



APPENDIX C

GEOTECHNICAL REPORT



D-1

RSI-3354 DRAFT





November 23, 2022

Marucs Mueller
KPB Land Manager
Kenai Peninsula Borough
144 North Binkley Street
Soldotna, Alaska 99669

Dear Mr. Mueller:

RE: Kenai Peninsula Borough Unit 395 Land Planning Soil Data Report

INTRODUCTION

RESPEC has evaluated the subsurface conditions across Unit 395 to support land planning efforts for this 1,080-acre parcel. Our evaluation consisted of excavating 40 machine excavated test pits across the parcel in areas accessible from the existing forest service road. In this report, we present the results of our geotechnical explorations, laboratory testing, and general planning level geotechnical recommendations.

All the test pits we excavated revealed conditions that would be generally suitable for residential development. Additionally, we identified one area (near test pits TP21-TP27) that has potential for development as a gravel borrow source.

SUBSURFACE EXPLORATIONS

We conducted subsurface explorations at the project site on September 19-21, 2022. Weather at the time of the explorations consisted of temperatures in the range of 60-75 °F with no precipitation. However, in the weeks prior to our exploration efforts, the region had experienced abnormally high amounts of precipitation. We subcontracted Quality Asphalt Paving (QAP) to provide an excavator and operator for the test pitting effort. QAP provided a Volvo EC201C4 excavator with a maximum excavation depth of approximately 20 feet and a maximum digging force of approximately 30,000 lbs. We excavated 40 test pits across the parcel to depths ranging from 2 feet (refusal on bedrock) to 16 feet below the ground surface (bgs). The approximate test pit locations are illustrated in Figure 1. Table 1 summarizes the location, excavated depth, and ground elevation of each test pit. Graphic test pit logs and photographs of the open test pits are attached to this report.

The initial approach to planning the locations of the test pits was to spread the test pits out relatively evenly along areas that could be easily accessed from the existing forest service road and then adjust locations in the field based on the materials encountered. Due to very wet muddy conditions on the forest service road in the southeast end of the parcel (locally referred to as Chunkwood Road), the test pits in this area were conducted by tracking the excavator through the woods and attempting to get a relatively even distribution of exploration locations. We used a GPS/GIS enabled Samsung Galaxy Tab A7 connected to a Trimble R1 GNSS receiver to navigate to and record the test pit locations.

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SUITE 500
ANCHORAGE, AK 99503
907.743.3200

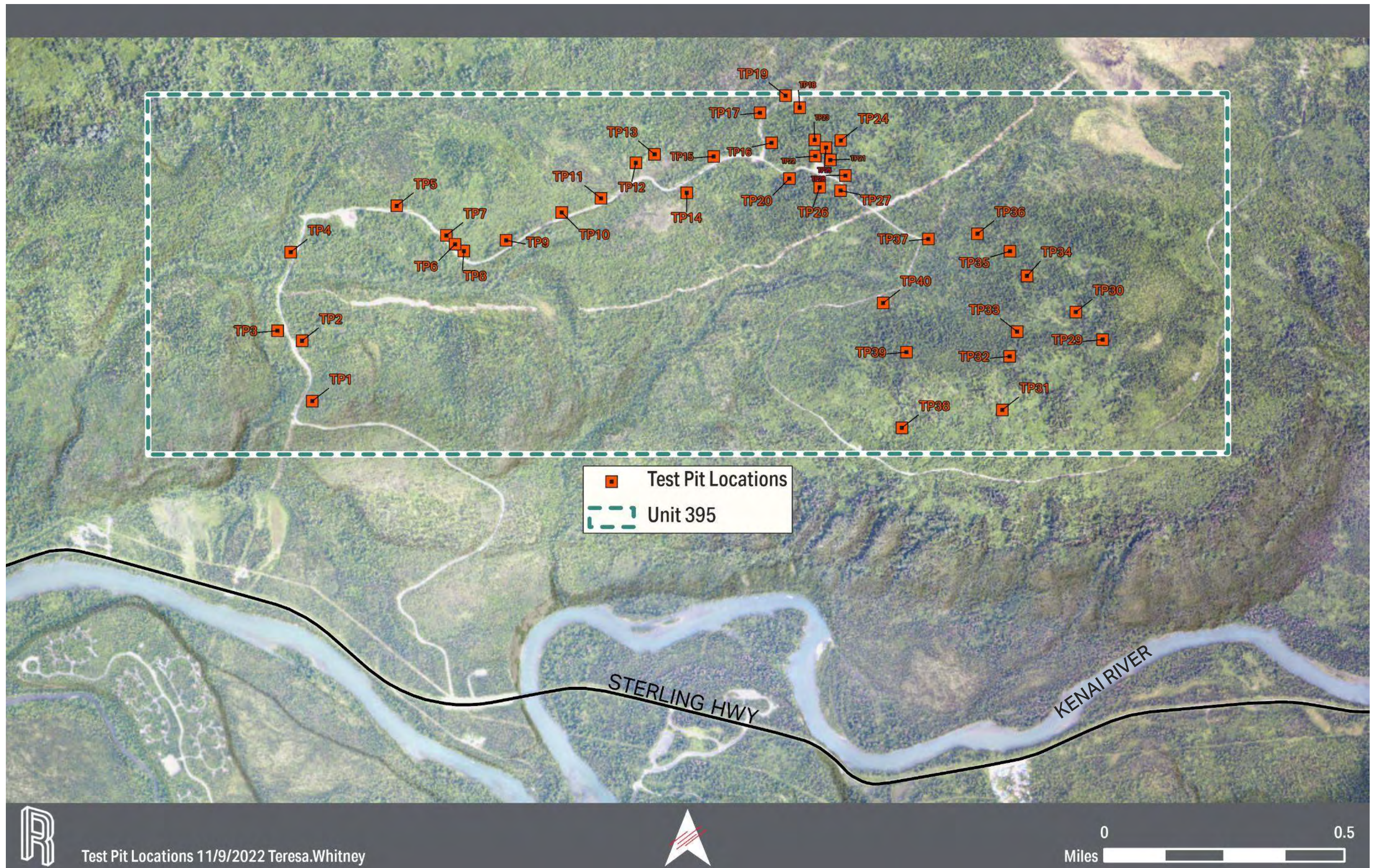


Figure 1. Approximate Test Pit Locations.



Table 1. Test Pit Summary

Test Pit ID	Ground Elevation (ft)	Excavated Depth (ft)	Latitude	Longitude
TP1	734	12	-149.96385	60.49266
TP2	766	12	-149.96447	60.49447
TP3	766	11	-149.96596	60.49478
TP4	805	8	-149.96516	60.49714
TP5	903	12	-149.95869	60.49853
TP6	931	2	-149.95513	60.49737
TP7	923	4	-149.95566	60.49764
TP8	929	5	-149.95460	60.49717
TP9	973	10	-149.95202	60.49749
TP10	1015	7	-149.94863	60.49833
TP11	1018	9	-149.94623	60.49875
TP12	1039	16	-149.94410	60.49982
TP13	1036	14	-149.94296	60.50007
TP14	1055	14	-149.94100	60.49891
TP15	1053	11	-149.93935	60.50001
TP16	1125	14	-149.93582	60.50042
TP17	1123	8	-149.93652	60.50132
TP18	1154	11	-149.93410	60.50147
TP19	1130	10	-149.93496	60.50184
TP20	1115	11	-149.93473	60.49934
TP21	1137	14	-149.93224	60.49990
TP22	1124	15	-149.93315	60.50002
TP23	1178	14	-149.93319	60.50050
TP24	1162	13	-149.93160	60.50049
TP25	1155	13	-149.93250	60.50027
TP26	1102	15	-149.93289	60.49908
TP27	1125	16	-149.93162	60.49898
TP28	1145	16	-149.93132	60.49943
TP29	1180	4.5	-149.91564	60.49449
TP30	1185	9	-149.91727	60.49532
TP31	1117	7	-149.92176	60.49237
TP32	1176	7	-149.92131	60.49398
TP33	1186	6	-149.92085	60.49473
TP34	1177	6.5	-149.92024	60.49640



TP35	1157	2.5	-149.92129	60.49715
TP36	1154	6	-149.92327	60.49767
TP37	1151	11	-149.92626	60.49752
TP38	1158	11	-149.92789	60.49184
TP39	1143	9	-149.92760	60.49412
TP40	1130	9.5	-149.92902	60.49560

LABORATORY TESTING

We collected a total of 31 soil samples from the 40 test pits and submitted the soil samples to RESPEC’s materials testing laboratory in Juneau for further identification and geotechnical analysis. We tested the soil samples in general accordance with the respective ASTM standard tests methods including:

- / Moisture Content (ASTM D2216)
- / Particle Size Analysis of Soil (ASTM D422)

The laboratory test results, along with the observations we made during our subsurface exploration efforts, aid in our evaluations of the subsurface conditions. The results of the laboratory analyses are provided on laboratory test data sheets attached this report.

GENERAL SUBSURFACE CONDITIONS

Generally, the surficial organic layer was relatively thin in most of the test pits ranging from 0.5 to 2 feet thick. Only one test pit, TP5, encountered deeper organics at 3 feet thick. Beneath the surficial organics, the materials fluctuate between alluvium and colluvium which overlays either very dense glacial till or bedrock. In some areas, the near surface soils are moderately frost susceptible (refer to the attached laboratory results). The groundwater table was not encountered in any of the test pits but some minor seeps from perched water were observed as noted in the attached test pits logs. Where bedrock was encountered, it was generally fresh or slightly weathered.

As part of our evaluation, we also review subsurface data available from the DOT collected as part of the Cooper Landing Bypass Project. The DOT data revealed subsurface conditions similar to those we observed in our test pits. Based on the DOT data, the bedrock we encountered during our test pitting operations is likely slightly weathered to fresh schist.

ENGINEERING CONCLUSIONS

All the conditions observed in our test pitting effort are suitable for most forms of development, including residential development. The alluvium and colluvium are generally very dense to dense and should provide sufficient bearing capacity for building foundations (on the order of 2,000-3,000 psf with traditional design and construction techniques). The primary geotechnical concern will be the frost susceptibility of the near surface soils in some areas. This is a common challenge that can be easily overcome by avoiding unheated foundations, burying foundations below the frost line, utilizing insulated foundation designs, and replacing frost susceptible material with non-frost susceptible material.

With the limited amount of subsurface data collected from the test pits, the area surrounding test pits TP21-TP27 appears to have potential as a sand/gravel material source.

RECOMMENDATIONS

Any future developments should have project/site specific geotechnical evaluations conducted to support design efforts. This evaluation provides only planning level subsurface data and interpretation.

Prior to development of a material source near test pits TP21-27, more detailed geotechnical studies should be conducted with a drilling rig to evaluate the quantity and quality of the available materials. Drilling and sampling with a sonic rig is recommended for material source evaluation as this drilling method can collect relatively large samples more quickly than other traditional drilling techniques.

Should you have any questions regarding the data presented in this report, please reach out to me directly. It has been a pleasure assisting with this exciting project.

Sincerely,



Cody J. Kreitel, P.E.
Senior Geotechnical Engineer

Attachments:
Test Pit Logs and Photographs
Laboratory Test Results





RESPEC
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 Telephone: 907.743.3200

TEST PIT NUMBER TP1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 734 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

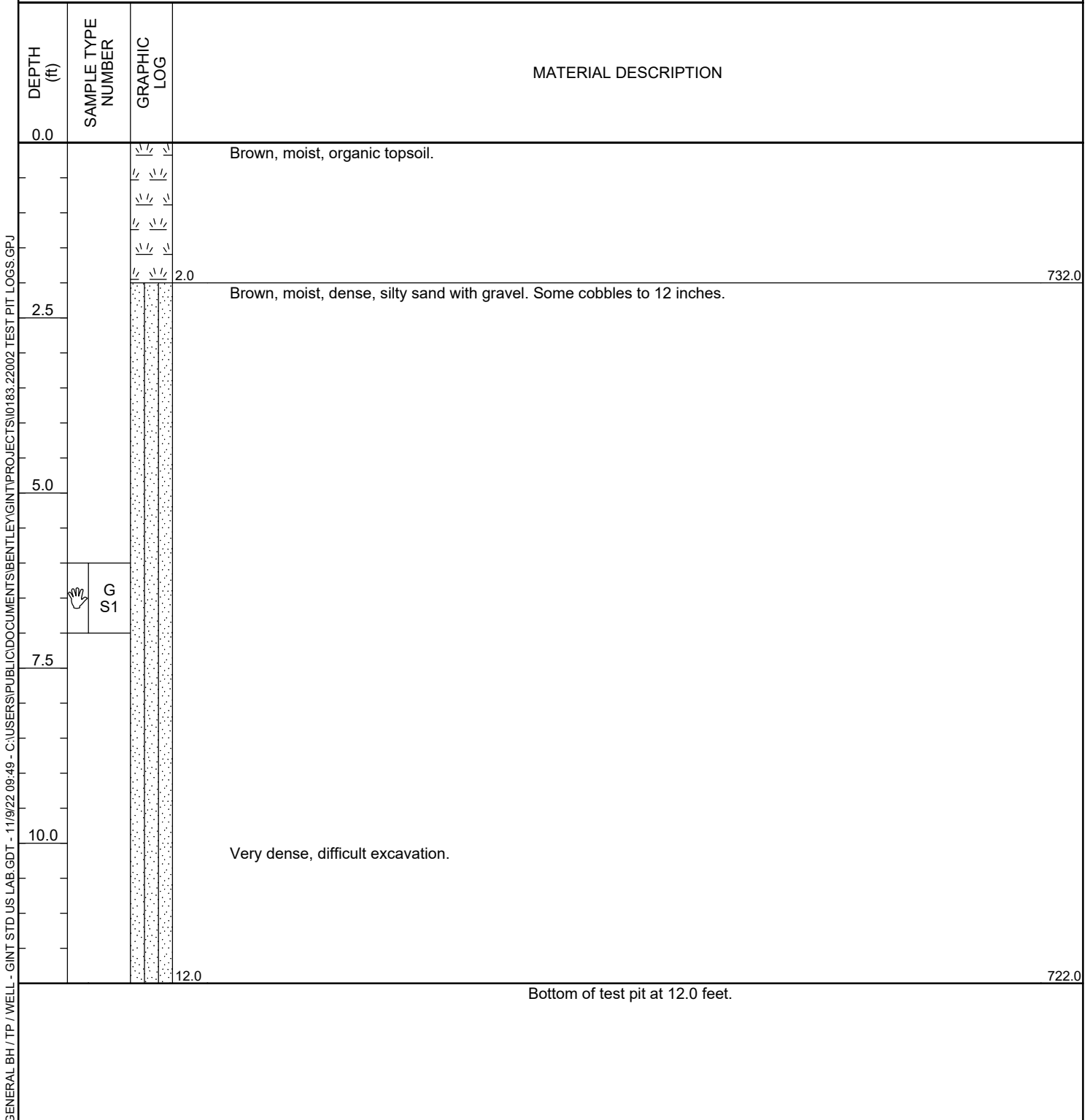




Photo A - 1: Test Pit TP1



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TEST PIT NUMBER TP2

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 766 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB. GDT - 11/19/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil.	
1.5			Grey, moist, medium dense to dense, well-graded gravel with silt and sand.	764.5
2.5				
5.0	G S1			
7.5				
10.0				
12.0				
			Bottom of test pit at 12.0 feet.	754.0



Photo A - 2: Test Pit TP2



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TEST PIT NUMBER TP3

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 766 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil. Cobbles and boulders mixed in.	
2.5				
			Grey, moist, dense, silty sand with gravel. Cobbles and boulders.	764.0
5.0	G S1			
7.5				
10.0				
			Refusal on dark grey weathered bedrock.	755.0
			Bottom of test pit at 11.0 feet.	





























































Photo A - 3: Test Pit TP3



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TEST PIT NUMBER TP4

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 805 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			
			

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Bottom of test pit at 8.0 feet.



Photo A - 4: Test Pit TP4



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TEST PIT NUMBER TP5

CLIENT Kenai Peninsula Borough **PROJECT NAME** Unit 395 Land Planning
PROJECT NUMBER I0813.22002 **PROJECT LOCATION** Cooper Landing, AK
DATE STARTED 9/19/22 **COMPLETED** 9/19/22 **GROUND ELEVATION** Approx. 903 ft
EXCAVATION CONTRACTOR QAP **GROUND WATER LEVEL:** N/A
EXCAVATION METHOD Excavated Test Pit - Volvo EC210C **NOTES** _____
LOGGED BY CJK/JCL **CHECKED BY** CJK

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0				
			Brown, moist, organic top soil.	
			Light brown, moist, medium dense, silty sand.	902.0
2.5				
			Dark brown, moist, poorly-graded sand with silt. Trace gravel.	900.0
5.0				
7.5	G S1		Seep at 8' on top of silty sand layer.	895.0
			Brown, moist, medium dense, silty with sand. Trace gravel.	
10.0	G S2			
12.0				891.0

Bottom of test pit at 12.0 feet.



Photo A - 5: Test Pit TP5



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TEST PIT NUMBER TP6

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 931 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/19/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0			
			Brown, moist, organic top soil.
1			Grey, moist, medium dense, silty sand to sandy silt. 930.0
2			Refusal on bedrock at 2'. Could not rip with excavator. 929.0 Bottom of test pit at 2.0 feet.



Photo A - 6: Test Pit TP6



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TEST PIT NUMBER TP7

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 923 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/19/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil.	922.5
			Brown, moist, medium dense, silty sand to sandy silt.	921.5
			Grey, moist, dense, poorly-graded sand.	919.0
4.0			Refusal on slightly weathered bedrock. Was able to rip top 4 inches. Bottom of test pit at 4.0 feet.	



Photo A - 7: Test Pit TP7



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 Anchorage, AK 99503
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TEST PIT NUMBER TP8

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 929 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
			Brown to grey, moist, medium dense, silty sand with gravel.
2.5			
			Grey, moist, dense, poorly-graded gravel with silt and sand to poorly-graded sand with silt and gravel.
5.0			
			Refusal on bedrock at 5'. Could not rip with excavator. Bottom of test pit at 5.0 feet.

928.5

926.0

924.0



Photo A - 8: Test Pit TP8



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TEST PIT NUMBER TP9

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/19/22 COMPLETED 9/19/22 GROUND ELEVATION Approx. 973 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0			Brown, moist, organic top soil.	
1.0			Grey, medium dense, silty sand. Trace rootlets.	972.0
2.5				
5.0	G S1			
6.0			Grey, moist, very dense, silty gravel.	967.0
7.5				
9.0			Weathered bedrock. Difficult to rip top 1 ft.	964.0
10.0			Refusal in bedrock at 10 feet.	963.0
			Bottom of test pit at 10.0 feet.	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ



Photo A - 9: Test Pit TP9



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 Telephone: 907.743.3200

TEST PIT NUMBER TP10

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CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/19/22 COMPLETED 9/19/22 GROUND ELEVATION Approx. 1015 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

GENERAL BH / TP / WELL - GINT STD US LAB. GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
0.5			Grey, moist, medium dense, silty sand. Occasional cobbles and boulders.
2.5			
5.0			
6.0			Weathered bedrock. Able to rip top 1 ft.
7.0			Refusal in bedrock at 7 ft.
			Bottom of test pit at 7.0 feet.

1014.5

1009.0

1008.0



Photo A - 10: Test Pit TP10



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TEST PIT NUMBER TP11

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 1018 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

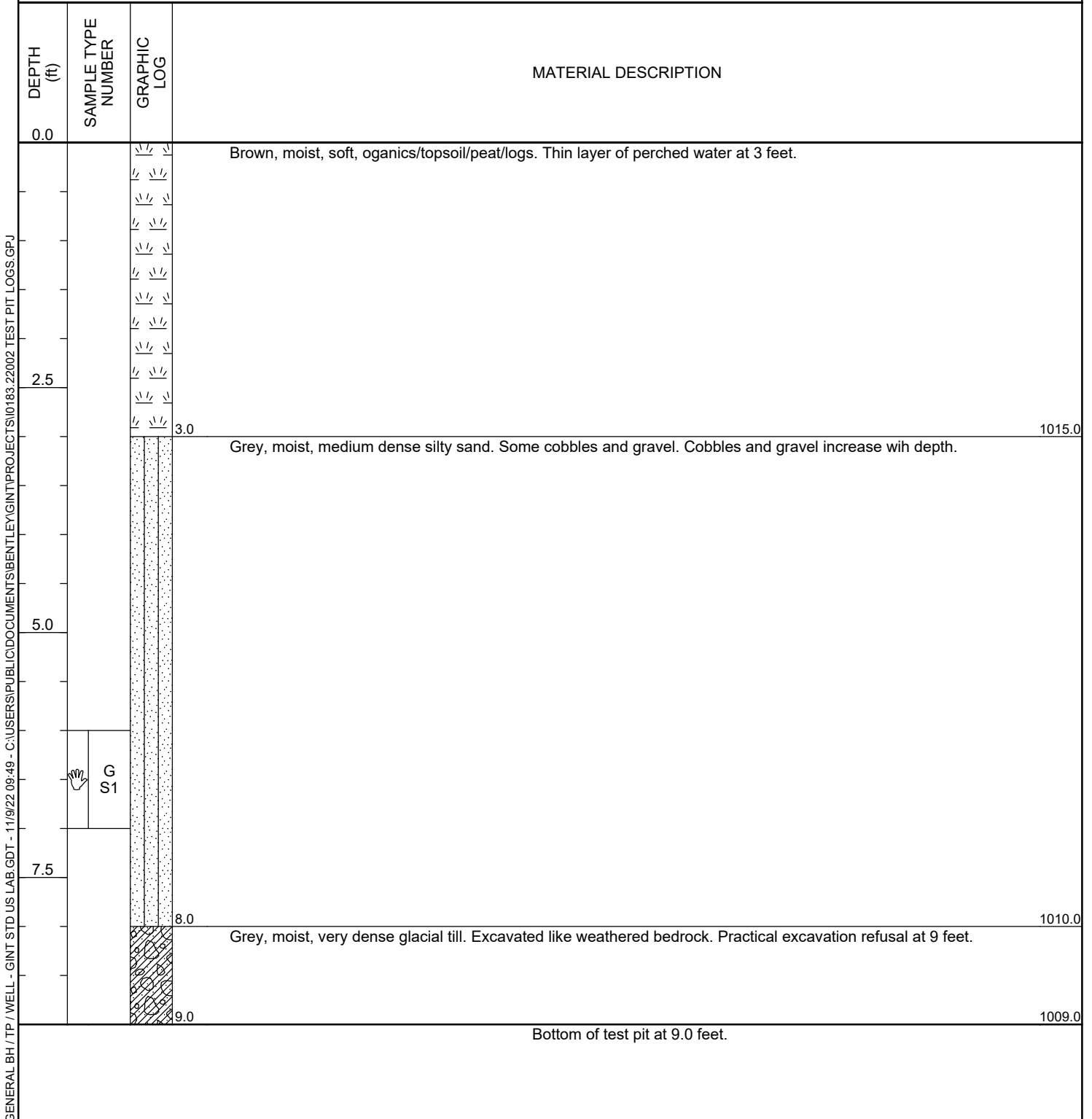




Photo A - 11: Test Pit TP11



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 Anchorage, AK 99503
 Telephone: 907.743.3200

TEST PIT NUMBER TP12

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/19/22 COMPLETED 9/19/22 GROUND ELEVATION Approx. 1039 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

GENERAL BH / TP / WELL - GINT STD US LAB. GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
0.5			Brown, moist, organic topsoil.	1038.5
			Grey/tan/brown, moist, medium dense, silt with sand. Few cobbles, boulders, and gravel.	
5	G S1			
7.0				1032.0
			Dark grey, moist, medium dense, poorly-graded sand with silt. Trace gravel. Gravel content decreases with depth.	
10	G S2			
14.0				1025.0
			Grey/tan, moist, medium dense to dense, silt with sand.	
15	G S3			
16.0				1023.0

Bottom of test pit at 16.0 feet.



Photo A - 12: Test Pit TP12



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TEST PIT NUMBER TP13

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/19/22 COMPLETED 9/19/22 GROUND ELEVATION Approx. 1036 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, soft, organic top soil.	1035.5
			Grey, moist, medium dense, silt with sand. Few cobbles/boulders/gravel.	
			Dark grey, moist, medium dense to dense, poorly-graded sand with silt. Trace gravel.	1034.5
2.5				
			Grey to tan, moist, medium dense to dense, silt with sand.	1032.5
5.0				
7.5	GS1			
			Grey, moist, dense to very dense, poorly-graded sand with trace gravel.	1028.0
10.0				
12.5				
			Bottom of test pit at 14.0 feet.	1022.0

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Photo A - 13: Test Pit TP13



Photo A - 14: Test Pit TP14



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TEST PIT NUMBER TP14

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 1055 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			0.5 Brown, moist, organic top soil.
			1054.5 Grey, moist, medium dense, interbedded layers of poorly-graded sand and silty sand. Trace gravel.
2.5			
5.0			
7.5			
10.0			
	G S1		
12.5			
			14.0 Bottom of test pit at 14.0 feet.
			1041.0

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Photo A - 15: Test Pit TP15



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TEST PIT NUMBER TP15

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/19/22</u> COMPLETED <u>9/19/22</u>	GROUND ELEVATION <u>Approx. 1053 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>11 ft bgs</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			0.5 Brown, moist, organic top soil. 1052.5
			Tan/grey, moist, medium dense, silty sand.
			1.5 Grey, moist, medium dense, silty sand with gravel. Some gravel to 6 inches. Majority is 2-inch minus. 1051.5
2.5			
5.0			
7.5			
10.0	G S1		
			11.0 ∇ 9/19/2022 1042.0
			Bottom of test pit at 11.0 feet.



Photo A - 16: Test Pit TP16



Photo A - 17: Test Pit TP17




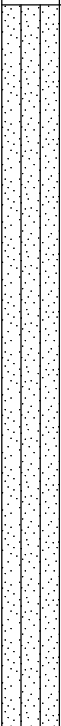


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TEST PIT NUMBER TP17

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1123 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
			Grey, moist, medium dense, silty sand with gravel to sandy silt with gravel. Increased gravel/cobble content with depth.
2.5			
5.0			
			Grey, moist, very dense, glacial till. Silt matrix with gravel/cobbles/boulders. Very difficult digging.
7.5			Practical excavation refusal at 8 feet.
8.0			
			Bottom of test pit at 8.0 feet.

1122.5

1117.0

1115.0



Photo A - 18: Test Pit TP18 In Progress



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TEST PIT NUMBER TP18

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1154 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil.	1153.5
			Grey, moist, medium dense, poorly-graded sand with some gravel.	
			Grey, moist, medium dense to dense poorly-graded sand with silt.	1152.5
2.5				
5.0				
7.5	GS1			
10.0				
			Bottom of test pit at 11.0 feet.	1143.0

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Photo A - 19: Test Pit TP19



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TEST PIT NUMBER TP19

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1130 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

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




DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil.	1129.5
			Grey, moist, medium dense to dense poorly-graded sand with occasional gravel/cobbles/boulders. Boulders to 2 feet.	
2.5				
			Tan, moist, medium dense, silty sand.	1124.0
5.0				
			Grey, moist, very dense glacial till. Silty sand to sandy silt matrix with gravel/cobbles. Practical excavation refusal at 10 feet.	1122.0
7.5				
			Bottom of test pit at 10.0 feet.	1120.0
10.0				



Photo A - 20: Test Pit TP20



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TEST PIT NUMBER TP20

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1115 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0				
0.5			Brown, moist, organic top soil.	1114.5
2.5			Grey, moist, medium dense poorly-graded sand.	
3.5			Grey, moist, medium dense to dense, poorly-graded gravel with sand. Gravel up to 1".	1111.5
4.5			Grey, moist, dense, well-graded sand with gravel. Gravel to 3/4".	1110.5
5.0	G S1		Grey, moist, dense, silty sand with trace gravel.	
7.0				1108.0
7.5				
10.0	G S2			
11.0			Bottom of test pit at 11.0 feet.	1104.0



Photo A - 21: Test Pit TP21



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TEST PIT NUMBER TP21

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1137 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

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


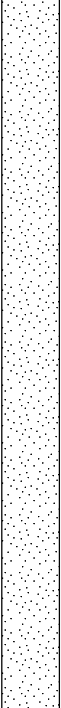

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
			
			
1.0			1136.0
			Grey, moist, medium dense to dense, poorly-graded sand with trace gravel.
2.5			
5.0			
7.5			
9.0			1128.0
			Grey, moist, very dense, poorly to well-graded gravel with sand with cobbles and boulders. Very difficult digging.
10.0			
12.5			
14.0			1123.0
			Bottom of test pit at 14.0 feet.



Photo A - 22: Test Pit TP22 In Progress



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TEST PIT NUMBER TP22

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1124 ft
 EXCAVATION CONTRACTOR QAP ▽ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
1.0			Brown, moist, organic top soil.	1123.0
3.0			Brown/reddish brown, moist, medium dense, silty sand to sandy silt.	1121.0
5			Grey, moist, medium dense to dense, poorly-graded sand with silt and gravel.	
	G S1			
10				
12.0			Grey, moist, medium dense to dense, well-graded sand with gravel.	1112.0
15	G S2			
15.0			Bottom of test pit at 15.0 feet.	1109.0



Photo A - 23: Test Pit TP23



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TEST PIT NUMBER TP23

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CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1178 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil.	1177.5
			Grey, moist, medium dense, silty sand.	
2.5				
			Grey, moist, medium dense to dense, interbedded layers of poorly-graded sand with gravel and poorly-graded gravel with sand.	1173.0
5.0				
7.5				
10.0				
12.5				
14.0				1164.0
			Bottom of test pit at 14.0 feet.	

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Photo A - 24: Test Pit TP24



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TEST PIT NUMBER TP24

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CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1162 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil.	
			Tan, moist, medium dense, silty sand to sandy silt.	1161.0
			Grey, moist, medium dense, silty sand.	1160.0
2.5			Dark grey, moist, dense, poorly-graded sand with gravel.	1158.0
5.0				
7.5	G S1		Grey, moist, dense, poorly-graded sand with gravel to poorly-graded gravel with sand. Gravel to 4 inches. Gravel content increasing with depth.	1154.0
10.0				
12.5				
				1149.0
			Bottom of test pit at 13.0 feet.	

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Photo A - 25: Test Pit TP25



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TEST PIT NUMBER TP25

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1155 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ






DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
			Grey, moist, medium dense, silty sand.
1.0			1154.0
2.5			
5.0			
7.5			
			Grey, moist, dense, poorly-graded sand with silt and gravel.
9.0			1146.0
10.0			
	 G S1		
12.5			
			Bottom of test pit at 13.0 feet.
13.0			1142.0



Photo A - 26: Test Pit TP26



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TEST PIT NUMBER TP26

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1102 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
0.5			Brown, moist, organic top soil.	1101.5
			Grey, moist, medium dense, silty sand to sandy silt.	
5			Some gravel/cobbles/boulders.	
7.0			Grey, moist, medium dense, poorly-graded sand with silt and gravel.	1095.0
	G S1		Grey, moist, medium dense, poorly-graded sand.	1091.0
10				
15			Bottom of test pit at 15.0 feet.	1087.0



Photo A - 27: Test Pit TP27



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TEST PIT NUMBER TP27

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1125 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
			Brown, moist, organic top soil.	
			Grey/tan, moist, medium dense, silty sand to sandy silt	1124.0
			Dark grey, moist, dense, poorly-graded sand with gravel to poorly-graded gravel with sand.	1121.0
5				
	G S1			
10				
	G S2			
			Tan/grey, moist, dense, silty gravel with sand.	1111.0
15				
	G S3			
			Bottom of test pit at 16.0 feet.	1109.0



Photo A - 28: Test Pit TP28



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TEST PIT NUMBER TP28

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1145 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

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DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
			Brown, moist, organic top soil.	
			Tan to grey, moist, medium dense, silty sand.	1144.0
			Grey, moist, medium dense, poorly-graded sand.	1142.5
			Grey, moist, medium dense to dense, poorly-graded sand with gravel.	1141.0
5				
10	G S1			
15				
16.0				1129.0

Bottom of test pit at 16.0 feet.



Photo A - 29: Test Pit TP29



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TEST PIT NUMBER TP29

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1180 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

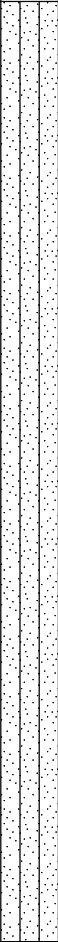

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0			Brown, moist, organic top soil. Cobbles at the surface.
1			Grey, moist, dense, silty sand with gravel. Some minor water seeps. 1179.0
4	G S1		Refusal on bedrock. Could not rip bedrock. 1175.5 Bottom of test pit at 4.5 feet.



Photo A - 30: Test Pit TP30



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 Anchorage, AK 99503
 Telephone: 907.743.3200

TEST PIT NUMBER TP30

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1185 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
1.0			Grey to tan, moist, medium dense, poorly-graded gravel with silt and sand. 1184.0
2.5			
5.0			Seep at 4 feet
7.0			Grey, moist, very dense, glacial till. Silt matrix with sand, gravel, and cobbles. Practical excavation refusal at 9 feet. 1178.0
7.5			
9.0			Bottom of test pit at 9.0 feet. 1176.0

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ



Photo A - 31: Test Pit TP31







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 Anchorage, AK 99503
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TEST PIT NUMBER TP31

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/20/22 COMPLETED 9/20/22 GROUND ELEVATION Approx. 1117 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY CJK/JCL CHECKED BY CJK

GENERAL BH / TP / WELL - GINT STD US LAB. GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil.
			Cobbles and boulders.
			Seep at 2 feet. Grey, moist, dense, silty gravel.
			Grey, moist, very dense, glacial till. Silt matrix with sand and gravel.

Bottom of test pit at 7.0 feet.



Photo A - 32: Test Pit TP32



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TEST PIT NUMBER TP32

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/20/22</u> COMPLETED <u>9/20/22</u>	GROUND ELEVATION <u>Approx. 1176 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>CJK/JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0				
			Brown, moist, organic top soil.	
1.0			Grey, moist, dense, silty gravel with sand.	1175.0
2.5				
4.5			Grey, moist, very dense, glacial till. Silt matrix with sand/gravel/cobbles. Practical excavation refusal at 7 feet.	1171.5
5.0				
7.0				
			Bottom of test pit at 7.0 feet.	1169.0



Photo A - 33: Test Pit TP33

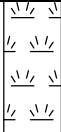




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 Telephone: 907.743.3200

TEST PIT NUMBER TP33

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/21/22 COMPLETED 9/21/22 GROUND ELEVATION Approx. 1186 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C NOTES _____
 LOGGED BY JCL CHECKED BY CJK

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/19/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
			Brown, moist, organic top soil with cobbles and boulders.
1.0			1185.0
			Grey, moist, dense, silty gravel with cobbles.
2.5			Seep at 2 feet.
			Grey, moist, very dense, glacial till. Silt matrix with sand and gravel. Practical excavation refusal at 6 feet.
4.5			1181.5
5.0			
6.0			1180.0

Bottom of test pit at 6.0 feet.



Photo A - 34: Test Pit TP34



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TEST PIT NUMBER TP34

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/21/22</u> COMPLETED <u>9/21/22</u>	GROUND ELEVATION <u>Approx. 1177 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/19/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0				
0.0 - 1.0			Brown, moist, organic top soil with cobbles and boulders.	
1.0 - 6.0			Grey, moist, medium dense, silty sand with gravel. Some cobbles. Silt content increasing with depth.	1176.0
5.0 - 5.5	G S1			
6.0 - 6.5			Grey, moist, very dense, glacial till. Silt matrix with sand and gravel.	1171.0
6.5			Bottom of test pit at 6.5 feet.	1170.5



Photo A - 35: Test Pit TP35



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TEST PIT NUMBER TP35

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/21/22</u> COMPLETED <u>9/21/22</u>	GROUND ELEVATION <u>Approx. 1157 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
			Brown, moist, organic top soil.	
1				
			Grey, moist, medium dense, silty gravel.	1156.0
2				
			Grey, weathered bedrock. Able to rip top 6 inches. Water seep on top of bedrock.	1155.0
				1154.5

Bottom of test pit at 2.5 feet.



Photo A - 36: Test Pit TP36



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 Anchorage, AK 99503
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TEST PIT NUMBER TP36

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/21/22</u> COMPLETED <u>9/21/22</u>	GROUND ELEVATION <u>Approx. 1154 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/19/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			
0.5			Brown, moist, organic top soil.
2.5			Grey, moist, medium dense to dense, poorly-graded gravel with silt and sand. Some cobbles and boulders to 3 feet.
3.5			Grey, moist, very dense, glacial till. Silt matrix with sand and gravel. Some cobbles and boulders to 3 feet. Practical excavation refusal. Seep at 4'.
5.0			
6.0			

Bottom of test pit at 6.0 feet. 1148.0



Photo A - 37: Test Pit TP37



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 Anchorage, AK 99503
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TEST PIT NUMBER TP37

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/21/22</u> COMPLETED <u>9/21/22</u>	GROUND ELEVATION <u>Approx. 1151 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>JCL</u> CHECKED BY <u>CJK</u>	

GENERAL BH / TP / WELL - GINT STD US LAB. GDT - 11/19/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
0.5			Brown, moist, organic top soil.	1150.5
2.5			Grey, moist, medium dense to dense, poorly-graded gravel with silt and sand.	
5.0				
6.0			Dark grey, moist, very dense, silty sand with gravel. Practical excavation refusal at 11 feet.	1145.0
7.5				
10.0	G S1			
11.0			Bottom of test pit at 11.0 feet.	1140.0



Photo A - 38: Test Pit TP38



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TEST PIT NUMBER TP38

PAGE 1 OF 1

CLIENT Kenai Peninsula Borough PROJECT NAME Unit 395 Land Planning
 PROJECT NUMBER I0813.22002 PROJECT LOCATION Cooper Landing, AK
 DATE STARTED 9/21/22 COMPLETED 9/21/22 GROUND ELEVATION Approx. 1158 ft
 EXCAVATION CONTRACTOR QAP ∇ GROUND WATER LEVEL: N/A
 EXCAVATION METHOD Excavated Test Pit - Volve EC210C NOTES _____
 LOGGED BY JCL CHECKED BY CJK

GENERAL BH / TP / WELL - GINT STD US LAB. GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
			Brown, moist, organic top soil.	
			Grey, moist, soft, silt with sand. Trace gravel to 6 inches.	1157.0
2.5				
			Grey, moist, medium stiff, silt. Few cobbles. Density increasing with depth.	1154.0
4.0				
5.0				
	G S1		Grey, moist, very dense, glacial till. Silt matrix with sand and gravel. Practical excavation refusal. Seep at 11 feet.	1150.0
7.5				
			Bottom of test pit at 11.0 feet.	1147.0
10.0				
11.0				



Photo A - 39: Test Pit TP39



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 Anchorage, AK 99503
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TEST PIT NUMBER TP39

PAGE 1 OF 1

CLIENT <u>Kenai Peninsula Borough</u>	PROJECT NAME <u>Unit 395 Land Planning</u>
PROJECT NUMBER <u>I0813.22002</u>	PROJECT LOCATION <u>Cooper Landing, AK</u>
DATE STARTED <u>9/21/22</u> COMPLETED <u>9/21/22</u>	GROUND ELEVATION <u>Approx. 1143 ft</u>
EXCAVATION CONTRACTOR <u>QAP</u>	GROUND WATER LEVEL: <u>N/A</u>
EXCAVATION METHOD <u>Excavated Test Pit - Volvo EC210C</u>	NOTES _____
LOGGED BY <u>JCL</u> CHECKED BY <u>CJK</u>	

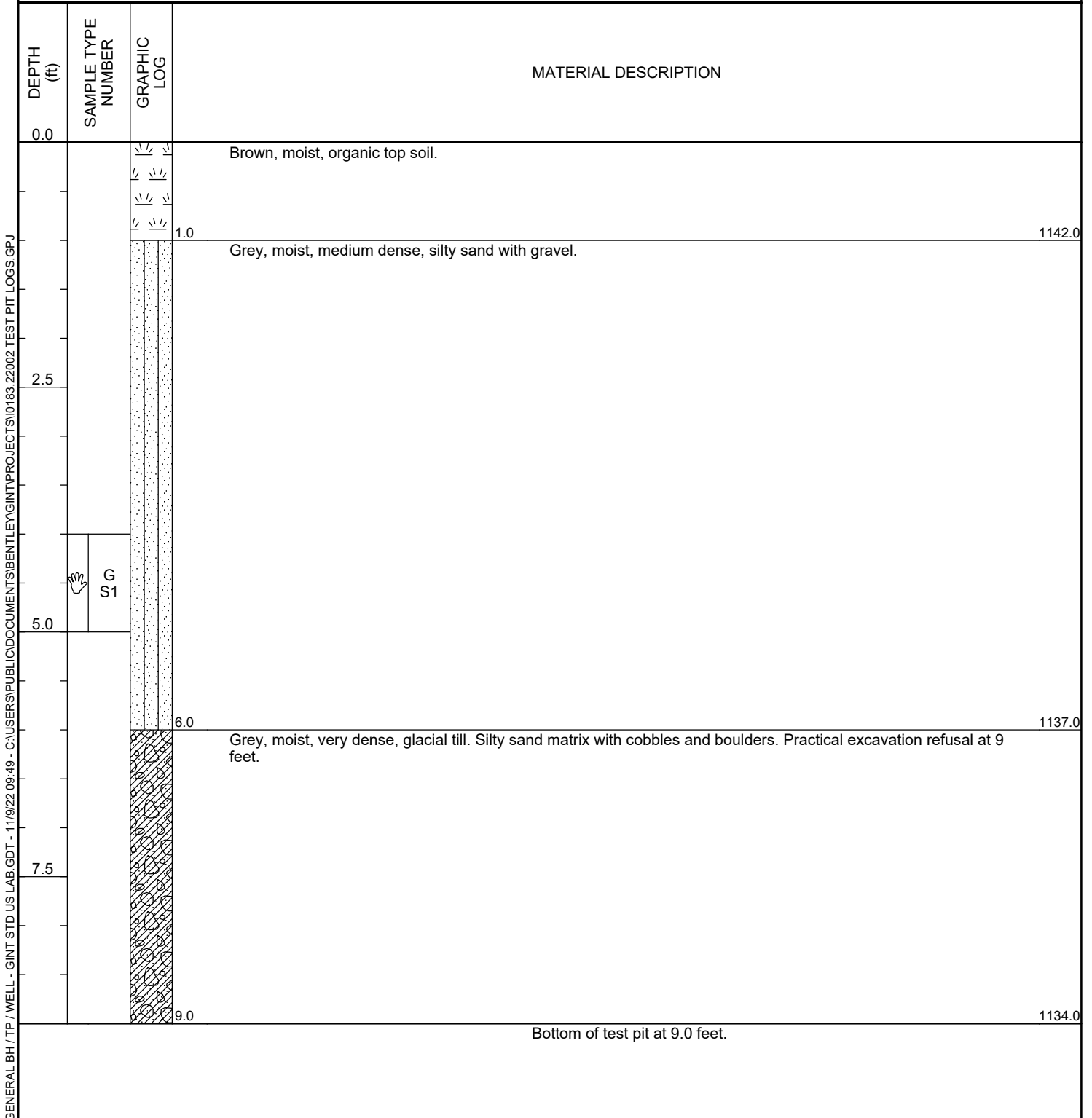




Photo A - 40: Test Pit TP40



RESPEC
 2700 Gambell Street, Ste. 500
 Anchorage, AK 99503
 Telephone: 907.743.3200

TEST PIT NUMBER TP40

PAGE 1 OF 1


CLIENT Kenai Peninsula Borough
 PROJECT NUMBER I0813.22002
 DATE STARTED 9/21/22 COMPLETED 9/21/22
 EXCAVATION CONTRACTOR QAP
 EXCAVATION METHOD Excavated Test Pit - Volvo EC210C
 LOGGED BY JCL CHECKED BY CJK

PROJECT NAME Unit 395 Land Planning
 PROJECT LOCATION Cooper Landing, AK
 GROUND ELEVATION Approx. 1130 ft
 ∇ GROUND WATER LEVEL: N/A
 NOTES _____

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/9/22 09:49 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\I0183.22002 TEST PIT LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				
0.5			Brown, moist, organic top soil.	1129.5
1.0			Grey, moist, medium dense, silty sand.	1129.0
2.5			Dark grey, moist, medium dense to dense, poorly-graded sand with gravel to gravel with sand.	
5.0			Grey, moist, medium dense, silty sand to sandy silt.	1125.0
7.0			Grey, moist, very dense, glacial till. Silt matrix with sand and gravel. Practical excavation refusal at 9.5 feet.	1123.0
7.5				
9.5			Bottom of test pit at 9.5 feet.	1120.5

Sample ID	Depth	Test	Grain Size Distribution (% Passing Sieve No.)															NMC %	Organic Content %	PI	LL	PL	
			3"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#30	#40	#50	#100						#200
TP - 01, S-1	6'	SIEVE				97	93	87	82	72	63	61	54	47	44	40	34	27.1	7.9				
TP - 02, S-2	5'	SIEVE				78	67	57	52	43	31	28	19	13	12	10	8	7.6	4.1				
TP - 03, S-1	4'	SIEVE			96	89	84	78	73	63	55	53	47	40	37	34	28	22.7	5.5				
TP - 05, S-1	7'	SIEVE				99	97	96	92	88	86	82	70	61	47	20	7.9	15					
TP - 05, S-2	10'	SIEVE								98	96	95	93	90	89	87	83	76.1	17.6				
TP - 09, S-2	9'	SIEVE			96	96	93	92	91	90	88	87	86	84	83	79	71	55.6	12.6				
TP - 11, S-1	6'	SIEVE					99	98	97	95	95	93	92	91	90	87	79.9	15.1					
TP - 12, S-1	4'	SIEVE						99	99	98	97	96	94	93	91	87	79.2	20.4					
TP - 12, S-2	9'	SIEVE				98	98	97	95	92	88	88	85	81	77	66	31	11.3	5.0				
TP - 12, S-3	15'	SIEVE				99	99	99	98	98	98	98	97	97	96	91	77.7	20.5					
TP - 13, S-1	8'	SIEVE								99	99	97	89	76	49	26	23.0	9.3					
TP - 14, S-1	10'	SIEVE				99	99	99	98	98	97	97	96	95	92	62	37.4	13.5					
TP - 15, S-1	8'	SIEVE				98	95	89	85	69	54	51	41	30	25	21	18	15.6	6.4				
TP - 16, S-1	5'	SIEVE								99	98	98	97	92	87	82	65	34.5	15.6				
TP - 18, S-1	7'	SIEVE						99	97	94	92	88	76	68	60	27	6.7	6.6					
TP - 20, S-1	5'	SIEVE				99	95	91	76	53	48	32	18	13	8	3	1.6	3					
TP - 20, S-2	10'	SIEVE				99	98	94	89	87	82	73	69	66	43	12.7	4						
TP - 22, S-1	7'	SIEVE			98	89	82	74	69	57	45	42	33	22	16	11	7	5.7	4.7				
TP - 22, S-1	14'	SIEVE				95	91	86	84	78	71	69	58	34	23	15	8	4.9	5.4				
TP - 24, S-1	7'	SIEVE			98	94	89	82	78	68	61	59	51	35	26	17	8	3.5	4.2				
TP - 25, S-1	10'	SIEVE			97	86	82	75	72	63	52	50	42	35	32	28	19	7.9	6.3				
TP - 26, S-1	8'	SIEVE				98	95	84	76	57	38	35	26	21	19	17	11	8.4	6.1				
TP - 27, S-1	8'	SIEVE			98	87	81	72	68	59	48	45	30	12	7	4	2	1.5	3.5				
TP - 27, S-2	11'	SIEVE			98	92	85	73	65	50	40	38	33	25	19	13	6	3.4	5.2				

 <p>9109 Mendenhall Mall Road, Suite 4, Juneau Alaska, 99801</p>	<p>Project: Land Planning Unit 395</p> <p>Client: Keni Peninsula Borough</p>	<p>SUMMARY OF DRILL HOLE TEST RESULTS</p>	<p>Project No. 10813.22002-KBO</p>
			<p>Date: 11/1/22</p>
			<p>Sheet 1 of 2</p>

Prepared by: CD



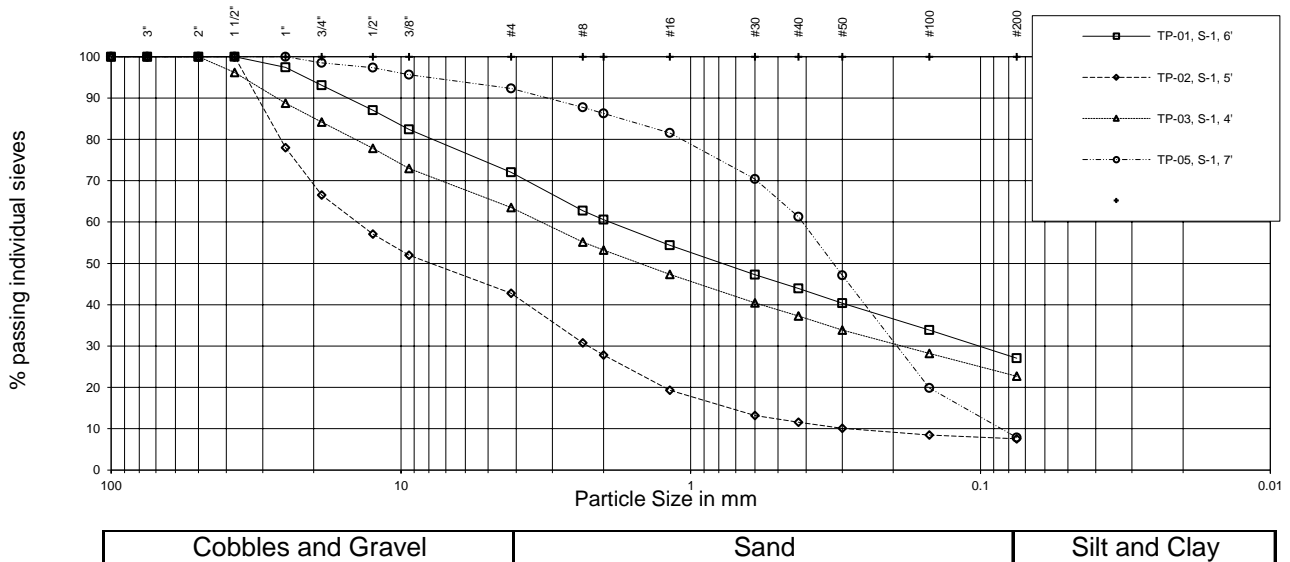
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

City <u>Kenai Peninsula Borough</u>	Project # <u>10813.22022-KPB</u>
Project <u>Land Planing Unit 395</u>	Received Date <u>10/10/2022</u>
Location Sta/Offset <u>Cooper Landing</u>	Reported Date <u>10/24/2022</u>
Material/Source <u>Test Pits</u>	Tested by/date <u>CD 10/24/22</u>
Sampled by/date <u>CK 9/19/2022</u>	

Moisture	7.9%		4.1%		5.5%		15.0%	
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-01, S-1, 6'		TP-02, S-1, 5'		TP-03, S-1, 4'		TP-05, S-1, 7'	
5 "								
4 "								
3 "								
2 "								
1 1/2 "	100		100		100			
1 "	97		78		89		100	
3/4 "	93		67		84		99	
1/2 "	87		57		78		97	
3/8 "	82		52		73		96	
No 4	72		43		63		92	
No 8	63		31		55		88	
No 10	61		28		53		86	
No 16	54		19		47		82	
No 30	47		13		40		70	
No 40	44		12		37		61	
No 50	40		10		34		47	
No 100	34		8		28		20	
No 200	27.1		7.6		22.7		7.9	

Grain Size Distribution





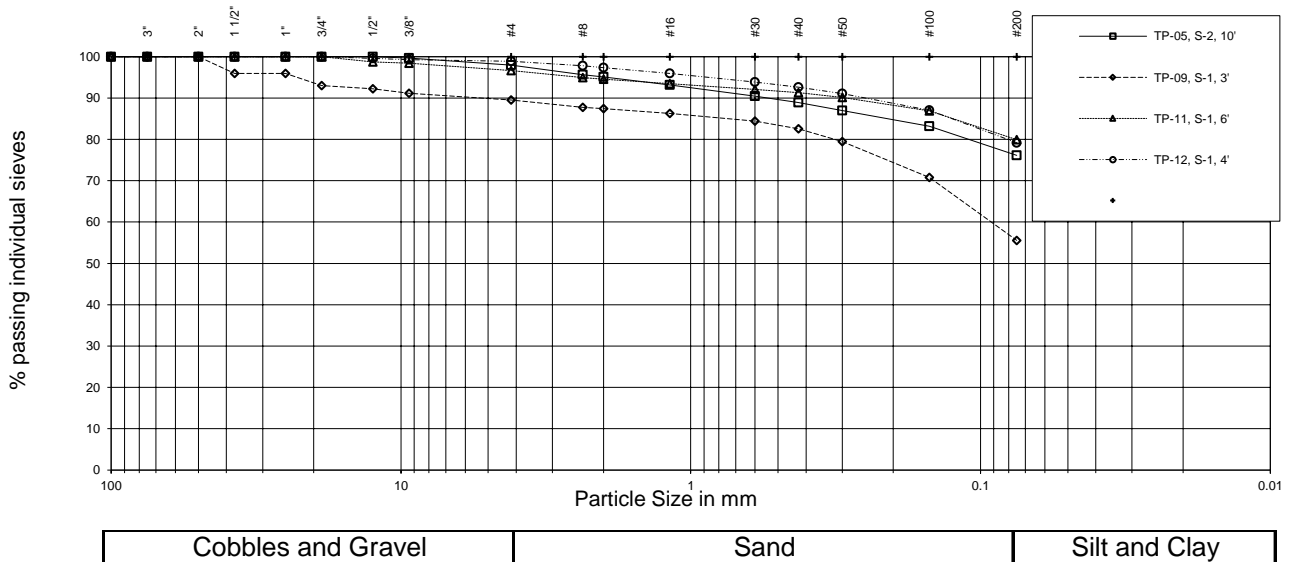
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

City	Kenai Peninsula Borough	Project #	10813.22022-KPB
Project	Land Planing Unit 395	Received Date	10/10/2022
Location Sta/Offset	Cooper Landing	Reported Date	10/24/2022
Material/Source	Test Pits	Tested by/date	CD 10/24/22
Sampled by/date	CK 9/19/2022		

Moisture	17.6%		12.6%		15.1%		20.4%	
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-05, S-2, 10'		TP-09, S-1, 3'		TP-11, S-1, 6'		TP-12, S-1, 4'	
5 "								
4 "								
3 "								
2 "			100					
1 1/2 "			96					
1 "			96					
3/4 "			93		100			
1/2 "			92		99		100	
3/8 "	100		91		98		99	
No 4	98		90		97		99	
No 8	96		88		95		98	
No 10	95		87		95		97	
No 16	93		86		93		96	
No 30	90		84		92		94	
No 40	89		83		91		93	
No 50	87		79		90		91	
No 100	83		71		87		87	
No 200	76.1		55.6		79.9		79.2	

Grain Size Distribution





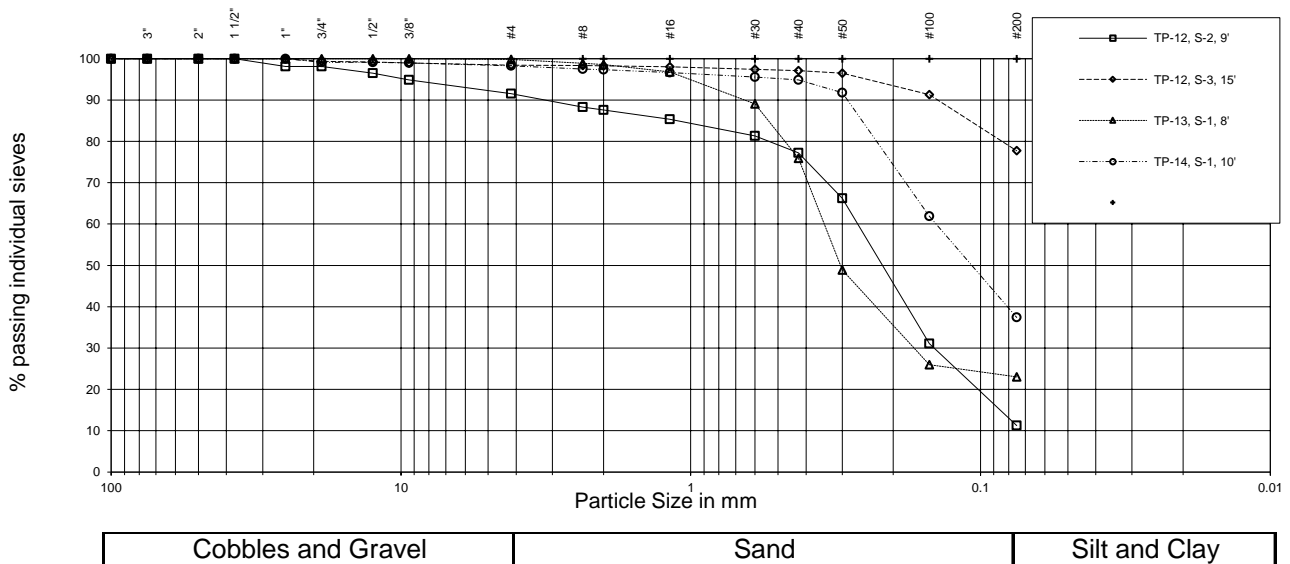
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

City <u>Kenai Peninsula Borough</u>	Project # <u>10813.22022-KPB</u>
Project <u>Land Planing Unit 395</u>	Received Date <u>10/10/2022</u>
Location Sta/Offset <u>Cooper Landing</u>	Reported Date <u>10/24/2022</u>
Material/Source <u>Test Pits</u>	Tested by/date <u>CD 10/24/22</u>
Sampled by/date <u>CK 9/19/2022</u>	

Moisture	5.0%		20.5%		9.3%		13.5%	
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-12, S-2, 9'		TP-12, S-3, 15'		TP-13, S-1, 8'		TP-14, S-1, 10'	
5 "								
4 "								
3 "								
2 "								
1 1/2 "	100							
1 "	98		100				100	
3/4 "	98		99				99	
1/2 "	97		99				99	
3/8 "	95		99				99	
No 4	92		98		100		98	
No 8	88		98		99		98	
No 10	88		98		99		97	
No 16	85		98		97		97	
No 30	81		97		89		96	
No 40	77		97		76		95	
No 50	66		96		49		92	
No 100	31		91		26		62	
No 200	11.3		77.7		23.0		37.4	

Grain Size Distribution





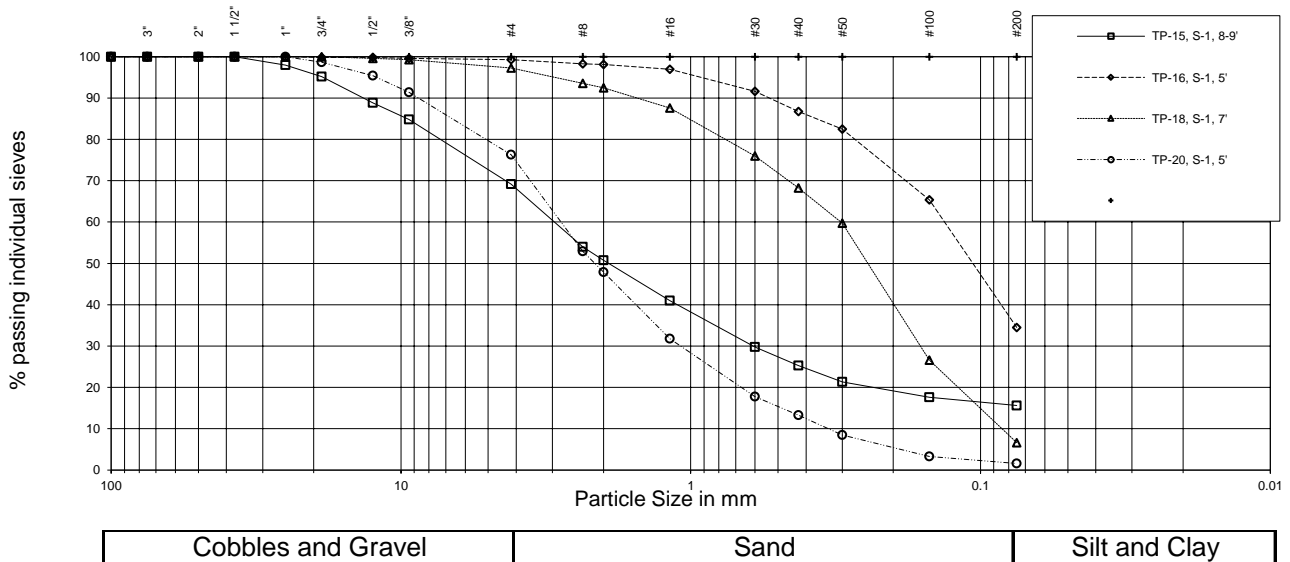
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

City <u>Kenai Peninsula Borough</u>	Project # <u>10813.22022-KPB</u>
Project <u>Land Planing Unit 395</u>	Received Date <u>10/10/2022</u>
Location Sta/Offset <u>Cooper Landing</u>	Reported Date <u>10/24/2022</u>
Material/Source <u>Test Pits</u>	Tested by/date <u>CD 10/24/22</u>
Sampled by/date <u>CK 9/19/2022</u>	

Moisture	6.4%		15.6%		6.6%		3.0%	
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-15, S-1, 8-9'		TP-16, S-1, 5'		TP-18, S-1, 7'		TP-20, S-1, 5'	
5 "								
4 "								
3 "								
2 "								
1 1/2 "	100							
1 "	98						100	
3/4 "	95						99	
1/2 "	89				100		95	
3/8 "	85		100		99		91	
No 4	69		99		97		76	
No 8	54		98		94		53	
No 10	51		98		92		48	
No 16	41		97		88		32	
No 30	30		92		76		18	
No 40	25		87		68		13	
No 50	21		82		60		8	
No 100	18		65		27		3	
No 200	15.6		34.5		6.7		1.6	

Grain Size Distribution





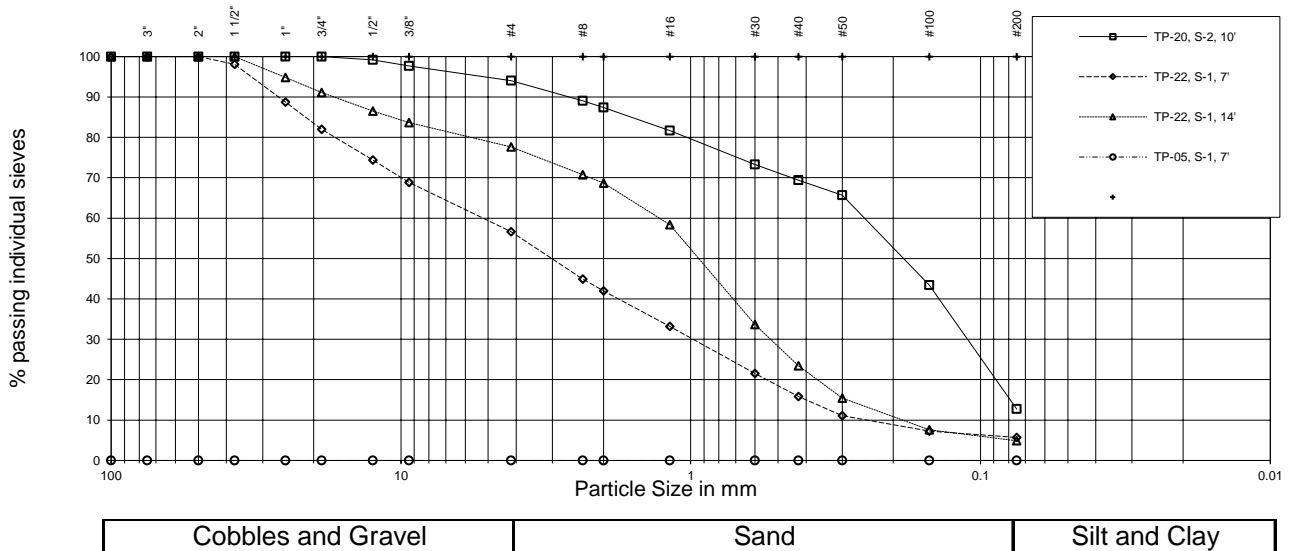
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

Project	Kenai Peninsula Borough	Project #	10813.22022-KPB
Project	Land Planing Unit 395	Received Date	10/10/2022
Location Sta/Offset	Cooper Landing	Reported Date	10/24/2022
Material/Source	Test Pits	Tested by/date	CD 10/24/22
Sampled by/date	CK 9/19/2022		

Moisture	4.0%		4.7%		5.4%			
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-20, S-2, 10'		TP-22, S-1, 7'		TP-22, S-1, 14'			
5 "								
4 "								
3 "								
2 "			100					
1 1/2 "			98		100			
1 "			89		95			
3/4 "	100		82		91			
1/2 "	99		74		86			
3/8 "	98		69		84			
No 4	94		57		78			
No 8	89		45		71			
No 10	87		42		69			
No 16	82		33		58			
No 30	73		22		34			
No 40	69		16		23			
No 50	66		11		15			
No 100	43		7		8			
No 200	12.7		5.7		4.9			

Grain Size Distribution





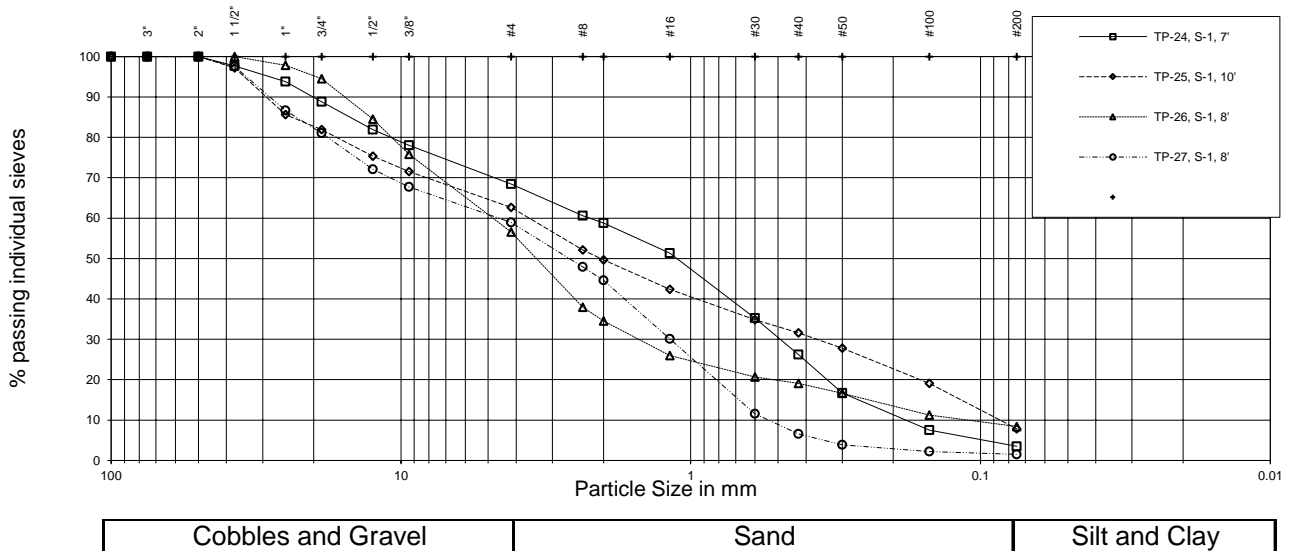
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

Project	Land Planing Unit 395	Project #	10813.22022-KPB
Location Sta/Offset	Cooper Landing	Received Date	10/10/2022
Material/Source	Test Pits	Reported Date	10/24/2022
Sampled by/date	CK 9/20/2022	Tested by/date	CD 10/24/22

Moisture	4.2%		6.3%		6.1%		3.5%	
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-24, S-1, 7'		TP-25, S-1, 10'		TP-26, S-1, 8'		TP-27, S-1, 8'	
5 "								
4 "								
3 "								
2 "	100		100		100		100	
1 1/2 "	98		97		100		98	
1 "	94		86		98		87	
3/4 "	89		82		95		81	
1/2 "	82		75		84		72	
3/8 "	78		72		76		68	
No 4	68		63		57		59	
No 8	61		52		38		48	
No 10	59		50		35		45	
No 16	51		42		26		30	
No 30	35		35		21		12	
No 40	26		32		19		7	
No 50	17		28		17		4	
No 100	8		19		11		2	
No 200	3.5		7.9		8.4		1.5	

Grain Size Distribution





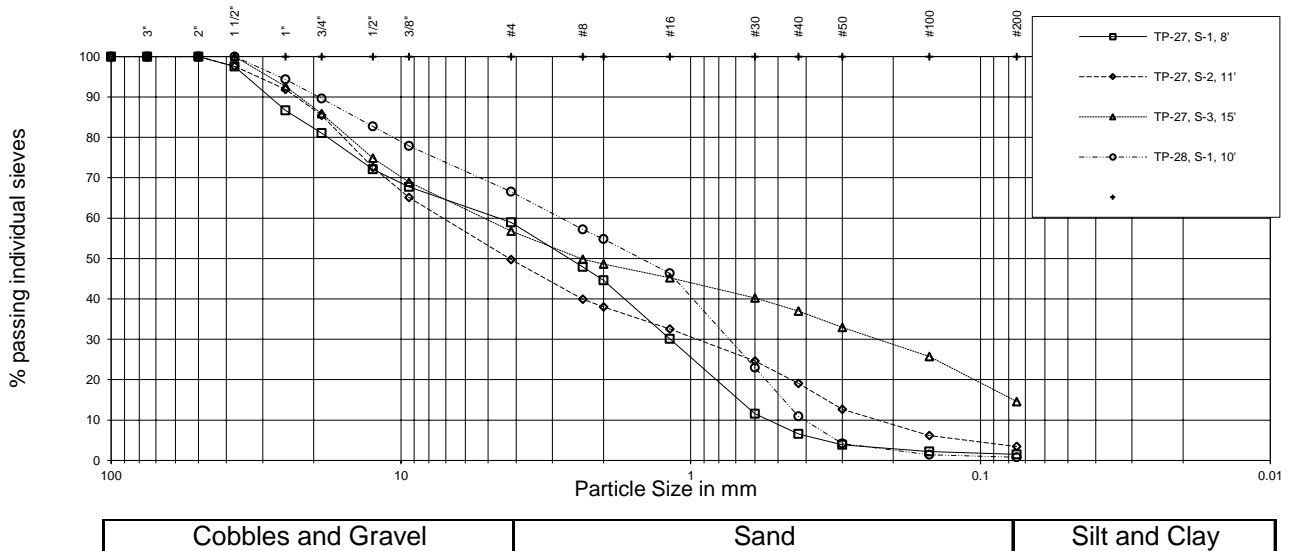
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

Project	Land Planing Unit 395	Project #	10813.22022-KPB
Location Sta/Offset	Cooper Landing	Received Date	10/10/2022
Material/Source	Test Pits	Reported Date	10/24/2022
Sampled by/date	CK 9/20/2022	Tested by/date	CD 10/24/22

Moisture	3.5%		5.2%		5.0%		1.8%	
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-27, S-1, 8'		TP-27, S-2, 11'		TP-27, S-3, 15'		TP-28, S-1, 10'	
5 "								
4 "								
3 "								
2 "	100		100					
1 1/2 "	98		98		100		100	
1 "	87		92		93		94	
3/4 "	81		85		86		90	
1/2 "	72		73		75		83	
3/8 "	68		65		69		78	
No 4	59		50		57		67	
No 8	48		40		50		57	
No 10	45		38		49		55	
No 16	30		33		45		46	
No 30	12		25		40		23	
No 40	7		19		37		11	
No 50	4		13		33		4	
No 100	2		6		26		1	
No 200	1.5		3.4		14.6		0.8	

Grain Size Distribution





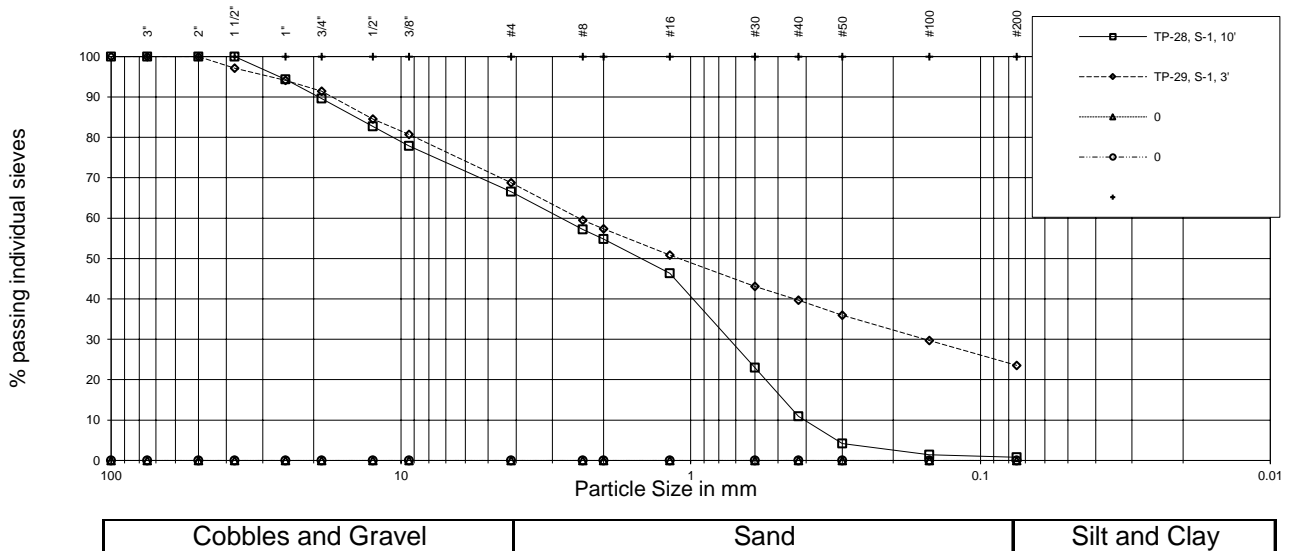
9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

Project	Kenai Peninsula Borough	Project #	10813.22022-KPB
Project	Land Planing Unit 395	Received Date	10/10/2022
Location Sta/Offset	Cooper Landing	Reported Date	10/24/2022
Material/Source	Test Pits	Tested by/date	CD 10/24/22
Sampled by/date	CK 9/20/2022		

Moisture	1.8%		13810.4%		#DIV/0!		#DIV/0!		
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Required specs
	TP-28, S-1, 10'		TP-29, S-1, 3'						
5 "									
4 "									
3 "									
2 "			100						
1 1/2 "	100		97						
1 "	94		94						
3/4 "	90		91						
1/2 "	83		85						
3/8 "	78		81						
No 4	67		69						
No 8	57		59						
No 10	55		57						
No 16	46		51						
No 30	23		43						
No 40	11		40						
No 50	4		36						
No 100	1		30						
No 200	0.8		23.5						

Grain Size Distribution





9109 Mendenhall Mall Road Suite #4, Juneau,
Alaska, 99801

Sieve Analysis
AASHTO T 27 / T 11

Project	Kenai Peninsula Borough	Project #	10813.22022-KPB
Project	Land Planing Unit 395	Received Date	10/10/2022
Location Sta/Offset	Cooper Landing	Reported Date	10/24/2022
Material/Source	Test Pits	Tested by/date	CD 10/24/22
Sampled by/date	CK 9/21/2022		

Moisture	8.7%		18.7%		24.9%		8.5%	
SIEVE SIZE	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs	Percent passing	Required specs
	TP-34, S-1, 4'		TP-37, S-1, 9'		TP-38, S-1, 6'		TP-39, S-1, 11'	
5 "								
4 "								
3 "								
2 "							100	
1 1/2 "	100		100				97	
1 "	89		96				92	
3/4 "	87		94				88	
1/2 "	80		91				82	
3/8 "	76		88				78	
No 4	68		82				70	
No 8	60		80				62	
No 10	59		80				59	
No 16	53		79		100		52	
No 30	44		77		99		43	
No 40	41		77		99		40	
No 50	36		76		99		37	
No 100	29		72		97		31	
No 200	21.6		47.0		96.4		26.9	

Grain Size Distribution

