 609m

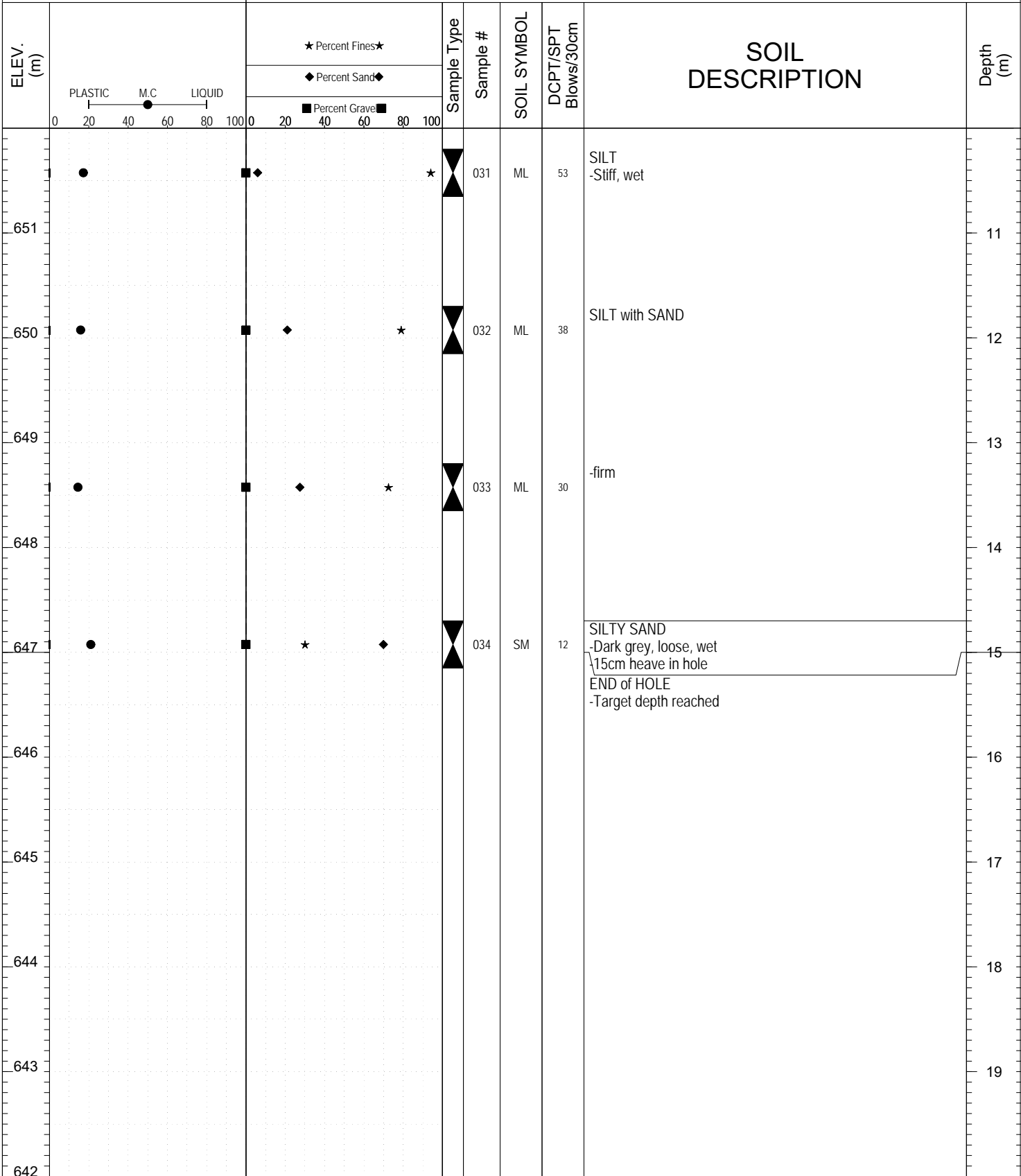
SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



SUBSURFACE EXPLORATION AND TEST REPORT		Campbell Highway		SOURCE/TP#: 895-5692				
Gateway Drilling		Lucky Creek Drilling, km 74 LHS		PROJECT NO: 552-202104-2035-0661-5				
4" Hollow Stem		Coordinates: ZZ09V N6720159m E490532m		ELEVATION: 662m				
SAMPLE TYPE		<input type="checkbox"/> UNDISTURBED <input type="checkbox"/> DCPT <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input checked="" type="checkbox"/> SPT <input type="checkbox"/> CORE						
ELEV. (m)	★ Percent Fines ★ ◆ Percent Sand ◆ ■ Percent Gravel ■		Sample Type	Sample #	SOIL SYMBOL	DCPT/SPT Blows/30cm	SOIL DESCRIPTION	Depth (m)
	PLASTIC M.C LIQUID 0 20 40 60 80 100							
66.0							ORGANIC SILT -Brown, saturated, soft -Fibrous organics -Water in first meter -Driller refused to perform SPT - concerned about heaving	1
659.5	●	■	◆		028	SM	SILTY SAND -Dark grey - brown, saturated, loose -Sample from auger flights, driller refused to perform SPT -Grinding in rock layer	2
658.5								3
658.0								4
657.5								5
657.0							-Grinding ceases SILT with SAND -Dark grey, wet, firm	5
656.5	●	■	◆	★	029	ML	21	6
656.0								7
655.5								7
655.0	●	■	◆★		030	ML	20	8
654.5							-SANDY SILT -Saturated -first 15cm liquified	8
654.0								9
653.5							-Driller refused to perform SPT - Concerned about heaving	9
653.0								9
652.5								9
652.0								9

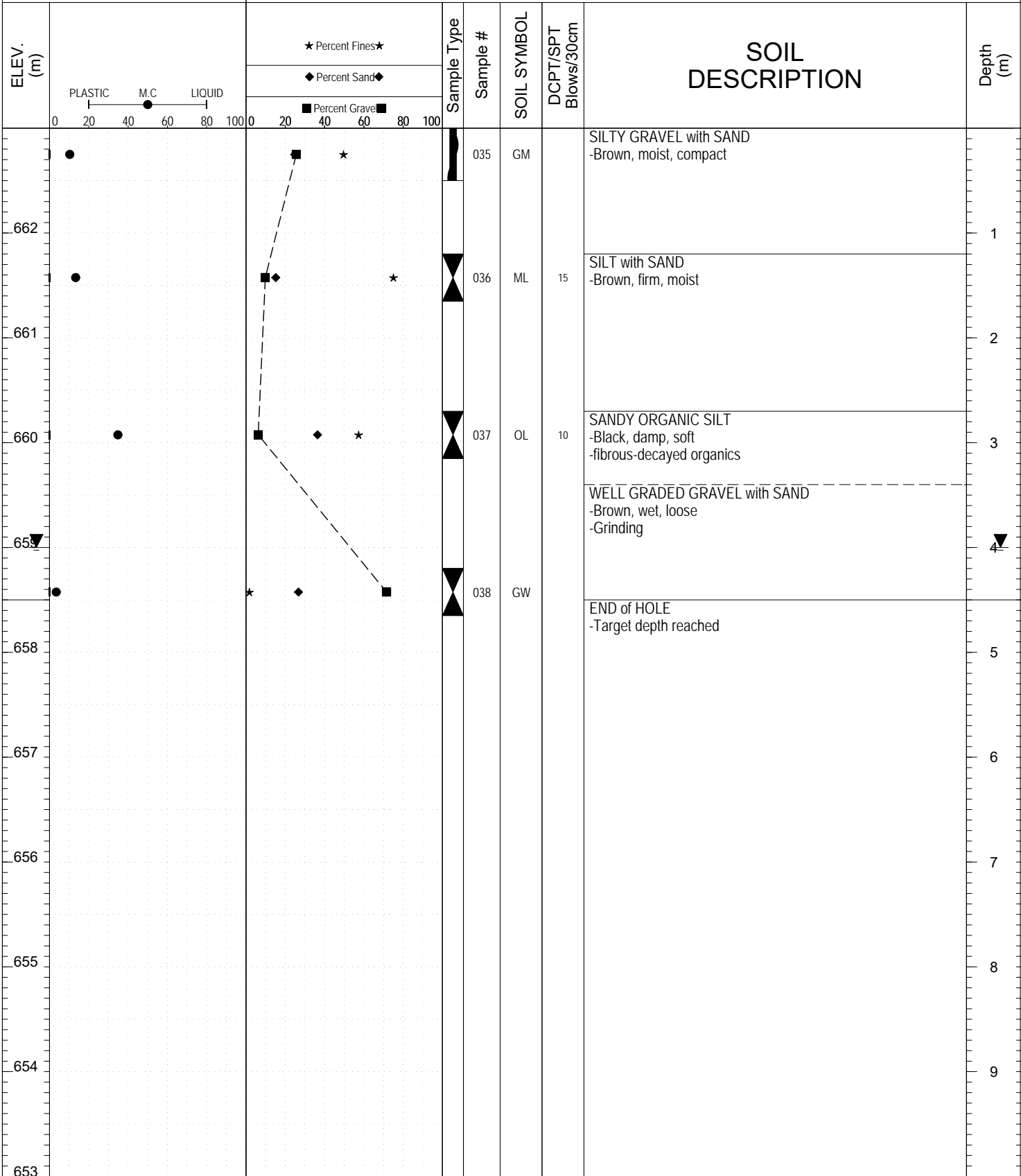


SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



SUBSURFACE EXPLORATION AND TEST REPORT		Campbell Highway	SOURCE/TP#: 895-5693
Gateway Drilling		Lucky Creek Approach,	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem		Coordinates: ZZ09V N6720357m E490556m	ELEVATION: 663m

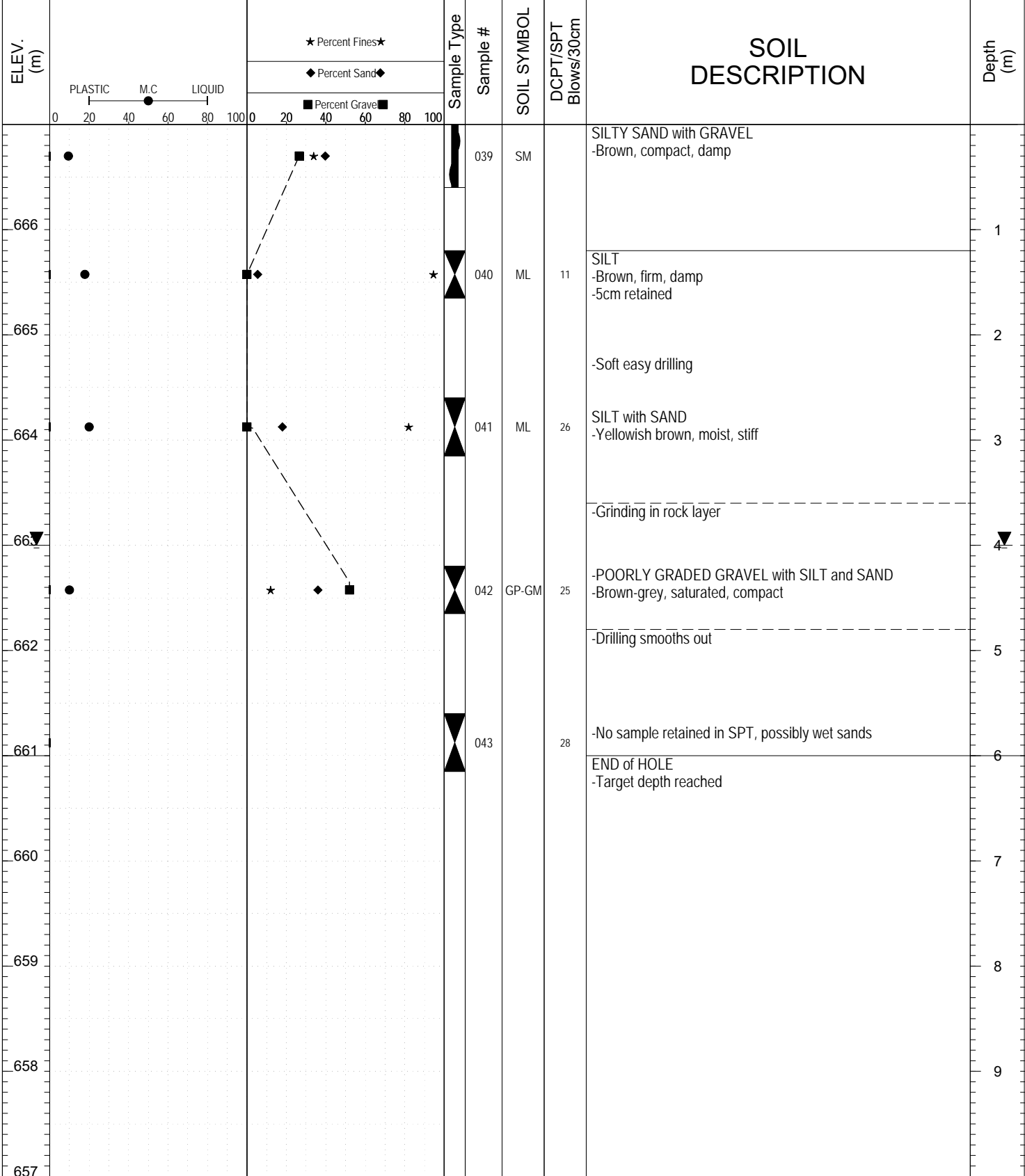
SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



Highways and Public Works
Transportation Engineering Branch

LOGGED BY: R.Stilwell	Termination Depth: 4.5m
COMPILED BY: R.Stilwell	Complete: 9/1/2016 4:30:00 PM
REVIEWED BY: M. Idrees	Pit #: Page 1 of 1

SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



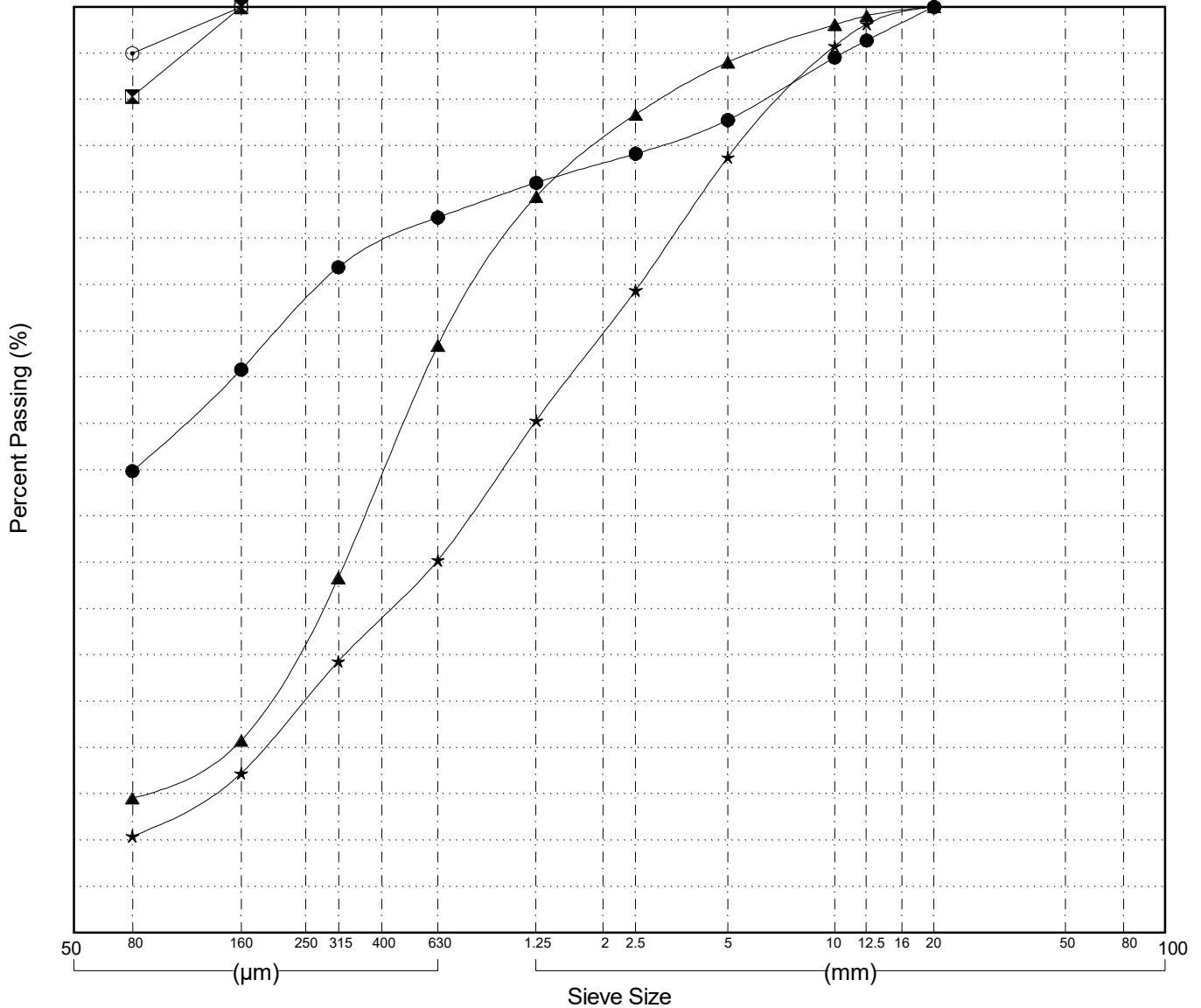
GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5689
Gateway Drilling	Km 74 LHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates:ZZ09V N6720204m E490534m	ELEVATION: 607m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 001	219	0.0 to 0.6	SILTY SAND(SM)	16.0	NP	NP	NP		
☒ 002	220	1.2 to 1.7	ORGANIC SILT(OL)	38.4	NP	NP	NP		
▲ 003	221	2.7 to 3.2	SILTY SAND(SM)	17.5	NP	NP	NP		
★ 004	222	4.2 to 4.7	POORLY GRADED SAND with SILT and GRAVEL(SP-SM)	15.2	NP	NP	NP	1.0	22.0
⊙ 005	223	7.2 to 7.7	SILT(ML)	23.6	NP	NP	NP		

Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	%Breakdown			
																Gravel	Sand	Silt	Clay
● 001	219	100.0	100.0	100.0	100.0	100.0	96.4	94.5	87.8	84.1	81.0	77.3	71.9	60.8	49.9	12.2	37.9	49.9	
☒ 002	220	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	90.3	0.0	9.7	90.3	
▲ 003	221	100.0	100.0	100.0	100.0	100.0	99.0	98.1	94.0	88.4	79.5	63.4	38.3	20.8	14.5	6.0	79.5	14.5	
★ 004	222	100.0	100.0	100.0	100.0	100.0	98.1	95.8	83.8	69.4	55.3	40.3	29.3	17.2	10.4	16.2	73.3	10.4	
⊙ 005	223	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.0	0.0	5.0	95.0	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



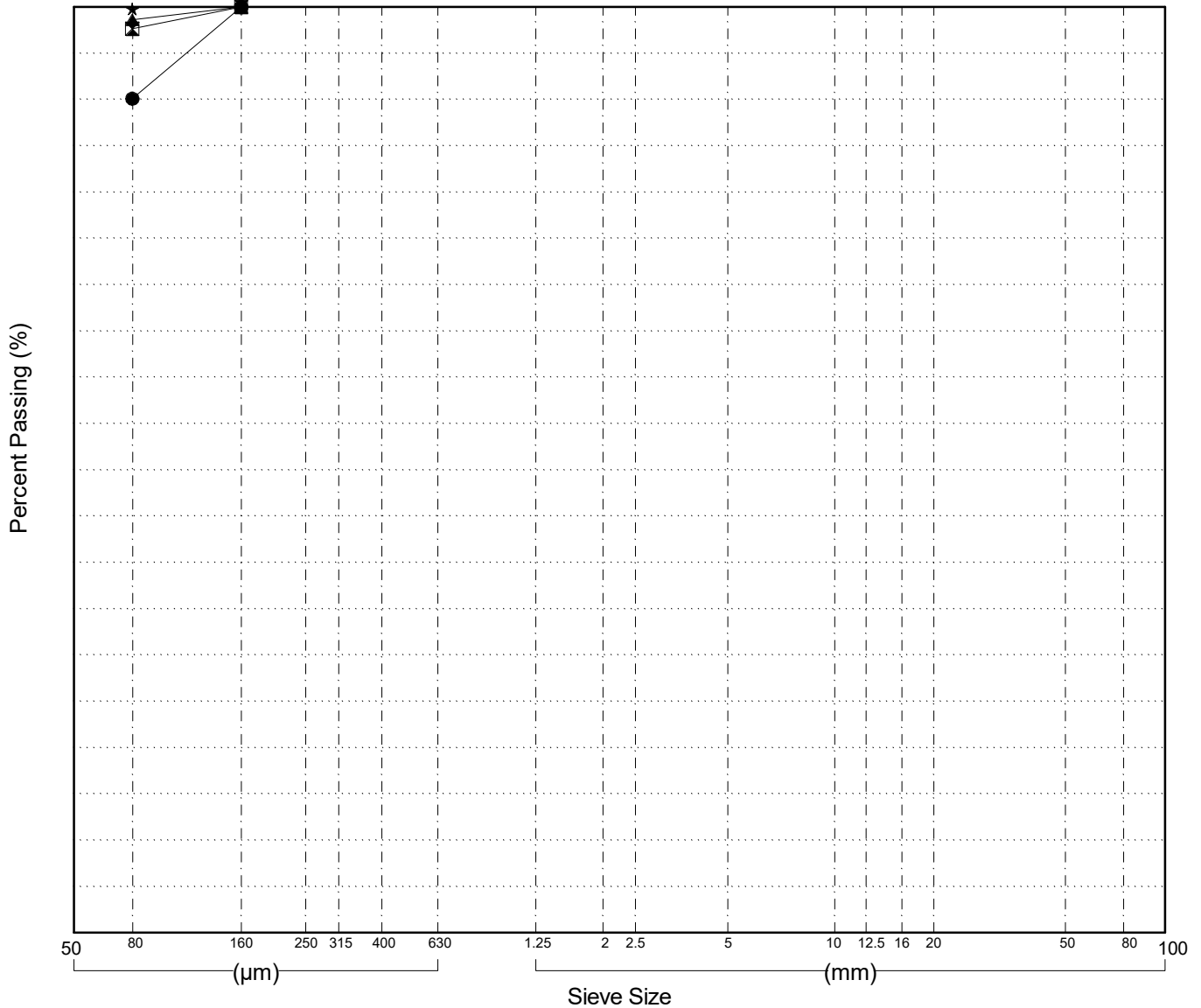
GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5689
Gateway Drilling	Km 74 LHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720204m E490534m	ELEVATION: 607m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 006	224	8.7 to 9.2	SILT(ML)	22.0	NP	NP	NP		
☒ 007	225	10.2 to 10.7	SILT(ML)	24.0	NP	NP	NP		
▲ 008	226	11.7 to 12.2	SILT(ML)	24.4	NP	NP	NP		
★ 009	227	13.2 to 13.7	SILT(ML)	25.0	NP	NP	NP		

Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
																Gravel	Sand	Silt	Clay
● 006	224	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	90.1	0.0	9.9	90.1
☒ 007	225	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.6	0.0	2.4	97.6
▲ 008	226	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.6	0.0	1.4	98.6
★ 009	227	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8			99.8

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse

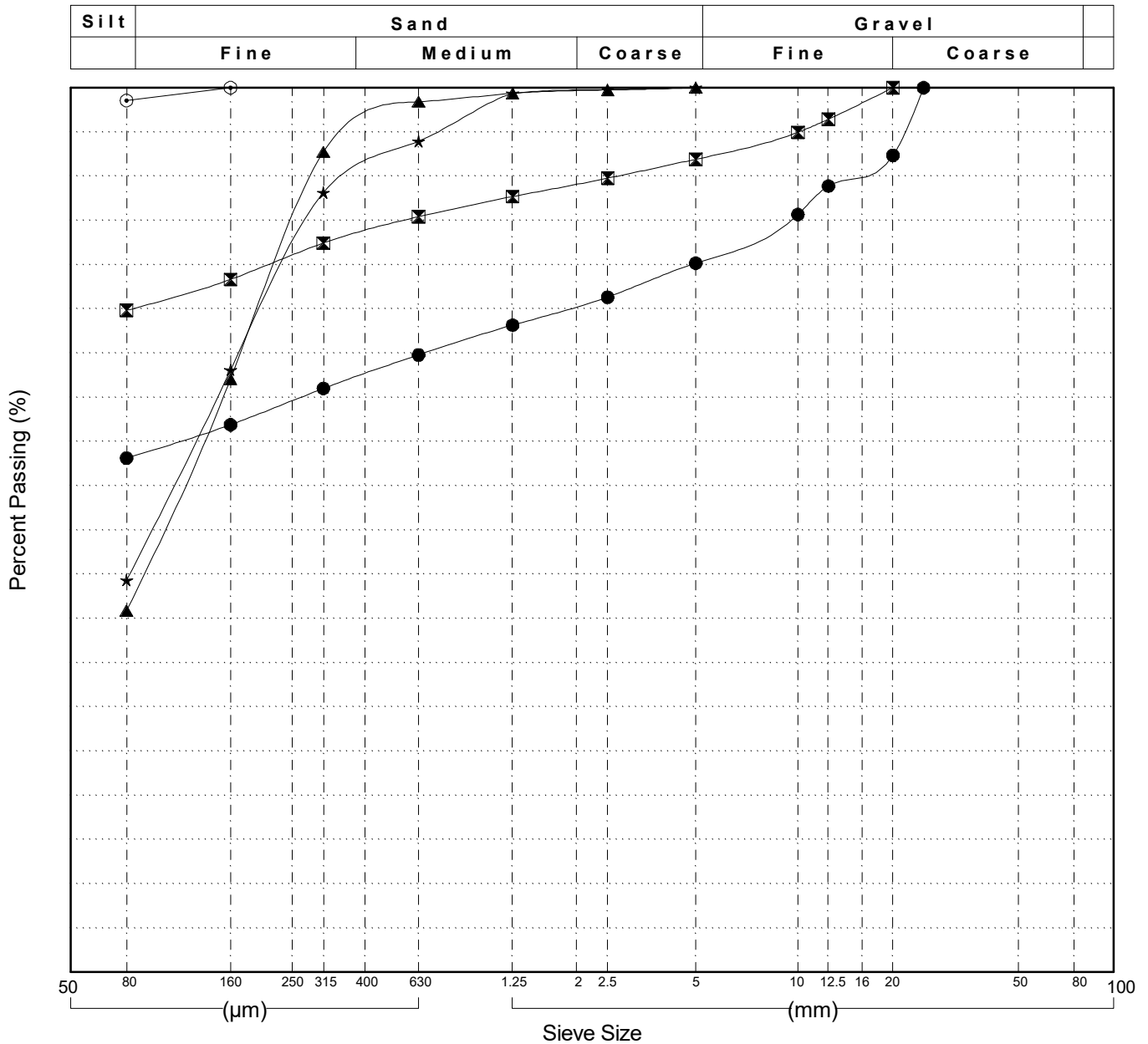


GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5690
Gateway Drilling	Km 74 RHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720219m E490560m	ELEVATION: 584m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H ₂ O	LL	PL	PI	C _c	C _u
● 010	228	0.0 to 0.6	SANDY SILT with GRAVEL(ML)	10.7	NP	NP	NP		
☒ 011	229	1.2 to 1.7	SILT with SAND(ML)	17.9	NP	NP	NP		
▲ 012	230	2.7 to 3.2	SILTY SAND(SM)	27.2	NP	NP	NP		
★ 013	231	8.7 to 9.2	SILTY SAND(SM)	31.3	NP	NP	NP		
⊙ 014	232	10.2 to 10.7	SILT(ML)	24.9	NP	NP	NP		

Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
		% PASSING														Gravel	Sand	Silt	Clay
● 010	228	100.0	100.0	100.0	100.0	92.3	88.9	85.7	80.2	76.3	73.2	69.8	66.0	61.9	58.1	19.8	22.0	58.1	
☒ 011	229	100.0	100.0	100.0	100.0	100.0	96.4	94.9	91.9	89.8	87.7	85.4	82.4	78.3	74.8	8.1	17.1	74.8	
▲ 012	230	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.7	99.4	98.4	92.7	67.1	40.9	0.0	59.1	40.9	
★ 013	231	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	99.4	93.9	88.1	68.1	44.3	0.0	55.7	44.3	
⊙ 014	232	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.5	0.0	1.5	98.5	



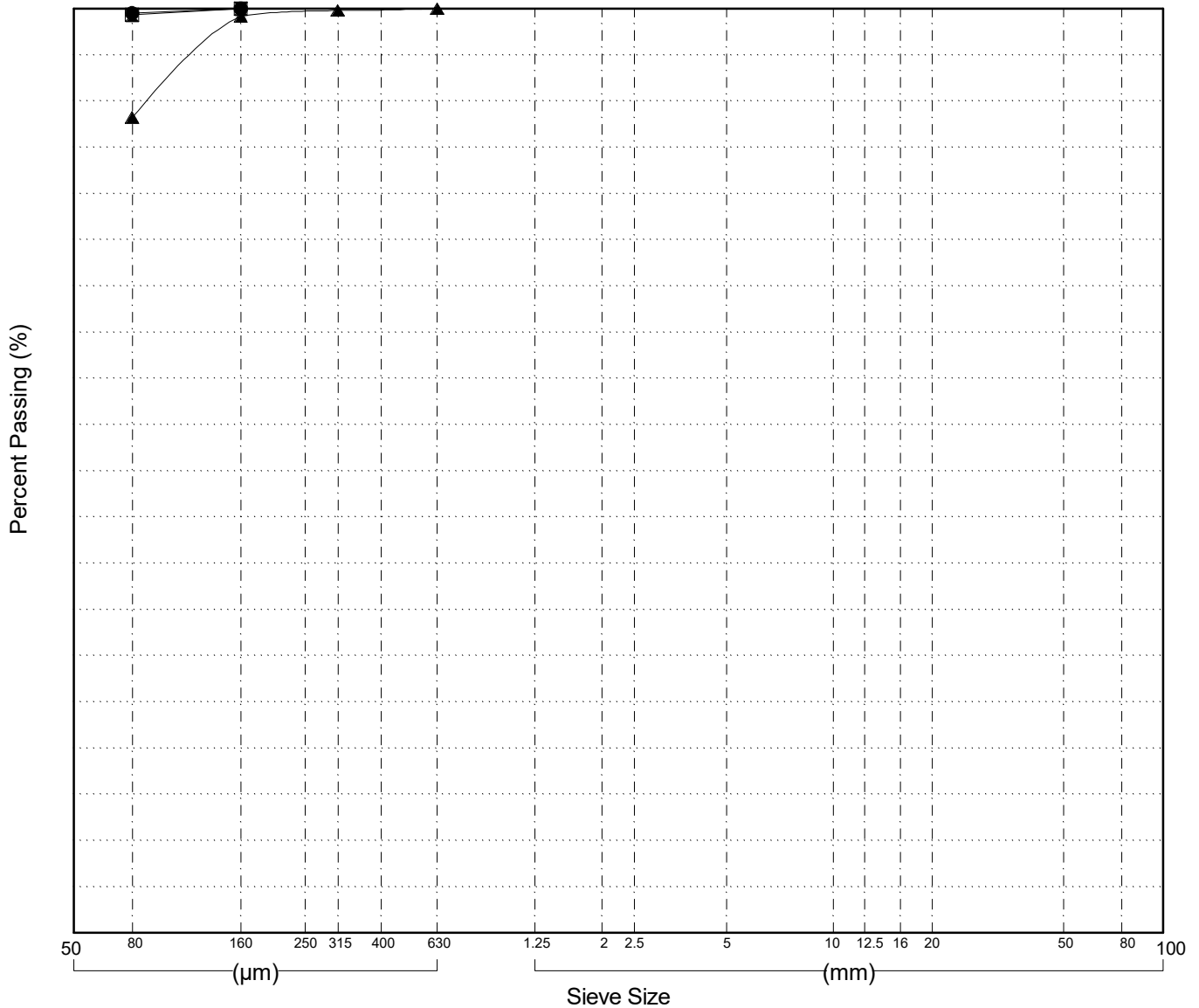
GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5690
Gateway Drilling	Km 74 RHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720219m E490560m	ELEVATION: 584m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 015	233	11.7 to 12.2	SILT(ML)	25.4	NP	NP	NP		
☒ 016	234	13.2 to 13.7	SILT(ML)	24.7	NP	NP	NP		
▲ 017	235	14.7 to 15.2	SILT(ML)	20.4	NP	NP	NP		

Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
																Gravel	Sand	Silt	Clay
● 015	233	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.5	0.0	0.5	99.5	
☒ 016	234	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.3	0.0	0.7	99.3	
▲ 017	235	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	99.2	88.2	0.0	11.8	88.2	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



Highways and Public Works
Transportation Engineering Branch

LOGGED BY: RMS/KAE
COMPILED BY: R.Stilwell
REVIEWED BY: M. Idrees

Pit #
Complete: 8/31/2016 11:30:00 AM

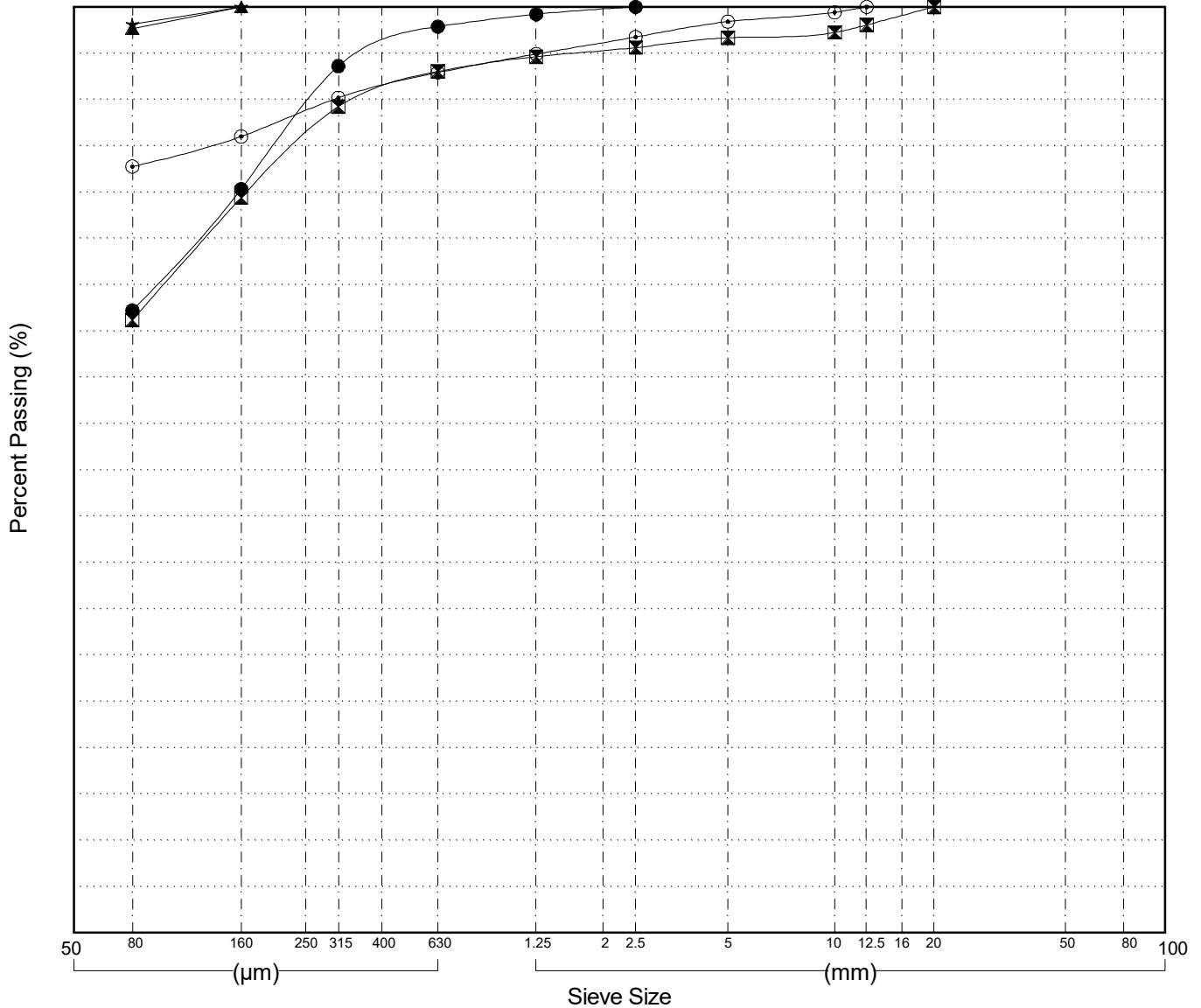
GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5691
Gateway Drilling	Km 74 RHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720172m E490568m	ELEVATION: 609m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 018	236	1.2 to 1.7	SANDY ORGANIC SILT(OL)	21.9	NP	NP	NP		
☒ 019	237	2.7 to 3.2	SANDY ORGANIC SILT(OL)	30.8	NP	NP	NP		
▲ 020	238	4.2 to 4.7	SILT(ML)	27.1	NP	NP	NP		
★ 021	239	5.7 to 6.2	SILT(ML)	23.8	NP	NP	NP		
⊕ 022	240	7.2 to 7.7	SILT with SAND(ML)	19.9	NP	NP	NP		

Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
																Gravel	Sand	Silt	Clay
● 018	236	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.2	97.9	93.6	80.3	67.2	0.0	32.8	67.2	
☒ 019	237	100.0	100.0	100.0	100.0	100.0	98.0	97.2	96.7	95.6	94.6	93.0	89.2	79.4	66.2	3.3	30.5	66.2	
▲ 020	238	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.6	0.0	2.4	97.6	
★ 021	239	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.1	0.0	1.9	98.1	
⊕ 022	240	100.0	100.0	100.0	100.0	100.0	100.0	99.4	98.4	96.7	94.9	92.9	90.2	86.0	82.8	1.6	15.6	82.8	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse

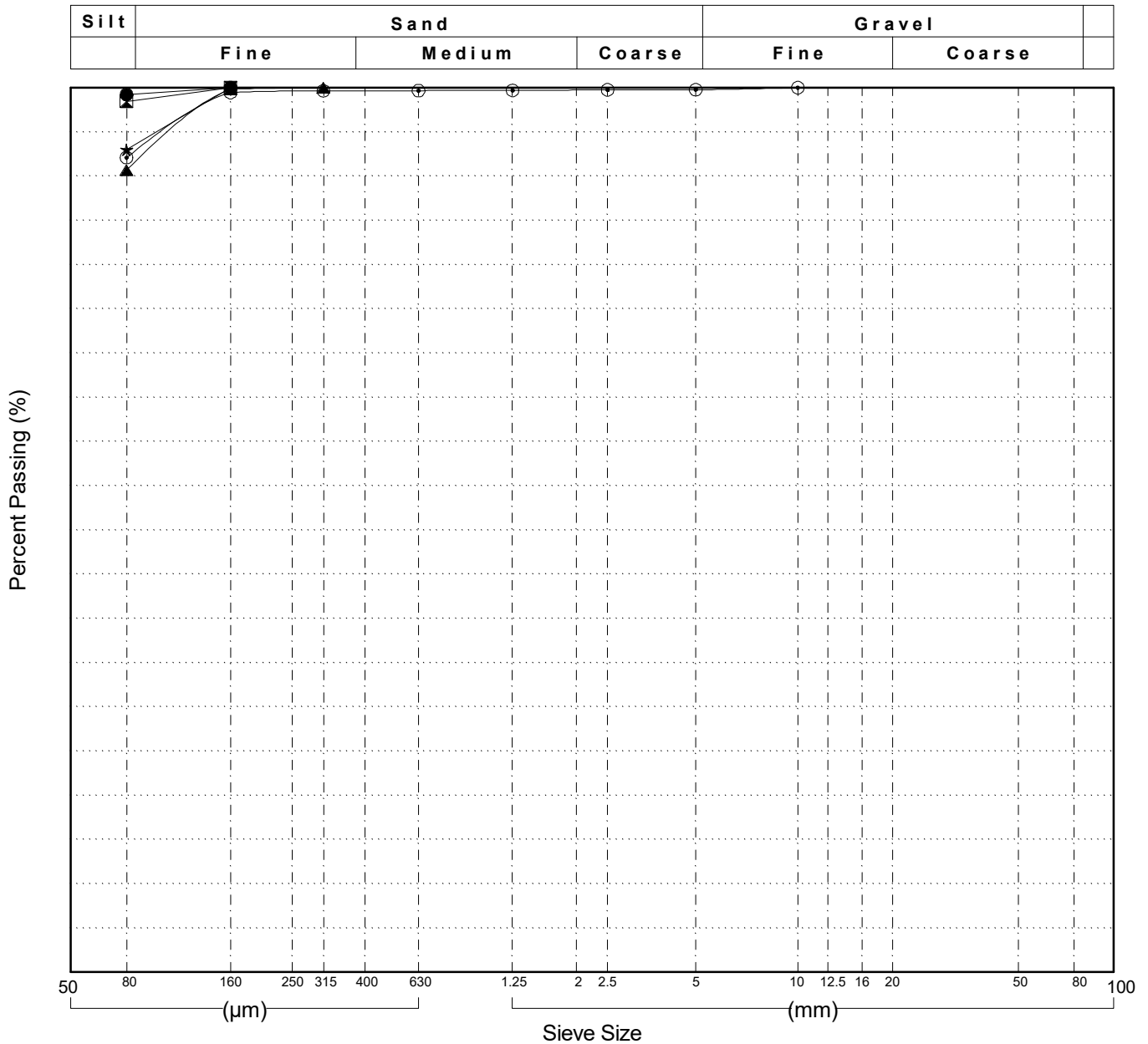


GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5691
Gateway Drilling	Km 74 RHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720172m E490568m	ELEVATION: 609m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H ₂ O	LL	PL	PI	C _c	C _u
● 023	241	8.7 to 9.2	SILT(ML)	24.7	NP	NP	NP		
☒ 024	242	10.2 to 10.7	SILT(ML)	23.5	NP	NP	NP		
▲ 025	243	11.7 to 12.2	SILT(ML)	22.6	NP	NP	NP		
★ 026	244	13.2 to 13.7	SILT(ML)	20.7	NP	NP	NP		
⊙ 027	245	14.7 to 15.2	SILT(ML)	21.6	NP	NP	NP		

Field#	Lab#	% PASSING															% Breakdown			
		100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt	Clay	
● 023	241	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.2	0.0	0.8	99.2		
☒ 024	242	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.5	0.0	1.5	98.5		
▲ 025	243	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	90.7	0.0	9.3	90.7		
★ 026	244	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	93.0	0.0	7.0	93.0		
⊙ 027	245	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	99.8	99.7	99.7	99.6	99.4	92.1	0.2	7.7	92.1		

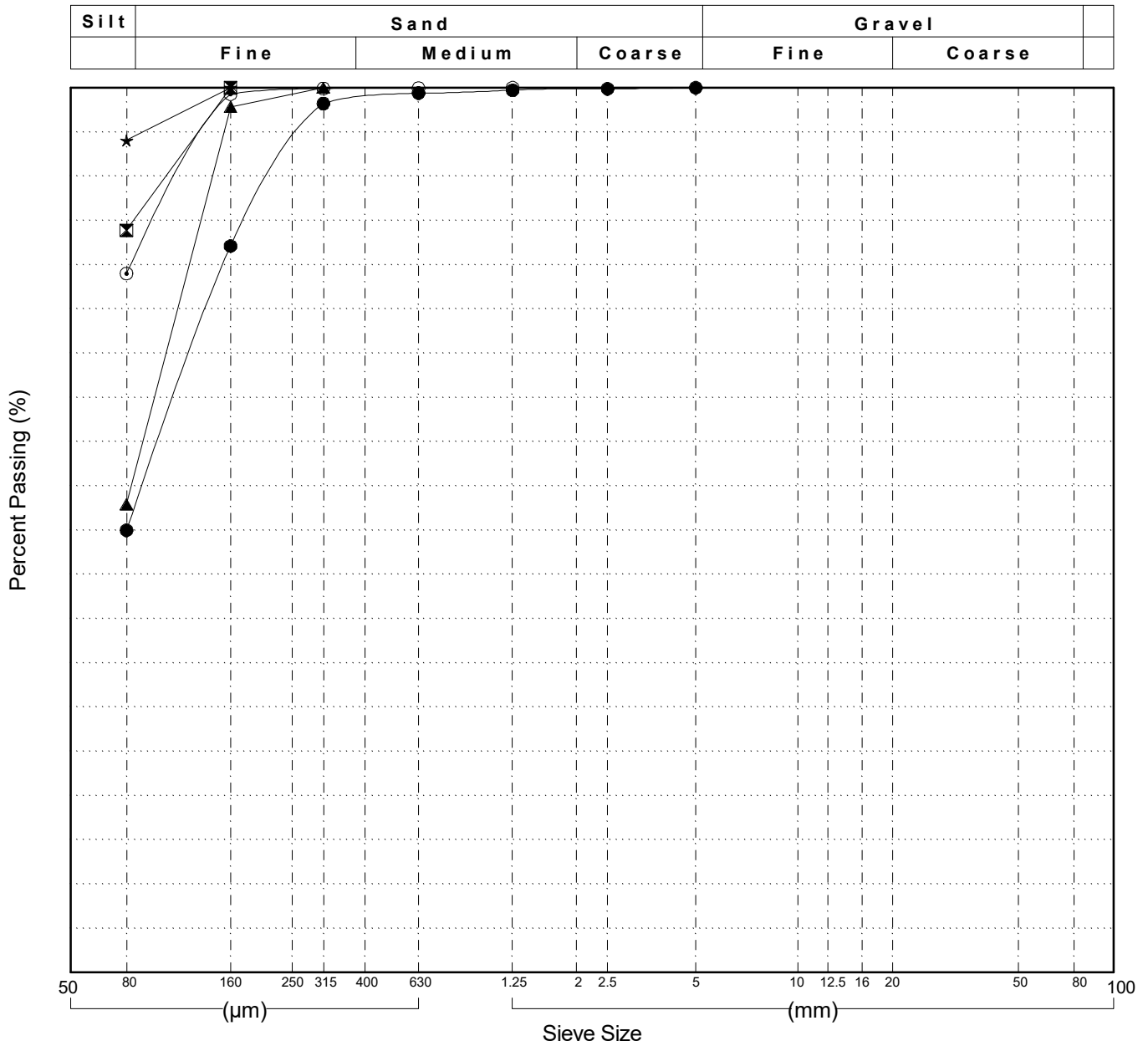


GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5692
Gateway Drilling	km 74 LHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720159m E490532m	ELEVATION: 662m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 028	246	2.3 to 2.7	SILTY SAND(SM)	37.6	NP	NP	NP		
☒ 029	247	5.7 to 6.2	SILT with SAND(ML)	14.6	NP	NP	NP		
▲ 030	248	7.2 to 7.7	SANDY SILT(ML)	15.0	NP	NP	NP		
★ 031	249	10.2 to 10.7	SILT(ML)	17.2	NP	NP	NP		
⊙ 032	250	11.7 to 12.2	SILT with SAND(ML)	15.8	NP	NP	NP		

Field#	Lab#	% PASSING															% Breakdown			
		100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt	Clay	
● 028	246	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.7	99.4	98.2	82.1	50.0	0.0	50.0	50.0		
☒ 029	247	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	83.9	0.0	16.1	83.9		
▲ 030	248	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.8	52.9	0.0	47.1	52.9		
★ 031	249	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.0	0.0	6.0	94.0		
⊙ 032	250	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.3	79.0	0.0	21.0	79.0		

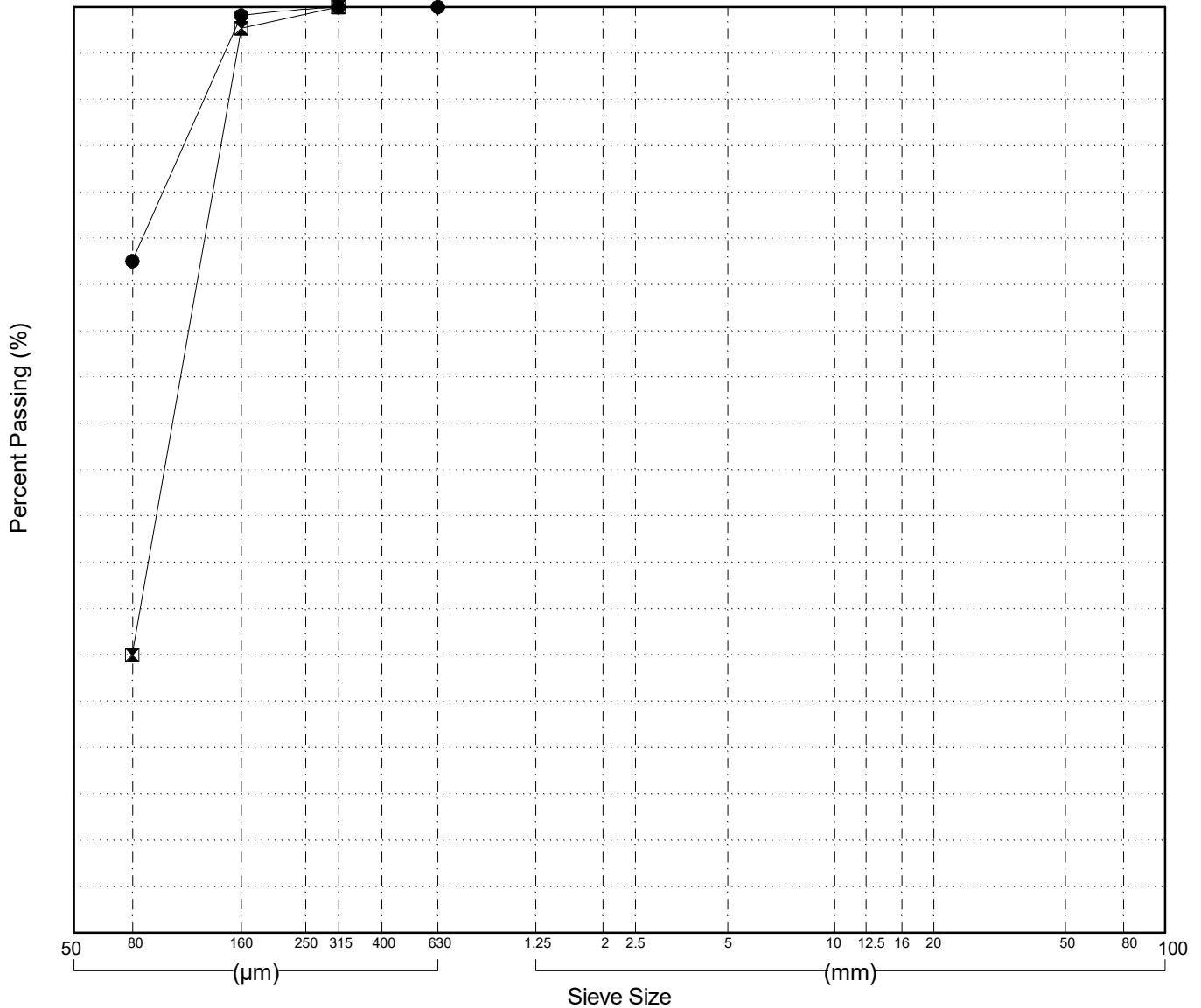


GRAIN SIZE ANALYSIS	Lucky Creek Drilling	SOURCE/TP#: 895-5692
Gateway Drilling	km 74 LHS	PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720159m E490532m	ELEVATION: 662m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu											
● 033	251	13.2 to 13.7	SILT with SAND(ML)	14.5	NP	NP	NP													
☒ 034	252	14.7 to 15.2	SILTY SAND(SM)	21.0	NP	NP	NP													
Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown				
																Gravel	Sand	Silt	Clay	
● 033	251	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.1	72.5	0.0	27.5	72.5		
☒ 034	252	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.7	30.0	0.0	70.0	30.0		

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



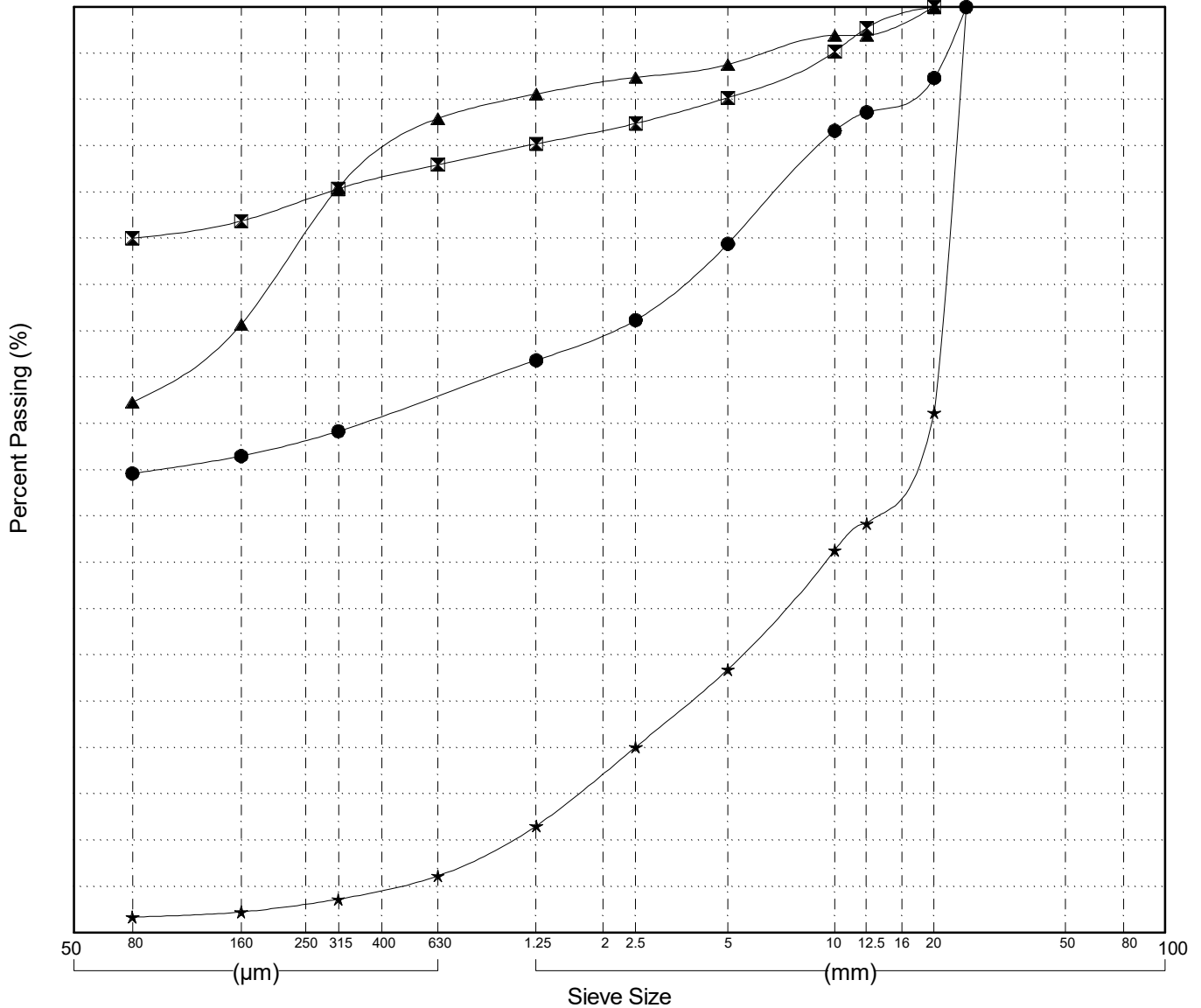
GRAIN SIZE ANALYSIS	Lucky Creek Approach	SOURCE/TP#: 895-5693
Gateway Drilling		PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720357m E490556m	ELEVATION: 663m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H ₂ O	LL	PL	PI	C _c	C _u
● 035	253	0.0 to 0.5	SILTY GRAVEL with SAND(GM)	10.3	NP	NP	NP		
☒ 036	254	1.2 to 1.7	SILT with SAND(ML)	13.3	NP	NP	NP		
▲ 037	255	2.7 to 3.2	SANDY ORGANIC SILT(OL)	34.8	NP	NP	NP		
★ 038	256	4.2 to 4.7	WELL-GRADED GRAVEL with SAND(GW)	3.4	NP	NP	NP	1.3	19.9

Field#	Lab#	% PASSING	Sieve Size (mm)													% Breakdown			
			100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt
● 035	253	100.0	100.0	100.0	100.0	100.0	92.3	88.6	86.6	74.4	66.2	61.8	58.0	54.2	51.5	49.6	25.6	24.8	49.6
☒ 036	254	100.0	100.0	100.0	100.0	100.0	97.7	95.2	90.2	87.4	85.2	83.0	80.4	76.9	75.0	9.8	15.2	75.0	
▲ 037	255	100.0	100.0	100.0	100.0	100.0	96.9	96.9	93.8	92.4	90.6	87.9	80.5	65.7	57.3	6.2	36.4	57.3	
★ 038	256	100.0	100.0	100.0	100.0	56.2	44.2	41.3	28.4	20.1	11.5	6.2	3.6	2.3	1.7	71.6	26.7	1.7	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



GRAIN SIZE ANALYSIS	Lucky Creek Approach	SOURCE/TP#: 895-5694
Gateway Drilling		PROJECT NO: 552-202104-2035-0661-5
4" Hollow Stem	Coordinates: ZZ09V N6720434m E490574m	ELEVATION: 667m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 039	257	0.0 to 0.6	SILTY SAND with GRAVEL(SM)	9.4	NP	NP	NP		
☒ 040	258	1.2 to 1.7	SILT(ML)	17.8	NP	NP	NP		
▲ 041	259	2.6 to 3.2	SILT with SAND(ML)	20.0	NP	NP	NP		
★ 042	260	4.2 to 4.7	POORLY GRADED GRAVEL with SILT and SAND(GP-GM)	10.0	NP	NP	NP	0.4	171.6

Field#	Lab#	% PASSING	Sieve Size (mm)													% Breakdown			
			100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt
● 039	257	100.0	100.0	100.0	100.0	100.0	94.4	86.6	83.3	73.5	65.0	58.9	52.7	45.5	38.8	33.8	26.5	39.7	33.8
☒ 040	258	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.6	0.0	5.4	94.6
▲ 041	259	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	82.0	0.0	18.0	82.0
★ 042	260	100.0	100.0	100.0	100.0	95.0	87.0	60.0	48.0	45.0	36.0	33.0	25.0	18.0	12.0		52.0	36.0	12.0

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse

